Part III

Synthesis
CHAPTER 13

Nuclear Thought-Styles and Nuclear Symbolism

In its issue of November 12, 1945, Time made some predictions about the new atomic bomb. One was that countries would not compete in numbers of weapons. “Outproducing the enemy is not much advantage in atomic warfare. Two hundred bombs may be better than 100, but 10,000 is no better than 5,000 because 5,000 would destroy all important targets in a country” (quoted in Bundy 1988, and Jervis 1989). By 1959, however, the United States had several times this number capable of attacking the Soviet Union (Cochran et al. 1989, chap. 2). Time’s underestimate was more surprising given the development of hydrogen bombs. These were orders of magnitude more powerful than the original weapons, so that one would assume that fewer would be necessary. The Navy received the smallest share of the buildup, and in 1960 Admiral Arleigh Burke commented on the Air Force’s arsenal, “You seldom see a cowboy, even in the movies, wearing three guns. Two is enough” (quoted in Rosenberg 1983, 71).

The importance of understanding the nuclear arms race is more than historical. We must understand why states might want to acquire nuclear weapons in the future. Time’s error was the premise that the arms race would be determined by the objective features of the weapons and the logic of strategy and deterrence. This chapter suggests that an important further element was symbolism. Nuclear weapons functioned as symbols in three ways:

- as message symbols in response to challenges;
- as focal symbols in symbolic competitions over numbers of weapons or the deployment of new technologies;
- as focal symbols meant to influence the degree of tension in a crisis.

Symbolic dynamics still cannot explain the nuclear buildup under an objective analysis of nuclear weapons. Symbolism must be combined with an ac-
count of nuclear reality as seen by those involved. The chapter starts by dis-
cussing organizational “thought-styles,” defined as the systematic ways in which
a group or an organization “thinks” about its task, as revealed in its statements
and actions. The thought-styles define what is admitted as reasonable for dis-
cussion in the group versus what is not to be questioned. They are not always
false but they are often unsubstantiated, sustained more by organizational forces
than by evidence. Members of the organization do not necessarily embrace
them privately, but “believe” them in the sense that they follow them in their or-
ganizational roles.

This chapter deals with thought-styles and symbolism together because
both are based on the same entities—beliefs about others’ beliefs. The parties
are asking themselves what is in each others’ minds, not necessarily what is the
objective situation. Since thought-styles and symbols are at the same epistemic
level, it seems likely that they would interact, and it will be seen that they do.

The chapter looks at thought-styles and symbolism in the Intermediate-
Range Nuclear Forces (INF) episode, the 1980s deployment of intermediate-
range missiles in Europe. It was a small copy of the arms race and allows us
to examine the dynamics of the whole competition in a more manageable way.
The discussion shows that the two phenomena were synergistic— the symbol-
ism made the thought-styles seem more reasonable and the thought-styles
prompted the symbolic use of the weapons. Both usually pushed in the same di-
rection: the deployment of more weapons.

Organizational Thought-Styles and Symbolism

Thinking is more liable to stray from reality when there is little historical expe-
rience available, as is the case with nuclear operations (Eden 1991). According
to March and Simon (1958, 165), organizations “absorb” uncertainty and turn
it into fact: “the particular categories and schemes of classification [the organi-
zation] employs are reified, and become, for members of the organization,
attributes of the world rather than mere conventions.”

Organizations also tend to generate unrealistic thought-styles when they are
facing impossible or unacceptable objectives. An organization involved with

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1. Eden uses this term (1990), following Mary Douglas and Ludwig Fleck. Related ideas in the
military organization context have received various names. Snyder (1984) speaks of the “cult of the
offensive” and Travers (1984, 1992) analyzes the “mental escape hatches” used to preserve the doc-
trine of offensive superiority before World War I, despite the evidence. Eden also speaks of “orga-
nizational frames” (forthcoming) and the “imaginary battlefield” (1991) on which nuclear war is
planned. Compared to allied concepts like belief systems, heuristics (Kanwisher 1989), or intuitive
deterrence theories (DeNardo 1995), these emphasize the organizational aspect.
nuclear weapons is frustrated by a basic truth: their military use could serve no beneficial purpose. A military organization has traditionally held the duty of defending its country, but in a nuclear conflict it would be called on to take the lives of millions of civilians and to do this to no end, since deterrence would already have failed. Political uses of nuclear weapons, typically involving threats, are more plausible than military ones, but are still problematic. Nuclear weapons can deter an adversary from using its own nuclear weapons against one's own country, but the United States wished to do more, to protect its interests in Europe and elsewhere. Its continuing problem was that the threat to use nuclear weapons for this purpose lacked credibility.2

The organizational thought-styles around the arms race fell into four classes:

- treating nuclear weapons as if they were conventional weapons;
- using criteria to evaluate nuclear plans that were overly simple and contrary to the evidence;
- staying systematically vague about one's nuclear policy, its relationships to one's goals, and the consequent criteria of sufficiency for one's weapons;
- cultivating and stressing the role of “irrationality” in nuclear planning, that is, adopting the attitude that either one's country benefits by projecting its belief in a distorted version of nuclear reality, or that the adversary or third parties hold such beliefs, so one must follow their expectations.

Conventionalization

The first group of thought-styles involves conventionalization, the tendency to think that nuclear weapons work the same way that regular weapons do. The term was introduced by Morgenthau (1976) and elaborated upon by Jervis (1984, 1989), Kull (1985, 88), and Glaser (1991). One of its subtenets is that the essence of nuclear war is the destruction of the other's weapons. One needs fast, accurate missiles to “take out” the enemy's missiles and their supporting systems. The idea is seen in “nuclear exchange” models, which typically calculate the

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2. The discussion will focus on the American way of thinking, since much more information is available. It would be more accurate to say that there are several American ways of thinking. The image of deterrence and war projected in a presidential speech is different from that in the journal writings of a defense expert, which is different from the criteria by which an air force officer assigns weapons to targets. A typical thought-style spans these groups but takes slightly different forms in each.
number of warheads destroyed but not population deaths. The official and semiofficial literature estimates the consequences of a war in terms of “post-exchange equivalent megatonnage,” and so on, and it is hard to find assessments of human losses. What has been published seems understated (Glaser 1991). This thought-style comes into conflict with the idea that the basis of peace is deterrence, since taken together the two propositions would imply that each side is deterred more by losing its missiles than its society.

