CICC Lunch Conference

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OTHERING ACROSS TIME: MEASURING RADICAL POSTING TRAJECTORIES ONLINE

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SFU SIMON FRASER UNIVERSITY ENGAGING THE WORLD

UNIVERSITÉ Concordia UNIVERSITY

BACKGROUND

OTHERING BY THE RADICAL RIGHT:

BACKGROUND

IN-GROUPS

- Shared values and interests
- Develop through interactions with like-minded others and oppositional forces

OUT-GROUPS

- Opposing values and interests
- Competing for X

BACKGROUND

*** COLLECTIVE IDENTITY ***

BACKGROUND

OTHERING BY THE RADICAL RIGHT:

- **The Internet**, especially right-wing extremist (RWE) forums, facilitate othering
  - Cheap/fast/convenient **(radical)** communications

PREVIOUS STUDIES:

- "Us" versus "them" dynamic in RWE spaces
  - "Hornet's nests", "lone wolf incubators", and "echo chambers of hate" **(polarizing spaces)**
- Research has not **measured** this over time

BACKGROUND

IN-DEPTH CONTENT ANALYSES & CASE STUDIES

Rich description of othering, collective identity, and polarizing spaces

ADVANCED COMPUTATIONAL TOOLS

Develop risk indicator tools/algorithms

Measure levels of radicalization

BACKGROUND

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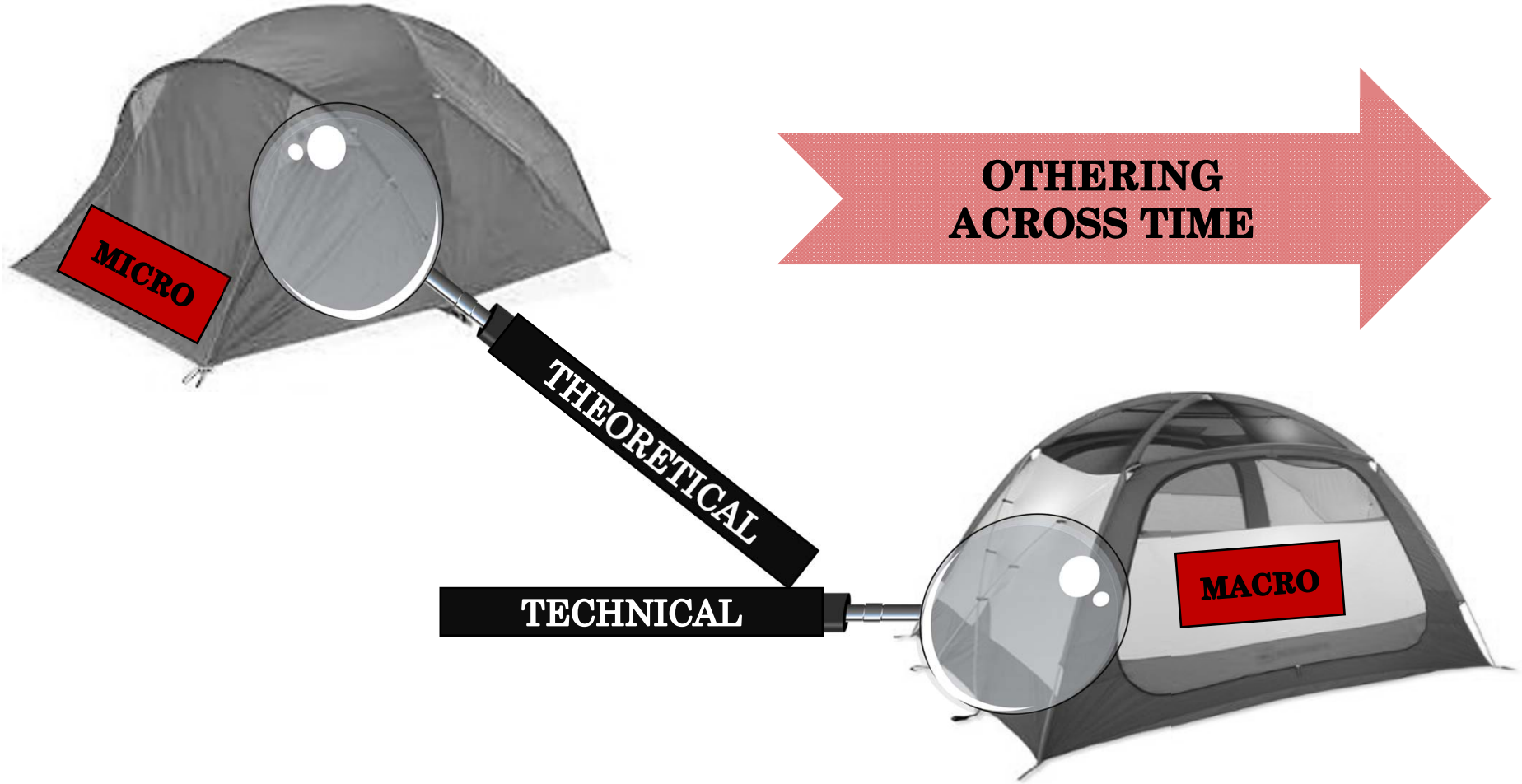
BACKGROUND



STUDY OVERVIEW

DATA:

