

Computational Approach to Studying Political Manifestos

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Motivation

To what degree can we benefit from computational techniques to code text as data instead of hand-coding?

Manifesto Project Database: USA, UK, Canada

- It provides parties' policy positions derived from a content analysis of parties' electoral manifestos.
- It covers over 1000 parties from 1945 until today in over 50 countries on five continents.



Some variables from the original dataset

Foreign Special Relationships: Positive

- Favorable mentions of particular countries with which the manifesto country has a special relationship; the need for co-operation with and/or aid to such countries.

Foreign Special Relationships: Negative

- Negative mentions of particular countries with which the manifesto country has a special relationship.

Controlled Economy

- Support for direct government control of economy. May include, for instance: control over prices, introduction of minimum wages.

Environmental Protection, Cyprus Issue, European Union



Related Literature

*“Party manifestos are among the few documents in the public domain which could be perceived as **holistic visions of the social order**.” - Ian Budge*

Existing studies show that **political parties' policy agendas are not static**; they respond to public opinion.

Wagner and Meyer (2014) propose two different strategies to explain how parties form their issue agendas:

- parties might emphasize the issue that **they have ownership of**
- or the issue that **concern voters most** in the subsequent election.

What's our contribution?

Track how party manifestos change over time.

How do key issues change?
What impact do key events have on policies?



战无不胜的马克思列宁主义、毛泽东思想万岁!



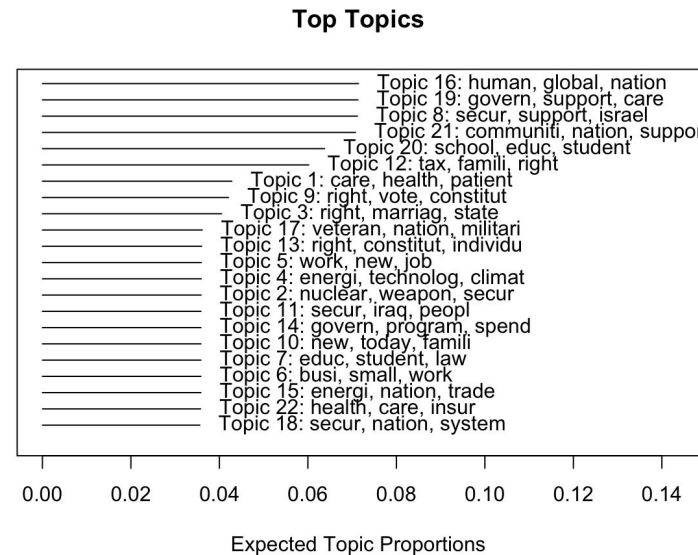
How does political leaning of a party form the way they define speak about issues and countries?

Our process

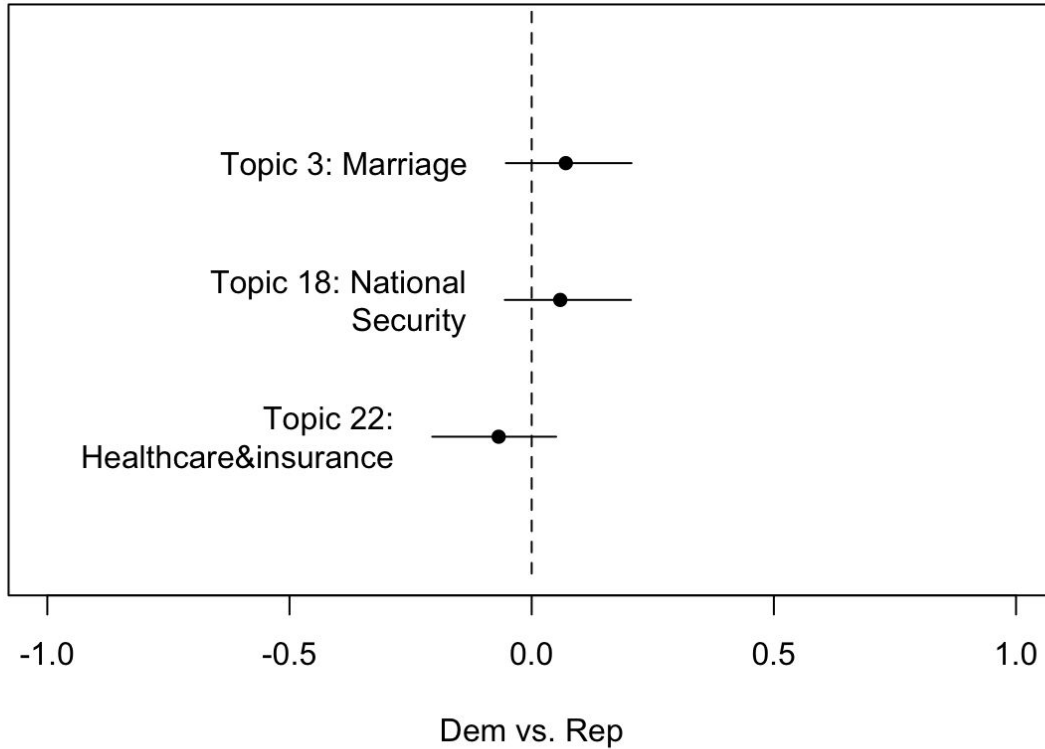
1. Topic modelling
2. Sentiment analysis on topics
3. Track foreign relations
4. WoRD eMBeDdINGs?

