Unveiling the dynamics of media discourse on NATO in Romania amid electoral turmoil through semantic network analysis

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Background & Research Questions

Romania's annulled presidential election of 24 Nov 2024, won by a populist outsider amid allegations of Russian interference, propelled NATO into the national spotlight. Network Agenda Setting (NAS) reframes classic agenda-setting by modelling media attributes as networks that shape public and policy agendas[1-3]. In Eastern Europe, NAS studies remain scarce[4] while most regional work analyzes political discourse on Twitter[5-6], overlooking mainstream news and Facebook, Romanians' main social media platform for news[7]. Integrating NAS with semantic network analysis[8-11] lets us test how Romania's online news agenda on NATO shifted during the 30-day pre- and post-election window.

Research Questions

1. **RQ1:** How does the semantic structure of NATO discourse differ 30 days *before* versus *after* the election?
2. **RQ2:** Which actors and entity clusters dominated each period?
3. **RQ3:** To what extent does anti-NATO discourse increase post-election?

Data & Methods

CORPUS. Romanian-language news articles and public Facebook posts containing “NATO” harvested **24 Oct – 24 Nov** (pre-election) and **25 Nov – 25 Dec 2024** (post-election).
– Pre-election: **3,234** mentions (News = 1,479, FB = 1,755)
– Post-election: **6,662** mentions (News = 3,068, FB = 3,594)

MONITORING. Data collected with NewsVibe[12] (v 25.1.14) (Social Monitor, 2025). Export snapshot: 30 Jan 2025.

IN-PLATFORM NLP PREPROCESSING. NewsVibe applies a fine-tuned NER model based on Llama3.2-1B. The model was trained on a synthetic dataset of news articles from the platform automatically annotated with Llama3.3-70b[13] with the following entity types: Person, Location, Institution, Company, and Product. The fine-tuned model obtained an F1 score of 82.5%.

NETWORK ANALYSIS. The graph constructed using the list of entities from each article is imported into Gephi[14,15] (v.0.10)**.**
- Nodes = entities; edges = frequency-weighted co-occurrences

- We analyse: Graph size, Modularity[16]**,** Top-10 rankings by degree and weighted degree

STANCE PROXY MARKERS. Anti-NATO salience is gauged using two markers: (1) the total occurrences of *Călin Georgescu*, the anti-NATO candidate, and (2) the average weighted degree of the three Romanian military base nodes (*Deveselu, Cincu, Kogălniceanu*). Higher values of these markers can reflect greater anti-NATO emphasis in the discourse.

Results

METRIC	BEFORE THE ELECTIONS (Fig. 1)	AFTER THE ELECTIONS (Fig. 2)
Density	0.142	0.128
Louvain (γ = 1)	Q = 0.29 (5 communities)	Q = 0.20 (7 communities)
Size	|Vertices| = 730; |Edges| = 37,564	|Vertices| = 1,218; |Edges| = 94,161
Top-10 Degree	*Romania (599); USA (543); Russia (540); Ukraine (536); EU (487); American (486); D. Trump (439); Europeans (428); Europe (417); Ukrainian (406)*	*Romania (1,104); Russia (1,052); EU (1,005); Ukraine (953); USA (920); Europeans (897); C. Georgescu (896); Romanians (844); European (809)*
Top-10 Weighted Degree	*Romania (9,739); Russia (7,614); Ukraine (7,424); USA (6,927); D. Trump (5,581); V. Putin (5,119); Ukrainian (3,929); EU (,3903); American (3,830); president (3,256)*	*Romania (35,145); Russia (24,055); EU (22,010); Ukraine (19,686); USA (15,443); C. Georgescu (11,691); V. Putin (11,151); D. Trump (10,315); Europeans (8,772); Europe (8,699)*

KEY CLUSTERS

BEFORE THE ELECTIONS (Fig. 1)	AFTER THE ELECTIONS (Fig. 2)
Election (327 nodes, 44.79%); *(general references to candidates' discourse)*	**Election** (632 nodes, 51.89%); *(impact of C. Georgescu on NATO relationship)*
Ukraine war (265 nodes, 36.3%) *(general info)*	**Ukraine war** (410 nodes, 33.66%); *(focus on C. Georgescu messages – opposition to Ukraine aid; alleges NATO blocked him to prolong war & involve Romania)*
Moldova (74 nodes, 10.14%); *(Russia accuses NATO of using Moldova in Ukraine war; electoral messages)*	**NATO & military 1** (102 nodes, 8.37%); *(references to activities, exercises etc)*
NATO & military (52 nodes, 7.12%); *(references to activities, exercises etc)*	**NATO & military 2** (53 nodes, 4.35%); *(references to activities, exercises etc)*
Regional issues (12 nodes, 1.64%)	**Russia** (10 nodes, 0.82%); *(allegations of interference in elections; regional threat)*
	China (6 nodes, 0.49%); *(allegations – TikTok helped influence elections in NATO country)*
	Romanian Academy (5 nodes, 0.41%); *(reacts to accusations of anti-NATO support)*