In line with conventionalization is the downplaying of fire and radiation. In official analyses, nuclear weapons are treated as explosives. The Arsenal Exchange Model, the most widely used computer program to simulate nuclear war, drops radiation and fire and concentrates on blast. Eden (forthcoming) argues that this tendency derives from organizational factors rather than any unimportance or unpredictability of fire effects. The experience of the U.S. Air Force during World War II established certain mental categories about how weapons cause damage, and nuclear weapons were fitted into these. Studies of fire destruction were not done because thinking on nuclear war did not need them; conversely, nuclear planning could rationalize ignoring fire on the grounds that so little was known about it.

A third tenet of conventionalization is that a necessary component of nuclear strategy is defense. It has promoted the drive to deploy ballistic missile defenses beyond their promise of effectiveness, as well as the emphasis on “damage limitation.” The primacy of control over lack of control is a fourth aspect of conventionalization. The major nuclear threats would not be believable without a chance factor (Brams and Kilgour 1988), but officially, chance is downplayed. Statements on Intermediate-Range Nuclear Forces (INF), to be quoted later, concealed the importance of chance under deterministic-sounding talk about “links,” “coupling,” and “flexible response.”

Thought-styles are often synergistic, and deemphasizing fire and radiation fits with the tenet that missiles attack missiles, since blast is the main way to destroy a hardened underground silo. Deemphasizing fire and radiation promotes the understatement of civilian deaths, and along with the primacy of control over chance, it fits with the image of nuclear war as a duel of military forces.

Simplifying the Objective

Nuclear thinking typically hedges about the goals of war, so heuristic guides must be constructed to set weapons procurement. These are often simple rules and a common kind is an index of equivalence. During the Cold War charts were regularly presented to Congress showing the relative numbers of submarine
missiles or nuclear warheads or time trends in these numbers (O'Neill 1988). Officials proclaimed goals of “essential equivalence,” assessed the military “balance,” and worried about bomber and missile “gaps.” The problem is that relative size is not a valid measure of effectiveness (O’Neill 1992). For some missions, a smaller force than the adversary’s is adequate, but for others, the force must be much larger. Usually the equivalence was judged by numbers of weapons held, or in more sophisticated analyses like Nitze’s (1976, 1976–77) it was defined by weapons left after a nuclear exchange or by relative damage done (Salmon, Sullivan, and van Evera 1989; Kanwisher 1989). This thought-style was embodied in U.S. law, when the 1972 Jackson amendment called for arms negotiations that “would not limit the United States to levels of intercontinental strategic forces inferior to the limits provided for the Soviet Union.”

The arms competition was also simplified by zero-sum thinking, the notion that in a war adversaries hold no common interests, that what is bad for them is good for us. This is in line with the win/lose vocabulary of the war-as-a-game metaphor (chap. 2). It precludes the idea that both sides could mutually benefit by avoiding disastrous losses. At an intellectual level, officials may realize that there can be no victory in a meaningful sense, but the notion of winning is in their vocabulary and creeps back into their thinking. Harold Brown as secretary of defense wrote in the 1982 Annual Report, “an improved relative balance would appear to be a minimum condition of ‘victory’” (Brown 1982). The “Nitze scenario,” discussed subsequently, and many computer models of nuclear war endowed the participants with strictly competitive goals, and weapons were allocated to maximize differences or ratios after the nuclear exchange (O’Neill 1987; a Soviet example is cited by Meyer and Almquist 1985). Some officials switched to a vocabulary that suggested the zero-sum game metaphor without using it explicitly—instead of “winning,” they spoke of “prevailing,” a usage favored in the early 1980s, or “dominating,” or terminating the war “on favorable terms.”

A final simplification is to deploy weapons in numbers set by precedent. Obsolescent armaments are replaced by newer ones in the same quantity. The rule cannot be applied for a new kind of weapon, so this case makes it especially obvious that the size is not based on analysis and calculation. As ICBMs were introduced, General Thomas Power, commander in chief of the Strategic Air Command, suggested to President Kennedy that 10,000 missiles were required (Enthoven and Smith 1971). Robert McNamara chose 1,000, and this has been roughly the number in place from the 1960s to the end of the Cold War. York (1970) commented that the size of the ICBM force was determined by the digits that evolution put on the human hand. More precise calculations for a new
kind of weapon were given by Army Lieutenant General James Gavin in his appearances before the Joint Committee on Atomic Energy in 1956 and 1957. He stated that the army would need 151,000 nuclear weapons (Schwartz 1995). The numbers that were actually deployed have still not been revealed, but from the 1960s until the INF Treaty they seemed to have remained fairly constant at about 7,000 (Daalder 1991). The size level of various elements of the nuclear arsenal stabilized as the years passed, and the arms competition switched to a qualitative one. When part of the U.S. intercontinental ballistic missile force was given multiple warheads, the total warheads roughly doubled, but the number of missiles stayed constant. The level came not from any analysis of real needs but from simple precedent.

Systematic Vagueness about Plans, Goals, and Their Relationship

A further thought habit avoids specifics about plans or goals or the ways in which the plans would promote the goals. When a country is planning its conventional forces, it identifies possible military objectives, such as seizing territory, repelling an attack, or making an attack too costly for the adversary, and it designs its forces accordingly. A statement of the objective in a nuclear war is hard to find. As secretary of defense in the Kennedy administration, Robert McNamara took a step in that direction by specifying what would count as unacceptable damage to the Soviet Union—the loss of 20–25 percent of its population and half its economic potential. His initiative was disdained in military circles, and his successors have avoided precision.³ Salmon, Sullivan, and van Evera (1989, 200) summarize the goal statements of later secretaries of defense from their annual reports and pronouncements on strategic policy.