Step 1: Topic Modelling

1. Simplification: Focus in on one election (2008)
2. Divide a document into n parts (n based on document length)
 - a. Manifestos tend to be divided into key issue areas. Looking at manifesto as a whole loses nuance.
3. Run Structural Topic Modelling (STM)
4. Find parts of the document that relate to specific topics
 - a. What annotators would normally do on the paragraph level



Partisan comparison along key issues



Step 2: Sentiment analysis

Background

- Used: Valence Aware Dictionary for sEntiment Reasoning (VADER)
- Meant for social media data (we didn't know before, paper [here](#))
- Dictionary of words rated on a scale $\{-4,-3,-2,-1,0,1,2,3,4\}$.

Process

1. Chose each topic from the 2008 election
2. Rated the sentiment of the language used from both the republicans and democrats.
3. Results: mixed

Democratic sentiments

topic	Sentiment Value
secur, support, israel	0.047219
right, vote, constitute	0.042842
nuclear, weapon, security	0.040035
tax, family, right	0.038371
govern, support, care	0.037287
human, global, nation	0.035080
work, new, job	0.031206
security, iraq, people	0.028138
school, education, student	0.027365
new, today, families	0.025764
security, nation, system	0.016954
community, nation, support	0.016122
govern, support, care	0.005892
community, nation, support	0.003643

Republican sentiments

topic	Sentiment Value
care, health, patient	0.043667
education, student, law	0.039806
energies, technology, climate	0.038055
veteran, nation, military	0.036707
secur, support, israel	0.034850
education, student, law	0.033357
business, small, work	0.027242
energies, nation, trade	0.025334
education, student, law	0.022966
right, marriage, state	0.022557
security, nation, system	0.019091
govern, program, spend	0.014607
right, constitute, individual	0.010474
education, student, law	-0.005547

Manifestos as a proxy for IR?

1. For each manifesto found instances of another country being mentioned
2. Find the context of that mention
 - a. Acts as a proxy for what terms a country associates with another country
3. Track the evolution of these contexts

	date	party	contexts
0	196411	Democratic Party	[commitments, freedom, berlin, south]
1	196411	Republican Party	[south, encouraged, increase, aggression]
2	196811	Democratic Party	[south, north, postwar, asia]
3	196811	Republican Party	[war, peace, young, people]
4	197211	Democratic Party	[north, veterans, return, years]
5	197211	Republican Party	[war, forces, percent, american]
6	197611	Democratic Party	[veterans, war, unemployment, per]
7	197611	Republican Party	[war, south, troops, cambodia]
8	198011	Democratic Party	[veterans, war, considerably, expanded]
9	198011	Republican Party	[expanded, communist, continued, health]
10	198411	Democratic Party	[veterans, war, since, reflected]
11	198411	Republican Party	[soviet, union, cambodia, laos]
12	198811	Democratic Party	[care, women, risk, adequate]
13	198811	Republican Party	[veterans, republicans, isolation, resistance]
14	199211	Democratic Party	[four, times, number, died]
15	199211	Republican Party	[china, cuba, north, korea]
16	199611	Democratic Party	[benefits, expand, disability, veterans]
17	199611	Republican Party	[reactors, make, improvement, relations]
18	200011	Democratic Party	[pursue, causes, illness, suffered]
19	200011	Republican Party	[stood, test, fire, korean]
20	200411	Republican Party	[major, conflict, since, korea]
21	200811	Republican Party	[world, community, relations, improved]
22	201211	Democratic Party	[new, zealand, peru, singapore]
23	201211	Republican Party	[embrace, humane, future, relations]
24	201611	Republican Party	[minority, populations, improved, relations]

