

# Why Are There Wars?

POSC 1020 – Introduction to International Relations

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## Puzzle(s) for Today

*War is a costly and ultimately inefficient means to address disputes. So why does it happen?*

## War is Fortunately Still a Rare Event

We care about war because of its costs, but most countries are at peace most of the time.

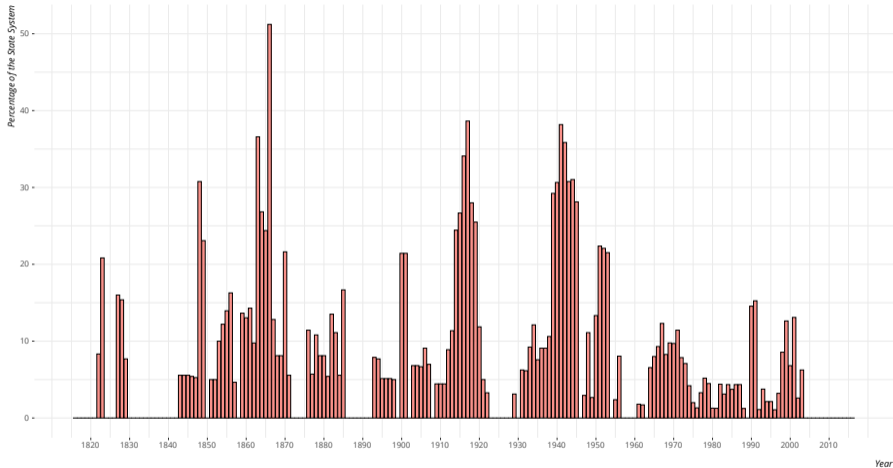
# The American Case

Consider the case of the United States and American deaths from:

- 9/11: 2,996
- Terrorism: around a dozen per year (recent spikes in Orlando, San Bernardino)
- Iraq War: 4,493
- Murder, average year: 16,121
- Car accidents, average year: 33,804
- Accidental falls, average year: 30,208
- Diabetes as underlying condition, 2015: 79,535

## The Percentage of States Involved in Interstate War by Year, 1816-2010

We treat interstate war as (fortunately) a rare event but the 1860s, 1910s, and 1940s stand out as particularly violent decades.



Data: GML MID data (v. 2.02) and Correlates of War State System Membership List.

# Defining our Terms

Let's be clear with our terms:

- *War*: Sustained combats between at least two participants that meets a minimum severity threshold.
  - Practically: 1,000 battle-related deaths per year (excluding civilian casualties).
- *Interstate*: a subset of war between at least two state system members.
- *State*: commonly a country, but with some caveats
  - e.g. recognition, population size

## Kashmir: Breathtaking, but Strategically Not That Valuable



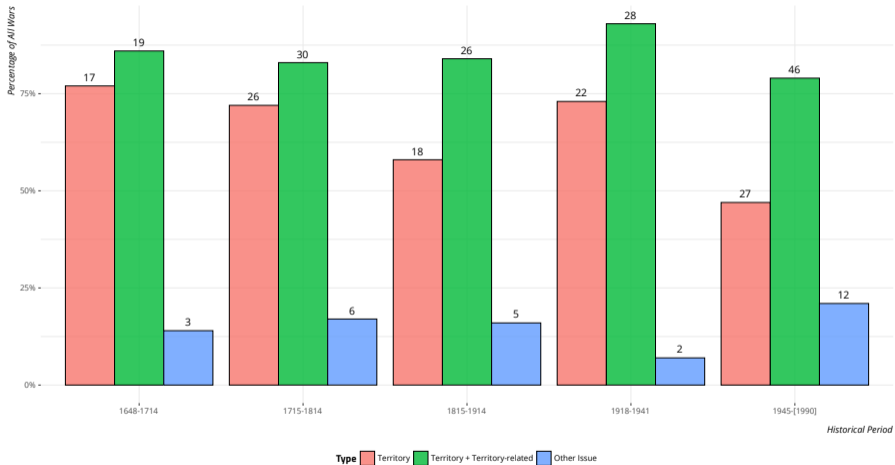
# Territorial Claims in Kashmir





## Percentage and Frequency of Wars By Issue Type, 1648-1990

Most wars over time have been fought over territory or territory-related issues than other issue types.