³ His criterion for a level of destruction lived on among Soviet strategists, who dubbed it a “McNamara unit” or simply “one McNamara” (Horgan 1989).
tempt to realize with his strategic nuclear forces” and “the capability to respond realistically and effectively to an attack on a variety of levels.” . . . Caspar Weinberger posited that American forces must enable American leaders to “terminate the conflict on terms favorable to the forces of freedom, and re-establish deterrence at the lowest possible level of violence.”

All the criteria except Rumsfeld’s are thoroughly empty. In the tradition of vacuity, Secretary William Perry and many other officials have used the formula in President Clinton’s July 1994 National Security Strategy: “We will continue to maintain nuclear forces of sufficient size to hold at risk a broad range of assets valued by such [hostile] political and military leaders.”

Calculated vagueness also permeates discussions of how a nuclear war would be fought. A fundamental question was whether the United States would attempt to strike first, or launch its missiles after warning of an immediate attack, or wait until nuclear explosions had given unquestionable confirmation of a strike. This matters for the types of weapons procured and the plans made, but it is hard to find consistent analyses of any case. The degree of vagueness about it should depend on how close the forum of discussion is to those doing the operational details. At the most public level, there is little ambiguity: the policy is a second strike—U.S. nuclear forces are for deterrence by retaliation. The milieu of defense intellectuals and concerned politicians, however, recognizes that many weapons have “fast hard-target kill capability”; they are designed to destroy other missiles in silos, not empty silos or cities. In these circles the ambiguity is greater: the question of preemption-versus-retaliation is downplayed.

Higher officials sometimes face a mixed audience of citizens and specialists, and they regularly use an equivocal phrasing: that the United States means to “hold at risk” the other’s weapons. The 1988 National Security Strategy of the United States (White House 1988) stated that INF’s purpose was to “serve as a link to U.S. strategic forces. NATO aircraft will continue to have the capability to hold at risk a broad range of targets, including those within the Soviet homeland.” The phrase appears in recent versions of the document (White House 1996). In the context of global war, the classified but leaked 1989 National Military Strategy of the Joint Chiefs of Staff (Tyler 1992) stated that in a nuclear war, “United States forces will seek out and destroy Soviet naval forces and be prepared to conduct attacks against the Soviet homeland. . . . Our forces will hold at risk those assets that the Soviet Union would need to prevail in nuclear conflict and dominate in a post war world.” In a war of that intensity, one would expect that military actions would be pursued with full vigor, but “holding” Soviet weapons “at risk” combines the tones of doing something and doing nothing. It would seem to be the worst choice, since it would increase the
Soviet incentive to preempt. The expression is attractive, however, because it allows equivocation over the timing of the launch of the U.S. weapons, part of the planned vagueness in nuclear thinking.

This equivocation would be resolved, one would expect, at the operational level, that is, within the groups that actually target nuclear weapons. They have to know whether their missiles are launched before, during, or after a Soviet attack, so as to know whether certain U.S. weapons would be available for use in the plan and whether Soviet missiles would be in their silos to be struck. To a large extent it has been resolved there, but the resolution seems more a function of organizational procedure than national goals. By the end of the 1970s, the working assumption was effectively a launch on warning of an attack (Blair 1993), to avoid the destruction of command and control. However, planning continues to show the marks of ambiguity over launch timing. There are not three distinct scenarios for a first, simultaneous, or second strike with different schedules and targets for the weapons in each. Basically, there has been only one plan, the SIOP (Single Integrated Operational Plan), and the concepts it uses allow the equivocation on launch timing (Eden 1990). One is prelaunch survivability (PLS) which measures the availability of a U.S. missile for use in the SIOP, but in spite of the name, it is not the conditional probability of the missile surviving given an attack. It is the probability that the missile will be available, either because it has survived or because it was not attacked at all. Targeters do not calculate PLS values themselves by weighting the two possibilities; the numbers come to them from outside their organization. Damage expectancy (DE) is the criterion of success of the SIOP, a measure of how effective it is as a whole. It gives the SIOP credit for the destruction of a silo, regardless of whether there is a missile in it. The “empty hole problem” is discussed among targeters, but the organizational product, the SIOP, is generated in a way that avoids the question of launch timing. The SIOP is fully specific in terms of what weapons go where, as one would expect, but its relationship to strategic goals is unclear. This disconnection is easier because the makers of policy are separated from its implementers. They communicate through concepts like PLS and DE which do not reflect actual goals.

Cultivating Irrationality in One’s Own Group and Imputing It to the Adversary

The final nuclear thought-style is the toleration of and emphasis on irrationality.4 It comes in two variants. “Second-level irrationality” acknowledges the er-

4. Here “irrationality” means bad judgment, not necessarily a deviation from the rules of decision or game theory. As discussed in appendix A, a person may follow probability theory yet have bizarre beliefs about the world.
ror of some beliefs and thought-styles about nuclear war, but suggests that the adversary believes them, so our side must play along. "Third-level irrationality," more sophisticated, suggests both sides are sensible, but that the adversary does not know that for sure. We must feign irrationality to induce a proper degree of caution from the adversary.

In 1983, President Reagan appointed the Scowcroft Commission to survey strategic nuclear matters. As part of an argument for adding one hundred MX missiles, its broad policy section concluded,

In a world in which the balance of strategic nuclear forces could be isolated and kept distinctly set apart from all other calculations about relations between nations and the credibility of conventional military power, a nuclear imbalance would have little importance unless it were so massive as to tempt an aggressor to launch nuclear war. But the world in which we must live with the Soviets is, sadly, one in which their own assessments of these trends, and hence their calculations of overall advantage, influence heavily the vigor with which they exercise their power. (President's Commission on Strategic Forces 1983, 5)

The commission comes close to explicitly recognizing the military uselessness of nuclear weapons but says that we must worry about the strategic nuclear balance after all because the Soviets believe in it. It does not explain how the Soviet Union could be so irrational, with its scientific cadres and long experience testing nuclear weapons. Perhaps the Soviet Union could be that irrational—I have argued that much of the U.S. perspective is—but it takes mental acrobatics to attribute these errors to the adversary and ignore the degree to which the commission's own government embraces them as reasons to build arms. Another version of the argument has neutrals and one's allies holding that the nuclear balance matters. It is feared that they will shift to the other side unless the United States accommodates their misconceptions (Kull 1985, 1988; Jervis 1989).