- **Stormfront Canada:** 124,058 posts, 7,014 users, ~15 yrs

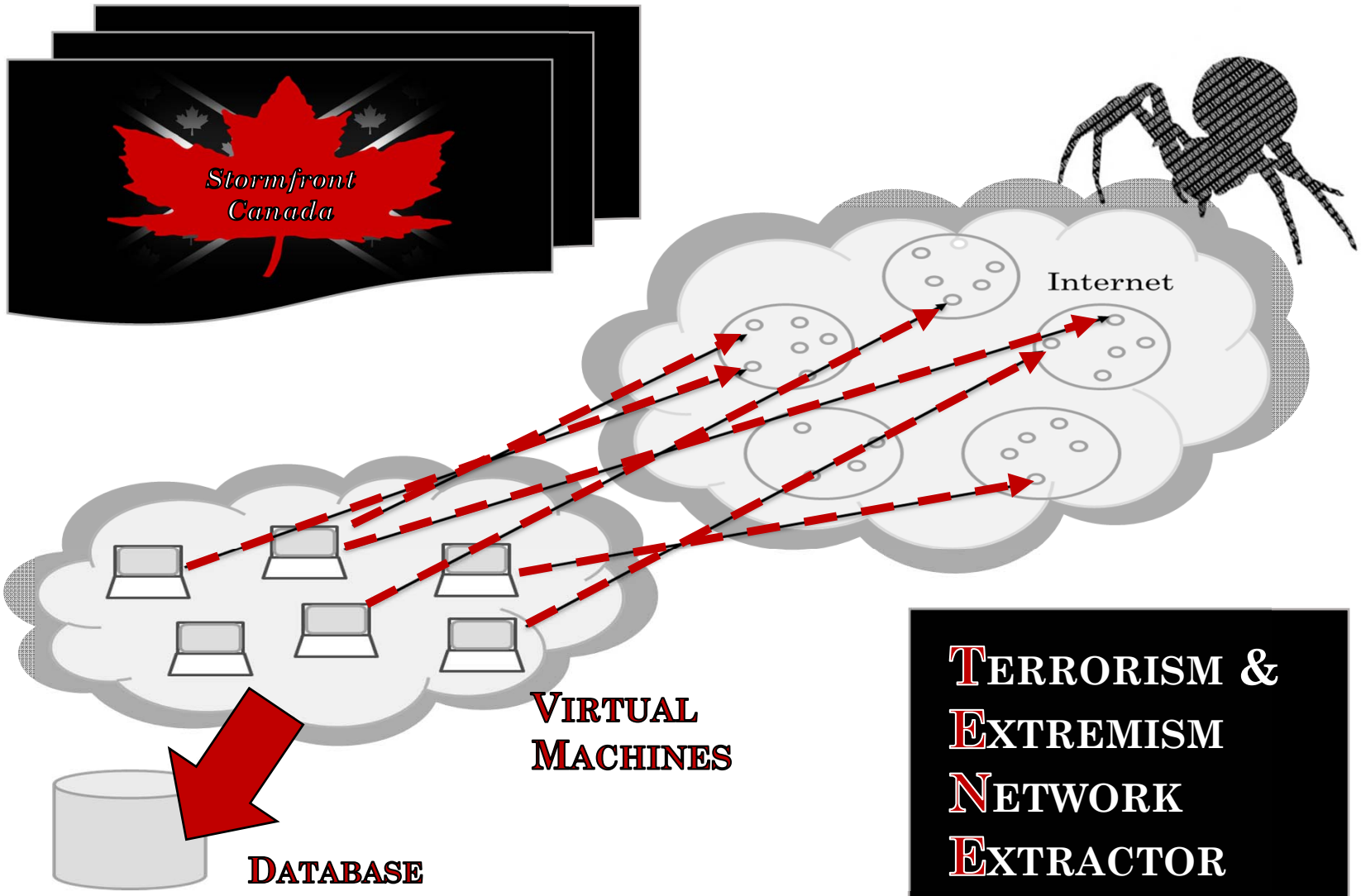
RESEARCH QUESTION:

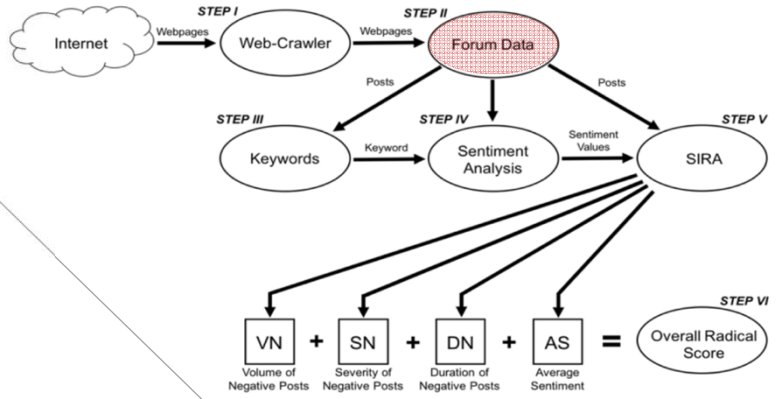
- *How does radical right-wing posting behaviour transpire and evolve over time?*
  - *How does (1) anti-Semitic, (2) anti-Black, and (3) anti-LGBTQ posting behaviour transpire and evolve over time?*

METHODS:

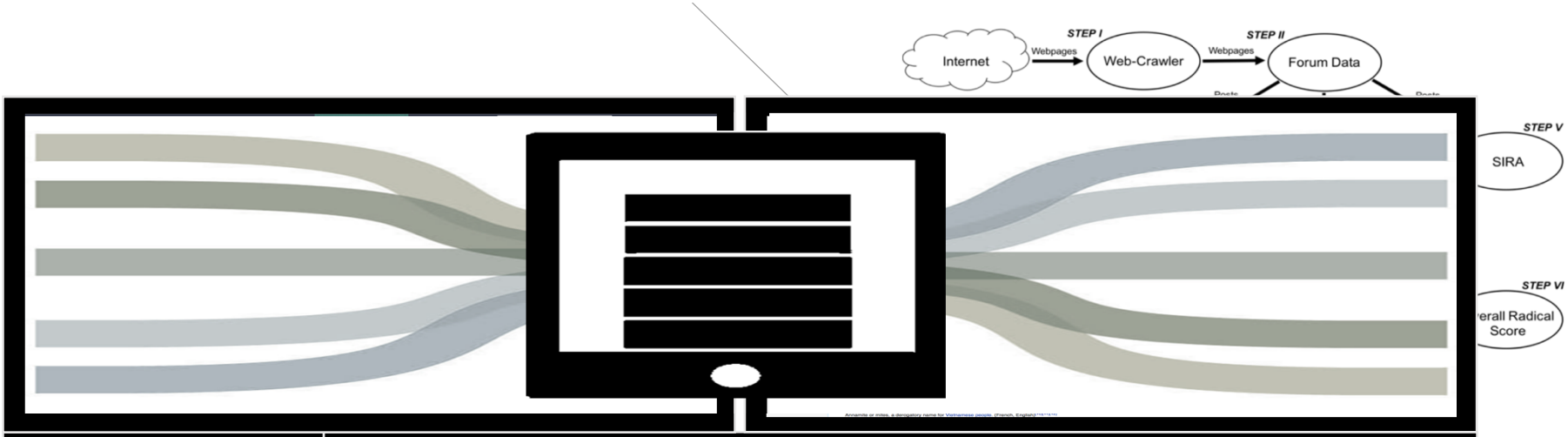
- **Sentiment analysis-based algorithm:** adapts criminal career measures and semi-parametric group-based modeling

DATA AND SAMPLE





Identify **topics** of discussion deemed **radical**



KEYWORD SELECTION PROCEDURE:

1. **Jews:** 287 words
2. **Blacks:** 1,254 words
3. **LGBTQs:** 309 words

ADVERS
THE RA
RIGHT:

EACH TOPIC LIST:

- Identified **frequency** with which authors posted with keywords
- Found point of **diminishing returns** in distribution graph

***Calculate average point of diminishing returns*

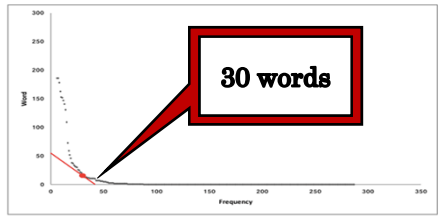


Figure A. Word frequency distribution graph and inflection point for discussions about Jews

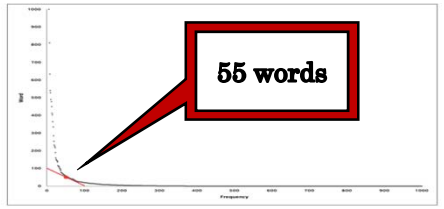


Figure B. Word frequency distribution graph and inflection point for discussions about Blacks