Republican language:

- Focused more on war, communism, other communist countries

Democrats language:

- Democrats focus on veterans, post war conditions, women.

Temporally also able to track the evolution of an issue

Cyprus contexts

	date	party	contexts
0	196811	Democratic Party	[conflict, kashmir, middle, east]
1	197611	Democratic Party	[mediterranean, encourage, fair, settlement]
2	197611	Republican Party	[choose, freedom, difficult, problem]
3	198011	Democratic Party	[settlement, resolution, worked, fair]
4	198411	Democratic Party	[democratic, respect, citizens, human]
5	198411	Republican Party	[place, highest, priority, resolving]
6	198811	Democratic Party	[longstanding, differences, northern, ireland]
7	198811	Republican Party	[peaceful, settlement, longstanding, dispute]
8	199211	Democratic Party	[renewed, commitment, achieve, timetable]
9	199211	Republican Party	[conflict, encourage, peaceful, settlement]
10	199611	Democratic Party	[peace, bosnia, northern, ireland]
11	199611	Republican Party	[encourage, peaceful, settlement, terrorism]
12	200011	Democratic Party	[tensions, greek, turkish, communities]
13	200011	Republican Party	[settlement, people, benefit, likewise]
14	200411	Republican Party	[settlement, people, benefit, continues]
15	200811	Democratic Party	[partnership, turkey, end, division]
16	200811	Republican Party	[support, ongoing, reconciliation, efforts]
17	201211	Republican Party	[hopeful, success, might, replicated]
18	201611	Democratic Party	[pushing, reforms, end, division]
19	201611	Republican Party	[hope, success, might, replicated]

Iraq contexts

	date	party	contexts
0	199211	Republican Party	[president, bush, quagmire, indefinite]
1	199611	Democratic Party	[iran, delivery, nuclear, weapons]
2	199611	Republican Party	[iran, syria, libya, north]
3	200011	Democratic Party	[mass, destruction, delivery, systems]
4	200011	Republican Party	[friends, community, long, also]
5	200411	Democratic Party	[administration, war, afghanistan, challenges]
6	200411	Republican Party	[afghanistan, nations, america, forces]
7	200811	Democratic Party	[war, ending, end, responsibly]
8	200811	Republican Party	[offer, special, circumstances, conflict]
9	201211	Democratic Party	[war, responsibly, forces, charting]
10	201211	Republican Party	[afghanistan, country, provide, nature]
11	201611	Democratic Party	[syria, partners, destroy, isis']
12	201611	Republican Party	[afghanistan, support, force, guard]