Another mode of cultivating nuclear irrationality fits with Herman Kahn's idea that in a Chicken game it helps to "look a little crazy." This is the rationality of perceived irrationality. Kull (1988) interviewed U.S. defense officials and found many taking this line to support the nuclear buildup. The difference between the two modes can be clarified by some formalism. Suppose that "B_U t" and "B_S t" mean that the United States and the Soviet Union, respectively, believe a certain nuclear truth t. The proposition t might mean that the nuclear balance is unimportant in itself, as the Scowcroft Report implies. Its negation is written "f t", for "fallacy." One can then generate statements of beliefs about beliefs: "B_U B_S t" means that the United States believes that the Soviet Union believes t.
The simpler version of the rationality of nuclear irrationality is shown in table 5. Under each report are the statements that it expresses directly or implies. The U.S. commission declared something about the external world, that the nuclear balance is really irrelevant ("t"), and the assumption of its sincerity implies also that the commission believes this, $B_U t$. The quoted section of the report implies its belief the Soviet Union believes the fallacy, $B_U B_S f$. The irrationality here is "second level," because $f$ enters only at the second level of beliefs. First-level irrationality would be a report propounding $f$.

The Scowcroft Commission left open whether the Soviet Union saw the United States as holding to $t$ or $f$—it did not take a stand on $B_S B_U t$ versus $B_S B_U f$. Doing so would have confronted the question of whether the Soviet Union was simply posturing, perhaps following the advice of a Soviet Scowcroft Commission. If the Scowcroft Commission had chosen between second-level beliefs the symmetry of the situation would have become apparent. It would have been clearer that the proper response was not to add more missiles but to convince the Soviet Union that the United States was realistic about nuclear war.

The next version (table 6) describes Kahn's rationality of irrationality. It starts imputing irrationality at the third level. The United States thinks the Soviet Union thinks that the United States believes in the importance of the balance: $B_U B_S B_U (f)$.

This account of nuclear irrationality has involved interactions between countries but the dynamic can operate within an organization. It would be difficult for the heads of the organization to proclaim $t$ to the members but $f$ to the external world, so actively or silently, they encourage the fallacy. This fact influences the epistemic interactions of the members, who feel they must not contradict the fallacy or their credibility will suffer among the others who believe it. This would be the organizational version of second-level irrationality. Or the third-level model might be operating: I am sure that everyone knows the truth $t$, but with no one

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<th>Table 5. Beliefs and Metabeliefs for Second-Level Irrationality</th>
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saying it out loud, I am not sure that they know that they all know it. I had better avoid openly advocating $t$, since each other member would perceive my credibility to have fallen in the eyes of the rest and would treat me accordingly.5

Imputing irrationality is not a nuclear fallacy per se, but it facilitates and amplifies other thought-styles like conventionalization. It protects them from contrary evidence and promotes them as social facts, internationally and within organizations. No one dares to say what everyone knows, and their expectation of the group’s reaction induces all to become enforcers of the false belief.

**The INF Debate**

A particular episode shows the role of symbolism and challenges in interaction with these thought-styles. The intermediate-range nuclear forces debate about the 1980s deployment of U.S. cruise and ballistic missiles in Europe was the nuclear arms competition on a smaller scale.6 It included the same push to acquire weapons whose use could never promote a practical end, and the same choice

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5. The tables indicate the same thing as the interactive belief matrices of chapter 7: that common knowledge is limited. The former exemplify what has become known as the “syntactic” approach, which expresses belief as sentences, as opposed to the latter’s “semantic” approach, which uses a set of probabilities. The syntactic approach is somewhat easier to understand here, but the latter allows us to talk about degrees of belief and common belief. A semantic version of the model of nuclear irrationality is example 4 in appendix B.

of fast, accurate, first-strike-capable missiles, in spite of a proclaimed policy of
deterrence. The goal was the same as a major one of the overall arms race, to
protect Western Europe. Compared to the strategic weapons competition, how-
ever, the INF decision was more deliberate and explicit. The larger competition
took for granted that the last generation of weapons had to be “modernized,”
but the INF missiles had no immediate predecessors, and their advocates had to
make fuller arguments. Considerable detail is given on these arguments here to
show that the decision was based more on symbolism than on objective mili-
tary factors.

From the start of the Cold War, the Western concern was protecting non-
communist Europe from a Soviet invasion. NATO officials held the view that
the Warsaw Pact armies could launch a conventional war and win quickly. Al-
though this now is seen as overly pessimistic, it was NATO’s central assumption
and generated a continual search for solutions. The 1968 document M C 14/3 set
the doctrine as “flexible response”: if there were a conventional invasion and
NATO’s conventional forces could not stop it, NATO would initiate nuclear use
on some level below strategic weapons (Legge 1983; Daalder 1991). Policy pro-
nouncements did not specify the form of first nuclear use, but it might have
been a demonstration shot, or tens of weapons sent against a few battlefield lo-
cations, or hundreds across the whole front, or the destruction of Warsaw Pact
rear echelons, or strikes inside Soviet territory. European leaders expressed hope
that nuclear use might prompt Soviet leaders to reconsider and withdraw their
forces, but this was not the official purpose of flexible response. Its agreed aim
was to induce a Soviet expectation that a conventional war in Europe would es-
calate. Foreseeing this, the adversary would have only the alternatives of peace
or Armageddon.