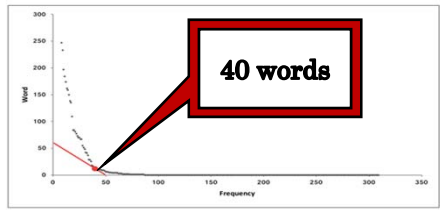


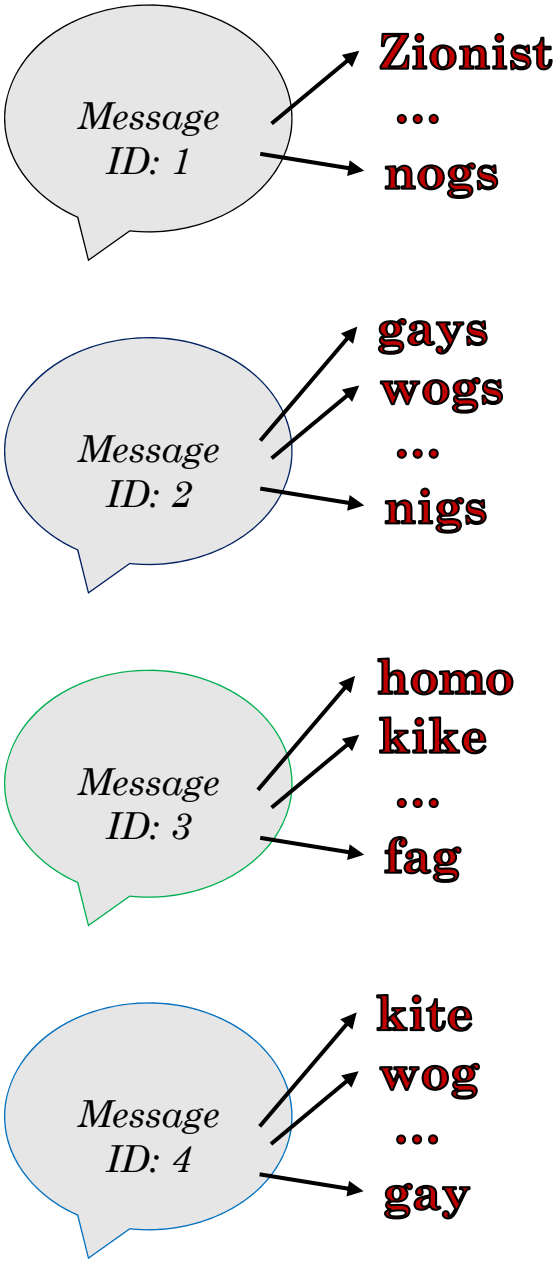
Figure C. Word frequency distribution graph and inflection point for discussions about LGBTQs

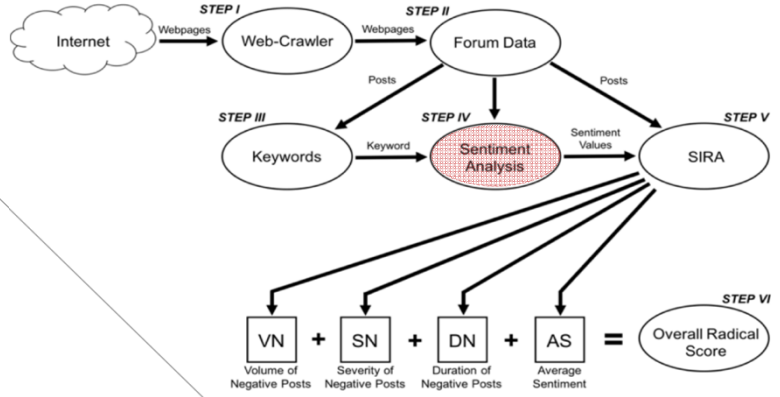
STEP V
SIRA

STEP VI
erall Radical Score

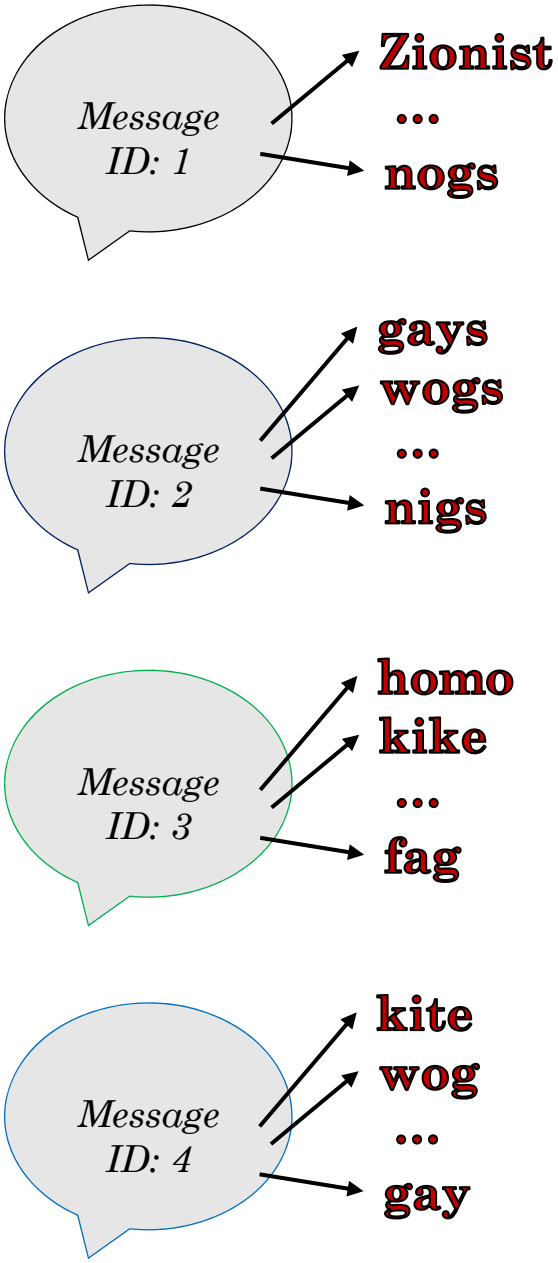
STANDARDIZING # OF WORDS/TOPIC:

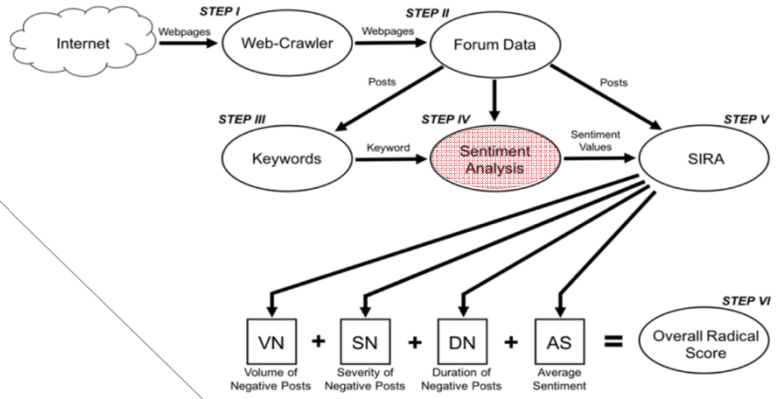
= average of 42 words/topic list
= random sample of 42 words/topic





