

# Emerging Technology + International Security

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Erik Lin-Greenberg

Assistant Professor of Political Science

Massachusetts Institute of Technology

1. How do we define/measure power in this world?



What evidence today exists that this scenario could be unfolding?

2. Who are the most important/influential actors in this world?



growing number of cyber attacks is making them more of a norm in society and increasing popularity of smart devices are making us more dependent on technology in our everyday lives

Evidence

3. What are the most significant disputes in this world? What are major areas of cooperation?



Should we pessimistic or optimistic about the role of technology in this world?

Pessimistic/Optimistic ...Be prepared to explain why

4. Identify the most important goal for each:



5. From the EU perspective, what are the country/region's greatest a) strengths; b) weaknesses; c) opportunities; d) threats



5. (How) should government, international organizations, and private groups regulate technology policy in this world? What are the pressing policy needs?





1. How do we define/measure power in this world?

Power is...the ability to secure stable internet access across sectors (finance, communications, infrastructure)

2. Who are the most important/influential actors in this world?

The most important actors are...because...US/EU and China set up separate digital power domains and security certificates, GAFA and other providers/major tech companies who control the products at stake

3. What are the most significant disputes in this world? What are major areas of cooperation?

The most significant disputes are...government vs private control of internet/cyber/digital infrastructure, regional concerns and traditional enmities (US/EU vs China, Russia), citizen outrage against

Major areas of cooperation include between the government and the tech companies that are based in that government's country (for example China with Baidu and Alibaba)

What evidence today exists that this scenario could be unfolding?

rapid development of decentralized web transactions, "monopolization" of industry by big tech companies, introduction of the "metaverse", increasing reliance of the military on digital surveillance and

Should we pessimistic or optimistic about the role of technology in this world?

Pessimistic...Be prepared to explain why: to some extent, the reliance on tech has given disproportionate power to private tech firms

4. Identify the most important goal for each actor:

USA: protecting domestic infrastructure, expanding global influence of domestic companies so that international transactions occur under US surveillance

China: expanding regional control, promoting domestic tech companies and products, security certificates as political legitimization, stabilizing digital infrastructure and protecting industry and citizens against

Russia: make sure NATO doesn't grow too powerful (or keeping Estonia and Latvia "in check")

Alibaba: to turn a profit. To achieve this, they probably want to protect their domestic market of China. Also, maintain their competitive edge and push back against distrust

The UN: establishing cooperation between the world's economies, decreasing firewalls and global conflict distrust

5. From China's perspective, what are the country/region's greatest a) strengths; b) weaknesses; c) opportunities; d) threats

Strength: Human capital, existence of labor intensive business and production line manufacturing capabilities which are ascendant according to the scenario

Weakness: dependency on digital/cyber tools and infrastructure, cut off from the US/Canada/EU alliance firewall

Opportunities: expanding secure internet access to other regional countries, and supporting/promoting domestic industry to become competitive in an insecure digital world

Threats: cyber terrorism from other countries/actors, increasing flow of western technologies/ideologies to Asia

5. (How) should government, international organizations, and private groups regulate technology policy in this world? What are the most pressing policy needs?

governments throwing money at cybersecurity

just be nicer ! :)

Policy needs: ensuring no global technology shutdowns occur, promoting the global flow of ideas to promote human wellbeing, protecting critical infrastructure in some way

How: taking things off the grid as backup infrastructure



1. How do we define/measure power in this world?

Power is the ability to retain and protect infrastructure, both digital and physical, diversity of influence over different sectors also grants a more stable stance

2. Who are the most important/influential actors in this world?

The most important actors are: 1) GAFA coalition 2) criminal bad-actors 3) NA/EU coalition 4) Chinese + digital goods providers 5) Russia because they are in a scenario where inciting conflict could leave them ahead

3. What are the most significant disputes in this world? What are major areas of cooperation?

The most significant disputes are 1) how to respond to cyberattacks, 2) who should control areas of the digital scape, 3) which parts of life should rely on virtual vs. traditional firms

Major areas of cooperation include tech conglomerates and governments working together to improve security, restoring both traditional and virtual infrastructure, increasing influence jointly (see:

What evidence today exists that this scenario could be unfolding?

Evidence: 1) Increasing use of crypto 2) centralization of tech on one hand but also the de-centralization of different services 3) Existence of similar big tech coalitions aggregating large amounts of power (FAANG)

Should we pessimistic or optimistic about the role of technology in this world?

