Automating Protest Event Analysis: A Transformer-Based Framework for Multilingual Classification

Giuliano Formisano[1]   Caterina Froio[2]   Pietro Castelli Gattinara[3]

[1]University of Zurich
[2]Sciences Po
[3]Université Libre de Bruxelles

REXKLIMA Workshop - Dresden, 1-2 October 2025

Outline

1. Why Study Far-Right Protest?
2. How? From Manual to Hybrid Protest Event Analysis (PEA)
3. Results
4. Conclusions

Why study far-right protest?

Protest is increasingly central to far-right mobilization
(Castelli Gattinara, Froio, & Pirro, 2022)

Research gaps

- SM literature mainly focuses on progressive movements

- Comparative party-focused research misses street-level contention

- Lack of scalable, multilingual systematic protest data

How? From manual to hybrid PEA

The Far-Right Protest Observatory

www.farpo.eu

How: From manual protest event analysis...

Traditional PEA (Hutter, 2014)

- Quantitative content analysis
- Systematic: reliably tracks trends over time
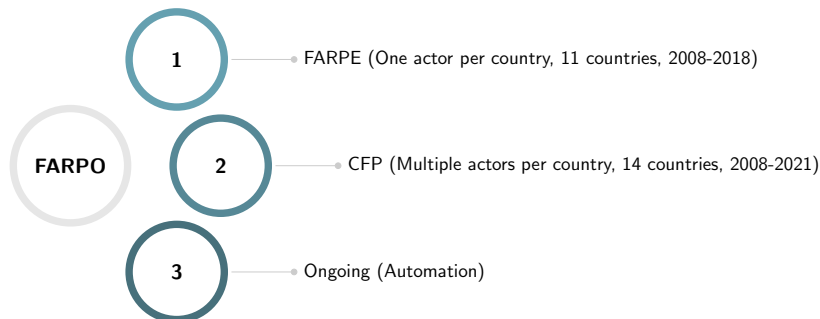- Cross-context: enables comparative patterns

Limitations

- Labor-intensive
- Extremely costly
- Slow

New Need (Haunss et al., 2025)

- Scalable
- Multilingual
- Automated tools

How? ...to hybrid PEA

Evolution of FARPO

- FARPE (One actor per country, 11 countries, 2008-2018)
- CFP (Multiple actors per country, 14 countries, 2008-2021)
- Ongoing (Automation)

The original human coding protocol

- Newspaper-based protest identification
  - Semi-automated searches
  - Keyword strings with actor names
  - Manual reading and false-positives

- Three-step coding protocol
  1. Preliminary tasks and testing
  2. First round of coding with 3-step validation
  3. Snowball search + second round of coding

- Coding items
  - **Basics:** Country, Date, URL/headline, Place, Event level
  - **Actor-specific:** Name, Role (org/part.), Type, Scope
  - **Event-specific:** Size, Countermob., Repertoire, Issues, Description

(Castelli Gattinara, Segers, Froio, Pirro, & Jupskås, 2025)

How? The ongoing hybrid architecture

Human-coded material

- Sample of the original FARPO data
  - 4,002 manually annotated newspaper articles (2008–2021)
  - Both positives and false positives
  - 7 countries, 5 Languages: AT BE DEU FR NL ES SE

Machine learning

- Three transformer-based classifiers:
  - Protest identification (true / false)
  - Issue classification (Ethnic/religious minorities vs. other)
  - Forms of action (Demonstrative vs. confrontational/violent)

- Models used
  - XLM-RoBERTa and mBERT (multilingual transformers)
  - Fine-tuned on annotated articles

How? The ongoing hybrid architecture

Table 1: Article Distribution Across Tasks and Countries

Task 1: Protest ID		Task 2: Protest Issue		Task 3: Protest Forms	
Country	Texts	Country	Texts	Country	Texts
Germany	1,930	Germany	913	Germany	1,019
France	599	France	294	Spain	686
Spain	471	Spain	225	France	308
Sweden	394	Sweden	185	Sweden	216
Netherlands	260	Netherlands	128	Netherlands	132
Austria	190	Austria	91	Austria	98
Belgium	158	Belgium	77	Belgium	82
Total	**4,002**	**Total**	**2,546**	**Total**	**1,911**

Notes: Task 1 - Non-protest (0) = 2,092 articles, Protest (1) = 1,910 articles. Task 2 - Ethnic/religious minorities (0) = 1,010 articles, Other (1) = 903 articles. Task 3 - Demonstrative (0) = 1,126 articles, Confrontational (1) = 785 articles.
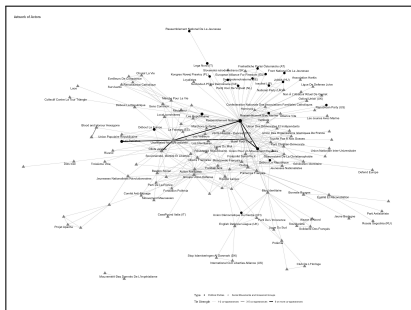
Results (manual coding)
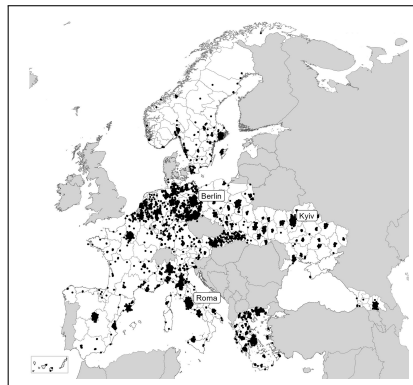