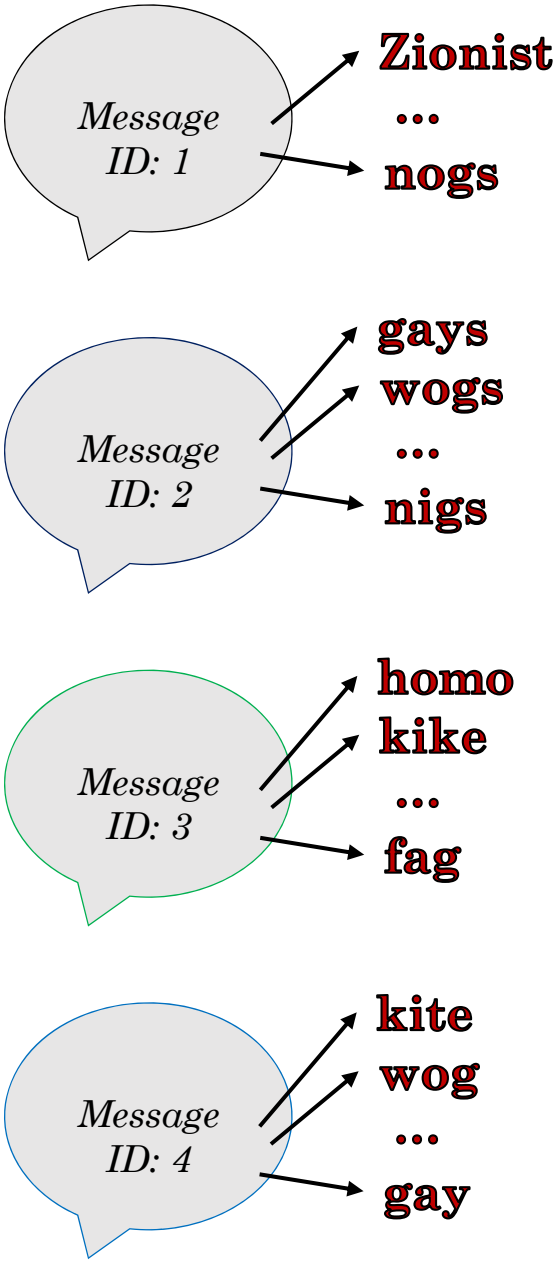
Determine authors' **opinions** around keywords by creating sentiment scores.

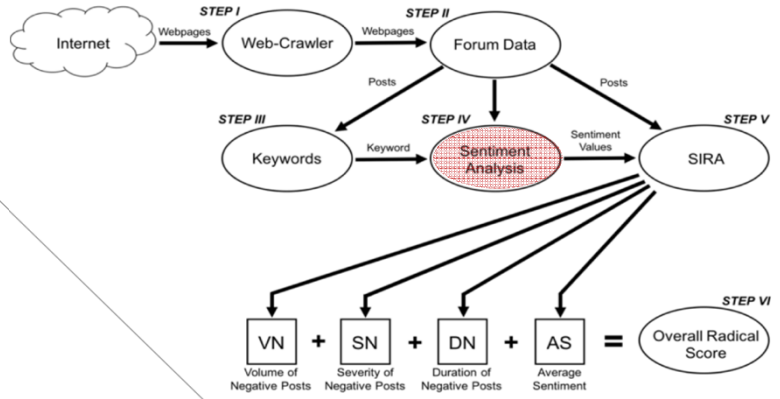




SentiStrength:

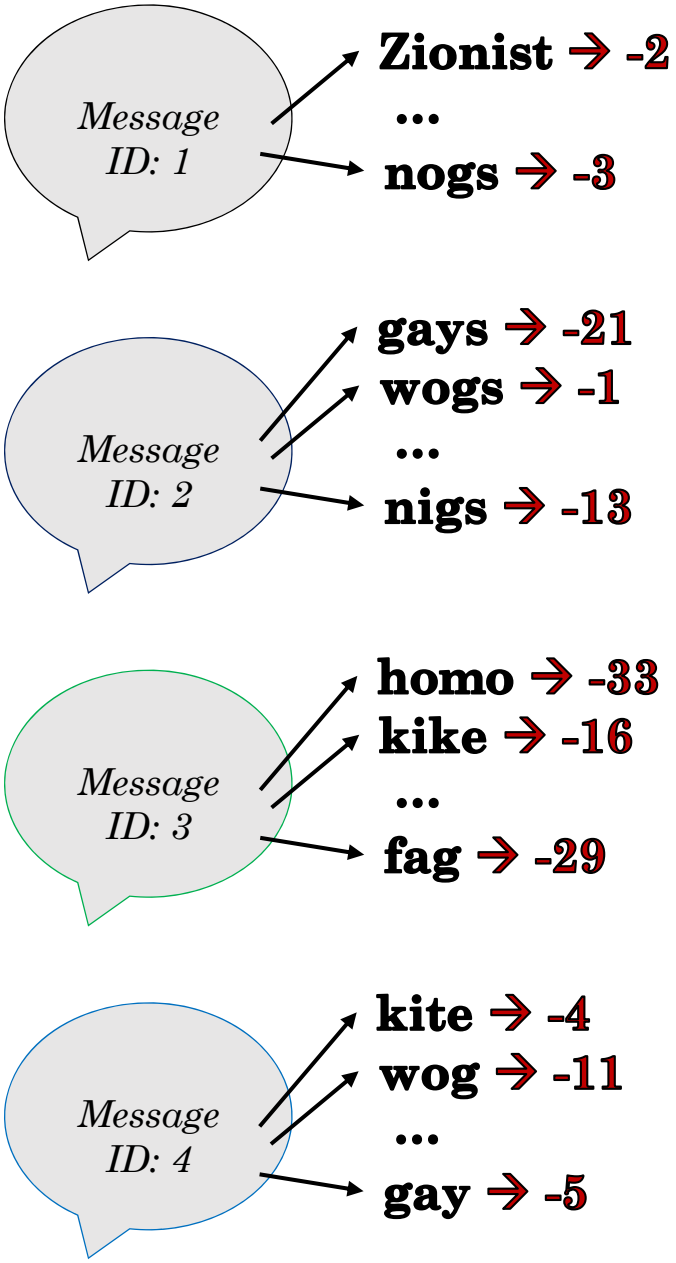
- Established software
- Free to use for research
- Numerous languages

