Mapping Influence in UN Climate Negotiations: A Network-Based Analysis of Country Interactions Across a Decade of COP Deliberations

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Abstract:
Understanding the dynamics of climate negotiations is crucial for assessing global climate governance, yet existing research has largely concentrated on final outcomes, alliance membership, or individual bargaining positions (1,2). This project addresses the gap in knowledge about the micro-level interaction processes that unfold during Conferences of the Parties (COPs), focusing on how countries participate in debates, coalesce around specific issues, and exercise influence within the negotiation arena (3,4). Leveraging recent advances in natural language processing, automated text extraction, and network science, the project uses a decade of Earth Negotiations Bulletin (ENB) reporting to construct interaction networks that capture patterns of alignment, contestation, and influence across multiple negotiating rounds (3,5). This fine-grained, data-driven approach aims to generate new empirical insights into negotiation dynamics that remain difficult to observe with traditional qualitative methods alone (5).

Overview

Understanding how countries interact, align, and exert influence during climate negotiations remains a central question in global climate governance (1). While political science has long analysed individual preferences, alliances, and negotiation outcomes, the processes through which states collectively deliberate and shape those outcomes are far less documented (2).

Each year, the Conferences of the Parties (COPs) generate a vast amount of textual material—Earth Negotiations Bulletin (ENB) daily reports, draft decisions, plenary transcripts, contact group summaries, and informal consultations. These documents capture the micro-dynamics of negotiations: who intervenes, which countries align with one another, how coalitions form or fragment, and how influence circulates around key issues such as mitigation, adaptation, finance, or loss and damage (3).

Until recently, analysing this volume of data required intensive manual coding, which restricted research to relatively small corpuses and case-specific analyses (4). However, advances in automated text extraction, natural language processing, and network science now make it possible to systematically map and quantify interaction patterns across multiple COPs (5).

Using a decade of ENB reports, this project aims to reconstruct interaction graphs for each COP session. In these graphs:

- **Nodes** represent countries or negotiating groups.
- **Edges** represent co-occurrence or direct interaction.

This graph-based approach enables comparative analysis of negotiation dynamics across years and thematic domains, detection of influential actors, identification of durable or emerging alliances, and a more nuanced understanding of the deliberation process that precedes final outcomes (7).

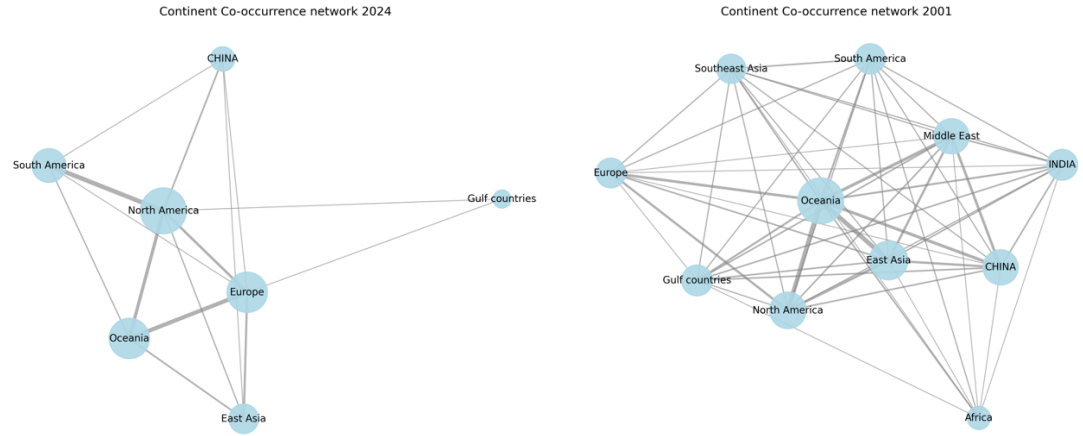

Illustration of the type of expected networks using a simple pipeline. The size of the nodes is proportional to their weighted degree. In this exemple we consider all topics covered by the report.

Objective of the Internship

The internship has three complementary objectives:

1. Construct a Large-Scale Dataset of Actor Interactions Across 10+ Years of COPs

Using a pipeline (PDF extraction → country detection → sentence classification → adjacency graph building), the intern will:

- Process 10+ years of ENB reports and other COP documents.
- Identify all countries mentioned in negotiation summaries.
- Map acronyms, regional groups, and political blocs to countries or regions using a consistent mapping.
- Extract sentences involving each country, along with their context.

- Build weighted adjacency matrices for each time period (daily, per COP, or thematic clusters).
- Document the evolution of new actors entering the negotiations.

This step will produce the first dataset mapping negotiation interactions over a decade, ready for quantitative analysis.

2. Apply Network Analysis to Identify Influence, Coalition Structures, and Evolution

Using established tools from network science and social network analysis, the intern will compute:

- Centrality measures
- Community detection (coalitions, regional clusters).
- Temporal network evolution (how interactions shift across years or topics).

This will allow us to answer:

- Which countries consistently dominate negotiations?
- Which emerging actors (e.g., AOSIS, LDCs, India, Brazil) have increased influence?
- Are Global South alliances becoming more cohesive?
- Which countries act as bridges between blocs?
- How do finance, adaptation, and loss & damage negotiations differ in terms of interaction networks?

The intern will also produce network visualizations, focusing on connected nodes and highlighting influential actors through size and color.

References

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