Data: Vasquez (1993) via Holsti (1991). Note: counts appear on top of the bars by issue-type.

# Wars Over Other Issues

Other issues, by contrast, are not as war-prone but can still lead to war.

- Composition of another side's regime (Iraq War, Vietnam War)
- Trade (e.g. Anglo-Dutch War)
- Various other policy concerns
  - Treatment of co-ethnics has come up recently (hello, Russia...)

# War as Failed Bargain

However, it's not as simple as saying "states fight wars over stuff." *Wars are failed bargains.*

- States have numerous issues among them they try to resolve.
- They may use threats of force to influence bargaining.
- If bargaining fails, states, per our conceptual thinking, resort to war.

# A Simple Model of Crisis Bargaining

To that end, we devise a simple theoretical model of crisis bargaining.

- There are two players (A and B).
- A makes an offer ( $0 < x < 1$ ) that B accepts or rejects.
  - If B accepts, A gets  $1 - x$  and B gets  $x$ .
  - If B rejects, A and B fight a war.

# A Simple Model of Crisis Bargaining

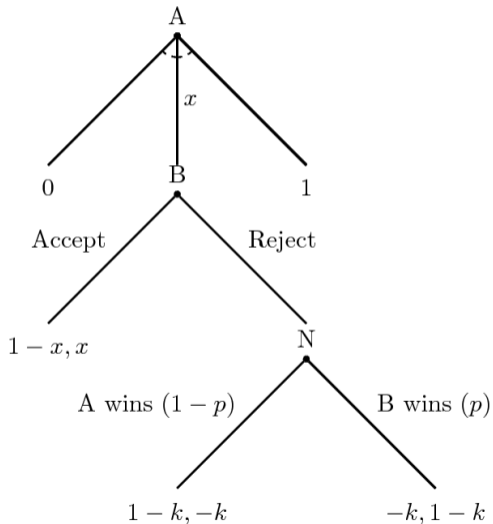
The war's outcome is determined by Nature ( $N$ )

- In game theory, Nature is a preference-less robotic actor that assigns outcomes based on probability.
- If (A or B) wins, (A or B) gets all the good in question minus the cost of fighting a war ( $1 - k$ )
  - Assume:  $k > 0$
  - Costs could obviously be asymmetrical (e.g.  $k_A, k_B$ ), but it won't change much about this illustration.
- The loser gets none of the good and eats the war cost too ( $-k$ ).

We assume minimal offers that equal the utility of war induce a pre-war bargain.

## A Simple Model of Crisis Bargaining

Here's a simple visual representation of what we're talking about.



# Solving This Game

How do we solve this game? How do A and B avoid a war they do not want to fight?

- The way to solve extensive form (i.e. “tree”) games like this is **backwards induction**.
- Players play games ex ante (calculating payoffs from the beginning) rather than ex post (i.e. hindsight).
- They must anticipate what their choices to begin games might do as the game unfolds.

In short, we can solve a game by starting at the end and working back to the beginning.

## Solving This Game

For our purpose, we need to get rid of Nature.

- Nature doesn't have preferences and doesn't "move." It just assigns outcomes.
- Here, it simulates what would happen if B rejected A's demand.

We can calculate what would happen if Nature moved by calculating the expected utility of war for A and B.



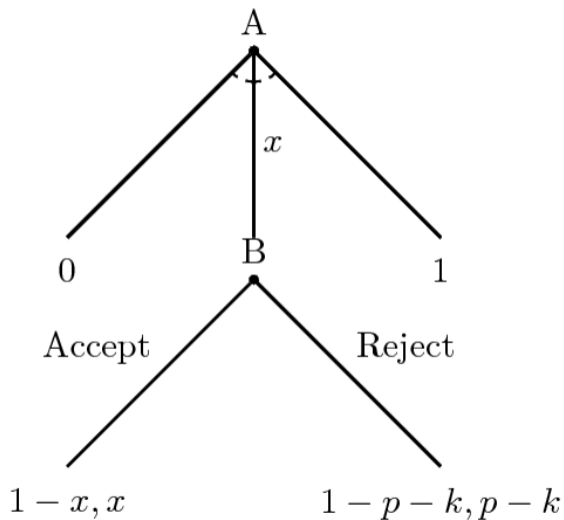
## Expected Utility for A of the War

$$\begin{aligned}EU(A|B \text{ Rejects Demand}) &= (1 - p)(1 - k) + p(-k) \\ &= 1 - k - p + pk - pk \\ &= 1 - p - k\end{aligned}$$

