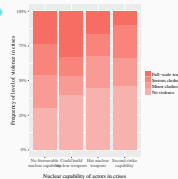
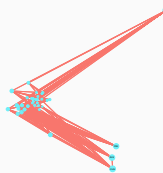
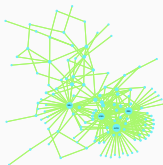
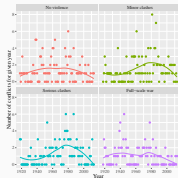


COSC3000: Data visualisation project

War visualised

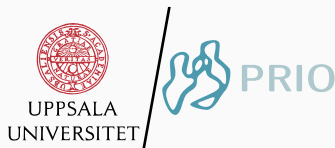
John Owen

April 23, 2016



Project aim

- Find interesting things about war
 - How war changes over time
 - Main players
 - Nukes
- UCDP/PRIO Armed Conflict dataset
- International Crisis Behavior Project dataset



ICB Project
International Crisis Behavior



Motivation

- Understanding war is important for politicians and voters
- Long articles are time consuming and don't allow for comparison
- Graphs provide an alternative

UCDP/PRIO Armed Conflict dataset

A list of conflicts

- When and where was the conflict
- Who was on what side (conflict actors)
- Type of conflict (civil war, international war, other possibilities)
- Intensity of conflict

Gleditch and Ward list of states

Maps state IDs in the UCDP/PRIO dataset to state names

(e.g, 2 → “United States of America”).



UPPSALA
UNIVERSITET



International Crisis Behavior Project dataset

A list of military security crises

- What was the cause of the crises
- How much did the opposing sides communicate
- How did the actors manage the crisis (economic sanctions, violence, etc)
- Global organizations like the UN
- Nuclear weapon capability

ICB Project

International Crisis Behavior



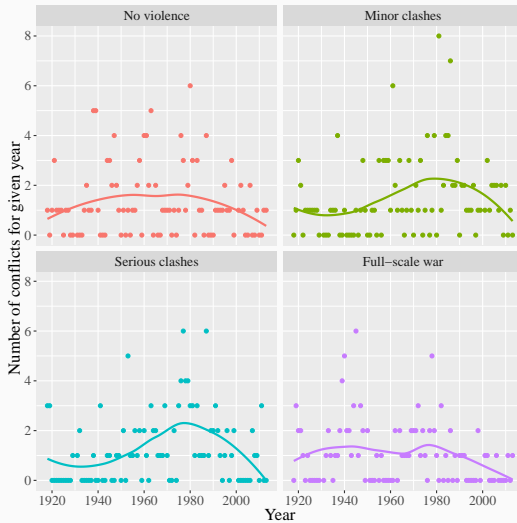
I used the R language to create the graphics.

`main.R`

- Load datasets from CSV files
- Parse numeric and vector columns
- Coerce data to format needed for graphing (e.g, adjacency matrix, frequency table, network)
- Plot data with the “ggplot2” library