BEFORE the elections

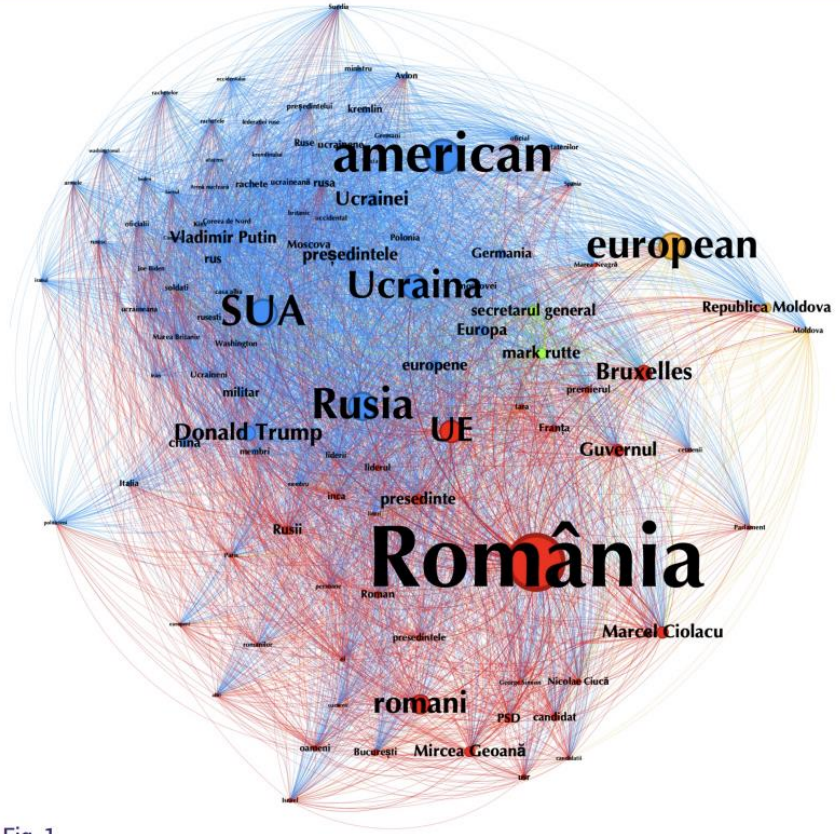

Fig. 1

Semantic network (24 Oct 2024 – 24 Nov 2024).

Only nodes with degree > 200 (top 15%, n = 107) are displayed.
Node & label size proportional to degree.

- Election
- Ukraine war
- Moldova
- NATO & military
- Regional issues

AFTER the elections

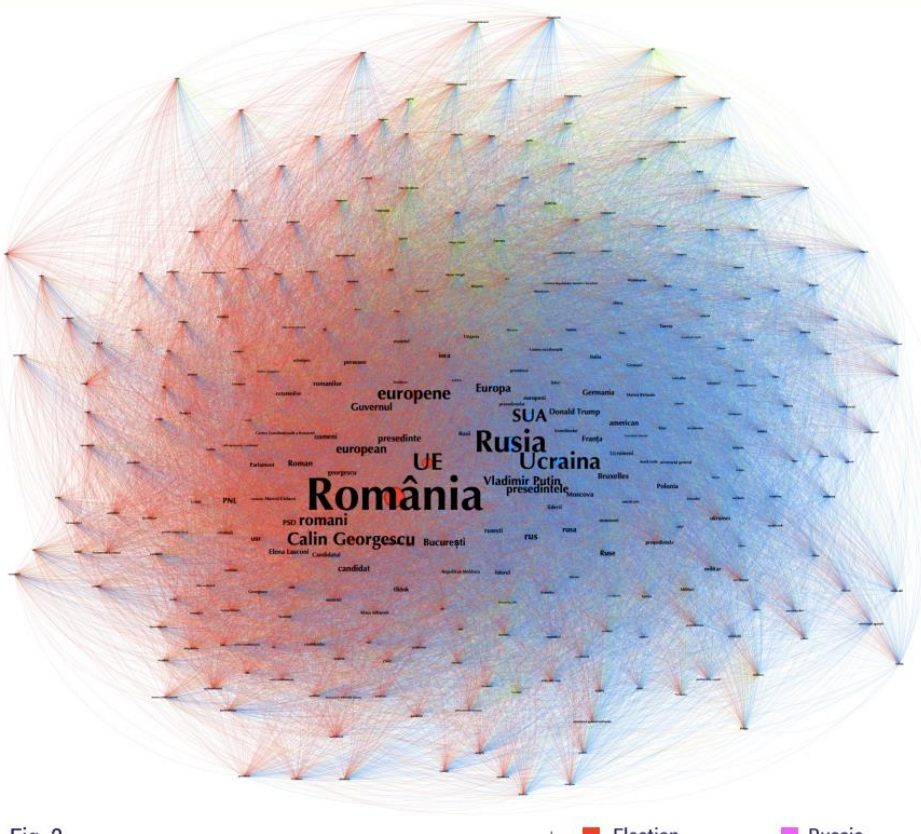

Fig. 2

Semantic network (25 Nov 2024 – 25 Dec 2024).

