An Investigation of Two Political Misinformation Campaigns from Canada and Iran

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ASU Arizona State University

Social Media & Politics

- Getting a lot of mainstream attention recently,
  - Social bots, foreign interference, polarization

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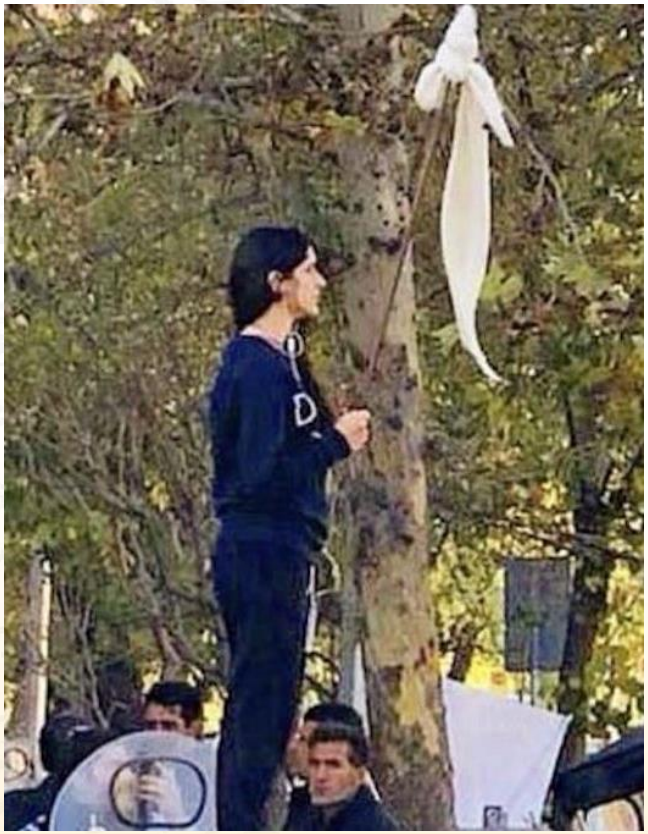
- I study the foreign accounts' & bot accounts' impact on polarization among groups on Twitter

Social Media & Politics

Iran Protests



Jagmeet Singh election as the head of the NDP in Canada

Problem Definition

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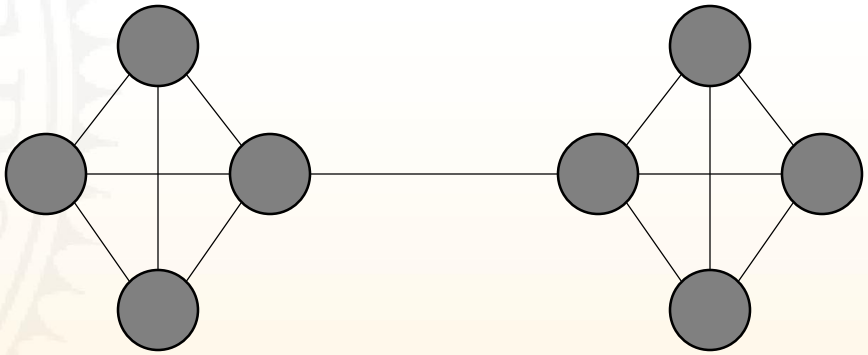

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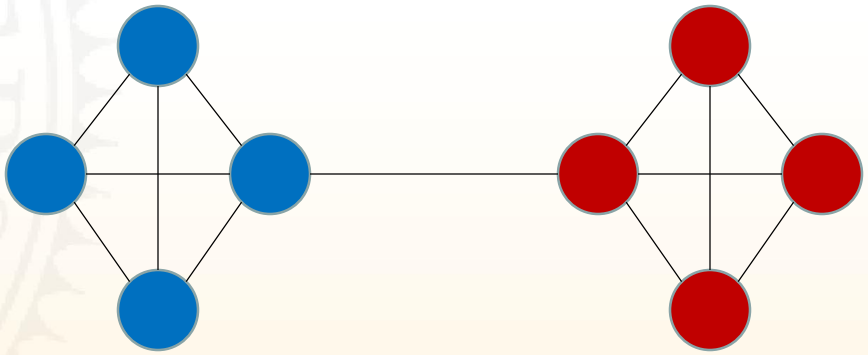
Community Detection by Louvain Algorithm



Problem Definition

Foreign Accounts' & Bot Accounts' Impact on Polarization among Groups

Quantifying **Polarization** on Social Media

- Given a two-sided graph;
  - Traverse the graph with random walks.
- Difference in the probability of
  - crossing to the opposite group
  - staying in the same group

Kiran Garimella, Gianmarco De Francisci Morales, Aristides Gionis, and Michael Mathioudakis. 2018. Quantifying Controversy on Social Media. Trans. Soc. Comput. 1, 1, Article 3 (January 2018)

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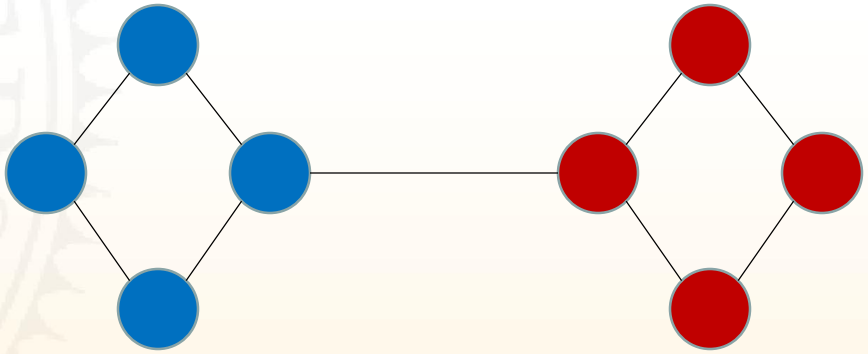

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Quantifying **Polarization** on Social Media

- Difference in the probability of
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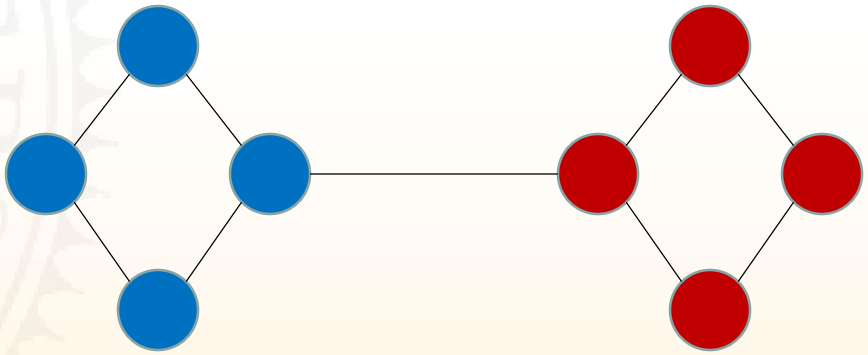
Polarization Score: 0.8393



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Quantifying **Polarization** on Social Media

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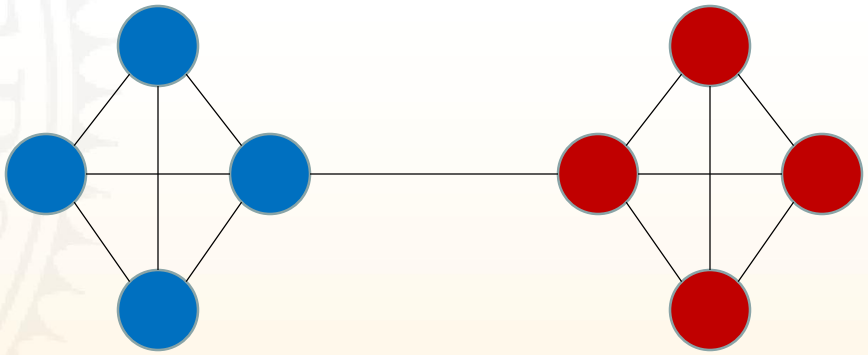
Polarization Score: 0.9142



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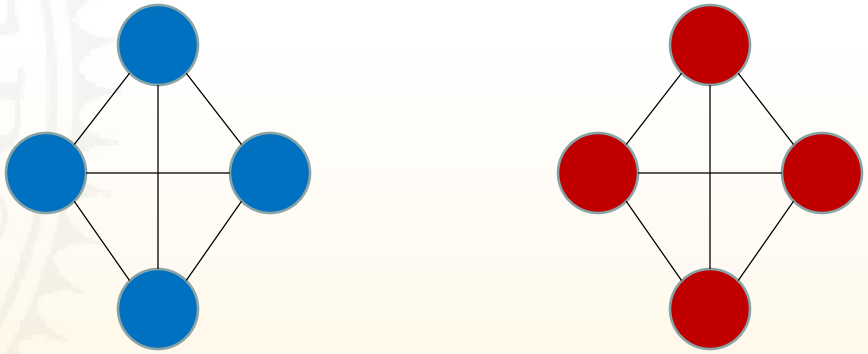
Polarization Score: 1.0



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Quantifying Polarization **Impact**

- Given a set of nodes under study and a baseline graph;
  - Calculate the polarization on the baseline graph
  - And on the baseline + new set of nodes graph

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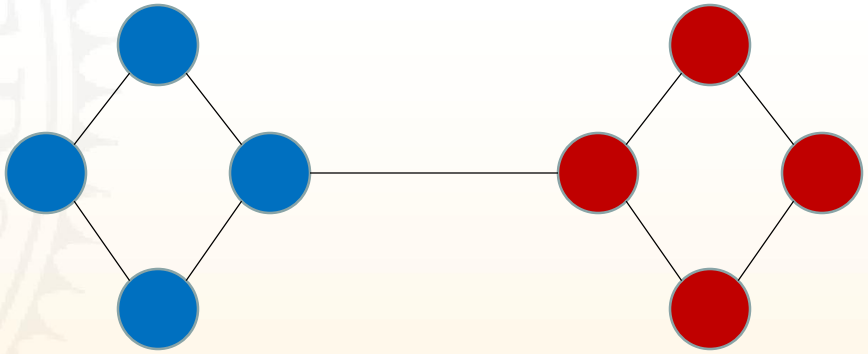

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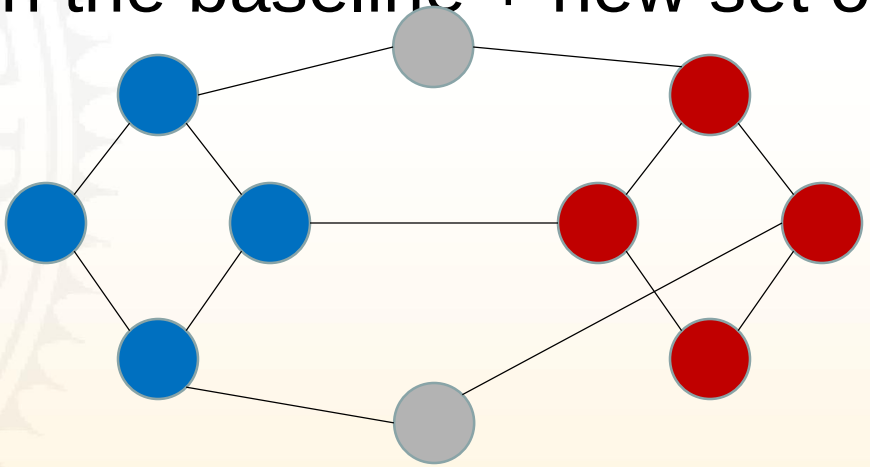

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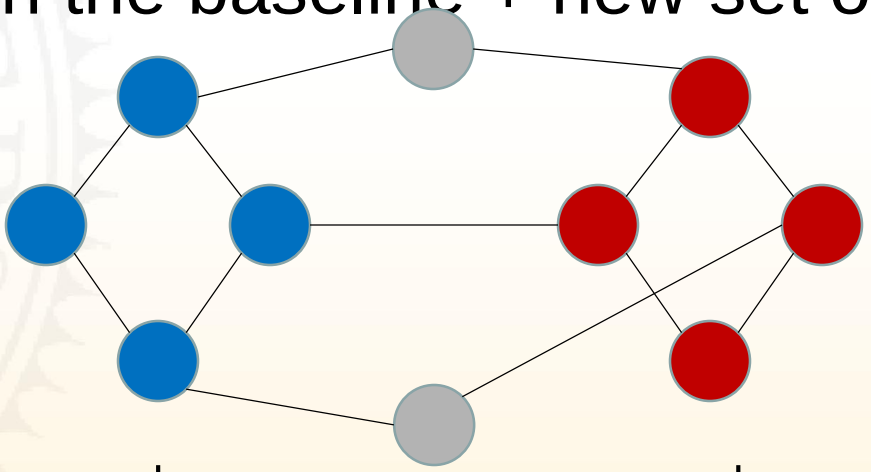

Polarization Decrease

Kiran Garimella, Gianmarco De Francisci Morales, Aristides Gionis, and Michael Mathioudakis. 2018. Quantifying Controversy on Social Media. Trans. Soc. Comput. 1, 1, Article 3 (January 2018)

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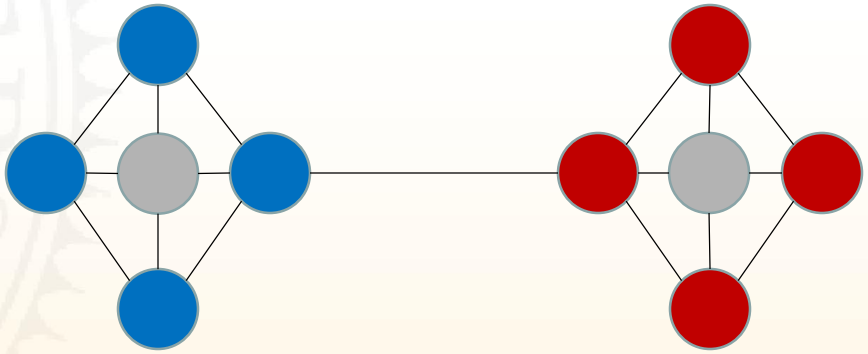

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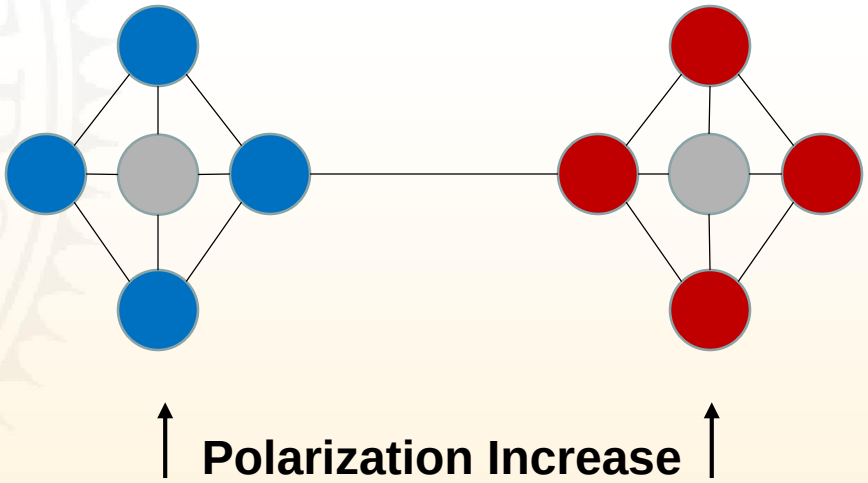