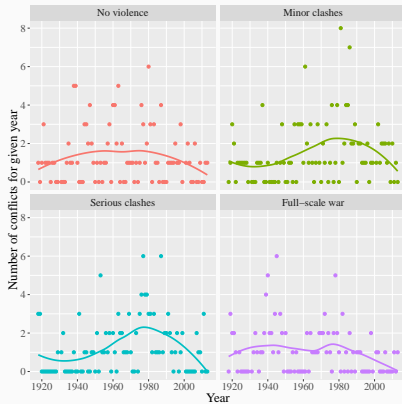
Results



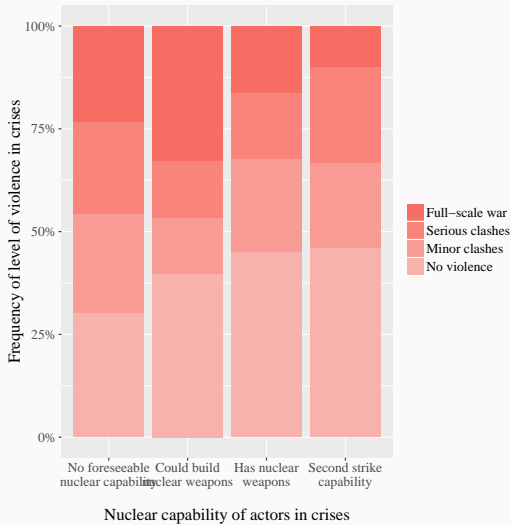
Results

Conflicts peak in the late 70's and then drop drastically

- End of cold war
- Collapse of soviet union



Results



Results

No foreseeable nuclear capability

Couldn't build nukes
within 5 years

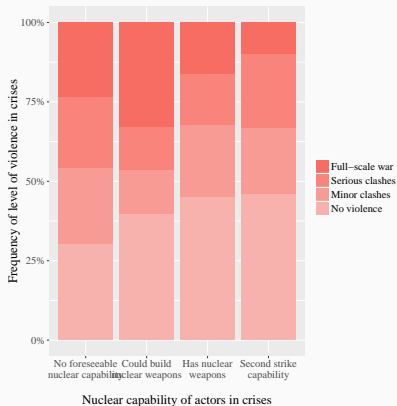
Foreseeable nuclear capability

Could build nukes
within 5 years

Possession of nuclear weapons

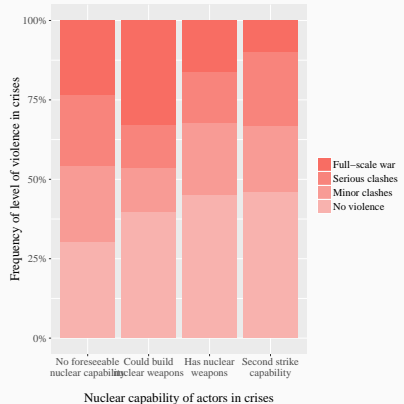
Has nukes

With second strike capability If
attacked with nuclear
weapons, could still
retaliate



Results

- Higher nuclear capability associated with a higher frequency of non-violent crises (i.e, events that *could* have become violent but didn't)
- Why?...

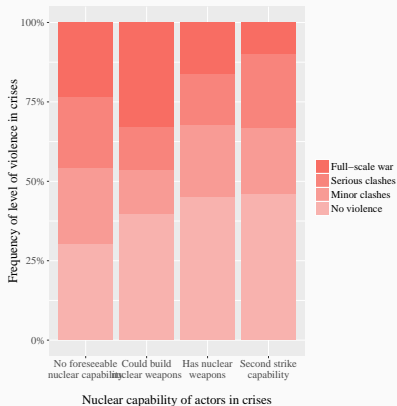


Results

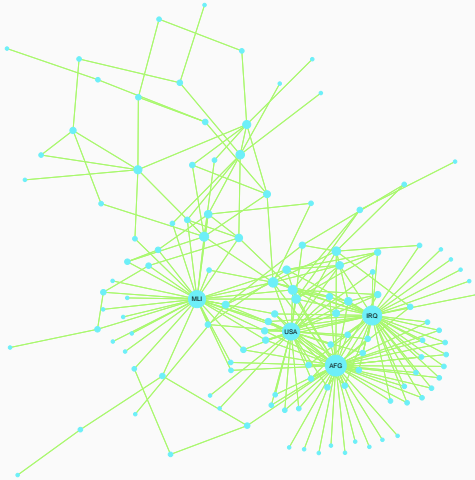
Commonly held hypothesis:

- Nukes decrease likelihood of conflict b.c governments are afraid of a mutually destructive nuclear war, as seen in the Cold War
- However, beyond a certain level, bolstering a nuclear arsenal doesn't decrease conflicts

If this hypothesis were true, this would be the expected result

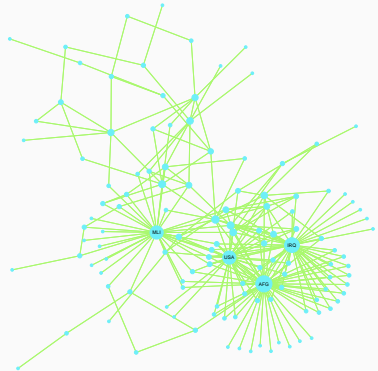


Results



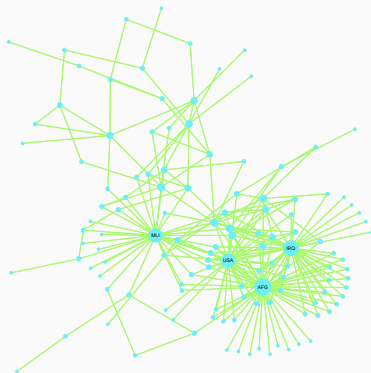
Results

- Nodes are countries
- Edges are between states that have fought on the same side



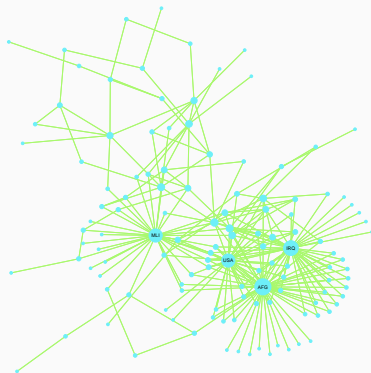
Results

- Nodes are countries
- Edges are between states that have fought on the same side
- Countries that haven't fought with any allies aren't shown (i.e, nodes with no edges)



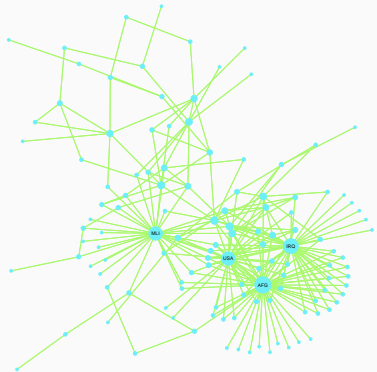
Results

- Nodes are countries
- Edges are between states that have fought on the same side
- Countries that haven't fought with any allies aren't shown (i.e, nodes with no edges)
- Four countries with many more allies than other countries are labeled
 - Mali (MLI)
 - United States of America (USA)
 - Afghanistan (AFG)
 - Iraq (IRQ)