1) Pessimistic: state of the world, technological collapse, 2) Optimistic: efficacy of diplomacy, increase of legitimacy for "traditional" firms, awareness for a need to diversity resources

4. Identify the most important goal for each actor:

USA: re-establish its dominance, secure the safety of its citizens and allies by securing the internet

China: establish dominance over the US, create its own GAFA, campaign against crypto

Russia: Maintaining political power through financial sector and cyber manipulation (w/ regards to Estonia)

Alibaba: Partnering with Chinese government to provide an alternative to GAFA

The UN: Protecting its legitimacy among the tech conglomerates

5. From the African Union perspective, what are the country/region's greatest a) strengths; b) weaknesses; c) opportunities; d) threats

Strength: Potentially a reversal of the world order, less developed nations who had greater reliance on physical infrastructure become more valued in the divergence from tech

Weakness: We as the AU are outside of the North American/EU firewall and are also not directly affiliated with GAFA, so we are in some ways along for the ride

Opportunities: Use the chaos of the cyber world to leverage the our pre-cyber culture, potentially gaining wealth and power.

Threats: Not being included in internet firewalls, limited digital infrastructure if there is a rapid return to reliance on the Internet, ex. major security fixes or international collaboration

6. (How) should government, international organizations, and private groups regulate technology policy in this world? What are the most pressing policy needs?

Figuring out how to regulate the internet and secure it, prevent war/full scale conflict,



1. How do we define/measure power in this world?

Power is the ability to exert influence in the cyber domain while preserving the fidelity of one's own

2. Who are the most important/influential actors in this world?

The most important actors are large tech companies/coalitions and tech/government CO-OPs because they possess the power to influence others and to varying extents can act with relative impunity

3. What are the most significant disputes in this world? What are major areas of cooperation?

The most significant disputes are 1) when a kinetic attack is warranted in response to a cyber attack 2) arguments over where exactly to point the finger for the world's issues

The most significant areas of cooperation are: large tech companies setting standards, most reasonable actors seem to be interested in increasing the stability of the internet, semi-unified front against

What evidence today exists that this scenario could be unfolding?

Evidence

Should we pessimistic or optimistic about the role of technology in this world?

Pessimistic/Optimistic  
...Be prepared to explain why

4. Identify the most important goal for each actor:

USA:  
control  
and  
stability

China:  
compete with  
and catch up  
to GAFA

Russia - remain  
unnoticed until they  
find a weak link that  
they can exploit to  
take power

Alibaba:  
compete with  
GAFA,  
become more  
ubiquitous

**The  
UN:  
who?**

5. From the Indian perspective, what are the country/region's greatest a) strengths; b) weaknesses; c) opportunities; d) threats

Strength: still  
growing, increased  
manufacturing

**Weakness:  
sustaining  
population**

Opportunities:  
"smaller" player in  
the world, less likely  
to be the target of  
major attacks, at  
least relative to  
Russia/US/China/etc -  
allows them to sorta  
slip by

Threats - really close  
in proximity to  
China, concern  
about kinetic  
attacks/threats

5. (How) should government, international organizations, and private groups regulate technology policy in this world? What are the most pressing policy needs?

Policy  
discussion...



# 1. How do we define/measure power in this world?

- computational assets
- the impenetrability of a nation's cyber assets (software and hardware)
- reach of private companies

# 2. Who are the most important/influential actors in this world?

The most important actors are...because... editing note

The GAFA Coalition  
Whoever owns the data

corporations have a lot of power:  
amazon's Alexa7 gives it more power than many states

tech corporations are state-backed, lending them significant legitimacy (China backs Baidu + Alibaba, US presumably backs GAFA)

Hackers

# 3. What are the most significant disputes in this world? What are major areas of cooperation?

Who owns this big data that is being generated?

How should this data be used?

What does human rights look like in this world? Will we have to revise our legal frameworks to introduce clauses for cyberwar.

What evidence today exists that this scenario could be unfolding?

cyber control of products that don't inherently need to be computerized (from currency to opening doors)

Should we pessimistic or optimistic about the role of technology in this world?

pessimistic  
tech-centered society  
sounds bad

# 4. Identify the most important goal for each actor:

USA

national security;  
maintaining political legitimacy as a country rather than giving up the real power to corporations

China

cyber self-sufficiency; zero dependence on western tech

Russia

countering NATO  
protecting physical territory/kinetic matters

Alibaba

How to separate from GAFA while retaining China's power and capabilities

The UN

Reconceptualizing human rights freedoms.

