



Motivation



Challenge:

Understanding event-centric narratives to disentangle the framing decisions of news articles.

Media framing analysis is essential for understanding how public opinion is formed and how social movements gain momentum. Moreover, framing analysis can help us to identify and challenge harmful stereotypes and biases that perpetuate inequality and injustice.

Methods

We propose a computational framework to study media framing through the lens of event-centric narratives. Given an unannotated corpus of news articles, for each document we:

1. Extract all (*verb, object*) **event pairs**.
2. Use a relation classifier to extract **causal and temporal relations** between pairs of events.
3. Consider all single-hop **narrative event chains** and represent them as (*event₁, relation, event₂*).
4. Use an LLM guided method to **cluster** similar **narrative chains**.
5. Use the clusters to predict and explain the policy frame taxonomy (Boydston et al., 2014) in the news articles.



Results

Dataset

We analyzed news articles covering two domains from the Media Frames Corpus (Card et al., 2015):

1. Immigration
2. Gun Control

Quality of Narratives

1. Relation Prediction

Model	Temporal	Causal	None	All
Majority	0.00 _{0.00}	0.00 _{0.00}	0.83 _{0.00}	0.27 _{0.00}
Random	0.23 _{0.01}	0.18 _{0.01}	0.45 _{0.01}	0.28 _{0.01}
Log Reg	0.32 _{0.01}	0.22 _{0.00}	0.51 _{0.00}	0.35 _{0.00}
Our Model	0.59 _{0.01}	0.42 _{0.01}	0.78 _{0.00}	0.60 _{0.01}

Table 1: F1 scores for the multi-class relation prediction model.

2. Narrative Clustering

Immigration		Gun Control	
Inter-Annotator Agreement	Accuracy	Inter-Annotator Agreement	Accuracy
82.61	67.50	65.89	37.50

Table 2: Intrusion Test Results: Krippendorff's alpha is used to compute inter-annotator agreement. Intrusion labeling accuracy is reported in percentage.

Narrative Chain LLM Expansions

Narrative Chain	LLM Expansion
<i>((require, check), CAU SAL, (close, loophole))</i>	The decision to require LLM background checks at gun shows was a key factor in closing the so-called "gun show loophole".

Table 3: Example of a narrative chain expansion generated by prompting a Llama 3.1 8B model.

Do Narrative Clusters help explain Framing decisions?

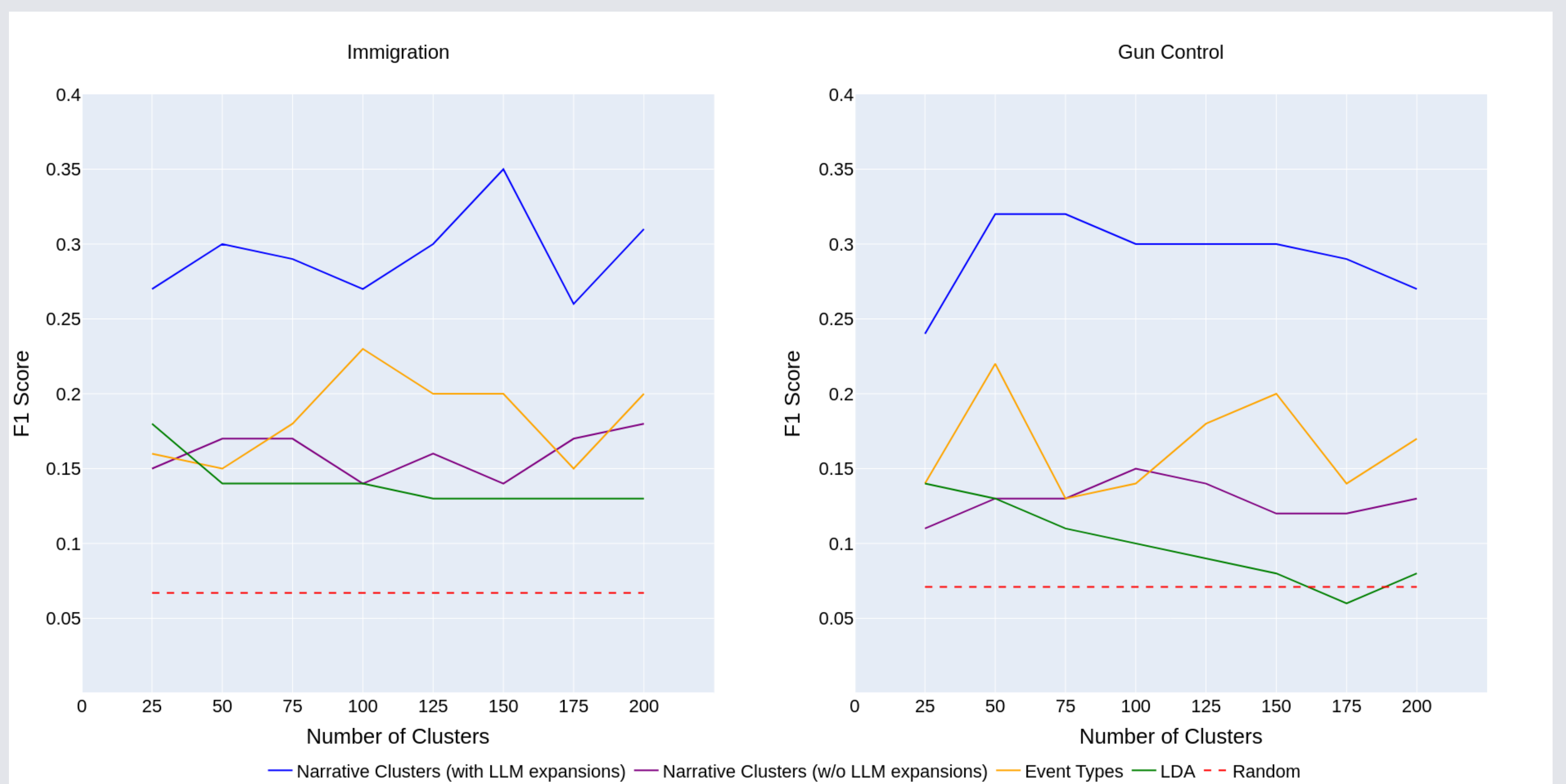


Figure 1: Frame prediction results on the immigration and gun control datasets using only cluster features. Baselines: (1) Random, (2) LDA topics, (3) Event Types, and (4) Narrative Clusters (w/o LLM expansions).

Qualitative Analysis

Frame	Top Ranked Narrative Clusters	Narrative Theme
Legality, Constitutionality, Jurisdiction	<i>((interpret, Amendment), CAUSAL, (bear, arm))</i> : The court's broad interpretation of the Second Amendment led to the conclusion that Americans have a right to bear arms.	Second Amendment right to bear arms.
	<i>((return, case), CAUSAL, (limit, power))</i> : The court's decision to return the case to the lower courts was a direct result of their attempt to limit federal power.	Courts rejecting appeals in gun control cases.

Table 4: Top narrative clusters and their corresponding narrative themes that are strongly predictive of the Legality, Constitutionality, Jurisdiction frame in the gun control dataset.

Future Work

1. Improve the sub-components of our framework to reduce the noise introduced at different levels.
2. Explore more effective ways to harness the narrative theme information for predicting and explaining frames.
3. Study the generalizability of our framework.
4. Employ our framework in a large-scale analysis of framing in the news across time, topics and media outlets.

References

1. Boydston et al., 2014. Tracking the Development of Media Frames within and across Policy Issues.
2. Card et al., 2015. The media frames corpus: Annotations of frames across issues.