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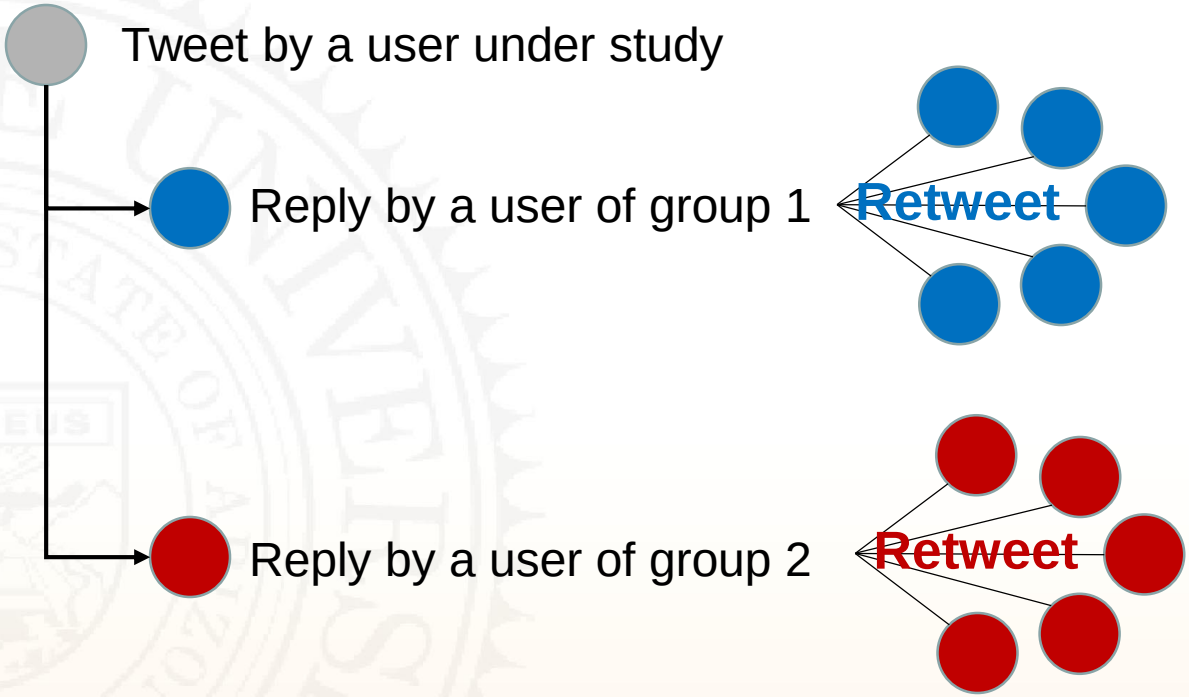

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Botometer®

An OSoMe project (bot•o•meter)

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An OSoMe project (bot•o•meter)

@n_tw_s 3.9 / 5

English-specific features		Language-independent features		Bot score based on	
Content:	3.6	Friend:	3.4	All features:	4.1
Sentiment:	2.9	Network:	3.2	Language-independent:	3.9
		Temporal:	3.4	User profile language:	ar
		User:	4.3	Complete Automation Probability:	45%

Profile | Tweet | Details | Feedback

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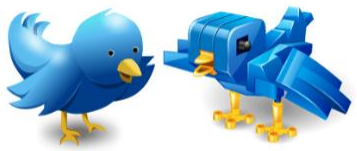
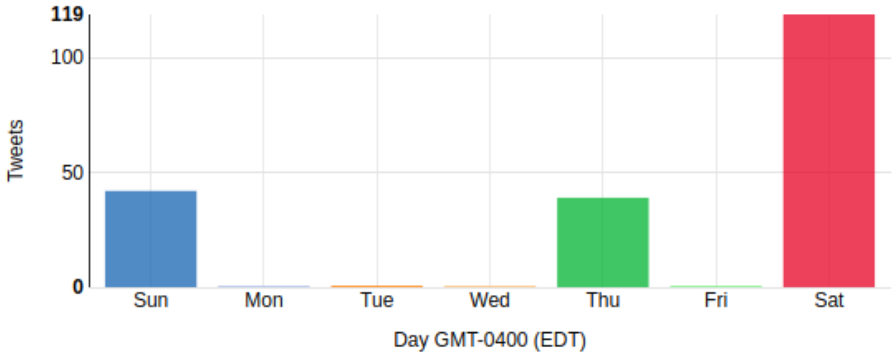
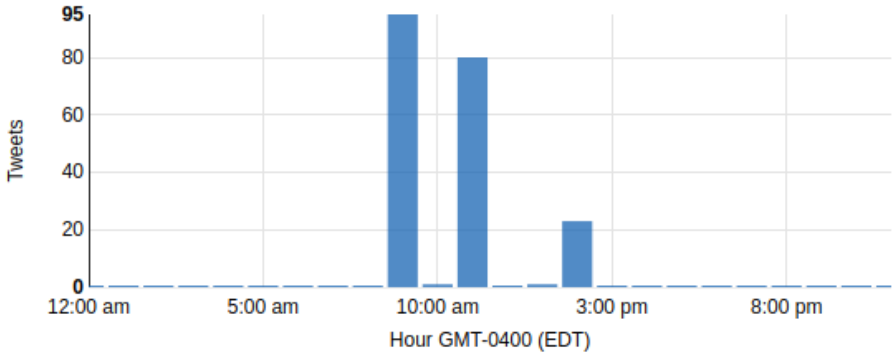


Tweets by day of week Last 200 tweets



Tweets by hour of day Last 200 tweets



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Problem Definition

Foreign Accounts' & Bot Accounts' Impact on Polarization among Groups

RT
@n_tw_s

Tweets	Following	Followers	Likes	Lists
62.2K	10.6K	13.5K	4	1

RT Retweeted

mahsti25 @mahsti25metana1 · Jun 2

#Iran regime is the godfather of terrorism in the region
#IRGC_out #IRGCTerrorists

3 46 42

Show this thread

Problem Definition

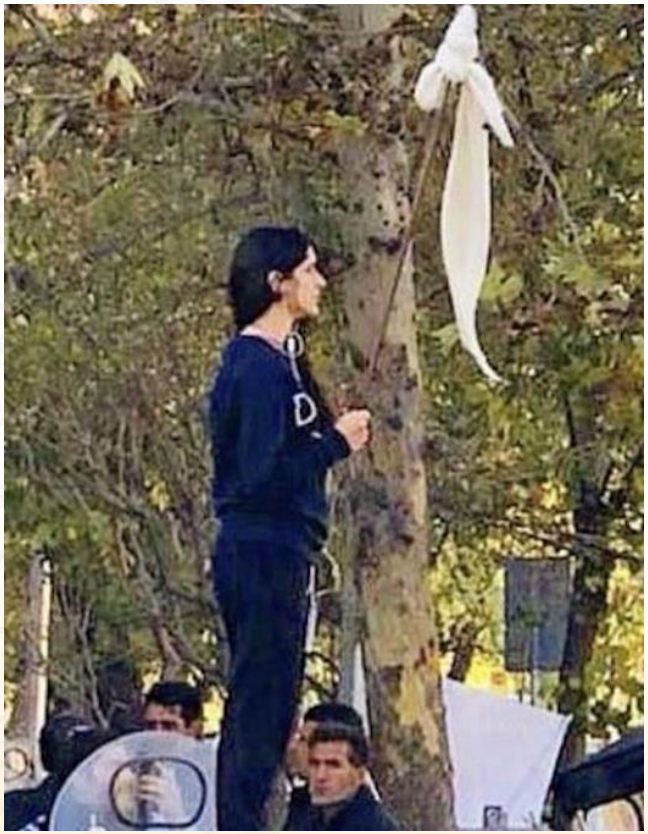
Foreign Accounts' & Bot Accounts' Impact on Polarization among Groups

An account which discloses its location
- in their profile
- or GPS signal

as anywhere outside of the country of study

Social Media & Politics

Iran Protests



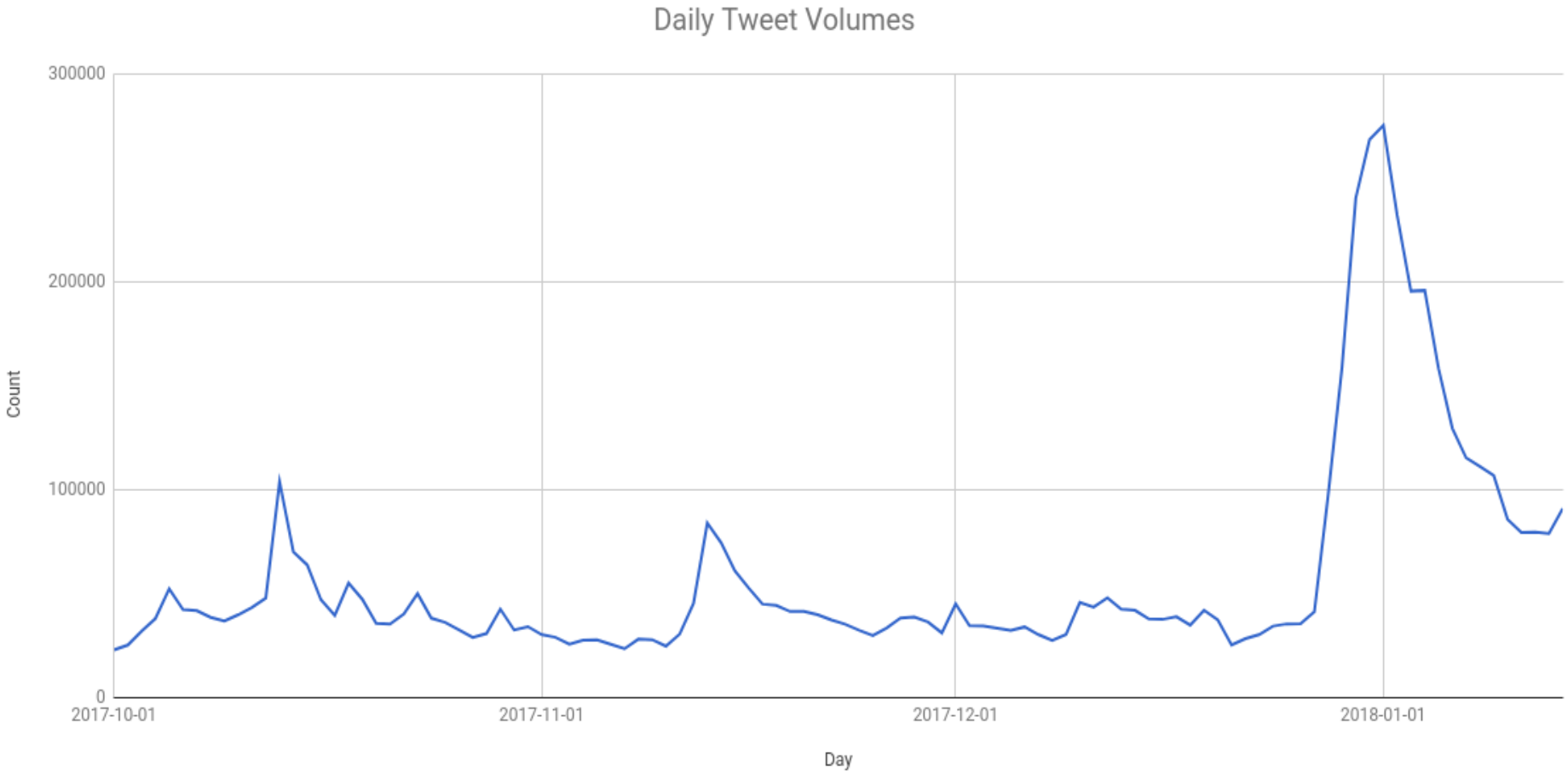
Jagmeet Singh election as the head of NDP in Canada

Data Collection

- Purchased Twitter data from GNIP spanning **October 1, 2017 and January 15, 2018**
  - political leaders, governmental organizations, nuclear deal and December protests

Data Description

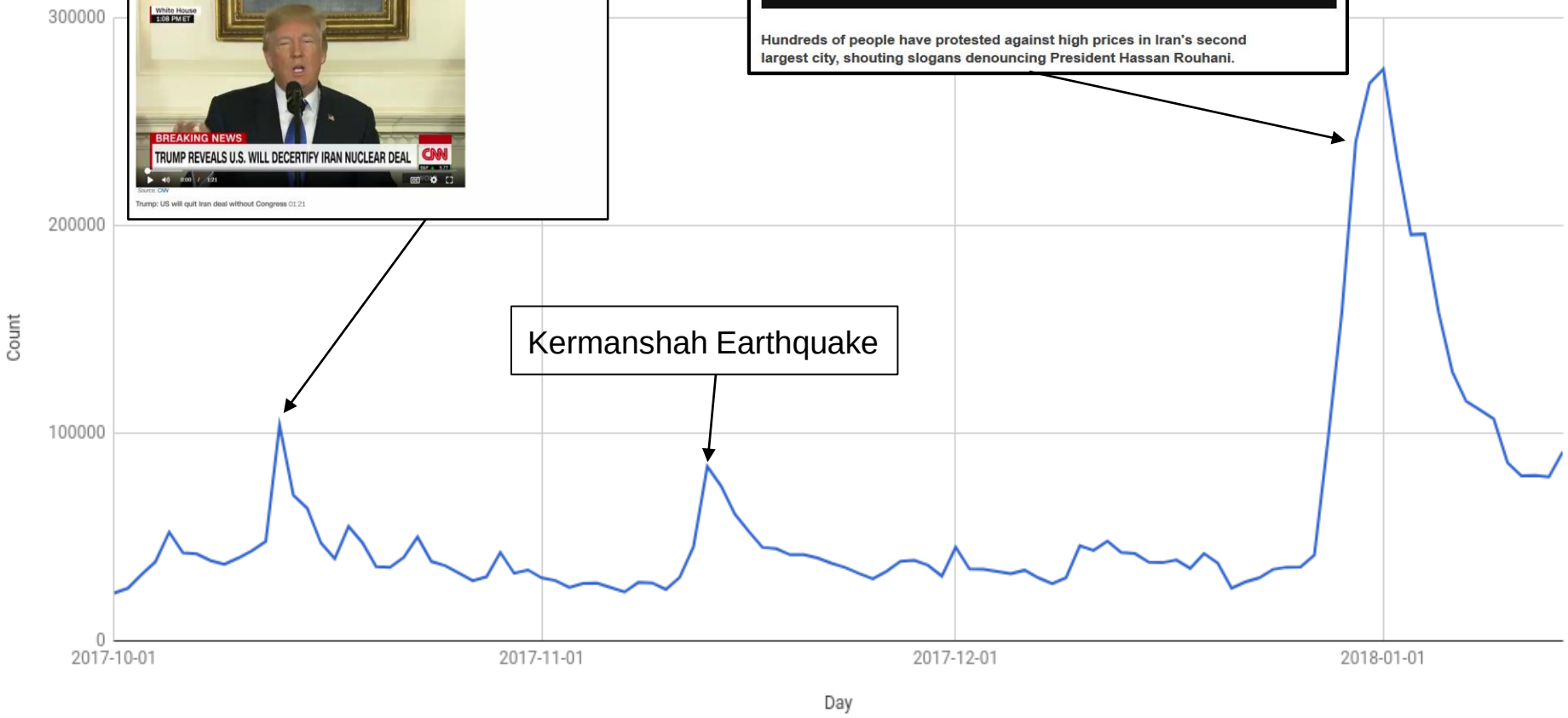
- 6,123,230 tweets, 185,732 accounts



Data D

Trump says Iran violating nuclear agreement, threatens to pull out of deal
By Stephen Collinson, Kevin Liptak and Dan Merica, CNN
Updated 7:08 PM ET, Fri October 13, 2017
White House
1:08 PM ET
BREAKING NEWS
TRUMP REVEALS U.S. WILL DECERTIFY IRAN NUCLEAR DEAL
CNN
Trump: US will quit Iran deal without Congress 01:21

Iranians protest against high prices in Mashhad
28 December 2017
Share
Mashhad's governor said the protest was organised by "counter-revolutionaries"
Hundreds of people have protested against high prices in Iran's second largest city, shouting slogans denouncing President Hassan Rouhani.