How do we humanitari response to transnatio

# 5. From the US perspective, what are the country/region's greatest a) strengths; b) weaknesses; c) opportunities; d) threats

Strengths:

advantageous geography re: invasion  
GAFA - big tech companies are all American-founded; talent (US has great higher education)  
as a first-world country, incredibly tech dependent; cannot operate offline

Weaknesses:

America's geography is an advantage because we are not landlocked with other countries (allows for stronger kinetic security even in face of cyber collapse)

Opportunities:

has the expertise to scale down technologically

Threats

china

# 5. (How) should government, international organizations, and private groups regulate technology policy in this world? What are the most pressing policy needs?

Policy discussion...

# **International Relations (IR) Theory 101**

What constitutes the use of force?

Who makes decisions on the use of force?  
(and the development of military tech)

Why is force used?



# **What constitutes the use of force?**

# Brute Force vs. Coercive Force



“Brute force”

*-Schelling*



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“The power to hurt”

*-Schelling*





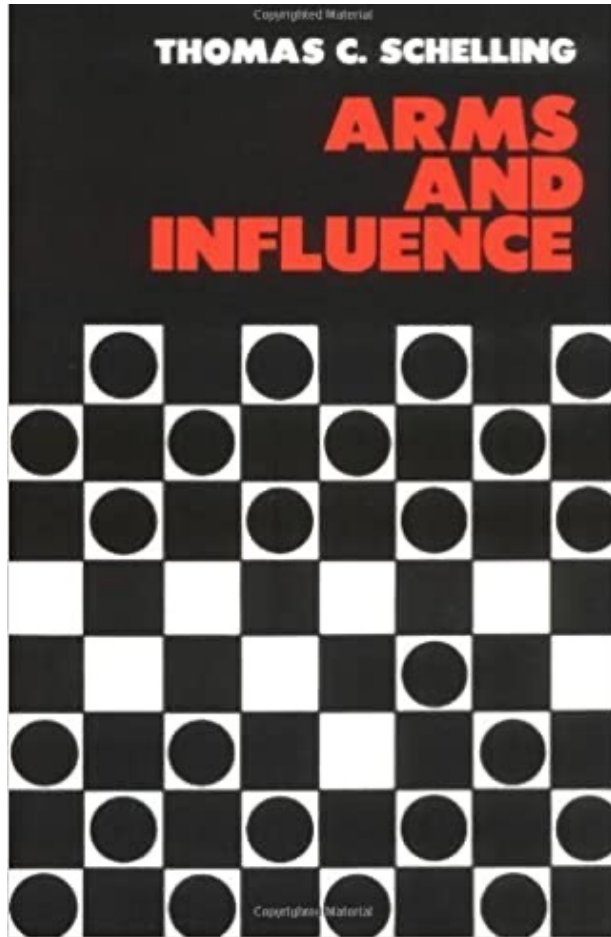
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# "The Power to Hurt"



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# "The Power to Hurt"

- Signal ability to hold a rival at risk
- Coercion
  - Deterrence: prevent/dissuade action
  - Compellence: to change behavior
- Effectiveness/Credibility based on:
  - Resolve (Intention)
  - Capability



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# Brute Force vs. Coercive Force

**Who makes decisions on the use of force?**  
(and the development of military tech)

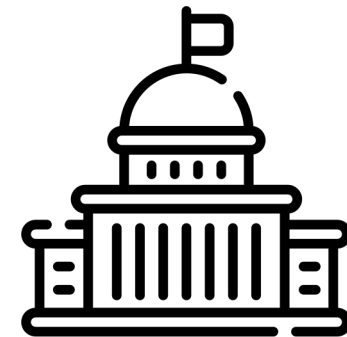
**Why is force used?**



# Levels of analysis

# Levels of analysis

- International system
- State level
  - Bureaucratic politics
  - Domestic politics
- Individual level
  - Leaders