Figure 1: Protest networks in France (2008-2021)

Figure 2: Distribution of far-right protest in Europe

(Castelli Gattinara, Froio, & Pirro, in press)

Results (automation)

Table 2: Descriptive statistics of best-performing algorithms on the testing sets

Task	Model	Seed	Split	Accuracy	Weighted F-score	Individual F-scores	Precision	Recall	AUC
Protest Identification	XLM roBERTa	373	80% training 10% validation 10% testing	80%	0.80%	78% vs 81%	81% vs 79%	76% vs 83%	80%
Protest Issue		516	70% training 15% validation 15% testing	75%	75%	72% vs 77%	81% vs 71%	65% vs 85%	75%
Protest forms of action		973	70% training 15% validation 15% testing	75%	75%	78% vs 71%	87% vs 62%	70% vs 83%	77%

Note: The table shows the descriptive statistics of the best-performing algorithms on the testing sets for each task under analysis. We present the random seed and split used. We also provide four performance metrics: Accuracy, Average F-score, Individual F-scores for each class in the model, and Area-under-the-curve (AUC). Appendix B contains a descriptive analysis of each classifier using all configurations (model, seed, split, and metrics).

Conclusions

Contributions:

- Improves efficiency, accuracy, and generalizability of PEA
- Enables cross-national, multilingual protest analysis
- Open-source models for broader use

Challenges:

- Under review in *Political Science Research and Methods*
- Error propagation in multi-stage pipelines
- Bias in media sources and language-specific performance
- Extending to other protest types and regions

Literature I

Castelli Gattinara, P., Froio, C., & Pirro, A. (in press). *Protest of the far right*. Oxford: Oxford University Press. (Forthcoming)

Castelli Gattinara, P., Froio, C., & Pirro, A. L. (2022). Far-right protest mobilisation in europe: Grievances, opportunities and resources. *European Journal of Political Research*, *61*(4), 1019–1041.

Castelli Gattinara, P., Segers, I. B., Froio, C., Pirro, A., & Jupskås, A. R. (2025). *Comparative far-right protest dataset: Documentation file*. URL.

Haunss, S., Daphi, P., Dollbaum, J. M., Hristova, L., Susánszky, P., & Steinhilper, E. (2025). Papea: A modular pipeline for the automation of protest event analysis. *Political Science Research and Methods*, 1–18. Retrieved from https://doi.org/10.1017/psrm.2025.10013 doi: doi: 10.1017/psrm.2025.10013

Hutter, S. (2014). Protest event analysis and its offspring. In D. della Porta (Ed.), *Methodological practices in social movement research* (pp. 335–367). Oxford University Press.

Data collection procedure

Protest Event Analysis (**??**)

Quantitative content analysis
Established in social movement research

Advantages	Disadvantages
Qualitative & quantitative	Labor intensive and time consuming
Handles unstructured data	Requires proficiency in multiple languages
Context sensitive	Text corpus too large for comprehensive examination
Copes with large data	Limited analysis scope introduces bias
Combines multiple sources	Bias can only be minimized, not eliminated (sampling)

Data collection procedure

Coding unit: a protest event

A collective, public action by far-right actors to express critique or dissent, or advance demands via non-institutional means.

Data sources

One quality broadsheet newspaper per country

Event identification: boolean search string on newspaper databases (FACTIVA, EUROPRESS, Retriever)

(relevant far-right actors) AND (protest terms) + snowball

Three-step process

1. Preliminary tasks and testing
2. First round of coding with 3-step validation
3. Snowball search + second round of coding

Codes

Basics: Country code, Source, Event ID, Date, URL/headline, Place, Level
Actor-specific: Name, Role, Type, Scope
Event-specific: Size, Counter mob., Police, Type, Issues, Description

Appendix

Table 1: Number of newspaper articles by country and task

Task 1: Protest Identification		Task 2: Protest Issue		Task 3: Protest Forms of Action	
Non-protest (0): 2,092 articles, Protest (1): 1,910 articles		Ethnic/ religious minorities (0): 1010 articles, Other (1): 903 articles		Demonstrative (0): 1126 articles, Confrontational (1): 785 articles	
Country	Texts	Country	Texts	Country	Texts
Germany	1,930	Germany	913	Germany	1,019
France	599	France	294	Spain	686
Spain	471	Spain	225	France	308
Sweden	394	Sweden	185	Sweden	216
Netherlands	260	Netherlands	128	Netherlands	132
Austria	190	Austria	91	Austria	98
Belgium	158	Belgium	77	Belgium	82
Total	**4,002**	**Total**	**2,546**	**Total**	**1,911**