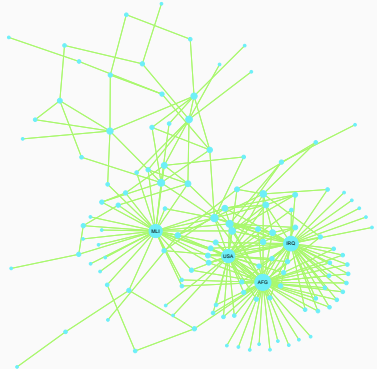
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 - Mali (MLI)
 - United States of America (USA)
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 - Iraq (IRQ)
- The size of each node is determined by the number of edges it has

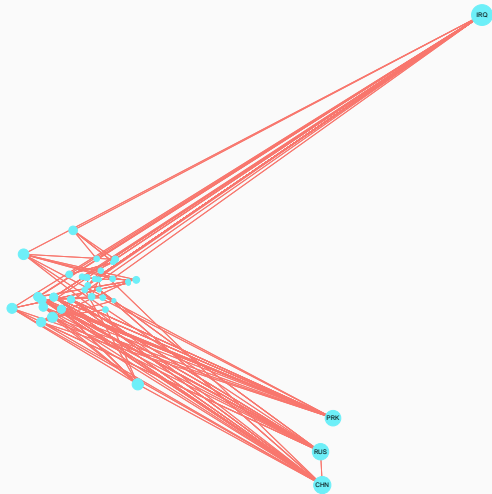


Results

- Most countries that have fought wars with allies do so with only a few
- Some countries fight with many allies (Mali, United States of America, Afghanistan, and Iraq)

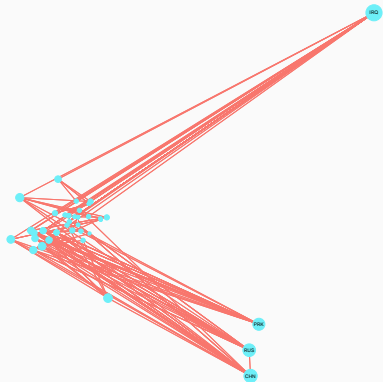


Results



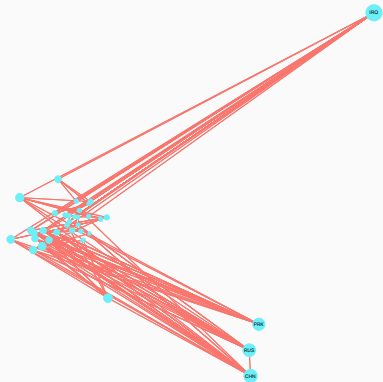
Results

- Nodes are countries
- Edges are between states that have fought against each other



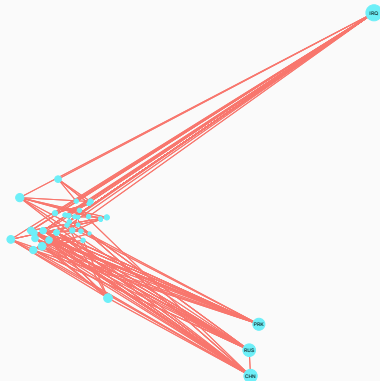
Results

- Nodes are countries
- Edges are between states that have fought against each other
- Countries that haven't fought anyone aren't show



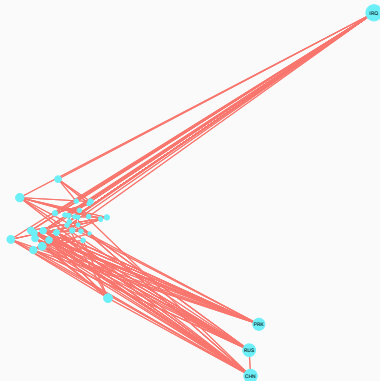
Results

- Nodes are countries
- Edges are between states that have fought against each other
- Countries that haven't fought anyone aren't show
- Four countries who've fought with many other countries are labeled
 1. Iraq (IRQ)
 2. North Korea (PRK)
 3. Russia (RUS)
 4. China (CHN)



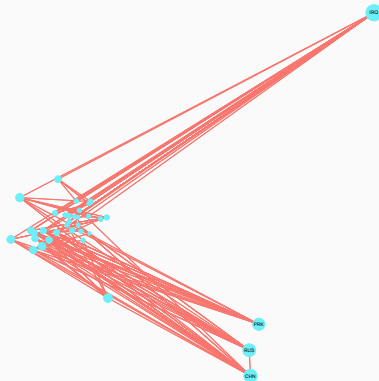
Results

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Results

- Most countries that have fought wars with allies do so with only a few
- Some countries fight with many allies (Mali, United States of America, Afghanistan, and Iraq)



Results

- USA doesn't have noticeably more enemies than everyone else
- Cold War: USA avoids direct conflict with Russia
- Fears war could cause a nuclear apocalypse
- Adopts indirect approach to wars, chooses to arm and train armies and rebel groups instead, so called “proxy wars”