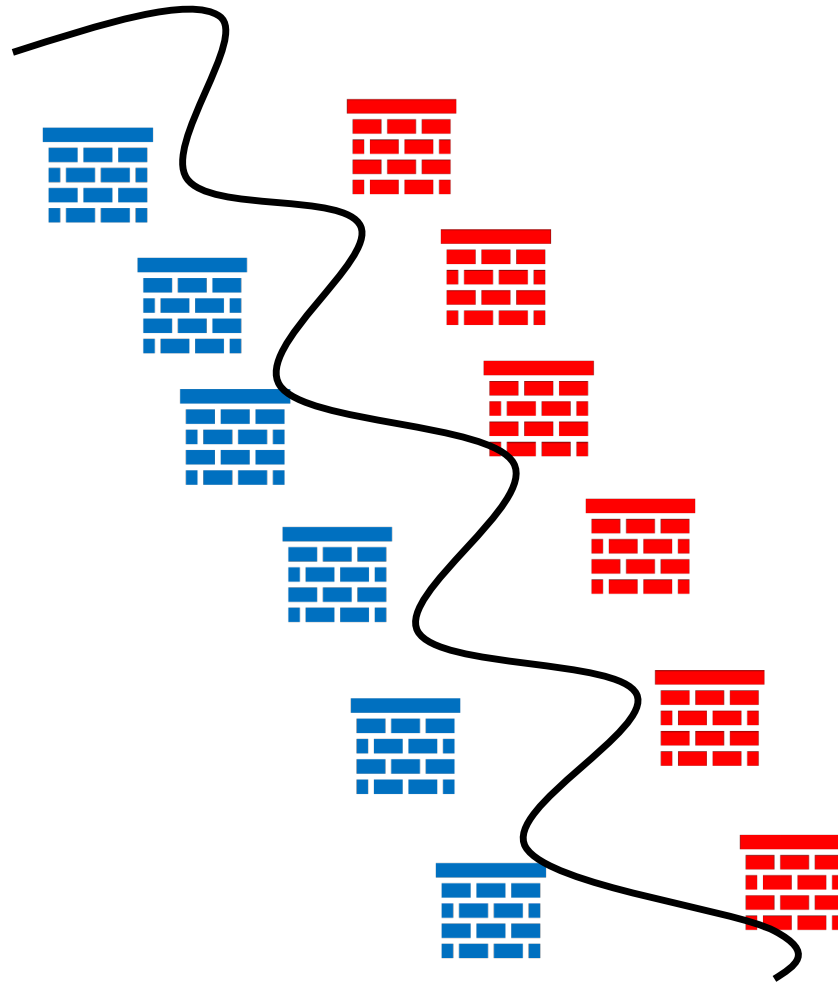
# International System

- Key assumptions
  - Sovereign **states** are key **unitary actors**
  - Act **rationality** to advance security, power, wealth
  - **Anarchic** international system
- War can be deliberate or accidental
  - Depends on state goals:
    - Power seeking
    - Security seeking
- Spiral vs. Deterrence models