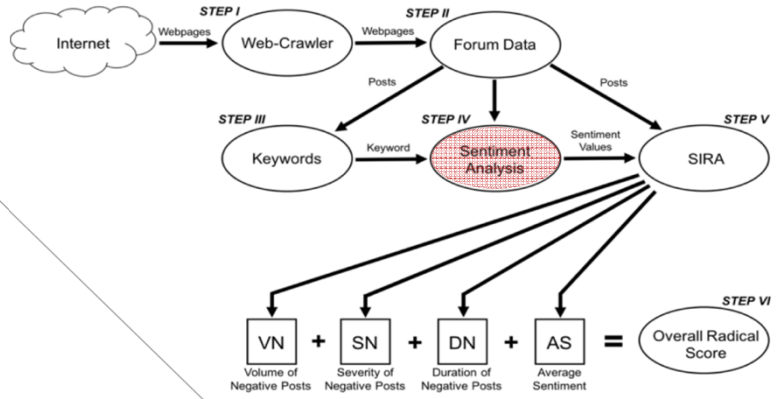




KEYWORD-BASED APPROACH:

- Analyzes sentiment surrounding assigned list of keywords
- Assigns *polarity values* to those keywords





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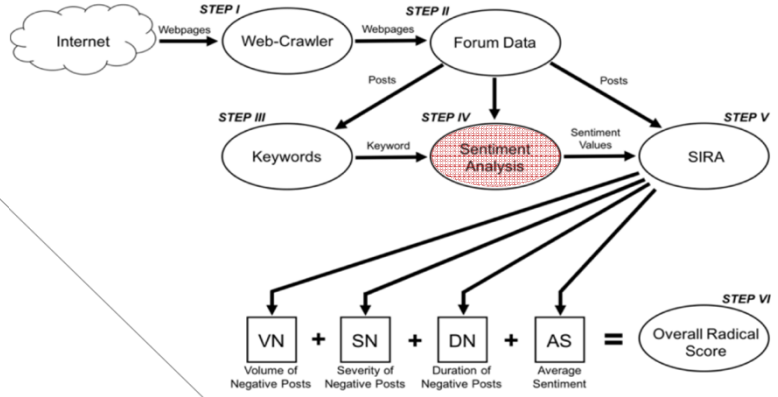


STEMMING METHOD

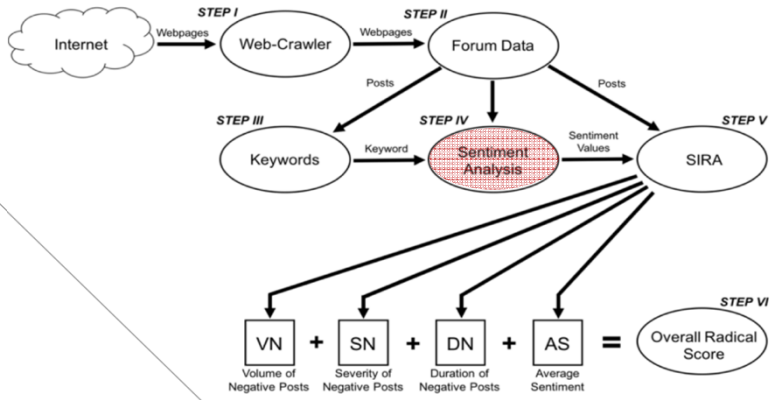
I love my **Jewish** [3], **Black** [3], and **gay** [3] friends

[sentence: 9]

Sentiment scores are ***augmented*** by characters that influence values (e.g., booster words, negative words, punctuation, etc.)

I want to kill every single **Jew** [-59] in the entire world

[sentence: -59]



Message ID: 1

Zionist → -2

…

nogs → -3

Message ID: 2

gays → -21

wogs → -1

…

nigs → -13

Message ID: 3

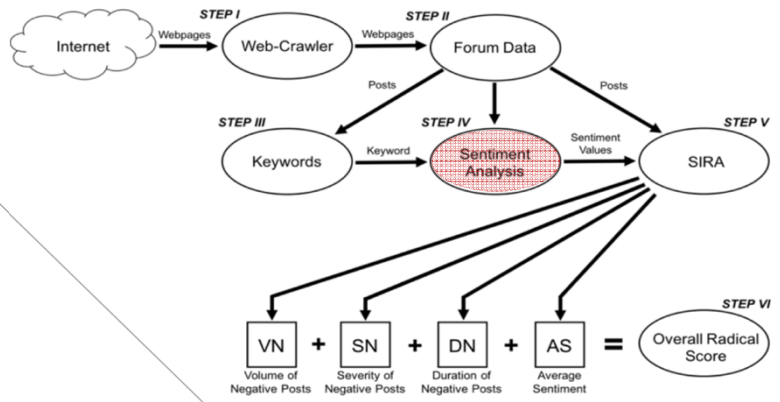
homo → -33

kike → -16

…

SENTIMENTIZED DATA

	Keyword 1	Keyword 2	…	Keyword 67
Author A – Post 1	-2	1	…	
Post 2	3	-4	…	8
Post 3	0.5	-5		
…	…	…	…	
Post 99				-31



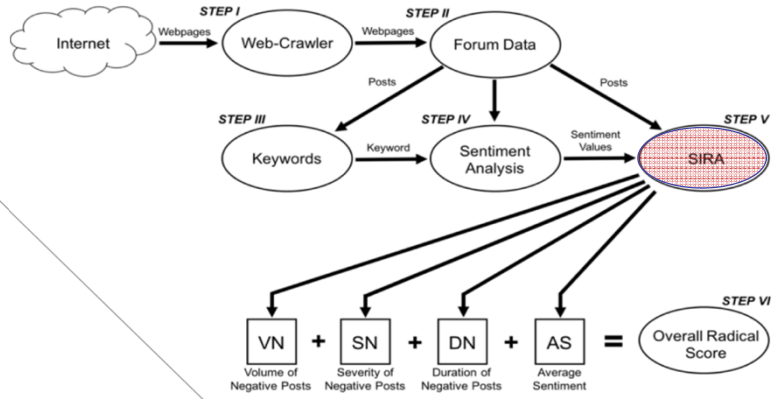
How do we identify **"radical/othering"** posting behaviour online?

SIRA ALGORITHM:

1.) Relative **average** sentiment score (10 points)

2.) **Volume** of negative posts (10 points)

3.) **Severity** of negative posts (10 points)