## Expected Utility for B of the War

$$\begin{aligned}EU(\text{B}|\text{B Rejects Demand}) &= (1 - p)(-k) + p(1 - k) \\ &= -k + pk + p - pk \\ &= p - k\end{aligned}$$

## The Game Tree, with Nature Removed



## Solving This Game

Now, continuing the backward induction, we focus on B.

- B ends the game with the decision to accept or reject.
- B does not need to look ahead, per se. It's now evaluating whether it maximizes its utility by accepting or rejecting a deal.

# Solving This Game

Formally, B rejects when  $p - k > x$ .

- It accepts when  $x \geq p - k$ .
- Notice A has a “first-mover advantage” in this game.
  - This allows it to offer the bare minimum to induce B to accept.
  - It would not offer anymore than necessary because that drives down A’s utility.

We say A’s offer of  $x = p - k$  is a minimal one for B to accept.

## Solving This Game

Would A actually offer that, though?

- In other words, are  $x = p - k$  and  $1 - x \geq 1 - p - k$  both true?

Recall: we just demonstrated  $x = p - k$ . From that, we can say  $1 - x \geq 1 - p - k$  by definition.

- The costs of war ( $k$ ) are positive values to subtract from the utility of fighting a war.

## The Proof

What A would get  $(1 - x)$  must at least equal  $1 - k - p$ . Therefore:

$$\begin{aligned}1 - x &\geq 1 - k - p \\1 - 1 + k + p &\geq x \\p + k &\geq x\end{aligned}$$

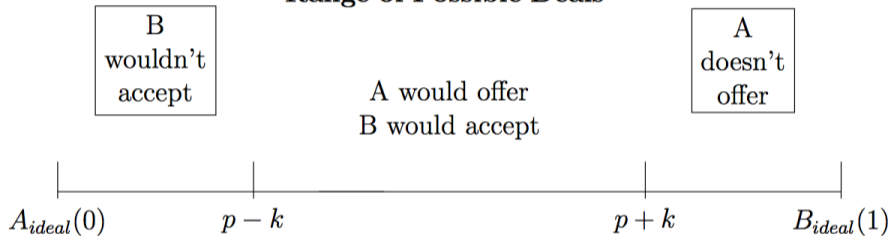
## Solving This Game

We have just identified an equilibrium where two states agree to a pre-war solution over a contentious issue.

- There exists a bargaining space where A and B resolve their differences and avoid war.



## Range of Possible Deals



## War as an Ultimatum Game

If you know some game theory, this looks like an ultimatum game. It is.

# War as an Ultimatum Game

Assume you and I cannot agree how to split \$100.

- I want all of it. So do you.
- For \$20, we can set up a fight for \$100.
  - First one to say “matté” (i.e. tap out, a la *Bloodsport*) loses.
- Assume  $p = .5$ , our  $EU(\text{fighting}) = (100)(.5) + (0)(.5) - 20 = 30$

## Would You 'Kumite' for \$100 in This Situation?



## Yes, You Would...

By itself, this is a fantastic lottery.

- For \$20, you win \$30 on average.
- We would agree to fight if this accurately represented our payoffs.

## War as an Ultimatum Game

Consider that I offer you a deal in light of this. I take \$70; you take \$30. Would you accept this? Assume:

- You are risk-averse and would take a deal that matches your expected utility for fighting.
- You are not permitted a counter-offer.

You might decry this as unequal. It is...

# War as an Ultimatum Game

However, you would accept this if you were rational.

- My offer to you just matched your expected utility of fighting.
- You would accept this, per our assumptions.
- Any offer I give to you between \$30 and \$70 would induce you to accept.
  - I would not offer you \$70, though, because that reduces my payout.

# Conclusion

- War is the most destructive/costly thing we do.
  - Fortunately, it's a rare event.
- States mostly fight over the distribution of territory.
- Conceptually: war is bargaining failure.
  - We'll talk more next about why exactly bargaining fails.



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