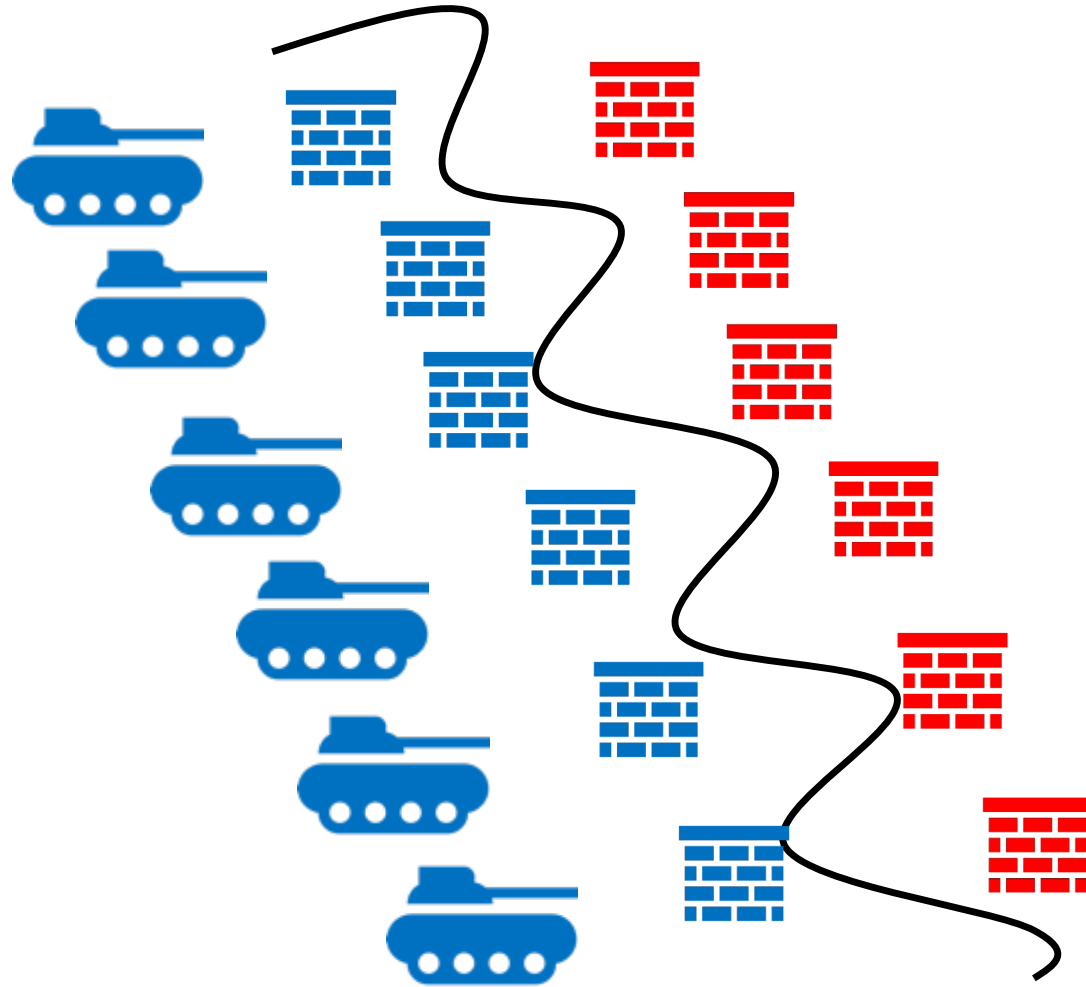




# International System: Security Dilemma



# International System: Security Dilemma



# International System: Offense-Defense Balance



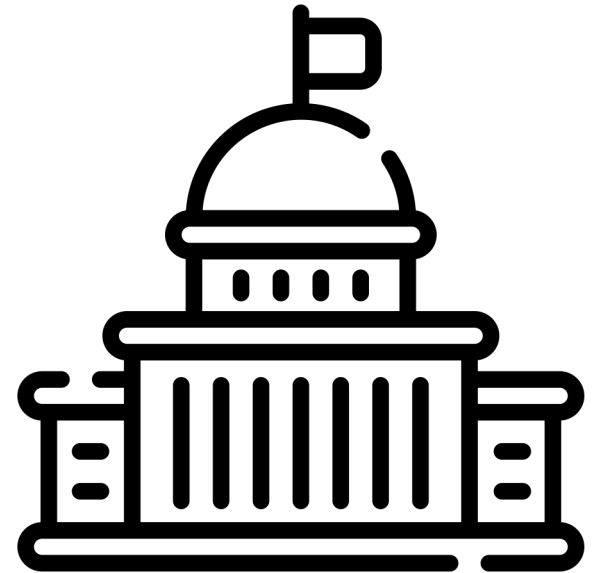
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# State Level

- Shortcomings of system-level explanations?
- Bureaucratic politics
- Domestic politics



# State Level: Bureaucratic Politics

- What's a bureaucracy?
  - Why do they exist?
- Bureaucracies have interests
  - Organizational essence (Halperin)
  - "Where you stand depends on where you sit"
- Bargain and compromise = "satisficing"
  - What is the action channel? Who has the final say?