Western planners worried whether the flexible response threat was credi-
ble enough. It called on the United States to initiate or allow a nuclear strike that
might lead to its own destruction. Would the United States continue to follow
such a policy when its aim of deterrence had already failed? In the 1970s, the So-
viet Union increased NATO’s credibility worries by installing new SS-20 mis-
siles aimed at Western Europe. These had three warheads, were more accurate
and longer range than their predecessors, were quick to prepare and launch, and
were less vulnerable to attack, as they were based on trucks. Germany’s prime
minister Helmut Schmidt was particularly alarmed, and in 1979, NATO’s Nu-
clear Planning Group proposed a response, that new U.S. missiles would be sent
to Europe. West Germany would receive 108 Pershing II ballistic missiles, and
464 ground-launched cruise missiles would be shared by Belgium, England, Ger-
many, Italy, and the Netherlands. This announcement, in turn, alarmed So-
viet leaders. NATO already had shorter-range nuclear missiles in place, and NATO aircraft could carry nuclear weapons to Moscow, but if the new deployment plan went through, for the first time since the Cuban crisis, nuclear missiles based in Europe could reach the Soviet capital. The short flight time of the Pershings, in particular, threatened to eliminate the Soviet command and control centers in a preemptive strike, before they could implement retaliation.

The salience of the issue increased with Ronald Reagan’s election in 1980. He projected a hawkish, impetuous image to the European public, and the majority came to oppose the INF plan (Den Oudsten 1985; Adler and Wertmen 1980). To undercut the protest, the White House proposed a bilateral ban on the Pershings, cruise missiles and SS-20s (Talbott 1985, 1988). The Soviet Union denounced the U.S. offer in harsh language, arguing that it ignored the British and French missiles and other NATO nuclear systems near its borders. When the first INF missiles arrived in 1983, it moved its own missiles and submarines forward in symbolic counterdeployments and withdrew its representatives from the major arms control negotiations. However, when Mikhail Gorbachev ascended to office he made significant concessions, and in December 1987 he and Ronald Reagan signed the INF Treaty to remove both sides’ intermediate-range nuclear missiles and their short-range ones as well. Dismantling the Pershings and cruise missiles started before their deployment was finished. In spite of rumors about SS-20s obtained by Chechen rebels, the best evidence is that the only remaining INF missiles are one U.S. Pershing and one Soviet SS-20 standing side by side at the Smithsonian Institution (fig. 31).

Rationales for the INF Missiles

There were several prominent justifications for the INF missiles. They are grouped according to whether they involved a symbolic element.

Nonsymbolic military rationales
  promoting flexible response or “escalation dominance”;
  “coupling” a European war to a global one by reducing control over escalation.

Nonsymbolic political rationales
  providing NATO with a bargaining chip to achieve an arms control agreement;
  for European nations, maintaining their normative prestige in NATO by fulfilling the duties of membership;
  reasserting U.S. leadership of the alliance.
Fig. 31. The sole remaining SS-20 and Pershing II at the National Air and Space Museum, Smithsonian Institution. (Copyright Smithsonian Institution.)
Symbolic rationales
“coupling” a European war to a global one by decreasing crisis stability; demonstrating alliance solidarity in response to the challenge of the SS-20s; improving the overall nuclear balance.

Military Rationales: Escalation Dominance and Flexible Response

NATO’s concept of flexible response was close to the broader concept of escalation dominance (Kahn 1965, 290). In a war, the side that would face a worse military situation at a higher rung of the escalation ladder would be induced to back down now. It was perceived that with its SS-20s, the Soviet Union had seized escalation dominance at the level of a European nuclear exchange, and in the face of a Soviet conventional invasion, NATO would have to yield. More than that, foreseeing its prospects in a war, it would have to yield to Soviet diplomatic threats. “Flexible response,” the common expression for this logic in NATO circles, was described in a U.S. State Department INF rationale paper (1979) as designed to enable NATO to make an appropriate response to any level of action initiated by an aggressor, from demonstrations of force to full-scale hostilities. ... If NATO has only the capability to threaten retaliation that is disproportionate to any Soviet initiative, NATO runs the risk that the Soviets may believe that NATO would not carry out its threat. Because of the danger of this Soviet misperception, NATO’s strategy of deterrence and defense requires a force structure capable of military responses along a continuum, with credible options at each point and strong links among conventional, theater nuclear and strategic nuclear forces. (U.S. Department of State 1979, 1–2)

The difficulty with this argument is that even if NATO had a relative advantage at the higher level, it would not have a credible threat to escalate to that level. The relevant comparison is not one’s own versus the adversary’s cost from going to the next level. It is one’s cost from yielding at this level versus one’s cost from going on to the next level. Escalating to the detonation of nuclear weapons in Europe would not have been a credible threat.7 If it sounded plausible, this

7. Even if the threat to use nuclear weapons was not credible, its probability was not zero—a crisis could have flown out of control. However, that is another argument, to be considered on its own. In the terms of flexible response, escalation would be a deliberate move.
was only because of the abstract language of the debate. Examining its actual consequences, Arkin, von Hippel, and Levi (1982) estimated the destruction from an early use of a small fraction of the nuclear weapons held in Europe (fig. 32). The dark areas indicate doses of 600 rads or more, and under wartime con-

Fig. 32. An initial nuclear use in Germany. Sample fallout pattern with 200-kiloton groundbursts on 171 targets in East and West Germany. (From Arkin, von Hippel, and Levi 1982.)
ditions, the authors estimated, an exposure of 450 rads would prove lethal to about one-half the population. As horrible as past wars have been, none approached this magnitude of destruction. A U.S. president launching the INF missiles would be risking the same fate for the United States.

The phrase “flexible response” seems to draw on a premise that more options are always better than fewer, but this can be false when the other side is aware of one’s new options. In Herman Kahn’s vignette of highway Chicken, a driver wins by visibly eliminating an option — by throwing the steering wheel out the window. In fact, what the situation calls for is inflexibility, for making the escalation move a forced or an automatic one. Such considerations lead to the idea of coupling, the justification discussed next.

Military Rationales: Coupling by Loss of Control

Flexible response was prominent in official rationales for INF, but it was not a core motive. Raymond Garthoff, former U.S. ambassador to the Soviet Union wrote (1994, 552),

Despite genuine Soviet concern over the short-time-to-target Pershing II missiles in particular, the INF deployment was not strongly supported in Washington or in NATO for its military value. Rather it was seen initially—in Europe, and in Washington by both the Carter and Reagan administrations—as a step to shore up alliance unity. It was also seen, especially in Europe, as a step to reinforce deterrence by “coupling” American conventional and strategic forces.

