

**Lecture 8**  
**21 October 2010**  
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I. Introduction

A. Responses to nuclear weapons survey

II. Facts

A. As of 1997: (CDI: <http://www.cdi.org/issues/nukef&f/database/nukestab.html>)

Country	Suspected strategic nuclear weapons	Suspected non-strategic nuclear weapons	Suspected total nuclear weapons
United States	7,300	4,700-11,700	12,000-19,000
Russia	6,000	6,000-13,000	12,000-19,000
France	482	0	482
China	290	120	410
United Kingdom	100	100	200
Israel	100+?	0	100+?
India	60+?	0	60+?
Pakistan	15-25?	0	15-25?

B. As of January 2009: (Center for Defense Information:

<http://www.cdi.org/program/issue/document.cfm?DocumentID=2972&IssueID=46&StartRow=1&ListRows=10&appendURL=&Orderby=DateLastUpdated&ProgramID=32&issueID=46> )

Country	Suspected strategic nuclear weapons	Suspected non-strategic nuclear weapons	Suspected total nuclear weapons
United States (PDF)	5236	~500	~5,736*
Russia	~3,300-3,400	~3,000-8,000	~7,200*
France	350	0	350
China	130-200	120	~250-320
United Kingdom	180 -200	5	180-200
Israel	100-200	?	100-200?
India	50	?	50+?
Pakistan	40-70	?	40-70
North Korea (DPRK)	5-12	0	5-12**

\* Together, the Russian and American arsenals have been estimated to equal 26,000 warheads. This number is in stark contrast to the number of warheads reported under each country's responsibility to the START II agreement. This is due to a large number of warheads on responsive reserve.

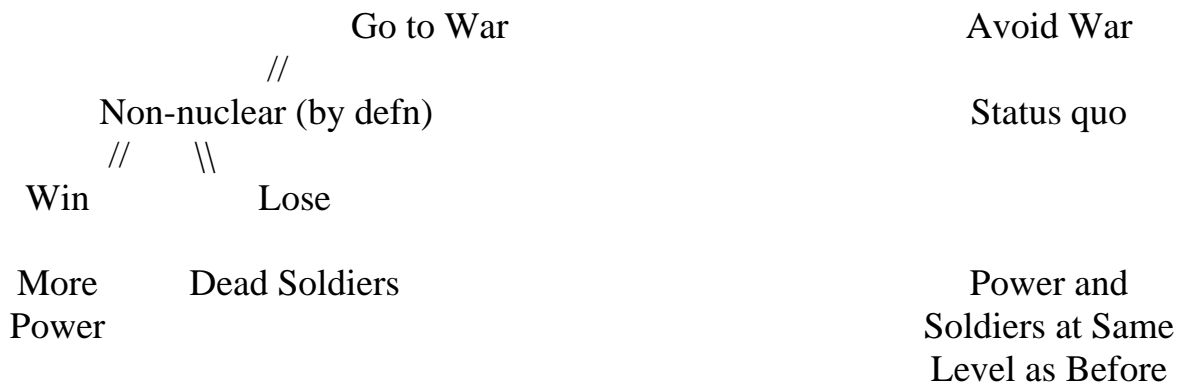
\*\* The total number of North Korean nuclear weapons is based on the amount of weapons possible with the amount of weapons grade plutonium estimated on hand. The exact number is unknown.

1. Decline in US and Russian arsenals - due to arms control
  2. Sweden, South Africa, Brazil, Argentina, former Soviet states have renounced theirs - all due to different forms of international cooperation
  3. North Korea, Libya, Iraq, Iran in process??
- B. Different types - really about delivery vehicles
1. Strategic nuclear weapons - ICBMs, SLBMs, bombers
  2. Intermediate range nuclear weapons - INF
  3. Short-range nuclear weapons - artillery shells, mortars, atomic demolition mines
- C. Size and power
1. Hiroshima and Nagasaki atomic bombs fission - August 1945. Soviets not until 1949. 15 kt.
  2. First Hydrogen bomb in 1952 - fusion.
  3. World War II - single warhead is a little more than 1% of all weapons in WWII. 10 per missile, 24 missiles per sub, so single sub has about three times WWII. Trident sub
- D. Cost: 15% of military budget; Relatively speaking are cheap
- E. Strategy - credible plans on how to use them to ensure that don't have to use them
1. Structural stability