Daily Tw
300000
200000
100000
0
Count
2017-10-01
2017-11-01
2017-12-01
2018-01-01
Day
Kermanshah Earthquake

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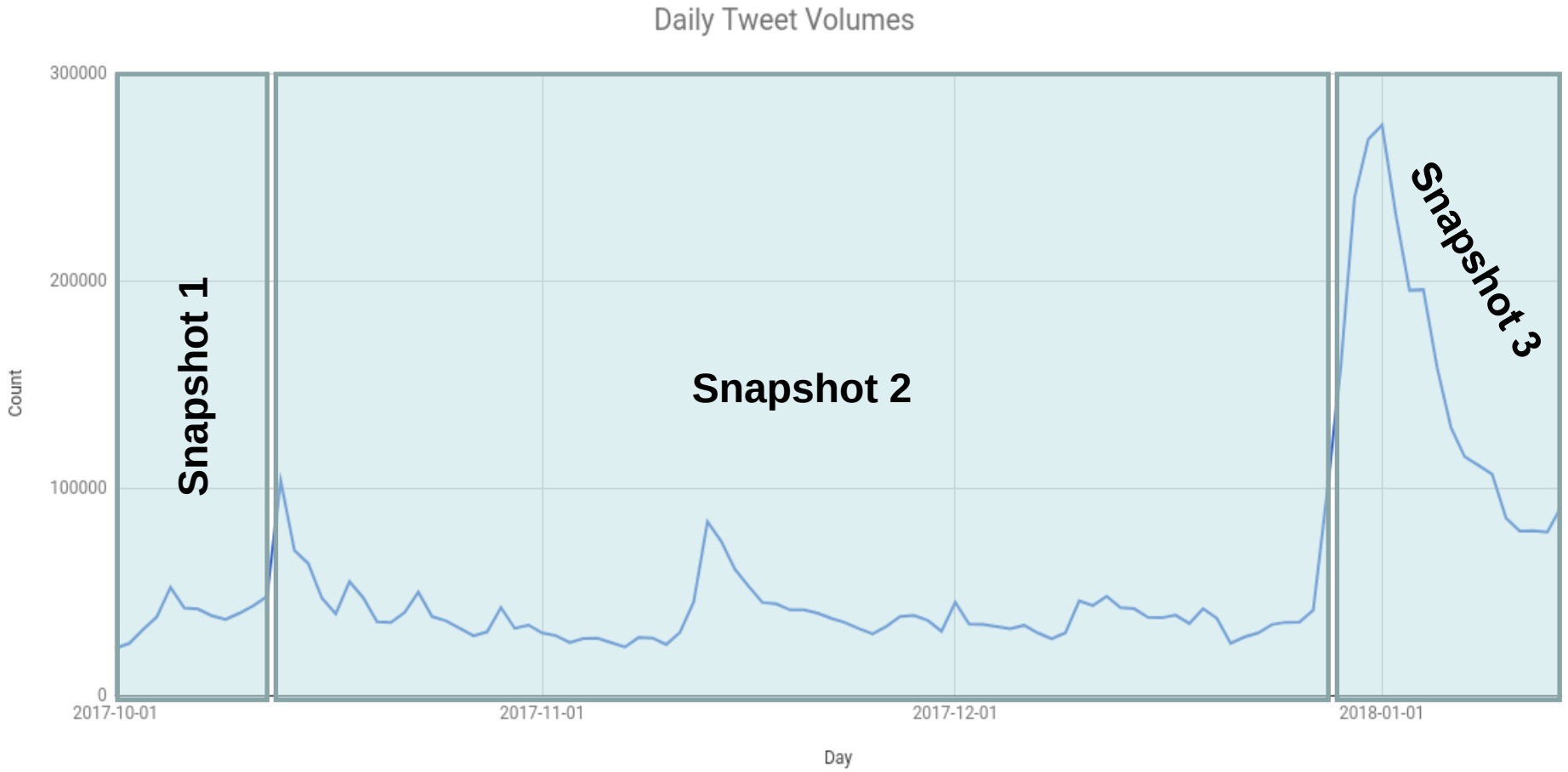

Community Detection

- Built a community exploration tool showing each community's;

Community Detection

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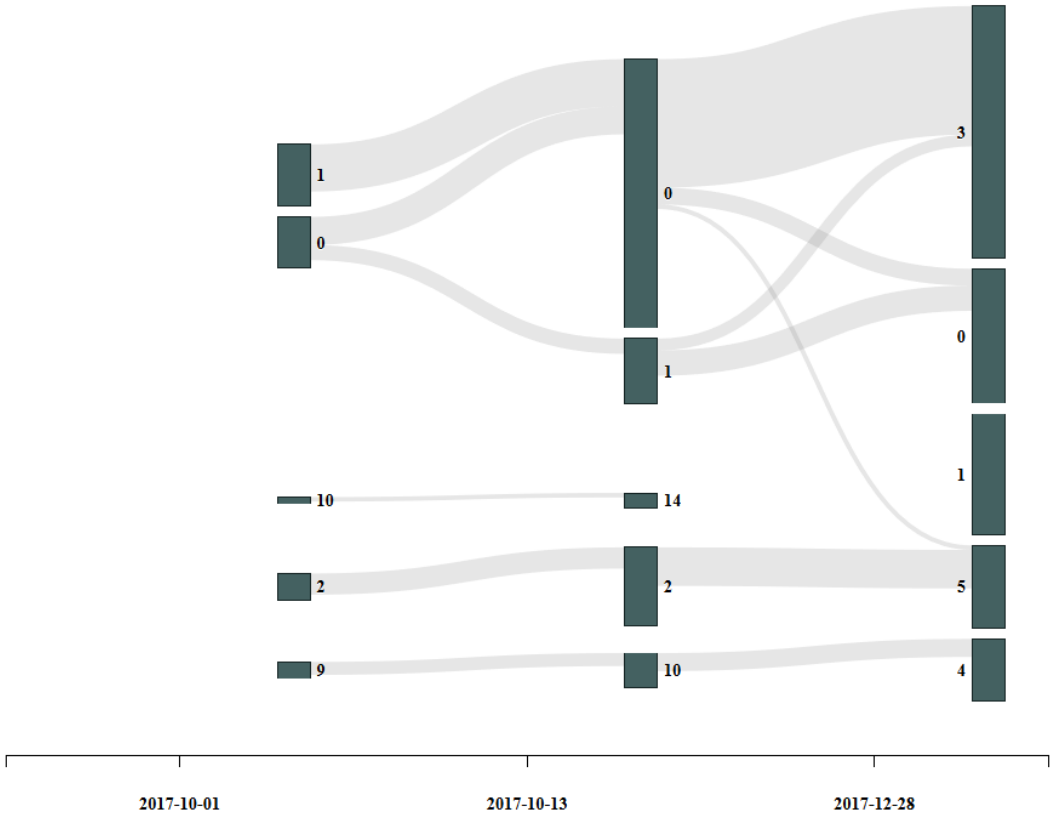
  - Central users (indegree over retweet network)
  - Most popular images, hashtags, URLs
  - Most retweeted and replied tweets

Community Detection

- Characterized each community by their political standing using the tool at;

http://www.public.asu.edu/~mozer/cipslab/Sankey.html

Community Exploration Tool



Popular Hashtags

No Hashtags

Central Users

No Users

Popular Images

No Media Links

Most Replied Tweets

No Replies

Most Retweeted Tweets

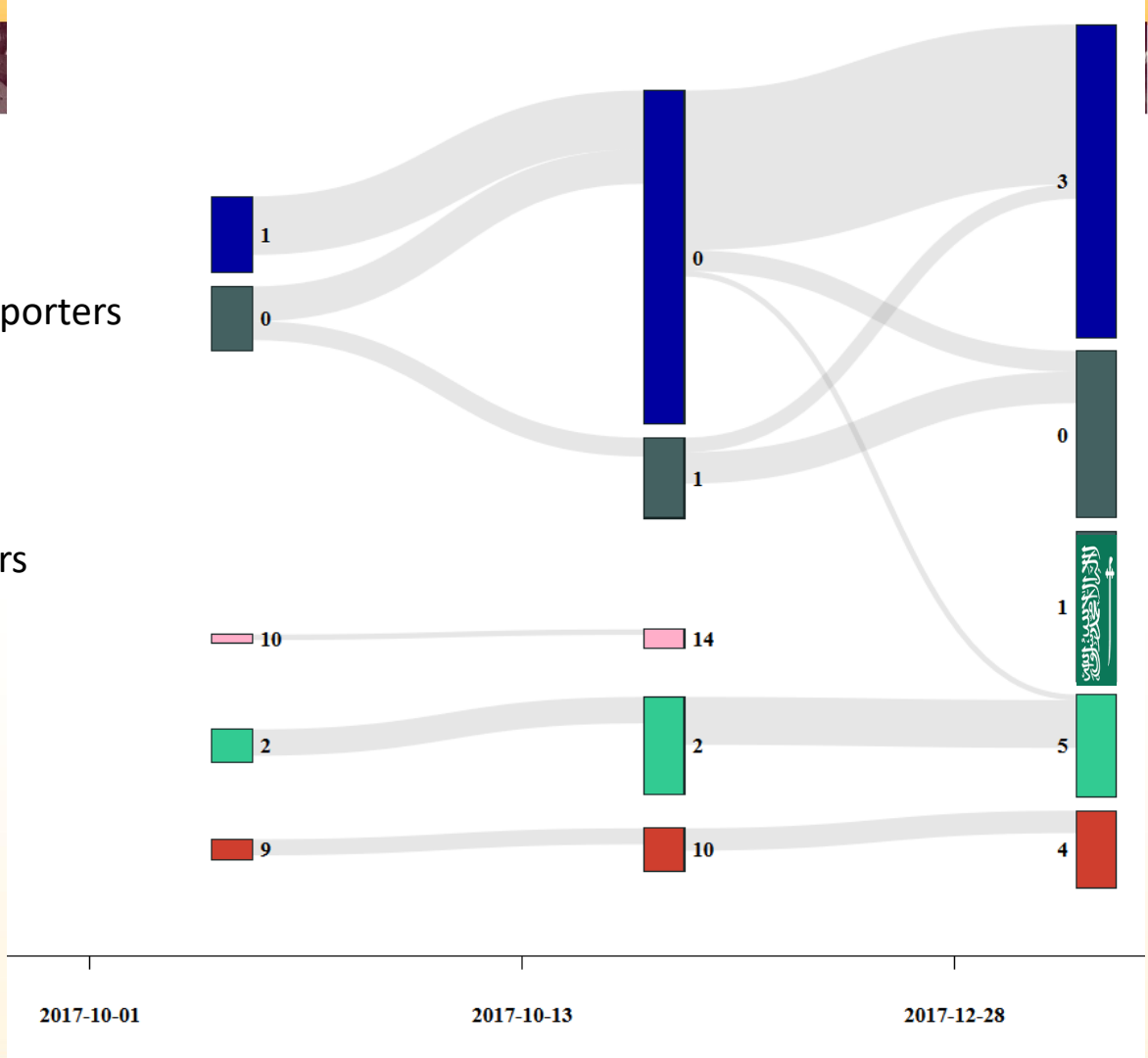
No Retweets

Popular URLs

No Hashtags

Communities Over 4 Months

- Reformists/Rouhani supporters
- Other leftist factions & Pahlavi supporters
- Sufis
- Saudi /Bahrain / UAE & supporters
- Right Wing/Conservative/Hardliners
- People's Mujahedin of Iran



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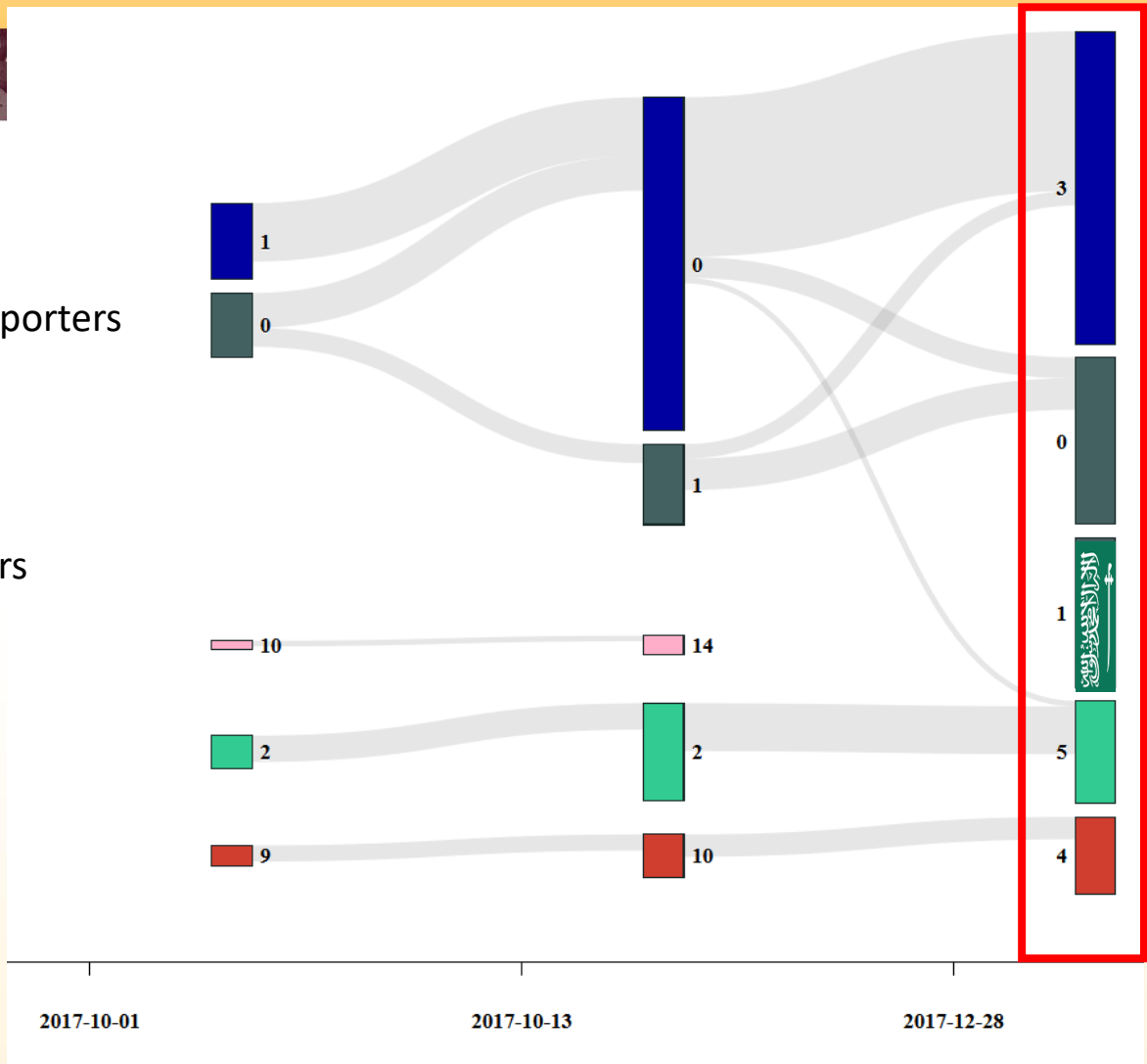
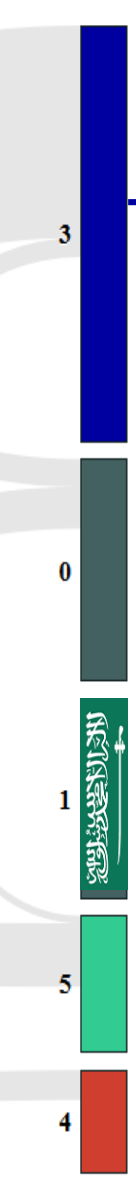
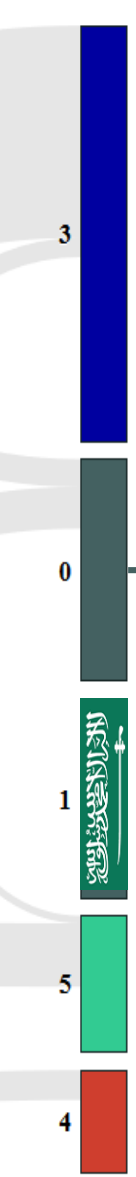


Profile Locations



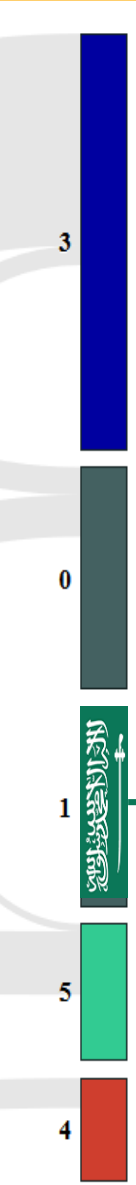
Islamic Republic of Iran: 2955
Tehran: 1780
Iran: 843
Tehran: 526
Islamic Republic of Iran: 507

Profile Locations



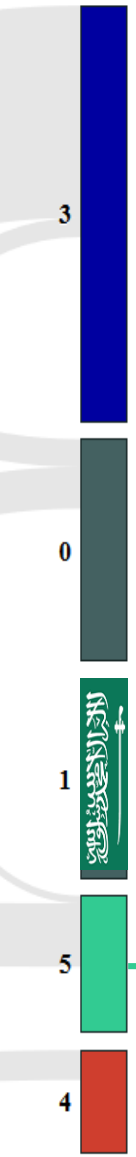
Islamic Republic of Iran: 763
Tehran: 387
Iran: 380
Islamic Republic of Iran: 187
Iran:63