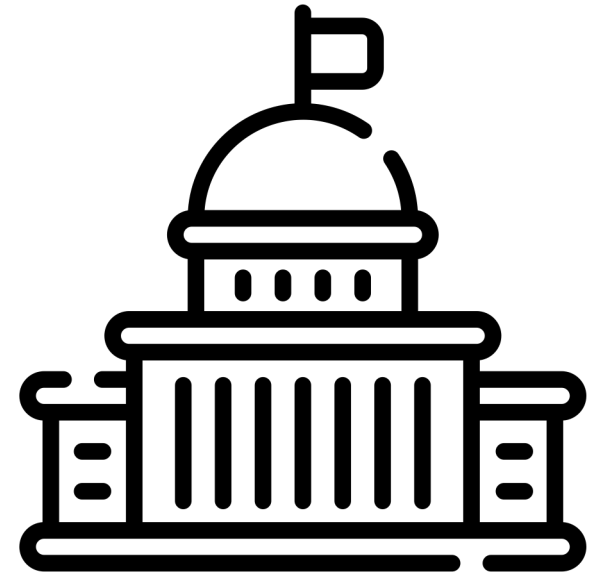


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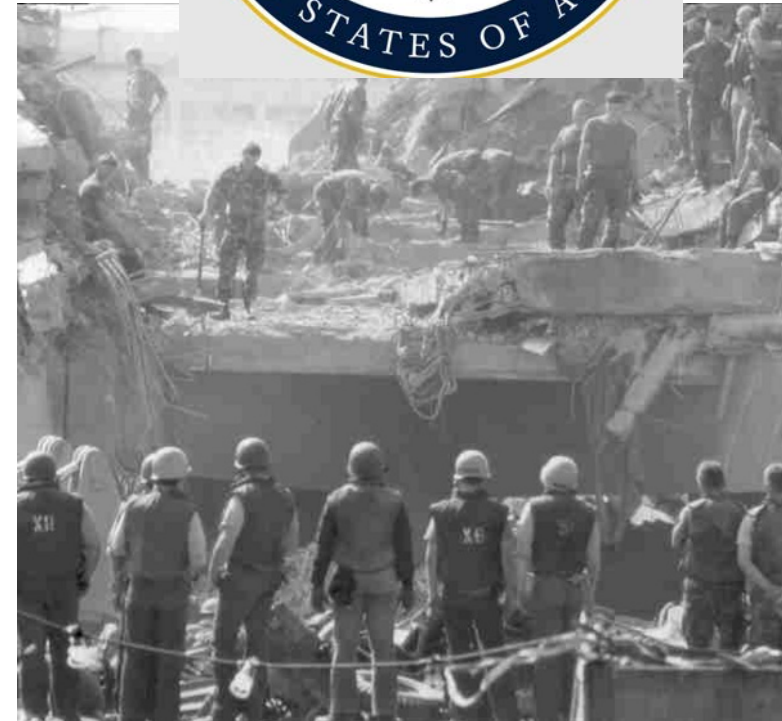


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# State Level: Bureaucratic Politics

- How does technology affect bureaucratic politics?
- Funding for new systems
- Who "owns" warfighting domains
- Shifting roles for bureaucracies

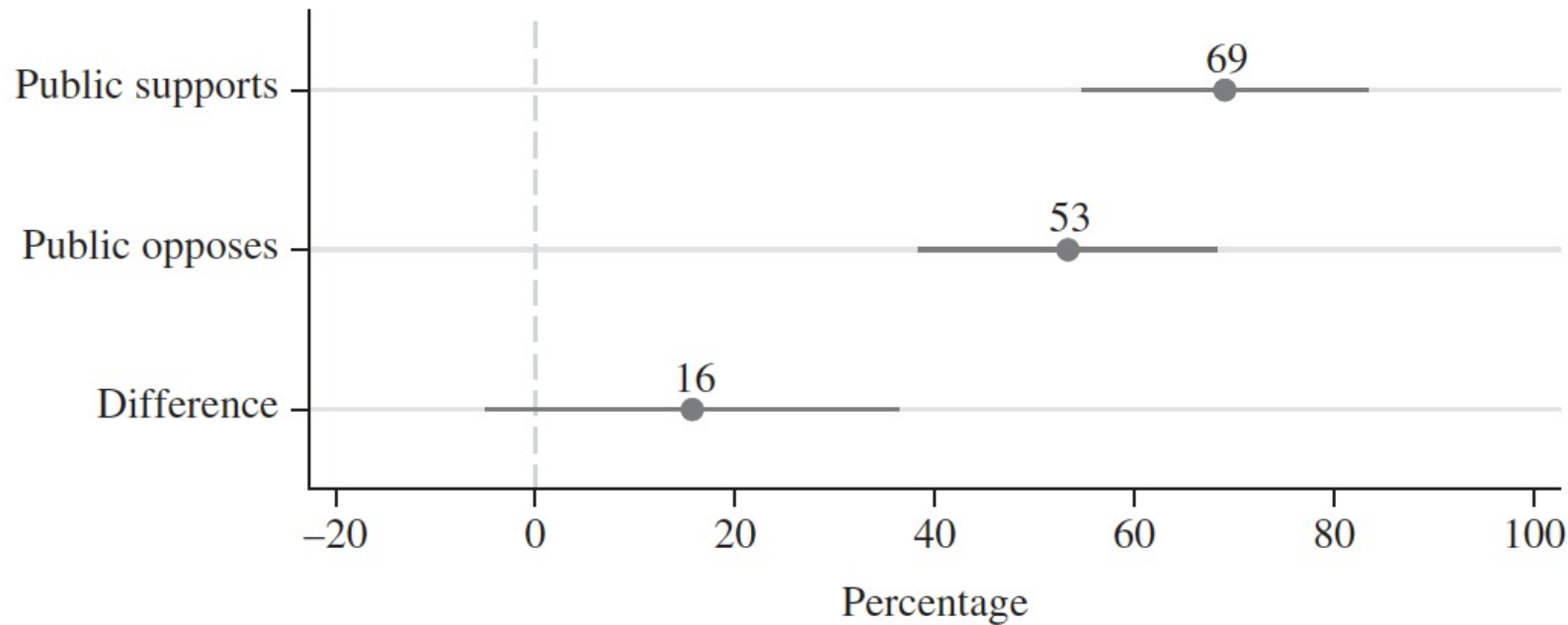


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# State Level: Domestic Politics

