

# Nuclear Weapons and the Cold War

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Nuclear Weapons: History and Future Prospects

8.S271

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# My lectures

## I. Lecture themes

The arc (phases) and artifact of nuclear history

The relationship b/t sci/tech and the state

The ideas in our heads

The centrality of politics

Behavior in past decades not for condescension  
but guide to the future

Prospects for human survival

II. Readings: 2.5hrs/wk (150p)

III. Writing: 6 hours for writing assignment

IV. Contacting me: [j\\_walsh@mit.edu](mailto:j_walsh@mit.edu)

# Writing Assignment: 6 hours (Walsh questions)

- No research beyond readings and optional readings
- Allocate 6 hours
  - 2 hr to organize thoughts and write outline
  - 3 hours writing
  - 2 x 30min sessions to proof
- 5 dsp (2.5 spp+ equals 10-12 paragraphs  
Or 8-10 points (minus 2 for introduction and conclusion))
- Use sample question or choose own  
If choose own, consult me asap
- Topic must be tractable: 1 argument about 1 thing

Questions?

# Nuclear Hot Takes

The only wrong answer is no answer

- ~~Was dropping the bomb on Japan the right choice? Why?~~
- ~~Russia made nuclear threats and put its forces on high alert. If RU uses a tactical NW in Ukraine, should the US respond with a tactical NW on a military target?~~
- When should the US use nuclear weapons?

# This Talk

## Nuclear Weapons and the Cold War

1. Context: A Nuclear Revolution?
2. Geopolitics: NW and the US-Soviet Competition
3. Internal politics: the making of US nuclear policy and “strategy”
4. Looking Back: What just happened?

# Terms and concepts

**Nuc Deterrence:** If you hit me, I'll hit you back  
MAD but one version of deterrence  
General deterrence  
Crisis deterrence

**Compellence:** Do what I say, or I'll hit you

**Deterrence vs Defense**

**Deterrence vs War Fighting**

Deterrence: never fight

War fighting: if have to fight, fight to win

**Counter-value vs counter-force**

Counter-value: hit cities, for deterrence

Counterforce: hit arsenal, for war fighting

**Stability:** No side tempted to go 1st

**Instability:** 1 side tempted to go 1st (or so perceived)

Questions?

# 1. Nuclear Revolution

# A Nuclear Revolution?

Is the Bomb special?

## I. Who gets to decide that question?

The governments of states

## II. Traditional Answers\*

**Yes.** No other human capability can, today, produce an extinction event. Nuclear war is the greatest danger to the survival of states.

**No.** It is another tool available for governments to use in a political-military competition with an adversary that threatens your country. A threatening enemy (e.g., Nazi Germany, USSR, US, PRC, etc.) is the greatest danger.

\* Excluding consideration of other countries and stakeholders

# If Revolution Is Real, Everything Turned Upside Down

For millennia, from tribes to empires, adversaries fought w/ conventional weapons  
All the wars we have fought in history, save one, were with conventional weapons

## Pre- Nuclear Revolution

- More is better
- Defense good: mountains, swamps, deserts
- Keep your enemy guessing, off balance
- Use deception for advantage
- Zero sum: worse off your enemy, the better

If Revolution true, your survival depends on the wisdom of your enemy

# Example 1. More is better?

At modest numbers and above, there is no relative advantage to more

Imagine, a room, awash in gasoline. And there are two implacable enemies in that room. One of them has 9,000 matches. The other has 7,000 matches. Each of them is concerned about who's ahead, who's stronger.

Carl Sagan

# Example 2: Defense

Pretend have a defense that stops 90% of incoming  
(We have no such defense)

- The adversary attacks with 100 NW
- We stop 90%
- We wipe out the adversary: everyone
- We lose NY, LA, SF, DC, Chi, Bos, Dallas, Miami, and Atlanta
- Did we win?

# Nuclear War fighting (Not deterrence)

- Counterforce not Counter-value
- Damage Limitation (Defense)
  - Missile defense
  - Civil defense
- Tactical nuclear weapons

Tension between nuclear war fighting and deterrence:  
Former undermines the latter

# 1. The Nuclear Revolution: Questions?

## 2. Geopolitics:

NW & the US-Soviet Competition

Nuclear Weapons Might Represent  
a Revolution....

But What If Nobody Cared?