The term coupling, which was common in NATO circles, is a conditional probability, the likelihood that a Soviet attack on Western Europe with conventional weapons would become a global nuclear war. President Reagan (New York Times, October 22, 1981, quoted in Jervis 1984, 91) declared, “The essence of United States nuclear strategy is that no aggressor should believe that the use of nuclear weapons in Europe could reasonably be limited to Europe.” According to their proponents, the INF weapons would make escalation more automatic.

The logic of coupling is at odds with flexible response—flexible response requires control of escalation and coupling requires the absence of it. The coupling argument was the more compelling one, since it recognized the importance of chance in a nuclear war and responded to the problem of incredible threats. It tended to intrude even in statements meant to be promoting flexible response. The passage from the State Department rationale paper, quoted previously, ended on an apparent reversal of its logic: “NATO’s strategy of deterrence and
defense requires a force structure capable of military responses along a continuum, with credible options at each point, and strong links among conventional, theater nuclear and strategic nuclear forces [my emphasis].” “Strong links” means that one level of warfare should lead to the next—a conventional war in Europe is just first in a chain. (Other metaphors were a “slippery slope,” or a “seamless web of deterrence,” and their tension with flexible response is also apparent.) Earlier in the quoted paragraph, the INF missiles were promoted as avoiding this situation—for credibility NATO needed responses that were not “disproportionate” to a Soviet initiative. If intermediate-range nuclear weapons would lead up the ladder anyway, how are they a limited response and so more credible?

Does coupling make sense by itself, apart from its tension with flexible response? Its factual premises seem plausible: surely there is great uncertainty when emotions are triggered by war or when the complex human system for controlling nuclear weapons is activated for the first time. Its difficulty as a reason for INF is that it is double edged. Adding the intermediate stage of INF gives NATO a response to a Soviet invasion that is less harmful to it than global war. However, the response is also less harmful to the Soviet Union, and to this extent it decreases the overall expected cost of an invasion. There is some doublethink in this rationale for INF. NATO would be more likely to launch the missiles because INF use is short of global war, but the Soviet Union would be no less fearful of invading because INF would lead to a global war. In fact, it is not clear whether the new option would have increased or decreased deterrence overall.8

Nonsymbolic Political Rationales: Providing Bargaining Chips for Arms Control Negotiations

Especially at the start of the debate, the weapons were promoted as chips to induce an arms control agreement in which the Soviet Union would give up its SS-20s. At the beginning this policy was called the “dual track” decision: simultaneously negotiating and proceeding with deployment. As the episode developed the arms control motive receded. It gained credence again in hindsight, after the INF Treaty was signed, but during the actual debate, before the middle 1980s, no one imagined the foreign policy changes initiated by Gorbachev in particular or his willingness to overlook British and French missiles and accept the extensive verification that led to the treaty. The bargain that was eventually signed was first made as a political move, a proposal to be rejected (Talbott

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1985), and various memoirs confirm that its main aim was to assuage the worries of European factions. Former U.S. secretary of state Cyrus Vance (1983) mentions the arms control notion only as “politically essential to contain expected internal opposition” from other NATO countries, and Brzezinski (1983) omits it entirely in his discussion of INF. Its importance is also put in doubt by the report that the number of INF missiles was set in part to have an attractive force left after an arms control treaty (Cartwright and Critchley 1985, 15; Thomson 1984, 610). A final difficulty with the bargaining chip rationale became apparent as negotiations dragged on: As well as providing bargaining chips, the INF missiles were meant to show that NATO could stand up to Soviet pressure, which often took the form of arms control concessions that would eliminate INF. It became important to resist these and proceed with the deployment. New weapons could be bargaining chips or shows of resolve but not both.

Nonsymbolic Political Rationales: Maintaining Legitimacy by Accepting the Duties of NATO Membership

Maintaining one’s prestige and voice in NATO was important and each country felt it must play its part. Even in Canada, for example, in spite of domestic protest officials agreed to a U.S. request to test cruise missiles over their soil. Canada was far from the European front and the missiles were an air-launched variety, different from the NATO deployment, but Canadian officials expressed a desire to prove their “reliability” within NATO, when European governments were under fire for accepting INF missiles (Langille 1990).

Nonsymbolic Political Rationales: Bolstering U.S. Leadership of the Alliance

One rationale was promoting U.S. leadership in the alliance. Carrying the INF decision through would establish a precedent that would promote a focal point for future disagreements among the members. The argument had weight in Washington, but it was not promoted elsewhere, for obvious reasons.

Symbolic Rationales: Coupling Based on Tension and Crisis Instability

A variant of the coupling mechanism involves crisis instability, which increases the degree of temptation in a crisis to strike first. Each side deploys weapons that are vulnerable to attack and that can destroy the other’s weapons, but only if they are launched first. In the event of a crisis each would feel forced to use its weapons
for fear the other was about to do so, following the logic of the Stag Hunt game (chap. 5, appendix B). One rationale for INF held that it added a desirable degree of crisis instability (e.g., Kissinger 1982). The Soviet Union would not dare to start a crisis for fear of the mutual incentives that would be generated. Compared to ideas of coupling, in this mechanism escalating is not viewed as a matter of chance and emotion but rather a considered decision prompted by the situation.

The features of the INF missiles were compatible with this argument. The missiles were compelling targets for the Soviet Union, especially the Pershings, which were seen as threats to Soviet command centers. However, the Pershing and cruise missiles were mobile and meant to be hidden in the European woods, and for that reason they might have increased stability. This would be an undesirable consequence within this logic, so their net contribution to instability was uncertain. The argument’s other problem is that NATO’s missiles might destabilize other crises, including inadvertent ones. Then it might have been U.S. actions that were constrained. The crisis instability argument for INF was rarely offered publicly, probably because it is hard to sell vulnerability as a merit of a weapons system.