Message ID: 3

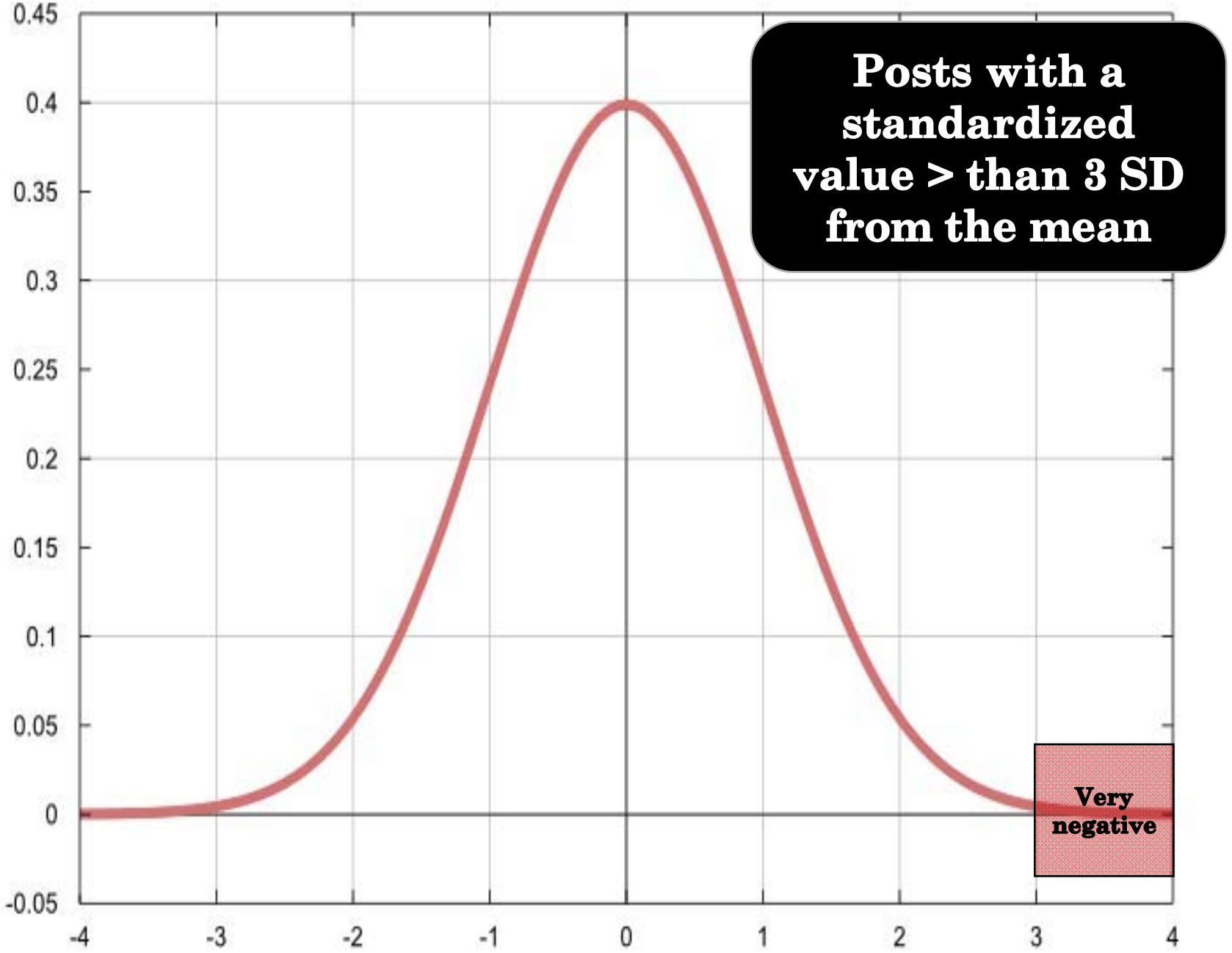
homo → -33
kike → -16
…
fag → -29

Message ID: 4

kite → -4
wog → -11
…
gay → -5

How do we identify **"radical/othering"** posting behaviour online?

Figure 1. Standard Normal Distribution



SIRA ALGORITHM:

1.) Relative **average** sentiment score (10 points)

2.) **Volume** of negative posts (10 points)

3.) **Severity** of negative posts (10 points)

4.) **Duration** of negative posts (10 points)

=

RADICAL SCORE
(40 points)

Message ID: 3

homo → -33
kike → -16
…
fag → -29

Message ID: 4

kite → -4
wog → -11
…
gay → -5

How do we identify **"radical/othering"** posting behaviour online?

CHRONIC RADICAL POSTING BEHAVIOUR

1.) Relative **average** sentiment score (10 points)

2.) **Volume** of negative posts (10 points)

3.) **Severity** of negative posts (10 points)

4.) **Duration** of negative posts (10 points)

- Volume of activity increases chances of reaching and communicating with more people

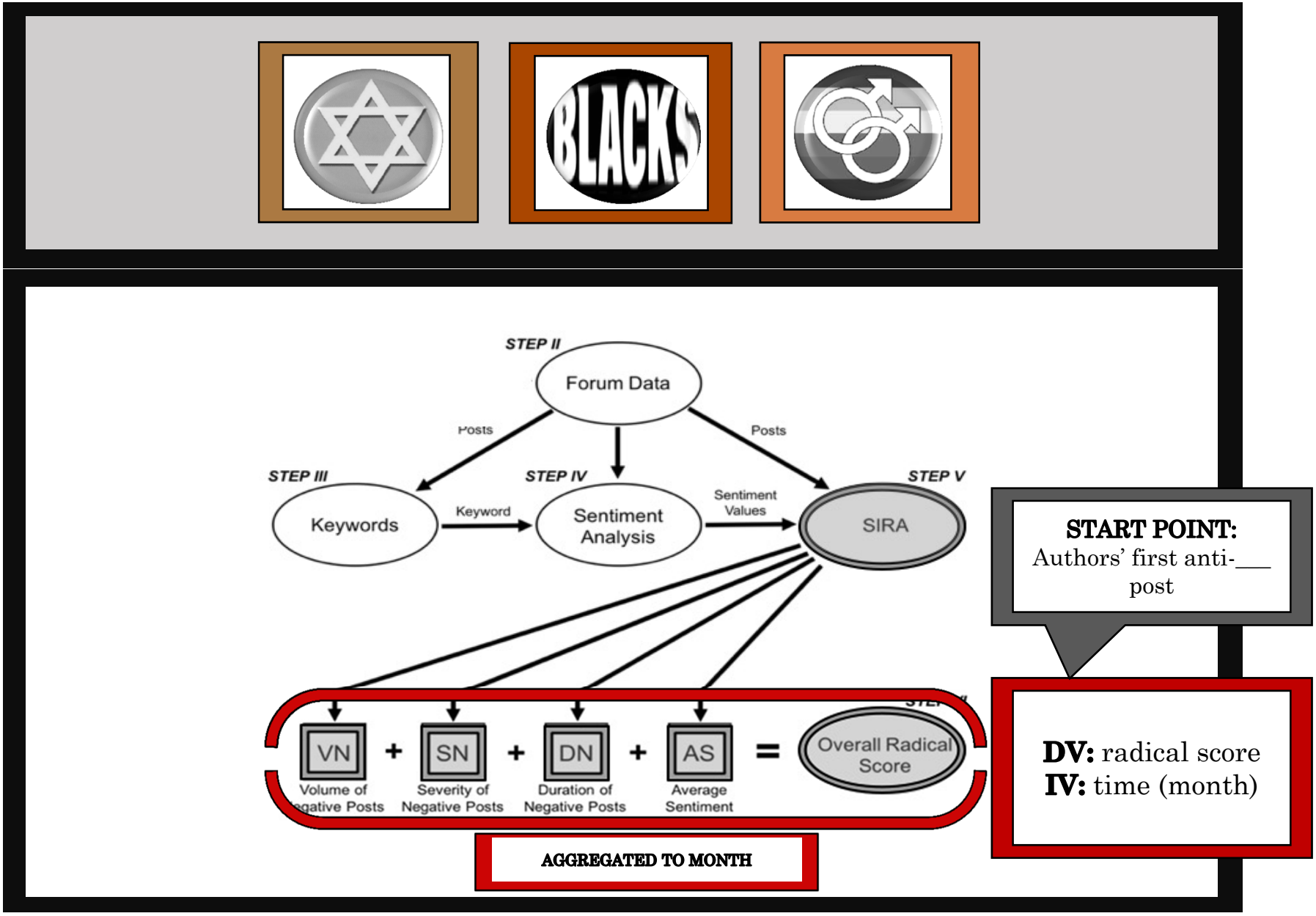
- Language is power: clarity, assertive, direct, and intensity (emotion) of language