# Primacy of the US-Soviet Rivalry

- Context: A bomb birthed in war between states (artifact)
- WWII: [70] million dead
- From victory over Fascist alliance to expectation of war & anti-Communist alliance
- **Govs subordinated threat of gen nuclear war to the threat of Communism**
- Decision-makers in the 40s and 50s did not know what we know: there there would not be another Great Power war in Europe for 75 years
- “Better Dead than Red” was an expression but also concise statement of national security priorities/relative threats

Best 1<sup>st</sup> approx of US nuc decision-making: US-Soviet bi-lateral relations  
Why? Because bi-polar competition defined parameters of nuclear policy

# The Cold War: A Story

## **I. Competition and Confrontation (Youth): 1945-1961**

- Animating question: Who's ahead?
- Key geo-pol events
  - 1949 NATO, PRC rev
  - 1950 Korean War
  - 1955 Warsaw Pact
  - 1957 Sputnik

## **II. Detent (Middle Age and the Reality of Complexity) 1962-1978**

- Soviet-Sino split, Czechoslovakia, nuclear prolifer
- Vietnam, US domestic unrest, oil shock & hyper-inflation, nuclear prolifer

## **III. Decline (Old Age)**

- 1979 Invasion of Afghanistan
- 1980s: Last gasp of competition?
- 1991 USSR collapse
- '08 US stalemate & decline
- '22 Putin loses his mind

# The Nuclear Competition

- Arsenals and Testing
- Nuclear Threats and Crises

<u>Actual</u>	<u>Counter-factually possible</u>
Berlin 1958-61	Korean War 1953
Taiwan 1954	Vietnam War 1968-72
Taiwan 1958	1973 Arab-Israeli War (?)
CMC 1961	1980s Errors?

- Accidents and Excesses

**So, how did we get there?**

# 2. Geopolitics & NW

Questions....

3. Internal politics:  
the making of US nuclear  
policy & strategy

# Politics and Nuclear Weapons in the US (3 kinds)

## 1. Electoral politics

Against a backdrop of the Red Scare in late 40s, 50s

1947: 1<sup>st</sup> Soviet fission and H-bomb tests

1954: Bomber “gap”

1957: Sputnik

1957 Missile “gap”

## 2. Organizational politics

New tech creates opportunities for new winners and losers

1949 Revolt of the Admirals

1950s Missiles and the threat to the Air Force

1960s Triad and organizational bandwagoning

## 3. Alliance politics: Extended deterrence and nuclear sharing

# US Nuclear Strategy

## **1. What does it mean to have a strategy**

Ends-means chain that establishes priorities across time and resources  
Choices and limits

## **2. US Nuclear Strategy: Everything**

Counter-force and countervalue  
Overkill  
Maximum range of capabilities

In short, there was no strategy; primacy in all domains

Left Other Questions Unaddressed

How integrate (& separate) conventional weapons and NW  
Conceptually and operationally

## **3. US perceptions of Soviet intentions and capabilities**

Majority: Sovs deterrable; Minority: willing to kill millions to win  
Soviet bolt from the blue

# 4. Looking back: How dangerous?

How do the risks and choices look in hindsight?

- NW fundamentally changed capacity for self-extinction, but for understandable reasons, did not change mind-set or behavior
- Gobs more or less kept acting the same, for the same reasons
- They took risks; they threatened nuclear use, they considered nuclear weapons use
- Did so for reasons and stakes that in hindsight do not look wise

# Deterrence Paradoxes Too Big to Accept

- Deterrence requires acceptance of an enemy including an evil enemy
- Accepts military vulnerability
- In your interest for adversary to feel secure
- Only as safe as your enemy's weakness
- Even if you "win," you still lose

3. Question on US strategy

4. Questions about “Looking back: how dangerous?”

# So given the fact that...

- 1) The US & USSR feared each other more than they feared NW
- 2) Nobody knew what they were doing
- 3) Both built huge arsenals
- 4) There were accidents and mishaps and threats and crises
- 5) Decision-making processes riddled w/ ignorance & petty politics....

Why no nuclear use after 1945?

# Hot Take Questions for Next Week

- When should US use nuclear weapons?
- When should China use nuclear weapons?
- What group is best qualified to make decisions re: nuclear use?

**Nota Bene:** Next week I have a flight to catch directly after class.