Only nodes with degree > 200 (top 25%, n = 306) are displayed.
Node & label size proportional to degree.

- Election
- Ukraine war
- NATO & military 1
- NATO & military 2
- Russia
- China
- Ro Academy

Anti-NATO marker surge. The sharp rise of a single anti-NATO candidate and the amplified focus on local military installations signal a qualitative shift from diffuse criticism to concrete, actor-centred opposition.

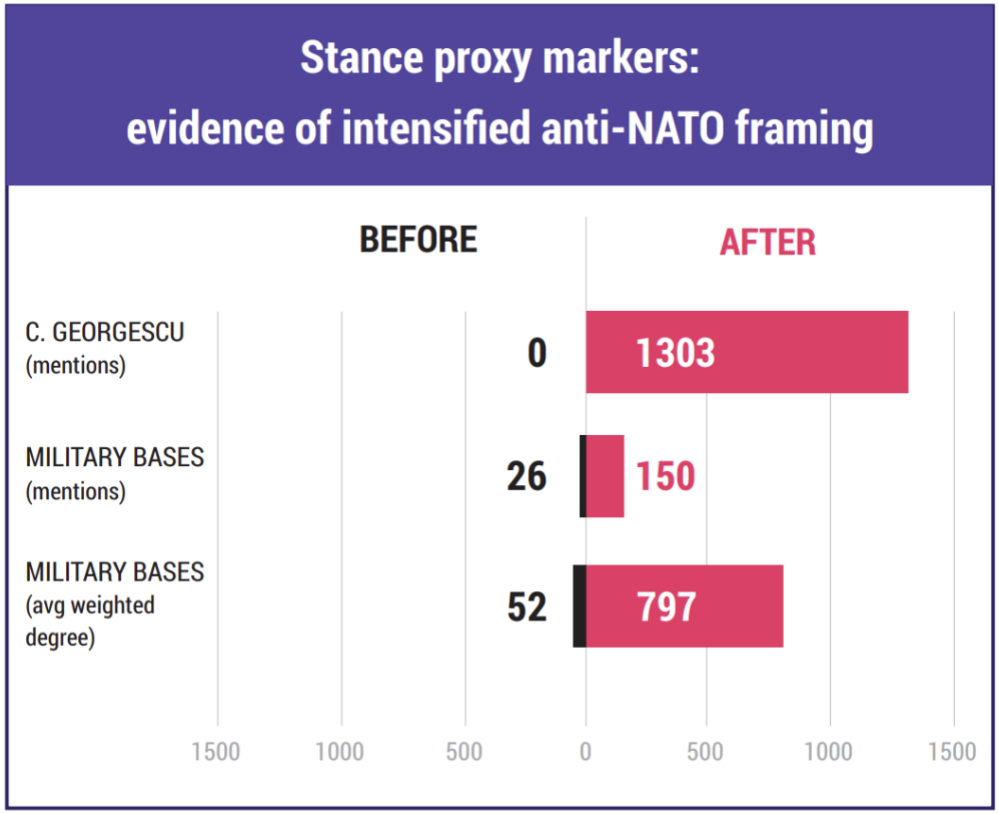

Figure 3. Stance proxy markers: evidence of intensified anti-NATO framing.

Key Findings

- **NATO mentions doubled (3,234 → 6,662) post-election.**
- **Semantic network nearly doubled in size (730 → 1,218 nodes).**
- **Narrative clusters became less distinct: modularity drops (Q = 0.29 → 0.20).**
- **Anti-NATO candidate emerged prominently (0 → 1,303 mentions, high degree node).**
- **Military-base prominence surged (52 → 797 avg. weighted degree).**
- **Post-election, the ELECTION cluster almost doubled to 632 nodes; the UKRAINE WAR expanded by 54% (major focus on Georgescu allegations that NATO seeks to drag Romania into war). *Russia* references 809 → 1,910 plus a standalone RUSSIA cluster (10 nodes). NATO & MILITARY clusters 46 → 146.**

Conclusions

Actor realignment (RQ2): Post-election, anti-NATO voices and messages moved from the network periphery to its core

Structural & framing shift (RQ1 & RQ3): Network metrics show NATO discourse became denser (nodes ↑, edges ↑, modularity ↓); nodes associated with negative frames posted steep gains in either occurrence or weighted degree, signalling a stronger anti-NATO emphasis.

Methodological payoff: Integrating real-time monitoring with NewsVibe and semantic network analysis in Gephi proved effective for detecting these rapid, platform-spanning agenda shifts across Romanian news sites and Facebook.

NewsVibe MEDIA INTELLIGENCE PLATFORM

- Total coverage of the tool: 7,500+ news sites, public FB pages, YouTube channels across the EU and the US.
- Study dataset: 5,000+ Romanian News websites + Romanian public Facebook pages
- Refresh: 10 min; NER: fine-tuned model based on Llama3.2-1B. Precision: 0.8315, Recall: 0.8192, F1: 0.8253

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DISCLAIMER

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