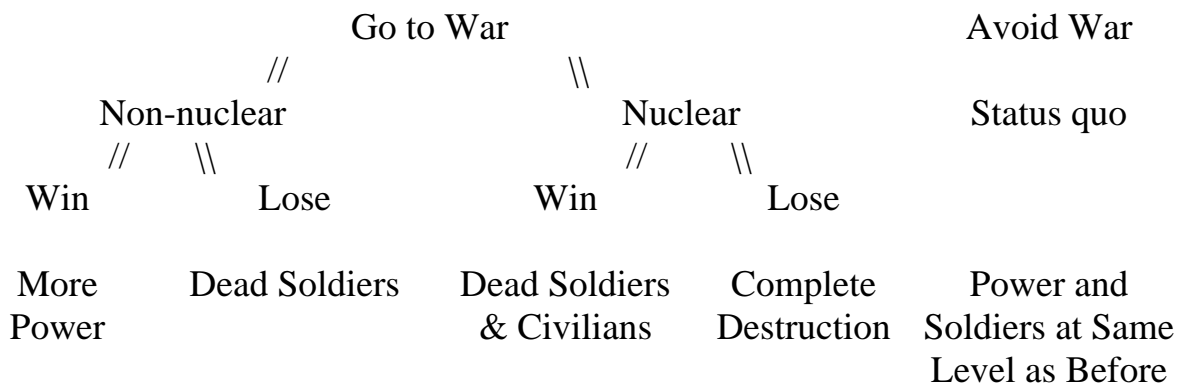
- a) How do you make a war unlikely to arise in first place through strong deterrent effects?
- 2. Crisis stability
  - a) Once a war seems inevitable, how do you increase ability to control escalation in conflict and keep options open at each point in process?
  - b) Different weapons have different effects
  - c) ICBMs - vulnerable but fast, use them or lose them in less than 30 minutes. Various efforts to make them less vulnerable and thereby increase crisis stability by mobile, dense-pack, etc.
  - d) Bombers - vulnerable but recallable 6 to 8 hours flight time
  - e) SLBMs - invulnerable but quick
- F. Proliferation: Who is on horizon - Iraq was but now isn't. Others?
  - 1. "Nuclear racism?" People concerned that others will not be as careful as we have been. Based on sheer numbers alone that may be true since likelihood of someone willing to use them goes up.
  - 2. Also far more concerned about enemies getting nuclear weapons than friends.
  - 3. Not just whether other countries have nuclear weapons but what mechanisms they have for controlling them.
- G. Arms control
  - 1. Cuban Missile Crisis in 1962 led to several efforts at arms control. Limited Test Ban Treaty to prevent testing in atmosphere and prevent fallout
  - 2. 1968 - Non-proliferation treaty
  - 3. 1972 - Strategic Arms Limitation Talks freezing nuclear weapons and Anti-Ballistic Missile treaty limiting ABMs to two sites per country.
  - 4. 1979 - SALT II limits on numbers but never ratified
  - 5. 1987 - INF treaty eliminates all intermediate range forces
  - 6. 1991 - Strategic Arms Reduction Treaty - major reductions in numbers of strategic forces.
  - 7. 1996 - Comprehensive Test Ban Treaty - ban all nuclear tests everywhere; US Senate rejected ratification in 1999
- III. Effects of nuclear weapons on international relations
  - A. Differing arguments
    - 1. Anti-nuke crowd that nukes have made the world less safe. BAS clock.
    - 2. Others argue nukes have made nukes more safe by leading decision-makers to be more cautious and deterring. Unimaginable devastation; "Mutual overkill" so can't think of self as better off; quick - no time to reassess
  - B. Mutual nuclear deterrence makes world safe from total war and safe for conventional war
  - C. Nuclear force useful for maintaining status quo but not for changing it
  - D. New measure of power in world - Pakistan and India of more concern then if didn't have nuclear weapons
- IV. Effects of nuclear weapons on war
  - A. Morgenthau: nuclear weapons caused revolution because, in the past, "there existed a rational relationship between violence as a means of foreign policy, and the ends of foreign policy....The statesman in the pre-nuclear age was very much in the position of a gambler - a reasonable gambler, that is - who is willing to risk a certain fraction of his material and human resources. If he wins, his risk is justified by his victory; if he loses, he has not lost everything. His losses, in other words, are bearable. This rational relationship between violence as a means of foreign policy and the ends of foreign policy has been destroyed by the possibility of all-out nuclear war" (Hans Morgenthau, Sidney Hook, H. Stuart Hughes, and C. P. Snow, "Western Values and Total War" Commentary 32 (1961), p. 280, italics added; from Gilpin, 214).
  - B. Counterfactual use: Effects of nuclear weapons on likelihood of war: Mueller's "run the events of the last forty years over, this time without nuclear weapons" to identify causal impact of nuclear weapons (Mueller in AJ, 193)
  - C. See charts at end of lecture
  - D. Nuclear world is same if no-nuke war, but statesman doesn't control whether its a no-nuke war or not, so from his perspective its a gamble. In nuclear world, two gambles: war won't go nuclear, and will win
  - E. Impact of nuclear weapons: See charts at end of lecture
  - F. Post-war peace is overdetermined and NWs are not real cause.
  - G. Other causes of "long peace:" Bipolarity; Geographic and economic independence of US and SU; Domestic structures that supported stability; Nuclear weapons; High quality surveillance to reduce fear of surprise attack; Ideological moderation on both sides; Rules of the game developed over time
- V. Nuclear weapons as good or bad? Three effects:

- A. Decreased likelihood of total war: Effects of war if goes nuclear quantitatively, and hence qualitatively, different than conventional warfare. Major world war would devastate both winners and losers. "When the active use of force threatens to bring great losses, wars become less likely" (Waltz, 1981, 30). This provides "crystal ball" effect - statesmen see what could happen, and see that it could happen very rapidly with relatively few, and perhaps no, chances to avert such an outcome once things start. So, they don't do it in first place.
  - B. Increased devastation should war occur
  - C. Increased likelihood of regional wars: Has made world "safe for conventional war:" conventional wars continue at low levels; Proxy wars rather than nuclear states going head to head. But ask counterfactual of whether fewer conventional wars if no NWs?
- VI. Tannenwald argument - nuclear weapons not used because of moral compunction and constructivist notions
- A. Logic of consequences
    - 1. Decide what to do based on calculation of goals and pursuit of those goals through available means
    - 2. Essentially a cost/benefit analysis approach - does this fit with perceptions of behavior of states
  - B. Logic of appropriateness
    - 1. Decide what to do based on norms and identity and sense of "what is right to do in current situation, given state's perceptions of who/what it is and the social identity the state wants to have"
    - 2. Tannenwald argues Bush administration did not consider using nuclear weapons because it just was not the right thing to do. It did not fit with American self-perceptions.
    - 3. Notice that this wasn't previously true - look at list of previous nuclear threats by US at <http://www.ieer.org/ensec/no-6/threats.html>
    - 4. Do you think Tannenwald successfully explains the change in behavior of US?
- VII. Chemical vs. nuclear vs. biological weapons
- A. In what ways do they differ?
    - 1. Ease of acquisition
      - a) Availability of components
      - b) Availability of know-how
      - c) Likelihood of success and knowledge that will be successful
    - 2. Ease of use
    - 3. Magnitude and type of impacts
  - B. Why do we consider some worse than others?
- VIII. Uses and morality
- A. Deterrence of total war: credible and potent threats; self-deterrence
  - B. Can NOT use for compellance - although in rare cases threats of their use have been invoked by American presidents, e.g., in Korea. Paradoxically, most powerful weapons but least fungible: superpowers as "muscle-bound." Bundy: "what remains remarkable about the enormous arsenal of the superpowers is how little political advantage they have conferred."
  - C. Deterrence of other countries using power against you
  - D. Morality of nuclear weapons
    - 1. Catholic bishops, Nuclear ethics
    - 2. Morality of use as deterrent - just cause of self-preservation
    - 3. Morality of use in event of war - just means
      - a) Proportionality
      - b) Civilians

Pre-Nuclear World



Nuclear World



	What we want to explain	Possible explanation #1	Possible explanation #2	Possible explanation #3	Possible explanation #4	Possible explanation #5
Period	State of World	Nuclear weapons	Fear of escalation	Memory of WWII	Postwar status quo contentment	Soviet ideology
Pre-1945	War	No	Less	No	Dislike status quo	Against war
Post-1945	Peace	Yes	More	Yes	Like status quo	Against war