- Time spent in a particular setting shows level of commitment

CRIMINAL CAREER MEASURES (Blumstein et al., 1986)

- Provides a reference point in which to gauge levels of radical engagement online (measurement tool)
- **Disaggregates** chronic from non-chronic radical authors

TEMPORAL SIRA



TEMPORAL SIRA

GROUP-BASED TRAJECTORY MODELING:

- Identifies distinct **clusters** of groups sharing similar patterns over time
- Identifies **chronic** radical posting behaviour across time

TEMPORAL SIRA

ITERATIVE PROCESS

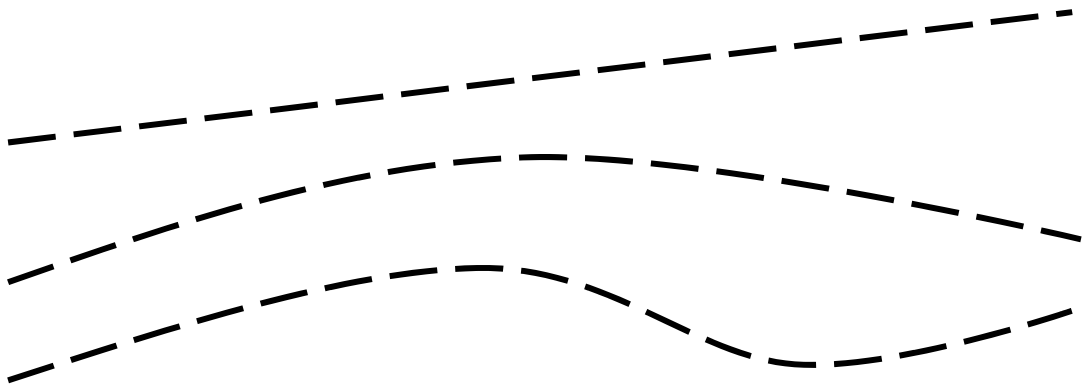
1. Bayesian Information Criterion (BIC)
2. Odds of correct classification (OCC)
3. 95% confidence interval extension

BEST MODEL FIT

1 = linear

2 = quadratic

3 = cubic



(POLYNOMIAL FUNCTION FORM)

RESULTS

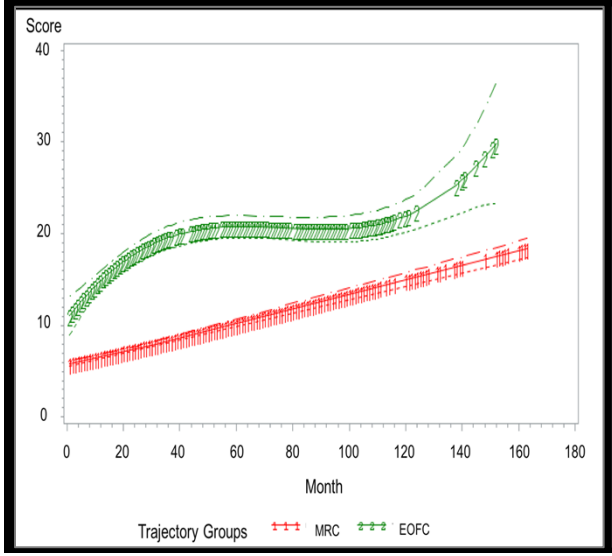
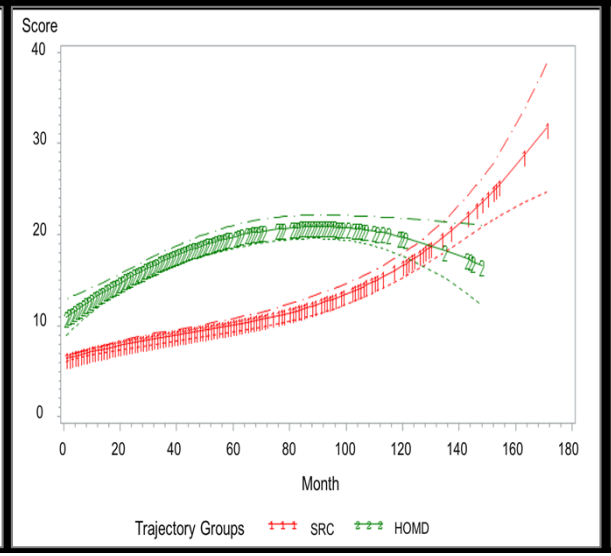
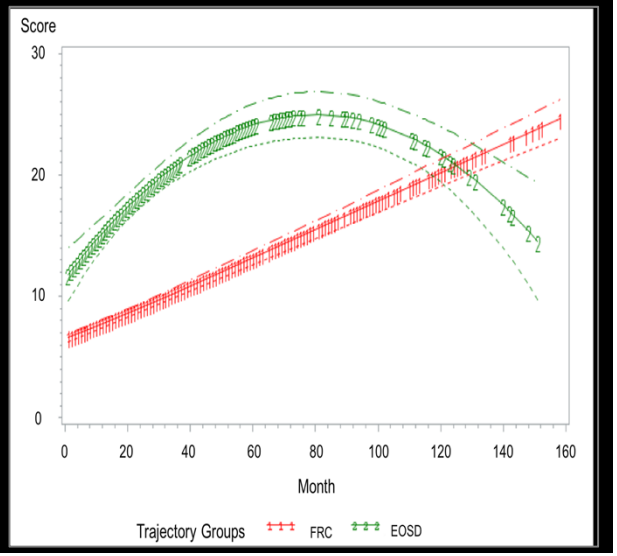
- Most discussions were about Jews; targeted at highest volume
- Discussions about LGBTQs were most negative and over longest time
- Outliers accounted for large proportion of variation

HIGHLIGHTS

	Sentiment about Jews (n = 1,641)		**Sentiment about Blacks** (n = 1,584)		**Sentiment about LGBTQs** (n = 911)	
	Count	Mean (SD)	Count	Mean (SD)	Count	Mean (SD)
Keywords found in data	9,323	5.68 (25.81)	5,624	3.55 (11.72)	3,541	3.89 (13.41)
Negative posts	4,724	2.88 (14.20)	2,490	1.57 (6.17)	2,217	2.43 (9.22)
Very negative posts	138	0.08 (0.93)	78	0.05 (0.48)	49	0.05 (0.63)
Negative posting duration (days)	-	128.94 (461.81)	-	114.04 (442.94)	-	168.53 (545.09)
Posting score	-	-1.50 (2.92)	-	-1.17 (2.50)	-	-1.90 (2.55)
Overall radical score	-	4.31 (3.55)	-	4.59 (3.31)	-	4.68 (3.64)