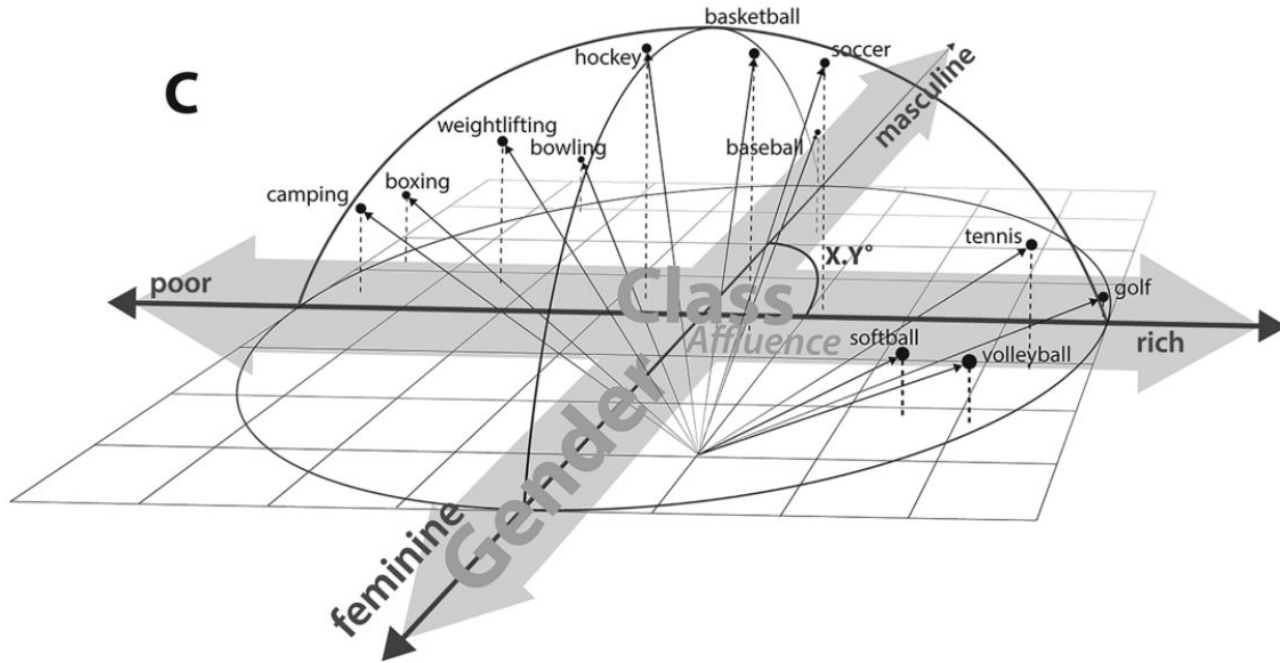
Can let us track the evolution of language surrounding conflicts.

The Cyprus example offers initial steps to quantify the manually coded features.

Word embeddings?

Goal 1: Project documents onto “cultural dimensions”

Goal 2: Create a document embedding



Define “social dimensions”. Idea from [this](#) paper.

Goal 1: Political dimensions

Ran Word2Vec on the entire corpus of English manifestos

Defined document vectors by taking the mean over the word vectors used in that document

Defined social vector by taking two opposing concepts and subtracting vectors.

Trade focused

	partyname	date	trade_welfare
0	Reform Party of Canada	199706	-0.131855
1	New Democratic Party	196511	-0.120678
2	Liberal Party of Canada	200406	-0.098972
3	New Democratic Party	200601	-0.094332
4	New Democratic Party	201510	-0.086233
5	Canadian Reform Conservative Alliance	200011	-0.082994
6	Green Party of England and Wales	201706	-0.080220
7	Liberal Party of Canada	196511	-0.079954
8	Conservative Party of Canada	200406	-0.079073
9	Conservative Party	200505	-0.078466