Profile Locations



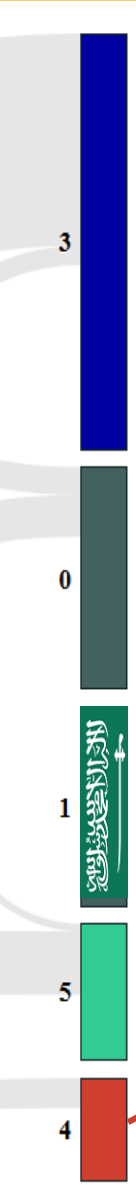
Saudi Arabia: 1004
Riyadh, Saudi Arabia: 261
Riyadh: 240
Jeddah, Saudi Arabia: 186
Kingdom of Saudi Arabia:141

Profile Locations



Islamic Republic of Iran: 1249
Islamic Republic of Iran: 970
Tehran: 262
Tehran: 184
Iran:176

Profile Locations



London, England:150
Kingdom of Saudi Arabia: 129
Islamic Republic of Iran: 75
England, United Kingdom: 48
Islamic Republic of Iran :46

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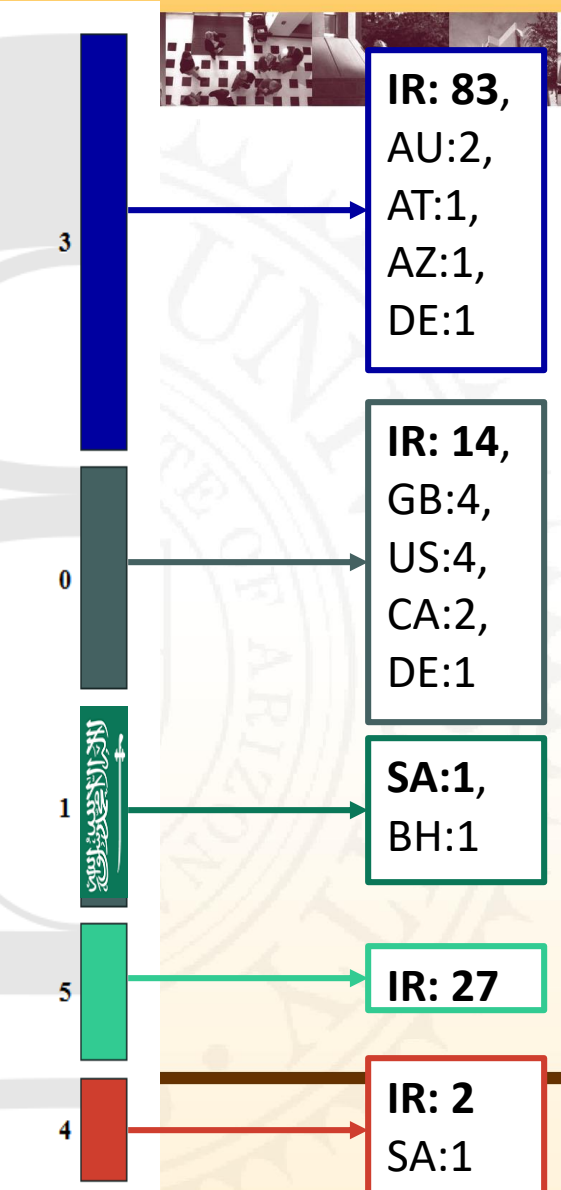
GPS Signals



IR: 83, AU:2, AT:1, AZ:1, DE:1

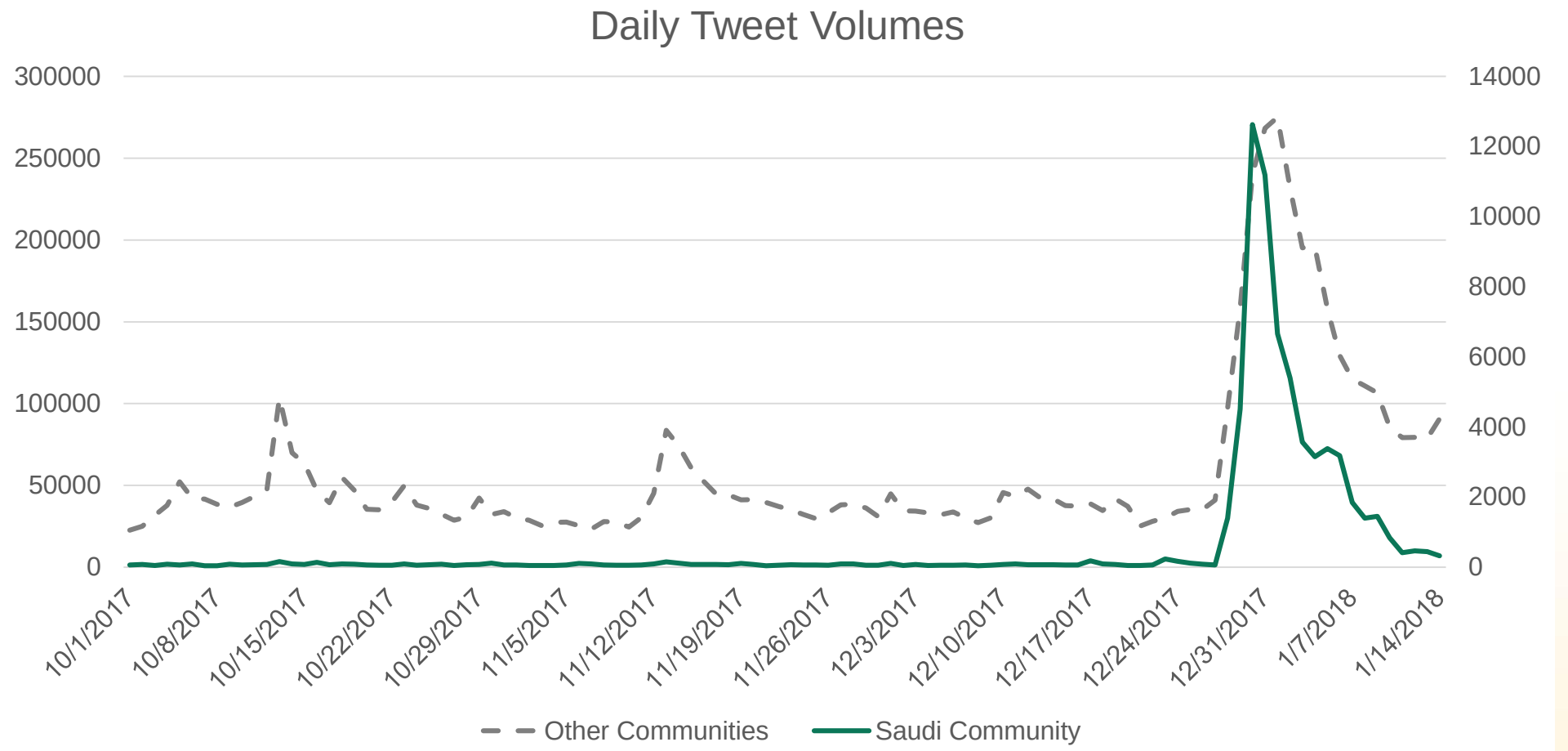
IR: 14, GB:4, US:4, CA:2, DE:1

SA:1, BH:1

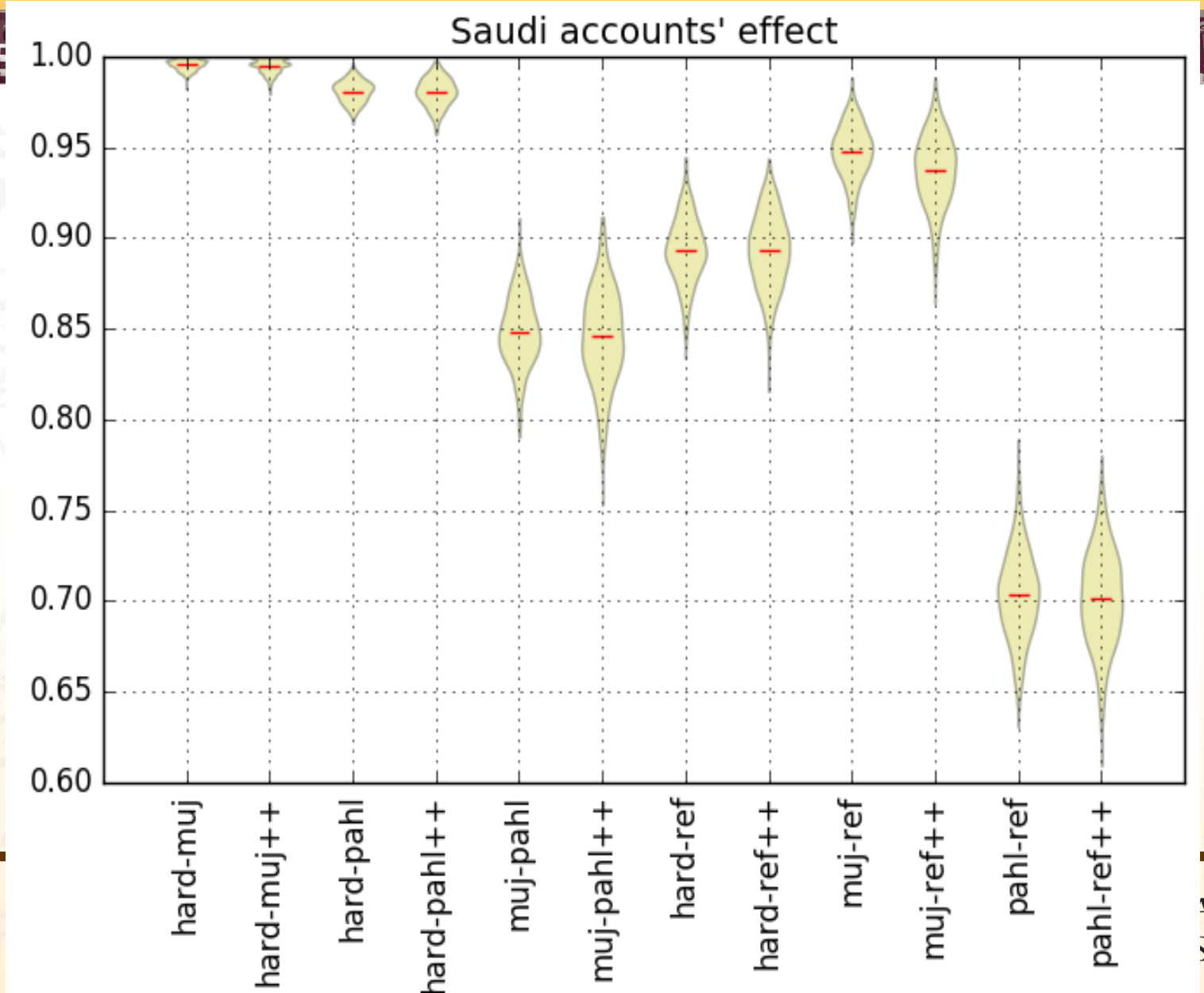
IR: 27

IR: 2 SA:1

Bursty Activity by Saudi Community



Polarization Effect of Saudi Accounts



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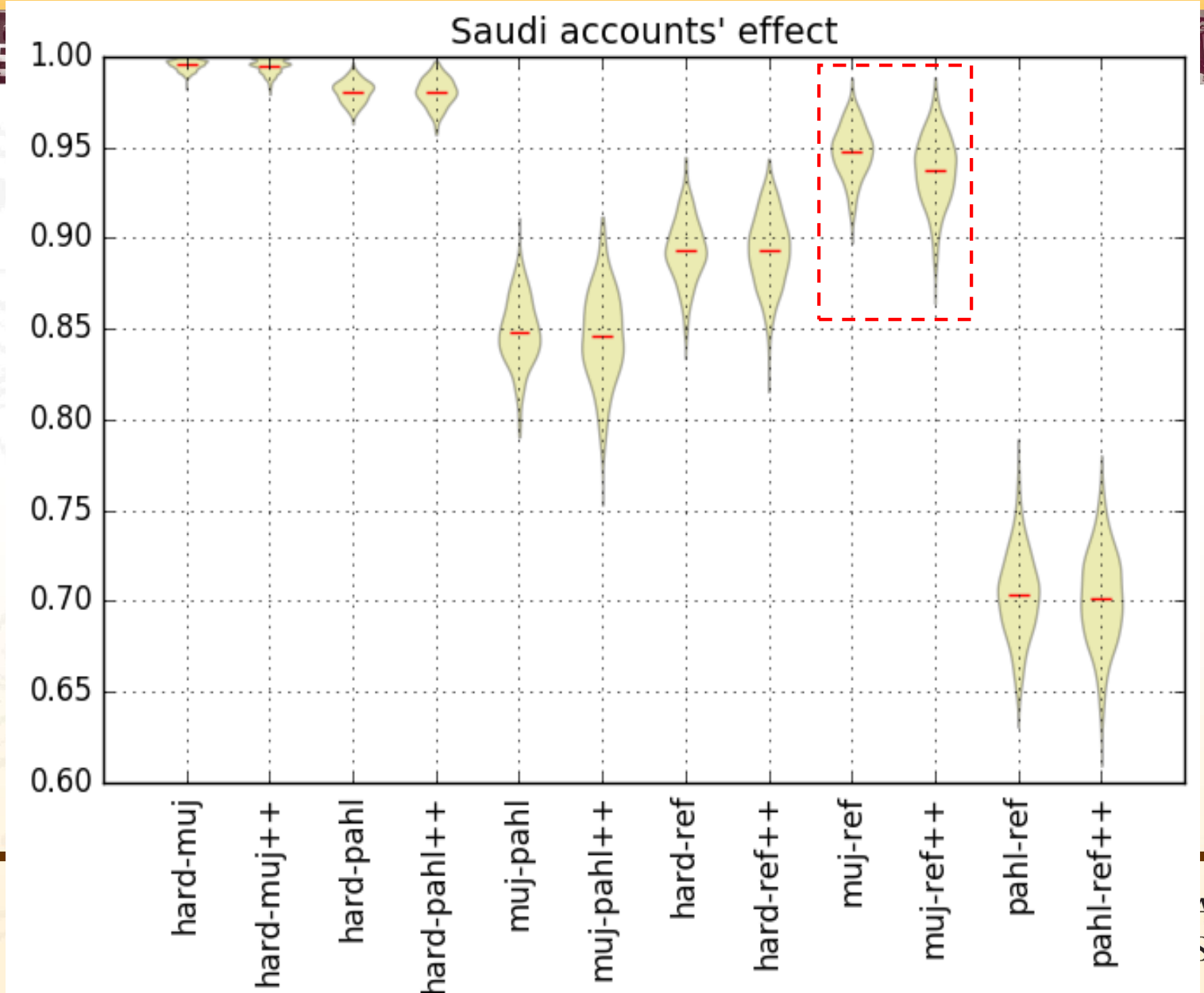