RESULTS

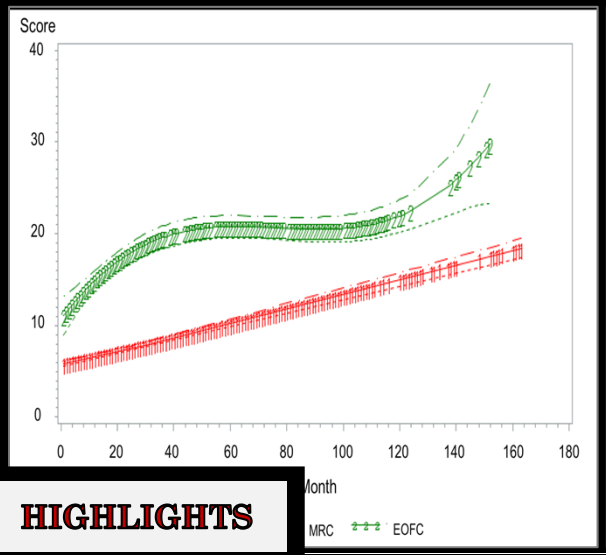
RADICAL POSTING TRAJECTORIES:

Anti-Semitic	Anti-Black	Anti-LGBTQ
		
MODERATE RISING CHRONIC*** • 99.39% (n = 1,631) • Linear (low-stable) **EXPLOSIVE-ONSET FLUCTUATING CHRONIC***** • 0.61% (n = 10) • Cubic (high-fluctuate chronic)	**SLOW RISING CHRONIC**** • 98.86% (n = 1,566) • Cubic (low, rapid increase) **HIGH-ONSET MODERATE DESISTER***** • 1.14% (n = 18) • quadratic (high-moderate desister)	**FAST RISING CHRONIC***** • 99.12% (n = 903) • Linear (low-stable) **EXPLOSIVE-ONSET MODERATE DESISTER***** • 0.88% (n = 8) • quadratic (explosive-moderate desister)

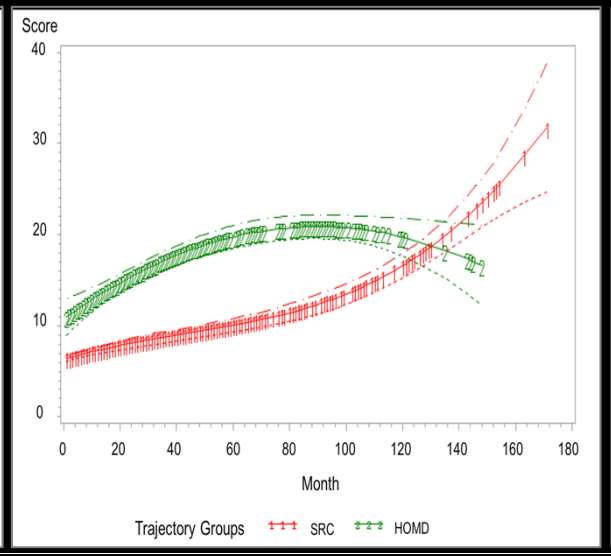
RESULTS

RADICAL POSTING TRAJECTORIES:

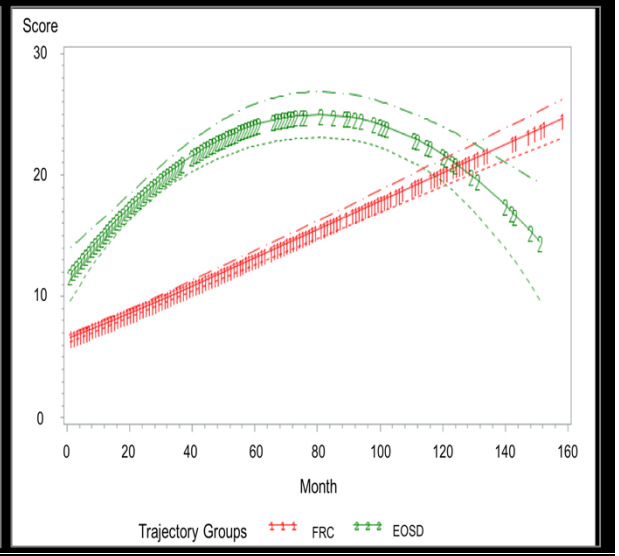
Anti-Semitic



Anti-Black



Anti-LGBTQ



HIGHLIGHTS

- **MOST AUTHORS:**
  - Follow a low-level chronic posting trajectory (slow and steady)
  - Tail off of anti-Semitic/Black/LGBTQ behaviour; slowest for anti-Semitic
- **Anti-Semitic trajectory**: has no desister group
- **Anti-LGBTQ trajectory**: quickly becoming the most radical
- Small group of desisters: explosive onset but "cool off" at half-way point

DISCUSSION

OBJECTIVE:

- *How does radical right-wing posting behaviour transpire and evolve over time?*
- Identify group-level trajectory patterns for **radical/othering discussions** on a RWE forum over time
  - ***Anti-Semitic/Black/LGBTQ*** sentiment (collective identity)

KEY FINDINGS:

- Levels of othering: Jews (**scope**) and LGBTQs (**depth**)
- Levels of othering increases over time
  - ***Anti-Semitic:*** most stable over time (**ZOG conspiracy**)
  - ***Anti-LGBTQ:*** most explosive & intensifying (**PRIDE movement**)

LIMITATIONS AND FUTURE RESEARCH

ADVERSARIES, KEYWORDS, AND CONTROLS:

- Include other adversary groups and larger lists of words
- Control group: random sample from other sub-forums

STORMFRONT CANADA DATA:

- Limited to one sub-forum

LONG VERSUS SHORT-TERM ACTIVITY

- Examine posting activity of short-term posters
- Change the IV from month to week or day

LIMITATIONS AND FUTURE RESEARCH

SENTIMENT ANALYSIS:

- Keywords are assumed to be radical
- Word frequencies or re-calibrate sentiment analysis

SNA OF RADICAL POSTERS:

- Include SNA metric into algorithm:
  - Authors using specific set of words, clustering around authors
  - Identify opinion leaders and analyze their network

UNPACKING THE COLLECTIVE IDENTITY:

- Treats the collective identity of RWE as a single entity
- Discussions around heroes, martyrs, folklores, groups and family

POLICY IMPLICATIONS

ANALYSIS OF ONLINE DATA:

- Rich with information about how movement adherents communicate, as well as their radical identities and target

USE OF COMPUTATIONAL TOOLS:

- Overcoming **Big Data challenge** to identify radical content online (needle in a haystack)
    - Important to understand the online space under review

BRIDGING THE SCIENCES:

- Computer science and social science approaches
- Draw from the strengths of both disciplines

CICC Lunch Conference

February 28, 2018

OTHERING ACROSS TIME: MEASURING RADICAL POSTING TRAJECTORIES ONLINE

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