Computational Analysis of Religious and Ideological Linguistic Behavior

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Sponsor: ARL



Problem: How to work with Value-Based Groups?

What is a value-based group?

- Religious
- Political
- Any group motivated by a set of values

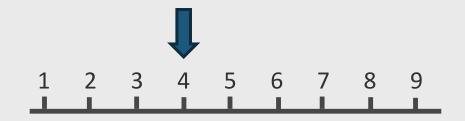
Who needs to work with value-based groups?

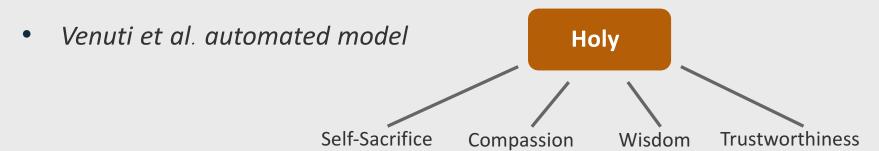
- US Government
- Humanitarian Groups
- Business Leaders

UVA Initiative on Conflict, Politics, and Religion

1-9 Linguistic Rigidity Scale

 Number of definitions not the definition itself is what matters





Objectives & Goals

Large-Scale Goals:

Real-time recommendations to organizations on the ground

Team Goals:

- Tune the Signal Processing Model
- Test a Deep Learning Model
- Language Agnostic
- Other Groups

Technical Approach

Technical Approach: Signal Processing

Performative Signals

- Number of judgements (noun + "to be" verb + adj/adv)
- Context Vectors (Semantic Density and Cosine Similarity)
- Network Analysis (Eigenvector Centrality)

Semantic Signals

- Topic Modeling
- Sentiment Analysis

sinners should be welcome. However, some churches are quick to boot people out if they don't live up to their standards. I heard about a preacher whose wife was in the hospital and dying of cancer. The elders of his church came to the hospital to see them. The preacher thought they were coming to pray for his wife, but instead, they came to fire him. I have no idea what that preacher did that was so bad, but those elders demonstrated no mercy at all. I have heard of other horror stories where people have been driven out of a church for one thing or another. No mercy was demonstrated, only rugged legalism. But Jesus said, "I desire mercy, not sacrifice." Matt. 23:23 "Woe to you, teachers of the law and Pharisees, you hypocrites! You give a tenth of your spices: mint, dill and cummin. But you have neglected the more important matters of the law: justice, mercy and faithfulness. You should have practiced the latter, without neglecting the former." The Pharisees of old were scrupulous or careful

Raw Text

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Identify Keywords

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Collect words in context vector

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- Repeat for all occurrences of keyword
- Singular Value Decomposition to vector of length 100
- Calculate Average Semantic Density and Distributional Co-occurrence Score

Value Words

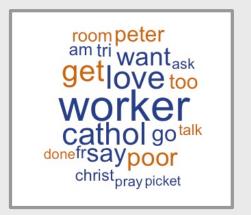
Previous Method



TFIDF Method w/Pronouns



TFIDF Method w/out Pronouns



Judgement Classification

Previous Method:

Judgement = (noun + "to be" verb + adj/adv)

New Method:

Judgement = pronoun + key word

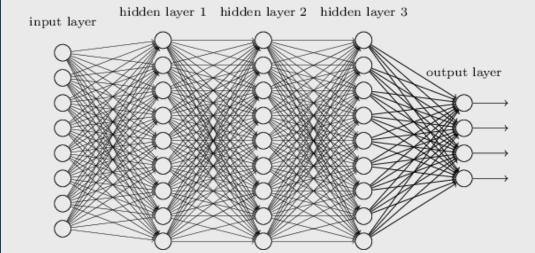
The first priority is to perform hijrah from wherever you are to the Islamic State, f om dārul-ku-fr to dārul-Islām. Rush to perforr it as Mūsā ('alayhis-salām) rushed to his Lord saying, {And I hastened to You, my Lord, that You be pleased} [Tāhā: 84]. Rush to the shade of the Islamic State with your parents, siblings, spouses, and children. There are homes here for you and our families. You can be a major contributor towards the liberation of Makkah, Madīnah, and al-Quds. Would you not like to reach Judgment Day with these grand deeds in your scales.

Second, if you cannot perform hijrah for whatever extraordinary reason, then try in your location to organize bay'āt (pledges of allegiance) to the Khalifah Ibrāhīm. Lublicize them as much as possible. Gather people in the masājid, Islamic centers, and Islamic organizations, for example, and make public announcements of bay'ah. Try to record these bay'āt and then distribute them through all

public announcements of bay'ah. Try to record these bay'āt and then distribute them through all forms of media including the Internet. It is necessary that bay'at becomes so common to the average Muslim that he considers those holding back as grossly abrormal. This effort, inshā'allah, will encourage Isl mic groups to abandon their partisanship and also announce their bay'ah to the Khalīfah Ibrā līm.

If you live in a police state that will arrest you over such bay'at, then use means of anonymity to con-

Technical Approach: Deep Learning



•	Logistic	regression	classifier
	LOGISTIC	16816331011	CIUSSIIICI

Let the program learn which words are important

	peace	catholic	holy	• • •
document_001	0	1	0	• • •
document_002	3	0	5	• • •
document_003	0	0	0	• • •
•	:	•	•	•••

	Bahai	Dorothy Day	Integral Yoga	Sea Shepherds
document_001	0	1	0	0
document_002	1	0	0	0
document_003	0	0	0	1
•	•	•	:	··.

Results

Model Revisions

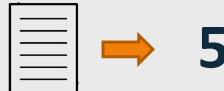
Instead of scoring groups, we're moving towards a model that will score individual documents.

Lead to temporal analysis







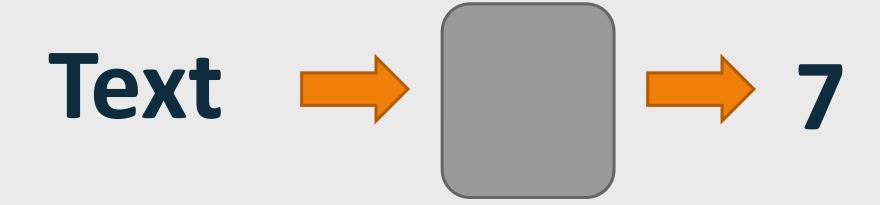


Problem Objectives

Technical Approach

Results

Expected Results



Expected Results

نہیں کھیل اے داغ یاروں سے کہددو

کہ آتی ہے اردوز باں آتے آتے

اردو ہے جس کا نام ہمیں جانتے ہیں داغ
سارے جہاں میں دھوم ہماری زباں کی ہے

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