- Leaders (often) respond to public opinion and constituent interests
- Can lead to compromises
- Can shape policy choices

# State Level: Domestic Politics



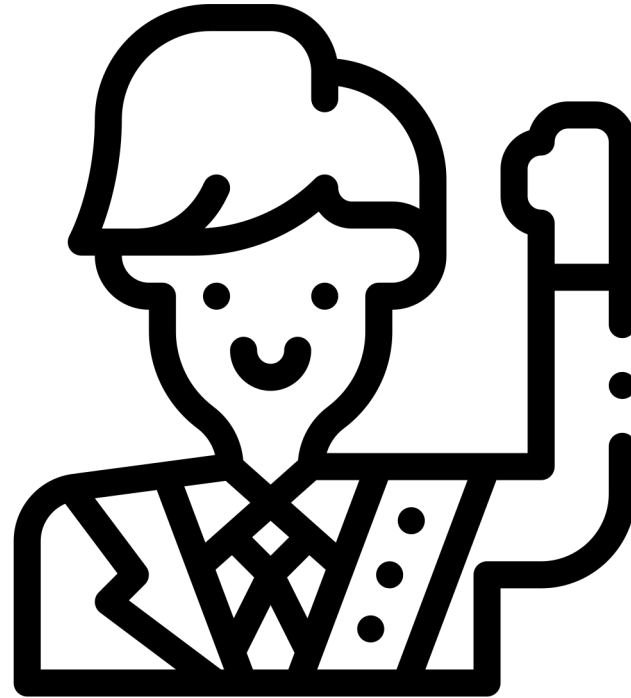
*Note:* Horizontal lines depict 95% confidence intervals.

**FIGURE 1.** *Effect of public opinion on support for military strike*

Tomz et al. (2020)

# Individual Level

- Shortcomings of state level explanations?





# Individual Level

- Shortcomings of state level explanations?



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# Individual Level

- Different people respond differently
- Individuals have different:
  - Beliefs
  - Norms
  - Thought processes
  - Heuristics



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# Individual Level: Biases and Heuristics

- Leaders are not always rational
- Limits to human cognition
- Rely on heuristics (mental shortcuts)
- These heuristics aren't always bad, but can shape decisions in important ways

# Individual Level: Biases and Heuristics

- **Loss aversion** (Prospect Theory)
- Losses are more painful than comparable gains
- Take risks to mitigate loss