Polarization Effect of Saudi Accounts

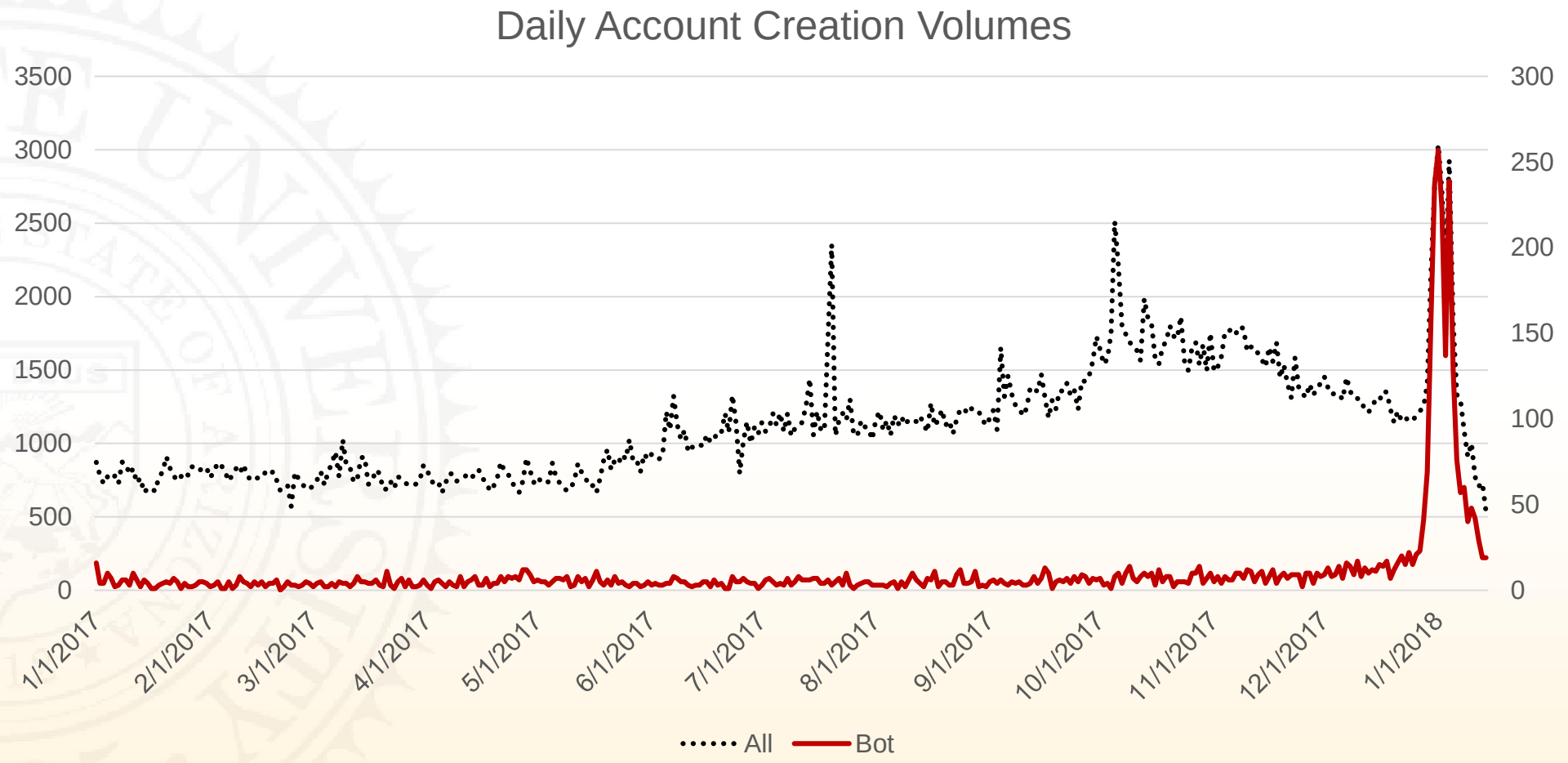
	Reformist	Pahlavi	Hardliner	Mujahedin
Reformist		0.70	0.89	0.95
Pahlavi	0.70		0.98	0.85
Hardliner	0.89	0.98		1
Mujahedin	0.95	0.85	1	

Polarization Effect of Saudi Accounts

	Reformist	Pahlavi	Hardliner	Mujahedin
Reformist		0.70	0.89	0.93 (-.02)
Pahlavi	0.70		0.98	0.85
Hardliner	0.89	0.98		1
Mujahedin	0.93 (-.02)	0.85	1	

- Polarization between Mujahedin and Reformist communities decrease due to Saudi accounts.

Bot Account Creation per Day



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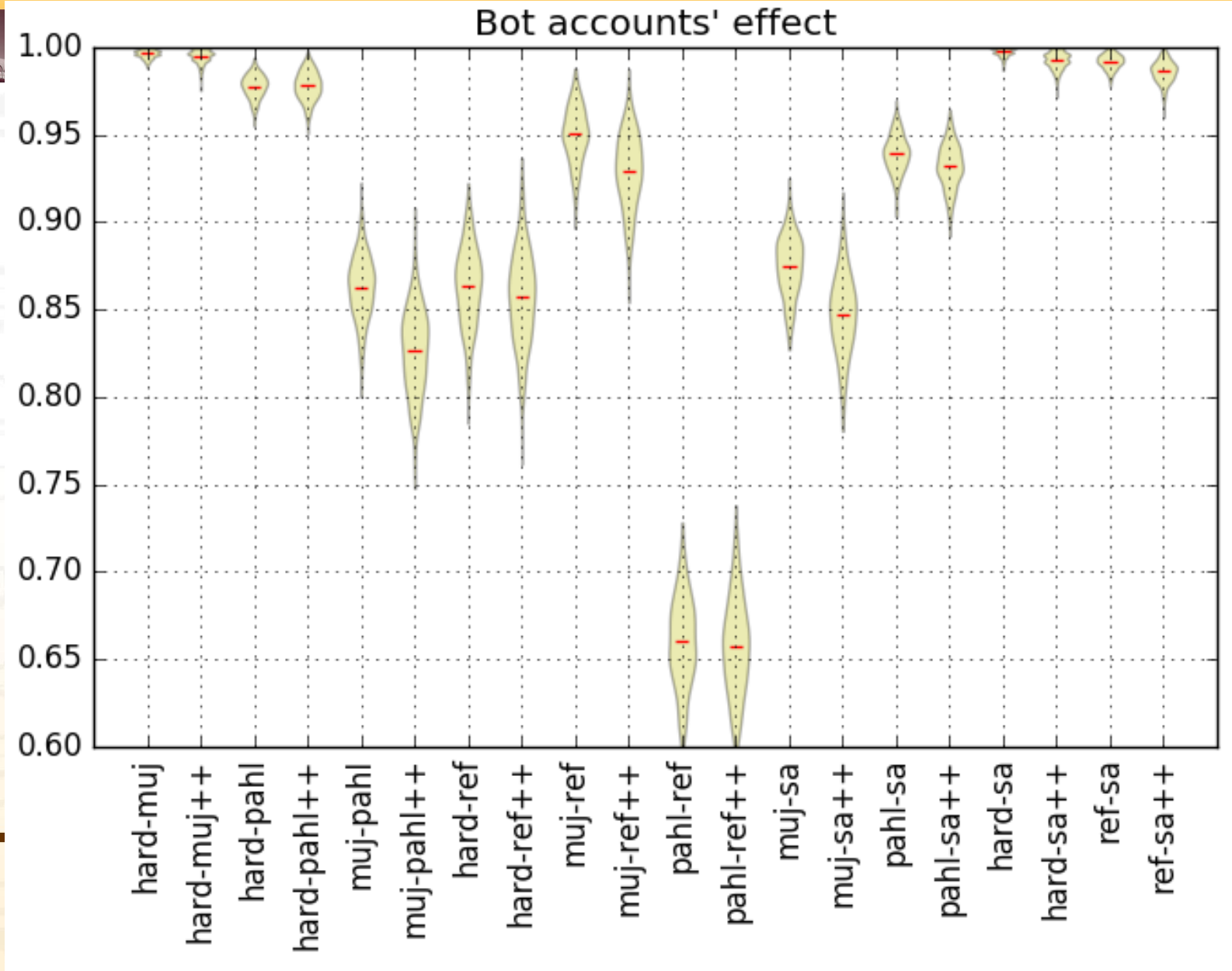
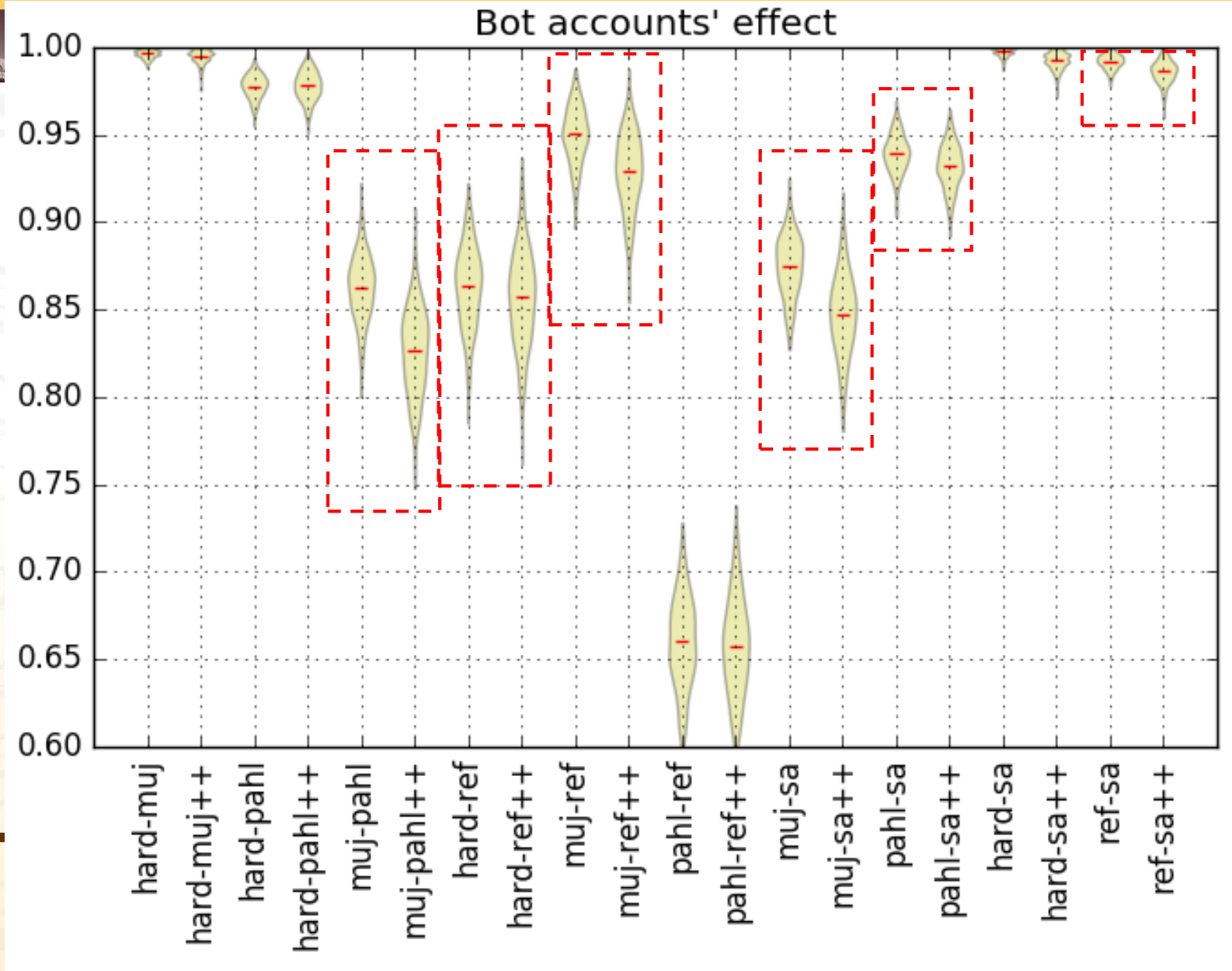


Polarization Effect of Bot Accounts



Polarization Effect of Bot Accounts

	Reformist	Pahlavi	Hardliner	Mujahedin	Saudi
Reformist		0.66	0.86	0.95	0.99
Pahlavi	0.66		0.98	0.86	0.94
Hardliner	0.86	0.98		1	1
Mujahedin	0.95	0.86	1		0.88
Saudi	0.99	0.94	1	0.88	

Polarization Effect of Bot Accounts

	Reformist	Pahlavi	Hardliner	Mujahedin	Saudi
Reformist		0.66	0.86	0.93 (-.02)	0.98 (-.01)
Pahlavi	0.66		0.98	0.83 (-.03)	0.93 (-.01)
Hardliner	0.86	0.98		1	1
Mujahedin	0.93 (-.02)	0.83 (-.03)	1		0.85 (-.03)
Saudi	0.98 (-.01)	0.93 (-.01)	1	0.85 (-.03)	

Polarization Effect of Bot Accounts

	Reformist	Pahlavi	Hardliner	**Mujahedin**	**Saudi**
Reformist		0.66	0.86	0.93 (-.02)	0.98 (-.01)
Pahlavi	0.66		0.98	0.83 (-.03)	0.93 (-.01)
Hardliner	0.86	0.98		1	1
Mujahedin	0.93 (-.02)	0.83 (-.03)	1		0.85 (-.03)
Saudi	0.98 (-.01)	0.93 (-.01)	1	0.85 (-.03)	

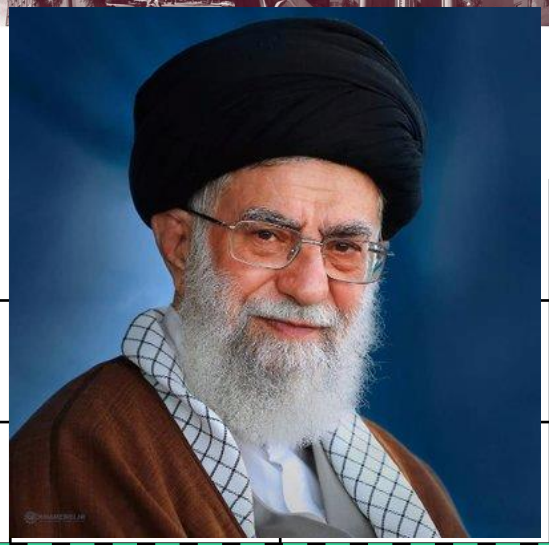
- Polarization between Mujahedin & Saudi communities and other communities decrease thanks to bot accounts.

Polarization Effect of Bot Accounts

	Reformist	Pahlavi	**Hardliner**	Mujahedin	Saudi
Reformist		0.66	0.86	0.93 (-.02)	0.98 (-.01)
Pahlavi	0.66		0.98	0.83 (-.03)	0.93 (-.01)
Hardliner	0.86	0.98		1	1
Mujahedin	0.93 (-.02)	0.83 (-.03)	1		0.85 (-.03)
Saudi	0.98 (-.01)	0.93 (-.01)	1	0.85 (-.03)	

- Polarization between Mujahedin & Saudi communities and other communities decrease thanks to bot accounts.
- Polarization between Hardliner community and other communities are not affected by bot accounts.

Polarization Effect of Bot Accounts



			Hardliner	Mujahedin	Saudi
Reformist			0.86	0.93 (-.02)	0.98 (-.01)
Pahlavi			0.98	0.83 (-.03)	0.93 (-.01)
Hardliner	0.86	0.98		1	1
Mujahedin	0.93 (-.02)	0.83 (-.03)	1		0.85 (-.03)
Saudi	0.98 (-.01)	0.93 (-.01)	1	0.85 (-.03)	

- Polarization between Mujahedin & Saudi communities and other communities decrease thanks to bot accounts.
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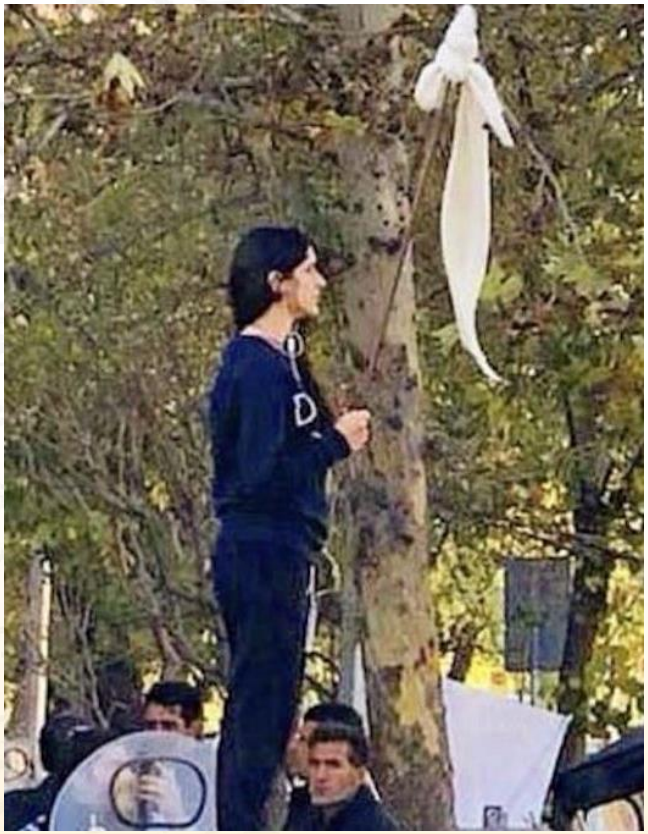
Social Media & Politics

Iran Protests



Jagmeet Singh election as the head of NDP in Canada

New Democratic Party – Canada

- On October 1, 2017 NDP held an election to assign its new leader.

New Democratic Party – Canada

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New Democratic Party – Canada

Jagmeet Singh wants to be Prime Minister: Of Canada or Khalistan?

♦ By Tarek Fatah
Author & Columnist, Canada
@TarekFatah
tarek.fatah@gmail.com

An act of terror committed by Sikh extremists who killed an elected chief minister of Punjab in India, a fellow Sikh, is making news in Canada — 17 years later.

You may be surprised to learn the suicide bomber and his accomplice are being hailed as heroes, not just in the privacy of the homes of their supporters, but publicly. Inside our parliament, in the Ontario legislature, on the grounds of the House of Commons, and of course, vociferously on Twitter.