Crisis instability depends on the symbolic concept of crisis tension (chap. 5). Certain details make the war equilibrium more salient, and the players’ mutual expectations may then generate it. Just as the U-2 flying over Soviet territory increased tension by its analogy with a full-scale war, the more a European war resembles a global one, the more expected the latter becomes, and therefore the more objectively likely it becomes. The Pershing II had properties of both tactical and strategic missiles (those for battlefield use versus strikes on the Soviet homeland). It took the name of the earlier Pershing I, a clearly “European theater” missile, although it was quite different in appearance and operation and under standard practice would have been given a new name. Like tactical nuclear missiles, it was operated by the U.S. Army, rather than the Air Force, but like intercontinental missiles, it was fully controlled by the United States, not under the dual-key system. Also it was multistage, highly accurate, and could reach Moscow. It could be seen as reasonable for use in a limited European war, but once used, its features might invoke symbolic associations of a global war, increase crisis instability, and so bolster coupling.

Rationales Involving Symbolism: A Response to the Symbolic Challenge of the SS-20s

Ambassador Garthoff stated that “coupling” was a major motive, but he seemed to be using the term differently from the military sense just discussed. His con-
ception was political. Coupling meant proving alliance solidarity in peacetime in order to convince the Soviet Union that the alliance would stand together in war. The importance of this notion in INF is supported by the central role of the SS-20 missiles. It is well documented that they triggered the INF decision, and this is the only kind of coupling that they threatened. They did not decrease military coupling; in fact, they increased it since they looked and functioned like intercontinental missiles and were based inside the Soviet Union. They were in Soviet hands but this made them no less effective in generating crisis instability, since they blurred the European/global war distinction, just as NATO’s strategy aimed for.

On military coupling grounds, therefore, NATO should have welcomed them. NATO did not welcome them, and the reason suggested here is that they were seen as a challenge, a test of alliance solidarity and resolve. Their deployment symbolically called on each NATO member to prove that it would stand with the rest. The audience was the potential adversary, as well as the other NATO states. Willingness to defend one’s group is an element of honor and must be proved to one’s group and to the adversary. Proving it means making a sacrifice, either paying a cost or running a risk. The cost levied by INF took different forms for the different parties. The United States paid for the weapons and accepted a link that would have increased the danger of its destruction in a war. European leaders paid the political costs of accepting them. The growing unpopularity of the deployment threatened an electoral defeat for several governments and convinced many Europeans, especially young people, that the United States bore the responsibility for the arms race (Russett and DeLuca 1983). Interest in alternative modes of European defense grew, which was an unfortunate development from the establishment’s perspective. As the controversy swelled, many advocates felt it was all the more important to go through with the deployment (Lunn 1983). This fits the proof-by-sacrifice model of responding to challenges, which suggests that the missiles were deployed not in spite of their political costs but because of them. One reason for including cruise missiles in the deployment was that their longer range allowed them to be based in NATO countries other than Germany—the sacrifice had to be spread across the alliance.

Except for a few grumblings among German and American hawks, the treaty to eliminate the missiles went ahead smoothly (Nolan 1991; Eichenberg 1993). This is inexplicable from a military coupling rationale—on those

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9. In the vocabulary of the INF debate, proving one’s solidarity to the NATO alliance was “reassurance,” while proving it to the Soviet Union was “showing resolve.”
grounds discarding both sides' intermediate missiles and the short-range ones as well was the worst possible option. It left the Warsaw Pact with conventional superiority and widened the tear in the "web of deterrence." However, from the viewpoint of a symbolic challenge the end had already been accomplished by NATO's proven willingness to put the missiles in place. The point had been demonstrated and they could be dismantled.

When a challenge is a verbal one, the response can take different forms as specified by the culture. A symbolic challenge is likely to be answered with a symbol. Secretary of Defense Harold Brown treated the Pershing IIs as a symbolic message in an annual report (1982, 64): "TNF [INF] visibly manifest the U.S. nuclear commitment to NATO and our willingness to use nuclear weapons in the defense of Europe if necessary." In their similarity in form to the SS-20s, they tapped the prototype of answering an aggressive act in kind. The planned total number of missiles, 572, seemed chosen to match the Soviet force. A projection of the Soviet intermediate-range missile force in the mid-1980s had been 750–900 SS-20 warheads on launchers plus 50-odd older missile warheads on launchers (U.S. Department of State 1979), from which perhaps a third could be subtracted as they would be deployed in Asia.

Another symbolic feature was the missiles' basing on German soil, the territory they would defend. This draws on an element in the going-to-war scenario, in which a state assembles forces at the site to be defended. There were other rationales for placing the INF weapons on land, including accuracy and relative cost (Peters 1990, 182–90), but the symbolic message aspect was important. "Missiles based on European territory would be physically and unambiguously identified with European defence; they 'couple' Europe and the United States in an unmistakable fashion" wrote English parliamentarians Cartwright and Critchley (1985).

If NATO saw the SS-20s as a challenge, a natural question is whether the Soviet Union meant them that way. Garthoff (1983b) notes, "Remarkably, no real analysis of the Soviet purposes in deploying the SS-20s was undertaken by the [NATO High Level Group] or any other body in Brussels or Washington (as many key participants have confirmed in interviews)." This phenomenon has been seen before, where an adversary's move provides an opportunity to prove resolve and is not checked for whether it was really sent as a challenge. Holloway (1983) gave a plausible explanation of the Soviet motive, one consistent with Garthoff's judgment (1983a). Since the 1950s, the Soviet Union had targeted Western Europe with intermediate-range SS-4 and SS-5 missiles, but most Western experts saw these as stopgaps until the Soviet Union acquired a force of intercontinental weapons that could reach the United States. This was
achieved in the 1960s, but even into the 1970s, the older missiles stayed in place. Western experts interpreted this as inertia, given the low cost of keeping in place what was already there. It was not expected that the intermediate-range missiles would be “modernized.” In fact the Soviet Union had always meant to target Western Europe, but difficulties with a solid-fuel design had delayed the newer missiles. The SS-20s were a belated modernization, but NATO took them as a fresh challenge.