Welfare focused

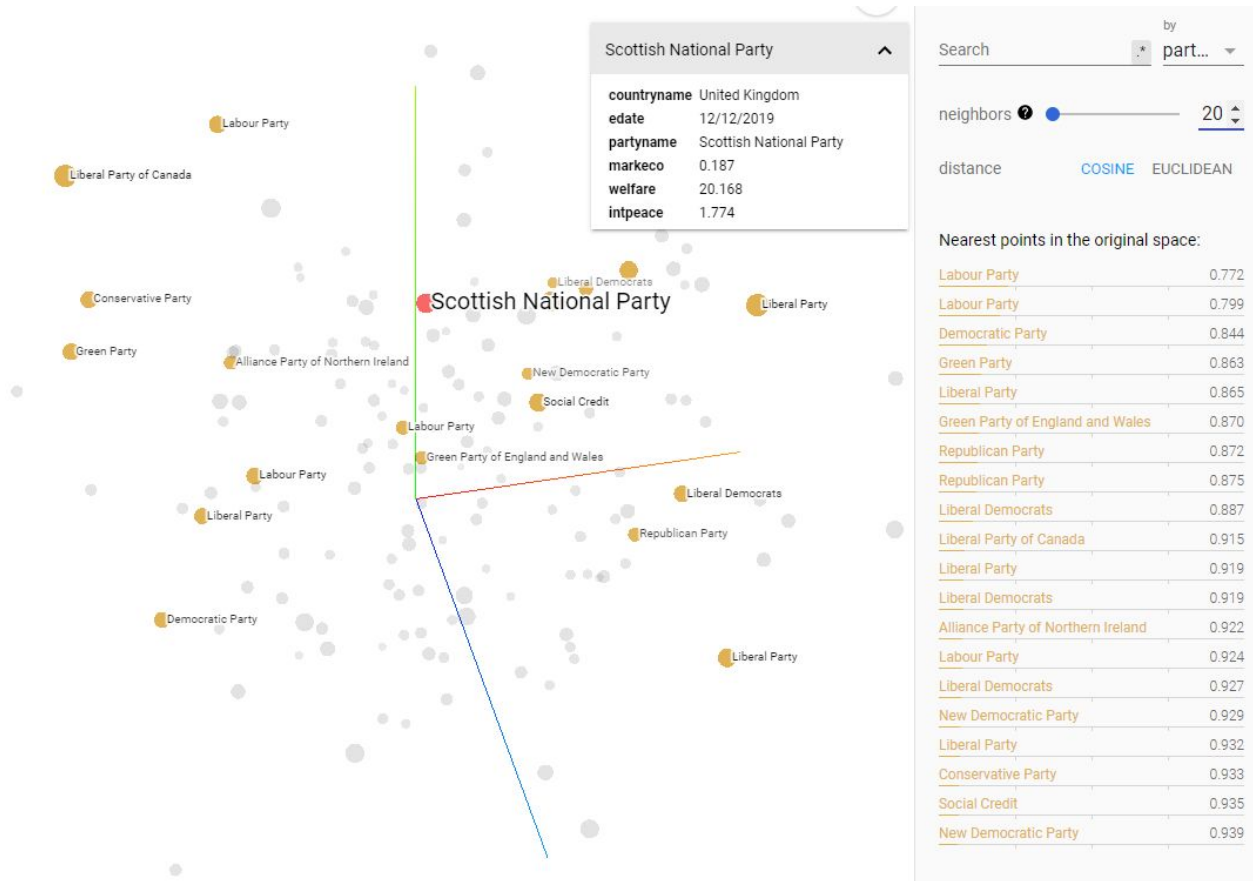
	partyname	date	trade_welfare
151	Democratic Unionist Party	201706	0.105364
150	Liberal Party of Canada	198002	0.105143
149	We Ourselves	201912	0.101127
148	Liberal Party of Canada	196806	0.098904
147	Social Credit	196304	0.089466
146	Alliance Party of Northern Ireland	201912	0.082443
145	Democratic Unionist Party	201912	0.078830
144	Liberal Party of Canada	198409	0.076206
143	Labour Party	197402	0.074202
142	New Democratic Party	197407	0.066736

Goal 2: Political dimensions

Compare documents
to find similarity
between them.

Ran Doc2Vec, a
variation of
Word2Vec.

Long term goal
calculate diffusion of
political ideas.



Next steps (methodological)

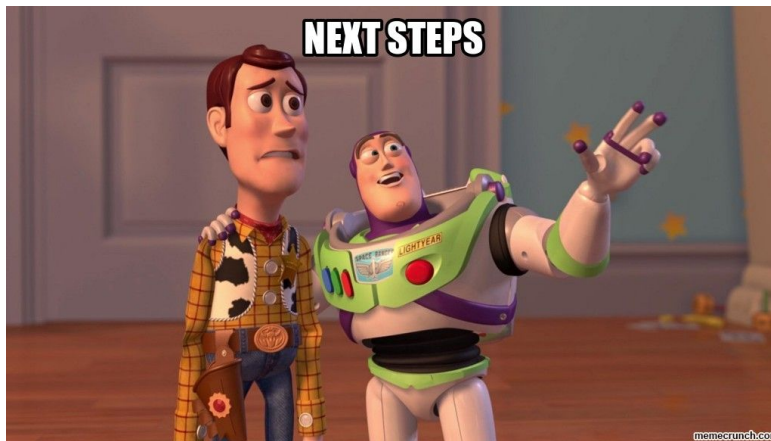
Expand topic analysis to more countries & more elections

Tune word2vec on word analogies (?)

Hand code on sentence level for supervised learning

Next steps (research questions)

- Diffusion of ideas across parties
- The change in the main key issue areas through time
- Predicting the coded variables in Manifesto Dataset
- Get some theory behind our “issue areas”



Thank you for listening!