On August 31, 1995 in the Indian city of Chandigarh, a Sikh suicide bomber blew up himself killing Punjab's chief minister Beant Singh and 17 others.

The dead terrorist belonged to the banned outfit known as Babbar Khalsa, as was his backup bomber Balwant Singh Rajoana, who was later convicted to be hanged for the murders. The hanging was scheduled for March 31, but has now been "stayed" after protests in Punjab and here in Canada demanding clemency for Rajoana. The terrorist accomplice, though, remains unrepentant of his crime and has refused to ask for clemency, thus adding to his appeal to some radical Sikh youth still clamouring for a separate state of Khalistan.

Last Wednesday, hundreds of Sikhs came out to demonstrate in support of Rajoana on the steps of Parliament Hill. Ostensibly this was a protest against capital punishment, but the posters displayed reflected a hero worship of the unrepentant terrorist.

In principle, I believe Rajoana should be spared the death sentence, which should be abolished, in India. But any display of admiration or sympathy for a terrorist who planned to be the backup suicide bomber, is repugnant and should have no place in Canada.

Expressing this sentiment triggered a flurry of hate messages on my Twitter feed.

One McMaster undergrad Sikh student sent me a profanity-laced tweet and also added I should have died of cancer. Another threatened me to a physical engagement, writing: "Let's meet up tough guy. Calling Sikhs terrorist ... Seems like you can talk a lot on twitter."

If it had been just these twits on Twitter, one could have shrugged it off, but the sympathy for the terrorist went right up to our legislators.

NDP justice critic, Jagmeet Singh, stood up in the Ontario legislature and suggested Ontario use its trade relations as a bargaining chip to save the backup suicide bomber. In his speech, the NDP Justice critic failed to tell his colleagues the man he was promoting was a convicted terrorist who had a hand in assassinating the equivalent of the Ontario Premier.

I asked MPP Jagmeet Singh whether he considered Rajoana a terrorist, and why he didn't mention this fact in his speech. He refused to answer my question. I asked him if he supported the Khalistan movement and got no answer. His assistant e-mailed me that Jagmeet Singh would respond to my questions only if I guaranteed to show him this column before it went to press. She also wanted an assurance that Singh's response would appear verbatim in the Sun in its entirety. The questions asked were straight forward and should have been easy to answer, but apparently Jagmeet Singh and many other supporters of the convicted terrorist think otherwise.

It's a sad day for Canada when our lawmakers won't clearly condemn the acts of a terrorist when invited to do so. It's more evidence of how multiculturalism is permitting the most outrageous of ideas to take root in our society.

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New Democratic Party – Canada

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Data Collection

- By using Twitter Search API, I crawled **three hashtags and three keywords** over **three weeks**.
- Collected **~160,000 tweets** from **~55,000 users** between **September 22, 2017 and October 11, 2017.**

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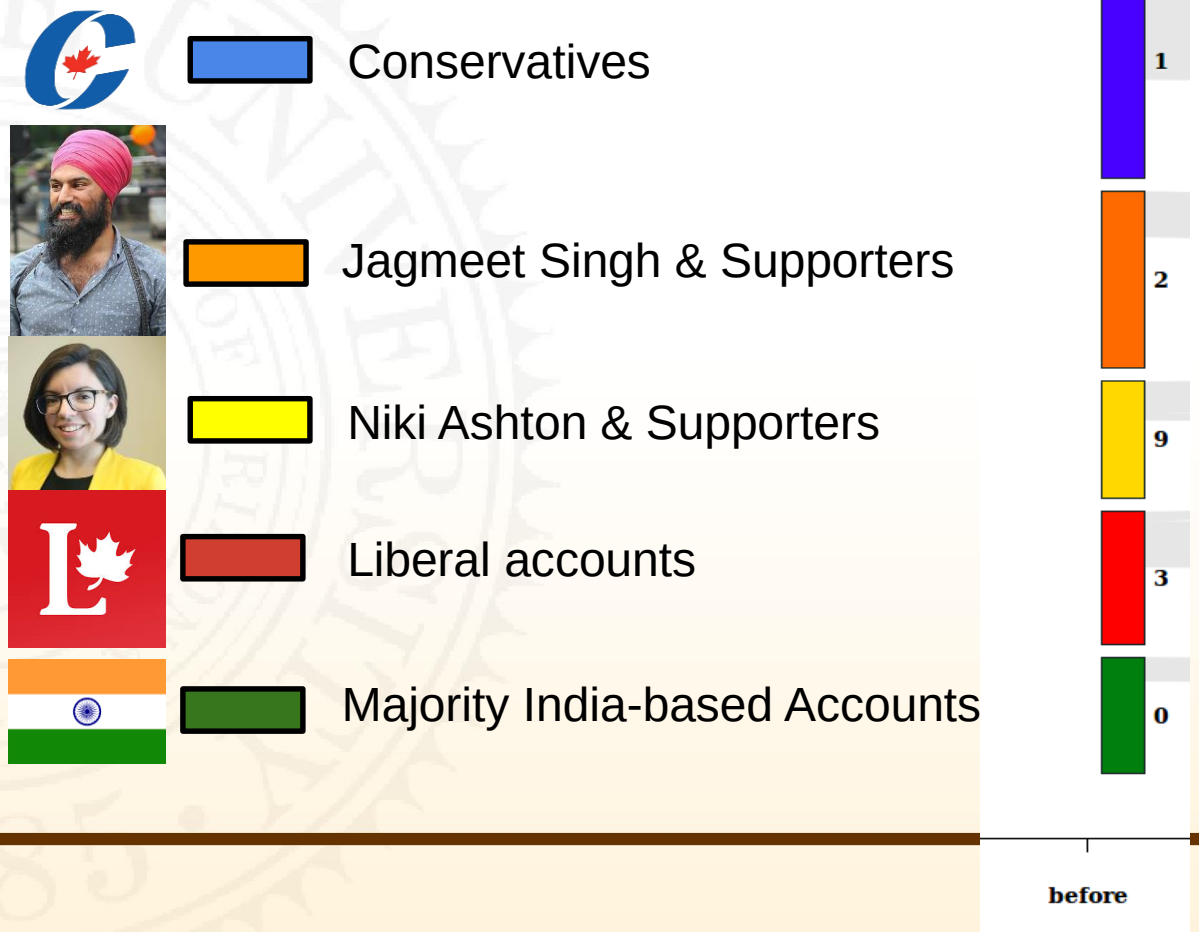
Election Day
October 1st

Communities



Communities

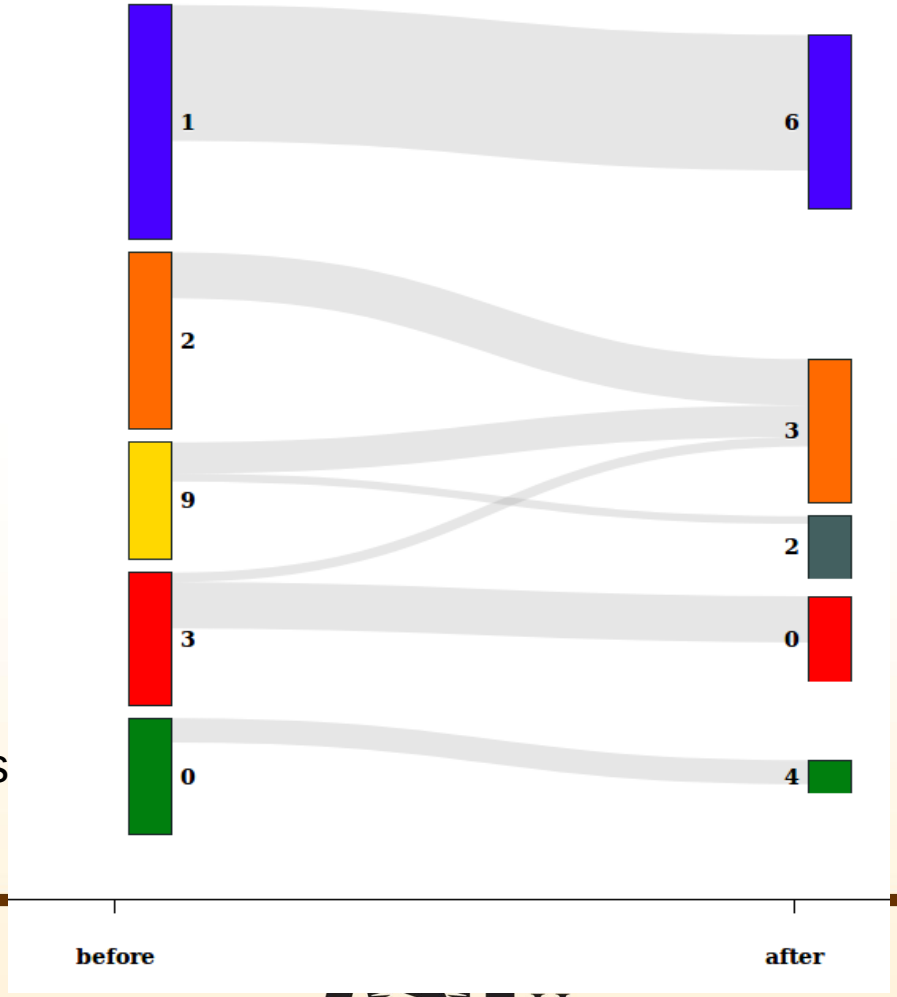
Conservatives

Jagmeet Singh & Supporters

Niki Ashton & Supporters

Liberal accounts

Majority India-based Accounts



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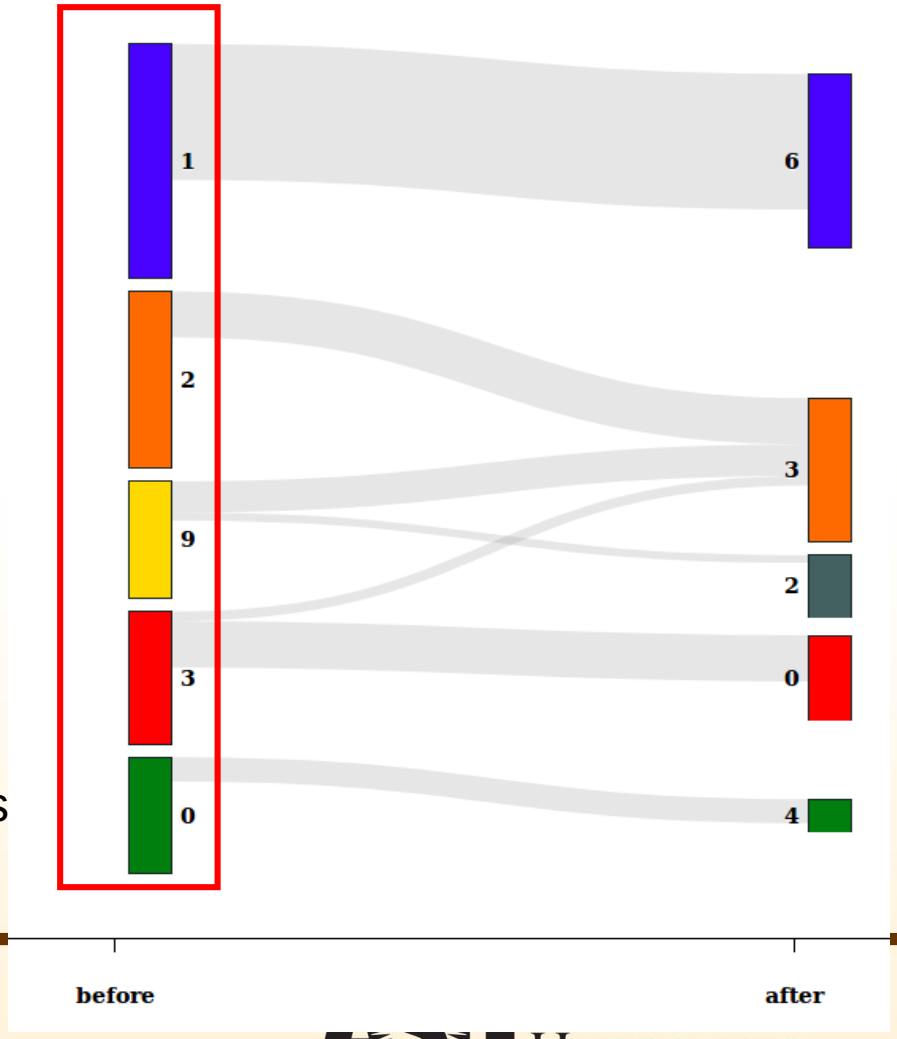

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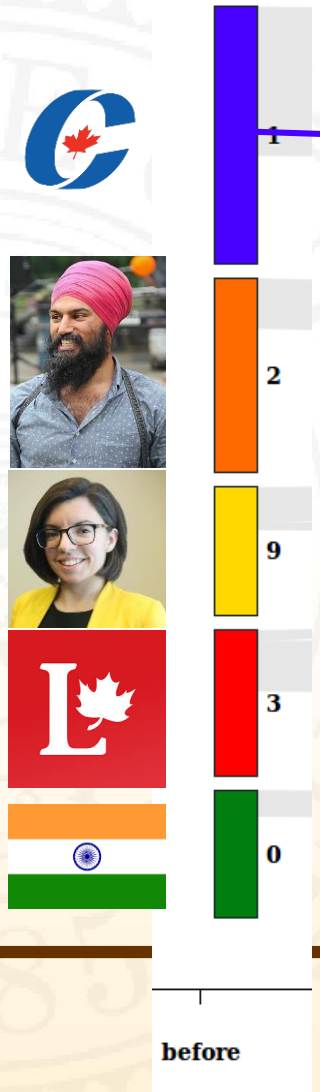
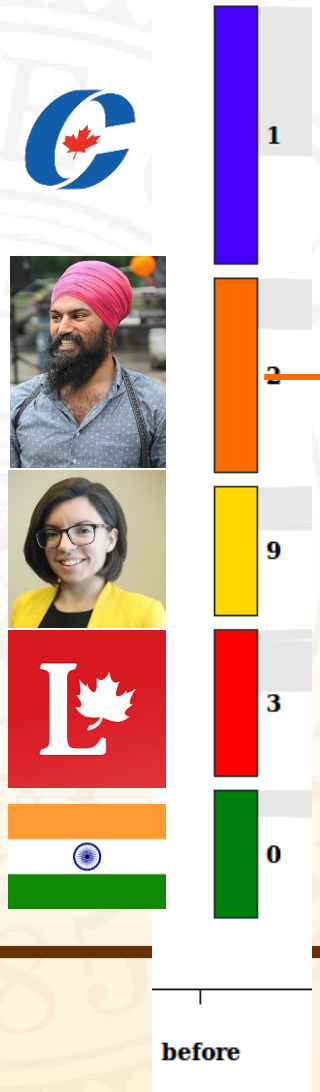
Profile Location



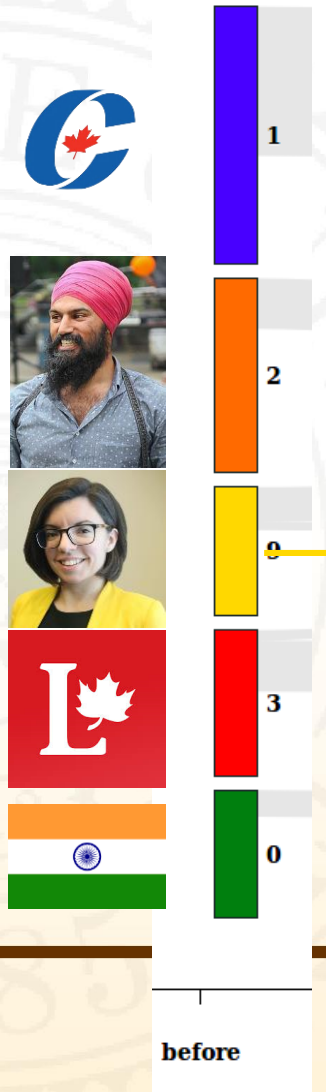
Canada: 104
Calgary, Alberta: 69
Alberta, Canada: 45
Ontario, Canada: 30
Calgary: 29

Profile Location



Toronto, Ontario: 66
Toronto: 61
Canada: 52
Ottawa, Ontario: 20
Ontario, Canada: 18