Rationales Involving Symbolism: Symbolic Contests in Armaments

The relative megatonnage held by the United States compared to the Soviet Union was a major worry through the Cold War. Just as nuclear weapons symbolize power, success in the arms race symbolizes superpower hegemony. Critics argued that nuclear weapons should be judged on an absolute level, based on the requirements of deterring an attack, but Kull (1988) and Jervis (1989) cite many examples of officials worrying about the relative level of armaments and how it would be taken by the adversary and other nations. As a contest, it was an odd type, since the goal was not so much to win as to avoid losing.

Contests like this can often be interpreted as focal symbolism. One example was the U.S./USSR space race, and another was the long-standing competition between Taiwan and the People’s Republic of China for diplomatic recognition by other states. Each spent resources trying to raise its own count of embassies and keep the other’s down. Often the numbers were treated as the main concern without much regard to the importance of the country, with Taiwan granting foreign aid to small countries like Belize and treating their diplomatic recognition with great fanfare. Both China and Taiwan preserved the competitive nature of the activity, as each was ready to break relations with any country that recognized the other. Like symbolic prenegotiations, the contest can be viewed as a precursor game that influences the outcome of a conflict with greater consequences. Success in the diplomatic recognition contest sets expectations of who will back down later on in a Chicken-like crisis. Getting the support of other countries in the contest maps into getting the support of allies in the important conflict.

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10. It was not cheap. Schwartz (1995) estimates that the cost to the United States of its nuclear armaments was at least four trillion dollars measured in 1995 dollars, which was more than three times the procurement costs for World War II.

11. The number of INF nuclear warheads would have been only about 6 percent of the U.S. total, and this amount would have been easier to deploy if the United States had done so on its own soil. This was only a secondary explanation for INF.
The symbolic mechanism was significant even in technical analyses of the arms competition, although it was not always made explicit. One analysis especially worth considering is that of Paul Nitze, since he was a definer of U.S. strategy and his argument for a major U.S. buildup (1976, 1976–77) was effective in the campaign that blocked the SALT II arms treaty. The “Nitze scenario” held that by the early 1980s, the Soviet Union would be able to launch a nuclear war and be sure that it would remain one of weapons against weapons. The Soviet Union would be able to strike U.S. land-based missile silos, bomber airfields, and submarine bases but avoid extensive damage to American cities. These cities would then be hostages against U.S. retaliation against the Soviet population. U.S. counterstrikes would have to be directed against Soviet strategic weapons bases, but in doing so the United States would leave the Soviet Union with a great advantage in nuclear holdings. Nitze measured this advantage by the ratio of throw-weights—the total weight of nuclear weapons available for attack by each side’s remaining forces—and provided a model to estimate it. This predicament was coming soon, and to avoid it the United States would have to add accurate war-fighting weapons that would be able to retaliate against the Soviet missiles held in reserve.

Nitze’s articles became somewhat unspecific at a crucial point, and some critics misunderstood him as suggesting that, should a U.S. president back down on the demand, a Soviet threat to attack would be a credible one. It would clearly not be. However, in fact, as he saw it, the Soviet Union would not need to carry out a strike—the mere prospect would give it a bargaining advantage (1976, 206). With a prospective advantage in throw-weight after a back-and-forth exchange, the Soviet Union would feel free to extend its power through conventional war or by intimidation.\(^\text{12}\)

If the Soviet threat to attack is not credible, what would link the post-exchange throw-weight ratio to a successful Soviet expansion? Although Nitze would probably have avoided the word, the mechanism of symbolism seems necessary to complete his account. Winning a contest over prospective post-attack throw-weight would be symbolically winning the war. Negotiations have many equilibria—they are essentially indeterminate, so a throw-weight advantage could in theory establish a focal point in the Chicken game of negotiation over the Soviet sphere of influence, based on the notion that superior military power generally determines who gives in. This argument by no means proves

\(^{12}\) Nitze’s associate, T. K. Jones, who did the computer calculations for his article, is more explicit about the prenegotiation relevance of the throw-weight balance (Jones and White 1976). He saw the possibility of the Soviet Union facing starvation because of crop failure and using its nuclear superiority to extract food from the West.
that events would proceed that way, only that the concept of symbolic precedent seemed to be implicitly important in Nitze's thinking.

**The Interaction of Nuclear Thought-Styles and Nuclear Symbolism**

The story of INF is complicated in its details, but its important aspects show a simple pattern. The SS-20s were seen as a challenge that had to be answered for the traditional purposes of warning the adversary and reassuring the group. This was done by matching them—installing missiles similar in form and number. Matching the SS-20s harmed NATO's strategy of coupling, but it seemed militarily appropriate anyway thanks to the thought-style of conventionalization, in which weapons balance off against each other. INF's apparent military rationale was also facilitated by the other nuclear thought-styles of simplifying the objective, keeping vague about one's goals, and cultivating an atmosphere in which appearing irrational can be helpful. The missiles were accepted by many countries in order to send a costly signal. The special role of West Germany, which alone hosted the Pershings, was a symbolic statement that this soil was the front to be defended.

This chapter began by asking whether nuclear weapons induce overbuilding and the analysis concludes that they do. Because it is so difficult to find a military use for them, they are used in symbolic modes. Their military limitations also prompt the generation of odd thought-styles that promote their symbolic uses. The symbolic aspects of their possession and proliferation have been greatly understudied compared to the technological and economic side. (Exceptions are Jervis 1989; Flank 1994; Eyre 1993; Eyre and Suchman 1996; Sagan 1996, 1997.) Compared to other methods of mass destruction, like chemical and biological weapons, nuclear weapons are more amenable to use as symbols. They are more visible and more costly, which by the present arguments are important factors. They are hurled, they strike and blast, and so fit better with the prototype of war and the tradition of manly violence—in contrast with chemical and biological weapons which suggest poisoning. In this symbolic feature nuclear weapons are synergistic with their stereotypical delivery systems, ballistic missiles, which also have a special attraction for those wanting to project an image of power. How to separate the weapons from their seductive symbolism is an important question; this chapter has attempted at least to identify the problem.