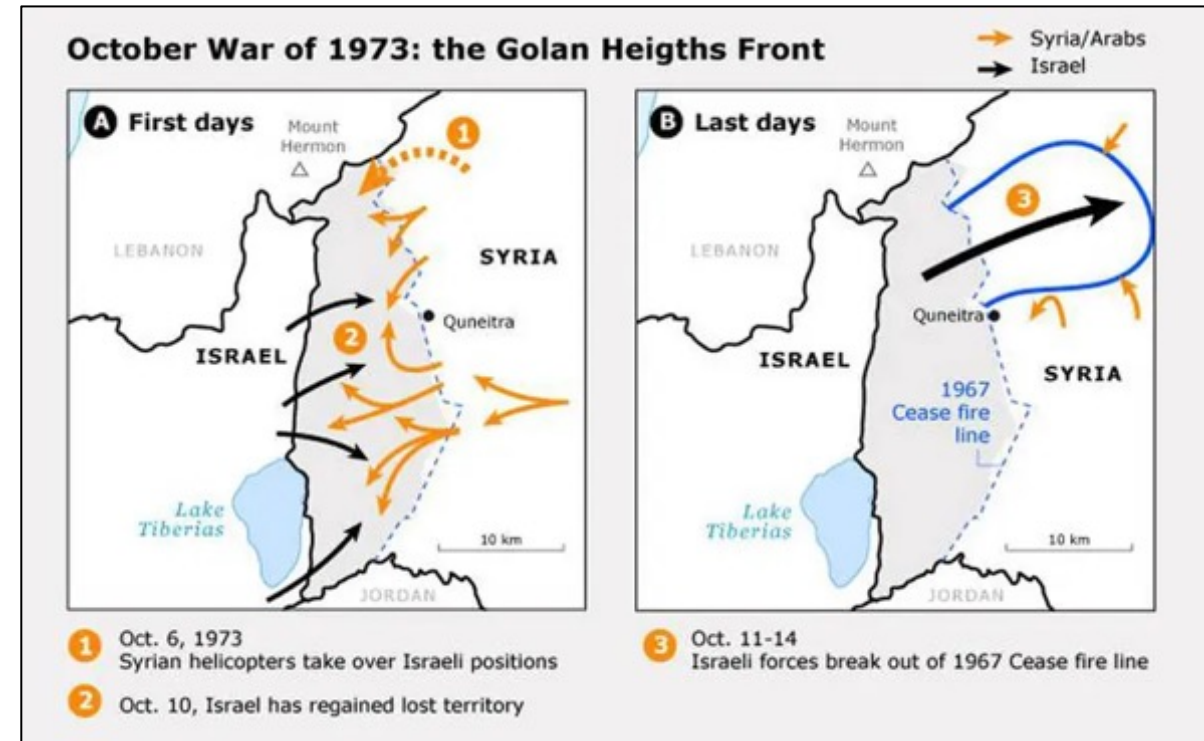


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# Individual Level: Biases and Heuristics

- **Availability Bias**
  - Assessment of rare events
    - Salience
    - Recency
  - Ignore or Overweight
- **Motivated reasoning**

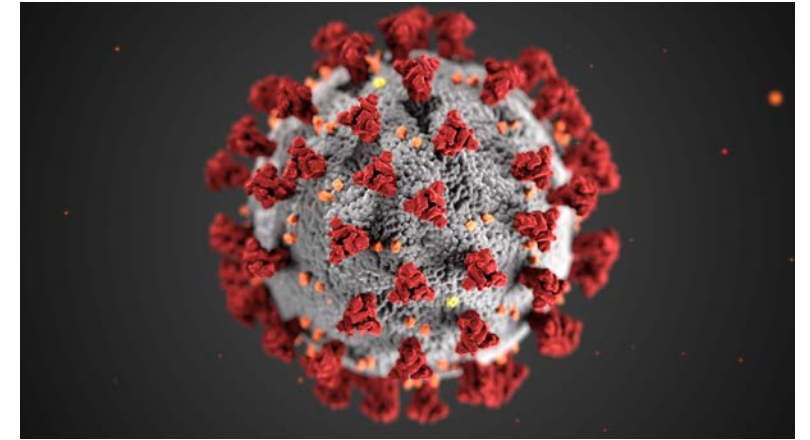


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# Individual Level: Mental Models

- **Mental Scripts**

- Fill in details
- Munich → Ukraine Today?
  - But what if Cuban analogy
- Domino Theory

- **Polyheuristic Theory**

- Narrow down options
- Still problematic?



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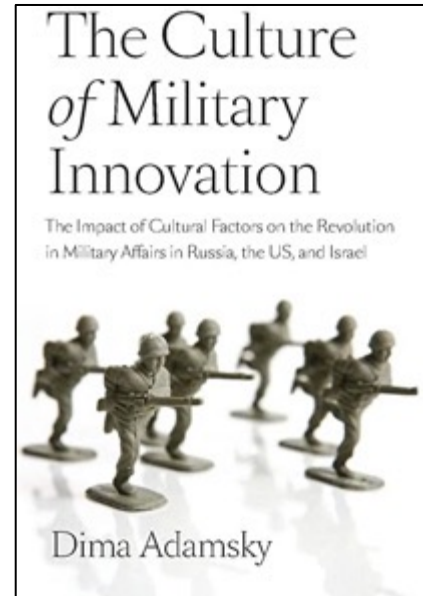
**What constitutes the use of force?**

**Who makes decisions on the use of force?**  
(and the development of military tech)

**Why is force used?**

# Looking Ahead

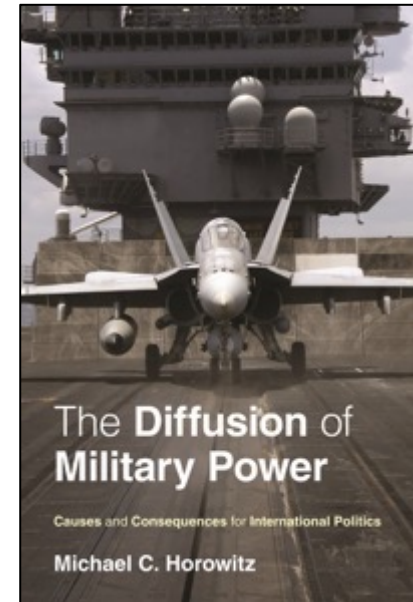
- Innovation Theory
- Diffusion



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