Profile Location

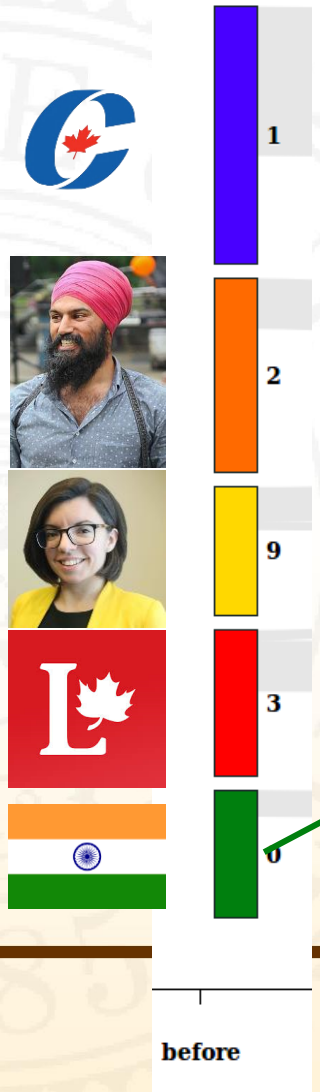


Canada: 47
Toronto, Ontario: 39
Toronto: 26
Ottawa, Ontario: 18
Montréal, Québec: 17

Profile Location

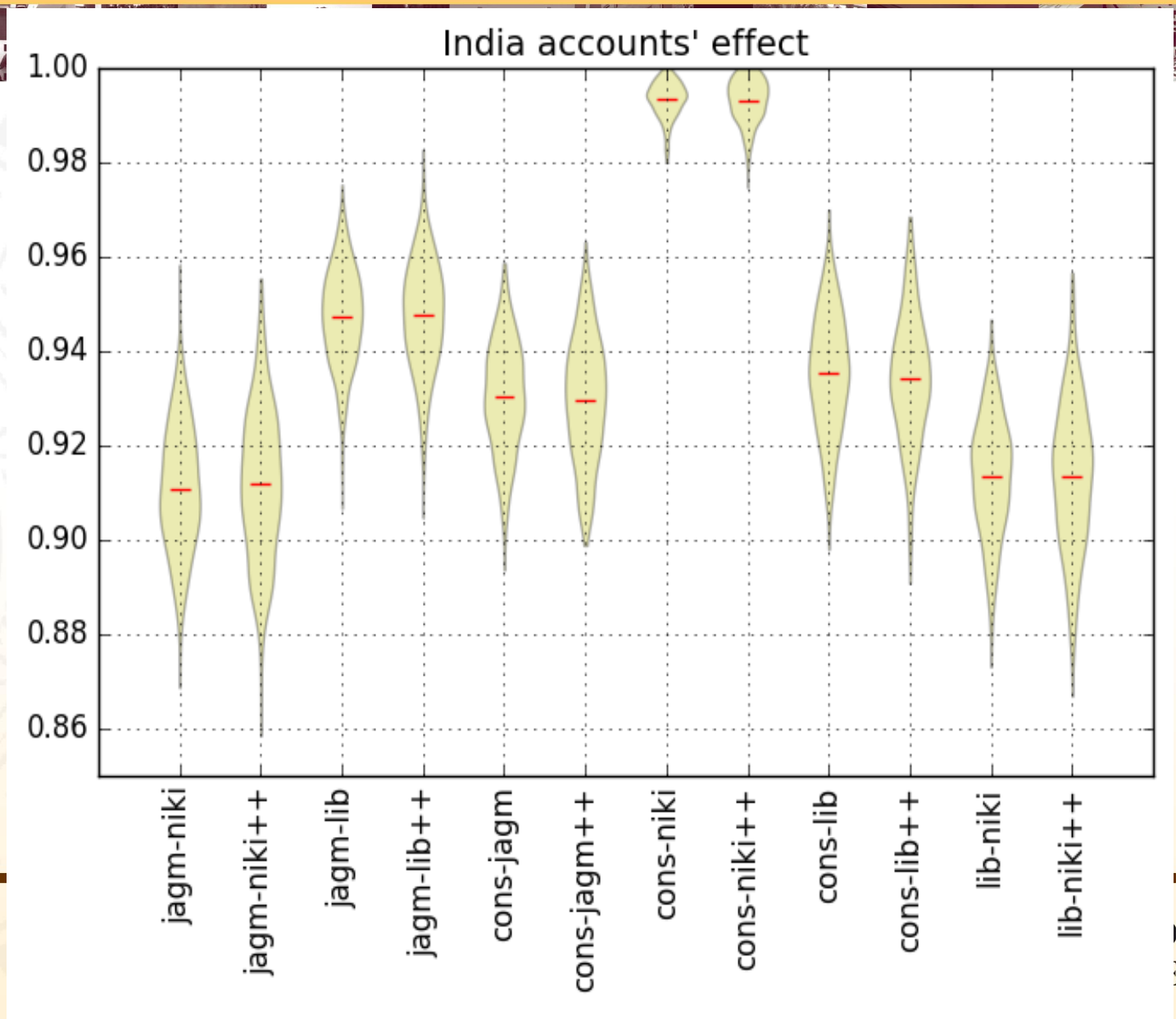
Canada: 54
Calgary, Alberta: 25
Edmonton, Alberta: 25
Toronto: 23
Ottawa, Ontario: 19

Profile Location

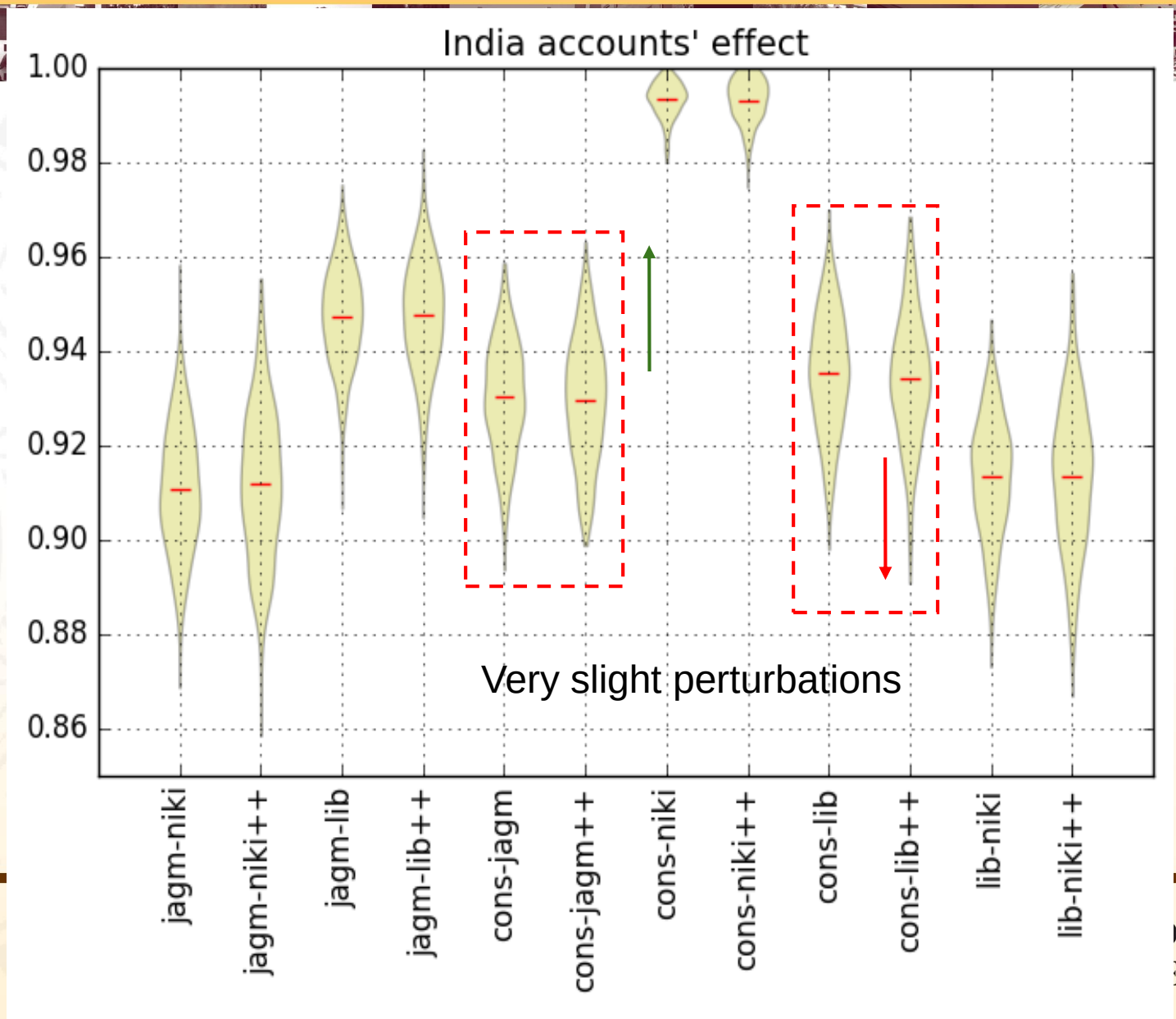


India: 48
New Delhi, India: 20
Mumbai, India: 15

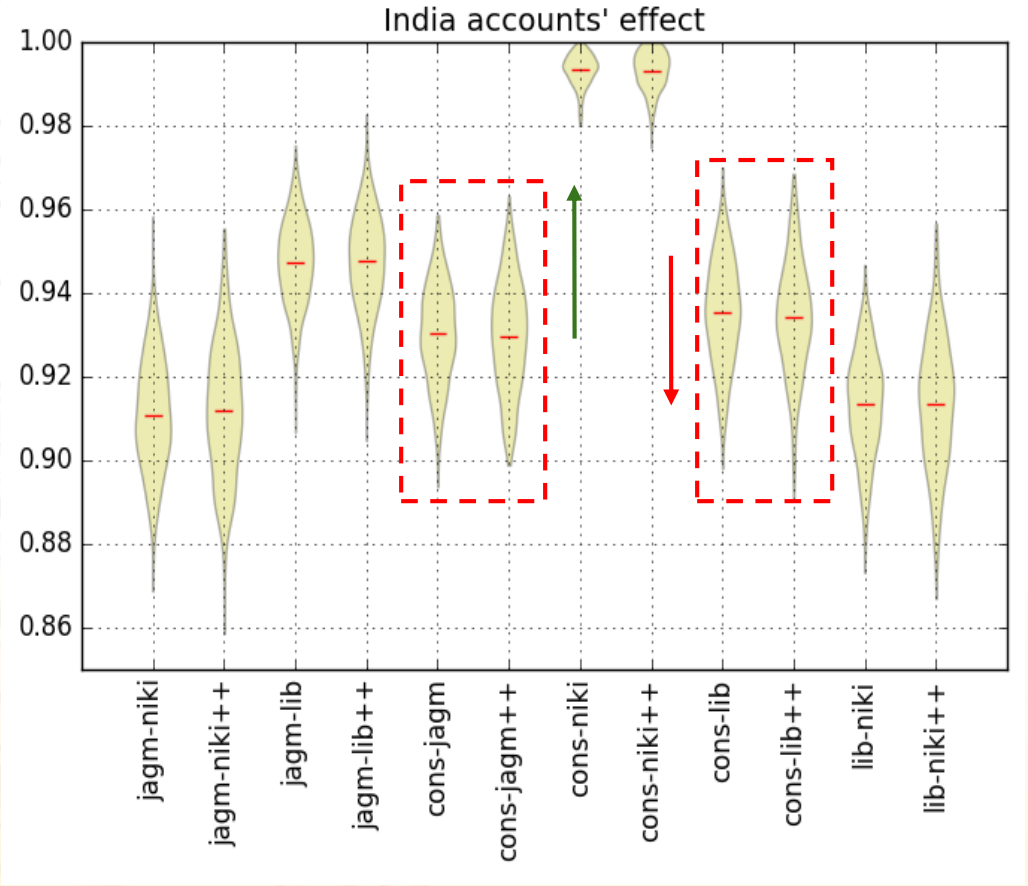
Polarization Effect of India Community



Polarization Effect of India Community

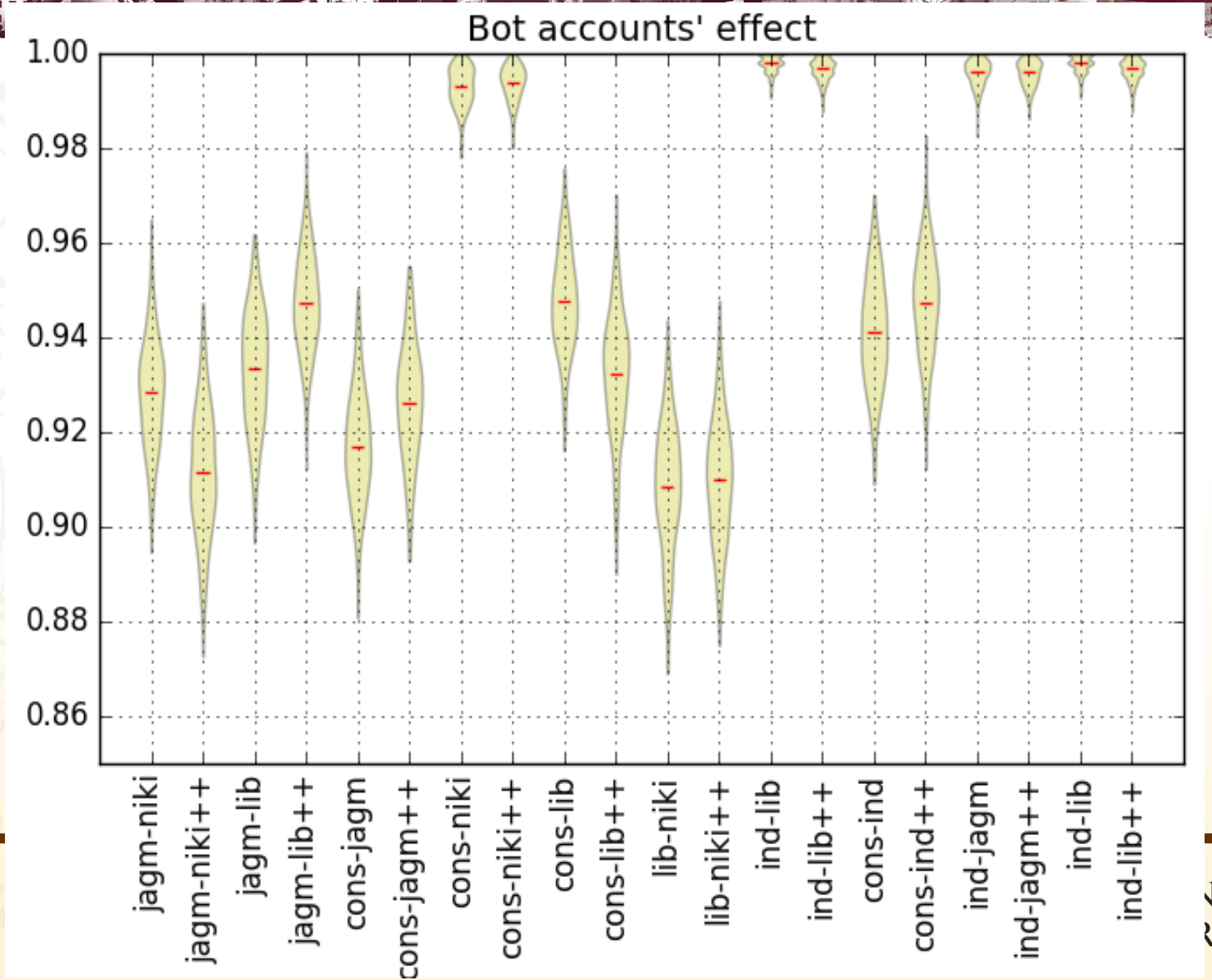


Polarization Effect of India Community



- Slightly more polarization between Jagmeet Singh supporters and Conservatives.
- Slightly less polarization between Conservative and Liberal accounts.

Polarization Effect of Bot Accounts



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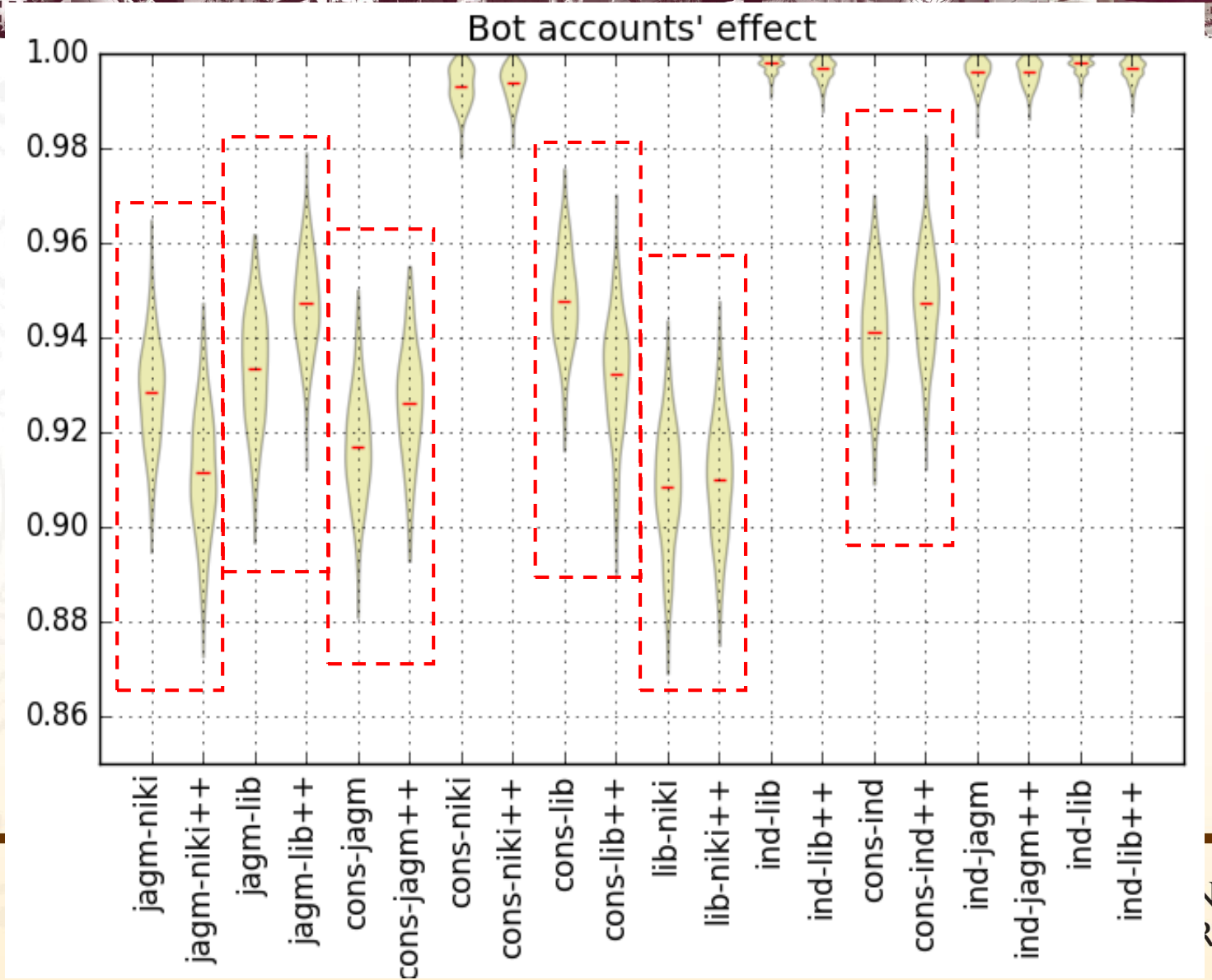
Polarization Effect of Bot Accounts



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Polarization Effect of Bot Accounts

	Cons.	Singh	Ashton	Liberals	India
Cons.		0.92	0.99	0.95	0.94
Singh	0.92		0.93	0.93	1
Ashton	0.99	0.93		0.91	0.99
Liberals	0.95	0.93	0.91		1
India	0.94	1	0.99	1	

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Polarization Effect of Bot Accounts

	Cons.	Singh	Ashton	Liberals	India
Cons.		0.93 **(+.01)**	0.99	0.93 **(-.02)**	0.95 **(+.01)**
Singh	0.93 **(+.01)**		0.91 **(-.02)**	0.95 **(+.02)**	1
Ashton	0.99	0.91 **(-.02)**		0.91	0.99
Liberals	0.93 **(-.02)**	0.95 **(+.02)**	0.91		1
India	0.95 **(+.01)**	1	0.99	1	

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Polarization Effect of Bot Accounts

	Cons.	Singh	Ashton	Liberals	India
Cons.		0.93 **(+.01)**	0.99	0.93 **(-.02)**	0.95 **(+.01)**
Singh	0.93 **(+.01)**		0.91 **(-.02)**	0.95 **(+.02)**	1
Ashton	0.99	0.91 **(-.02)**		0.91	0.99
Liberals	0.93 **(-.02)**	0.95 **(+.02)**	0.91		1
India	0.95 **(+.01)**	1	0.99	1	

- Polarization between Jagmeet Singh community and other communities increase due to bot accounts.

Discussion

- Bot accounts appear to have impact on polarization among groups.
- Explicit foreign communities have slight polarization impact on the rest of the groups.
- Impact on polarization broadly agrees with groups' offline-world agendas.

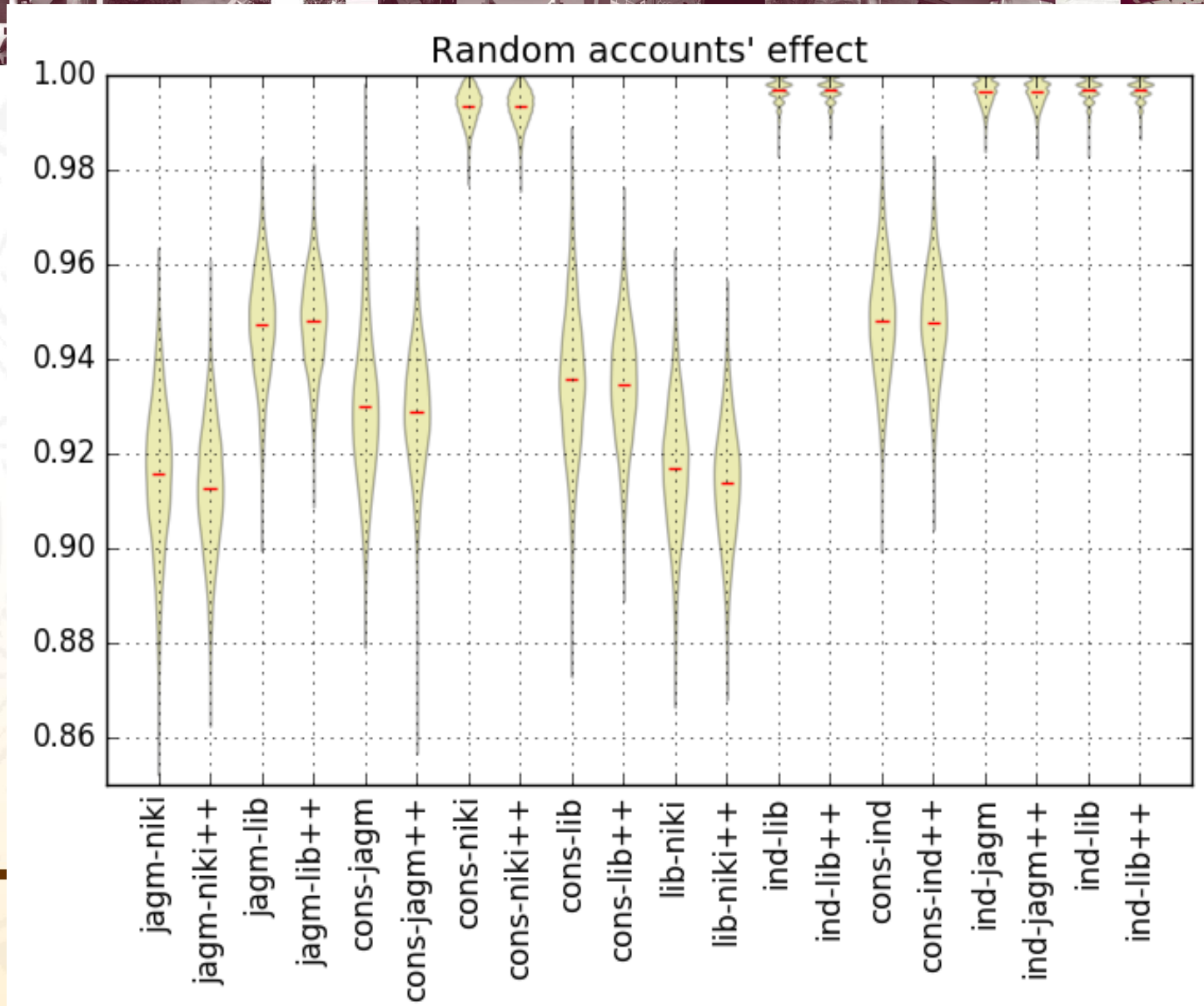
What could NOT be measured?

- News feed / Visibility effect

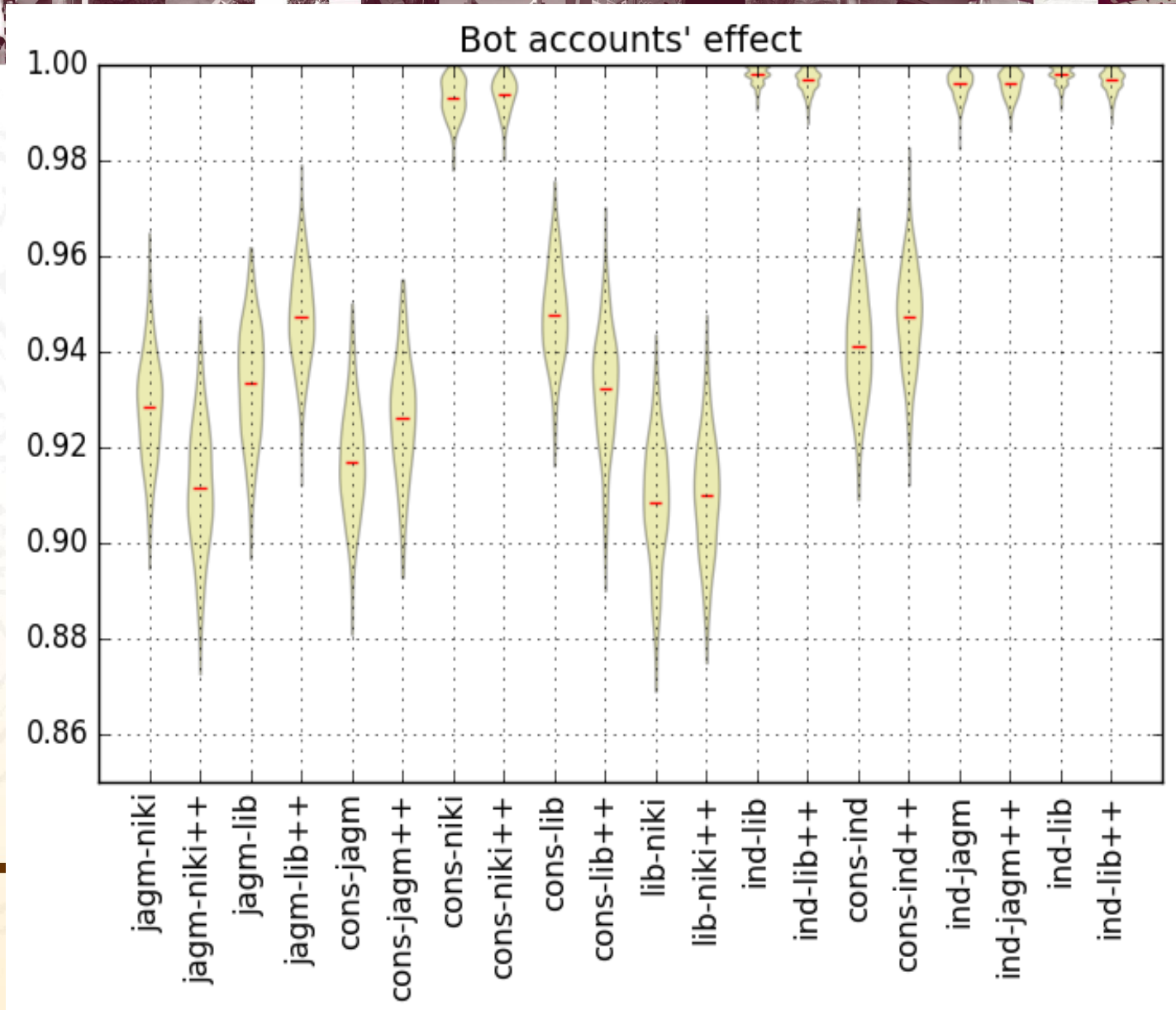
Thank you!

Any Questions/Comments?

Random Account Impact – Canada



Bot Account Impact– Canada



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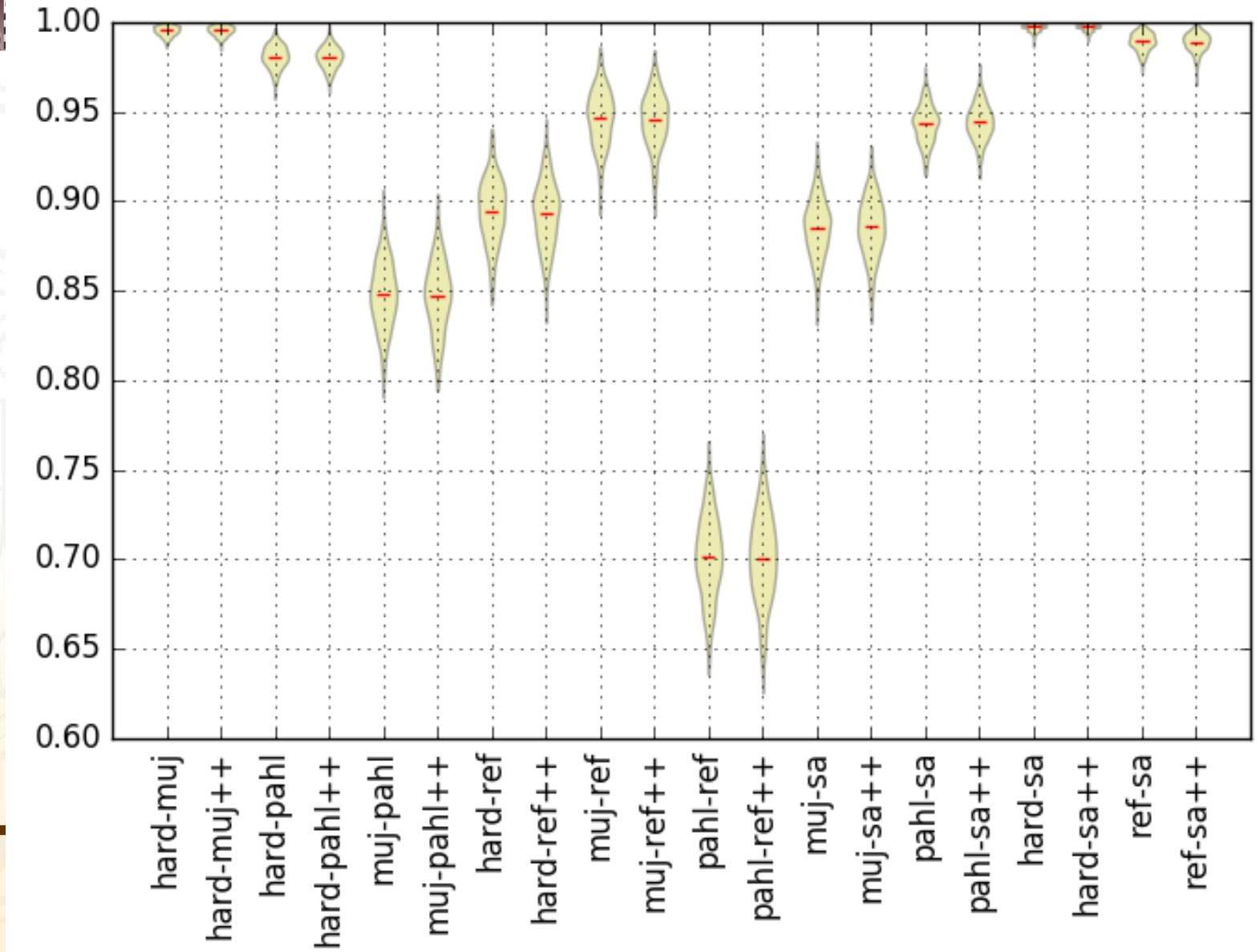
Suspended Account Impact – Iran



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