

Changes in the connection networks of MEPs

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Introduction

By its plastic nature, human connections change over time, especially when outside effects take place. However, in the case of policy makers, such changes will sooner or later have consequences to our life (As we live in the EU.)

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- **Identifying key decision and policy makers.**
- **How events and occurrences shape the form and topology of the network.**

All of these are helpful in understanding the processes regarding proposals and how they evolve into enacted laws.

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- For now, we focused on gathering information on the whole dataset at once, and we will focus on the changes over time in future research

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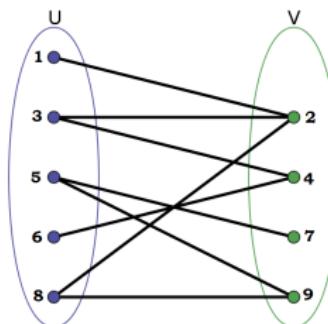
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A bipartite graph:



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We have also considered and implemented weighted projection.

We used the so called: "Collaboration weighted projection" (where we reward secluded document matching and punish popular document matching)

Analysis of activity by country

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Spain	3853
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(They left the European Parliament in January 2020)

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More seats are given to smaller countries to boost their influence in the EP

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Country	Contributions per MEP
Luxembourg	103.83
Malta	102.33
Slovenia	95.00
Slovakia	92.38
Cyprus	83.67
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Poland	49.63
Lithuania	49.18
Italy	48.63
Czechia	48.57
United Kingdom	3.67

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So the **MEPs of smaller countries contribute more** on average

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EP Group	Ideology	MEPs (pre-Brexit)
European People's Party (EPP)	center-right, conservative	176 (182)
Socialists and Democrats (S&D)	social democrat, progressive	144 (154)
Renew Europe (RE)	liberal, pro-Europe	101 (108)
Greens-European Free Alliance (Greens/EFA)	green, regionalist, pro-Europe	73 (72)
European Conservatives and Reformists (ECR)	conservative	66 (62)
Identity and Democracy (ID)	nationalist, euroskeptic	62 (73)
European United Left/Nordic Green Left (GUE-NGL)	socialist, euroskeptic	37 (41)
Non-inscrits (NI)	various	46 (57)

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“Non-inscrits” is a French term for “non-aligned”

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There is also a tendency for larger EP groups to contribute more.

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🇧🇪 Olivier Chastel	RE	167
🇵🇱 Łukasz Kohut	S&D	166
🇸🇰 Michal Šimečka	RE	160
🇨🇿 Michal Wiezik	EPP	152
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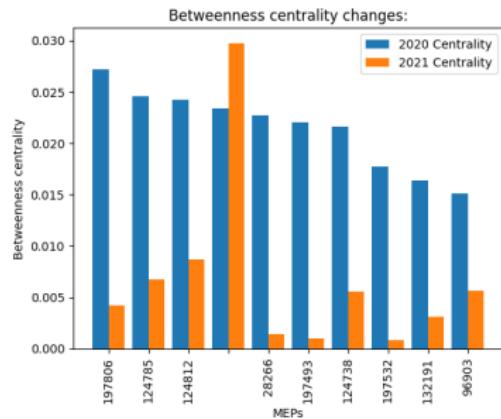
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They mostly come from the more left-wing EP Groups such as RE or S&D.

Behavior of central nodes

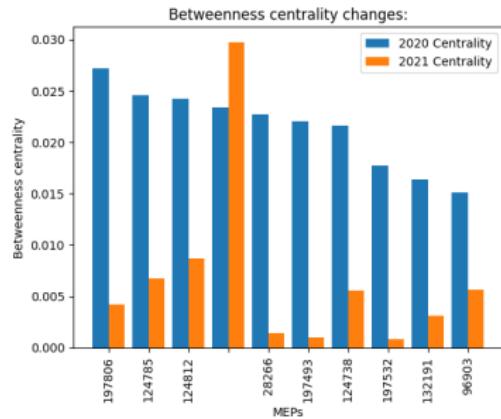
Betweenness centrality

2020 as basis:

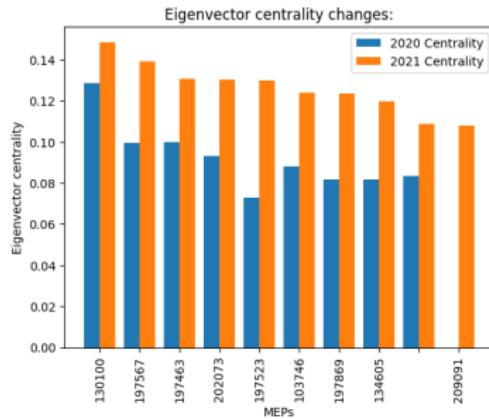


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Betweenness centrality 2020 as basis:



Eigenvector centrality 2021 as basis:

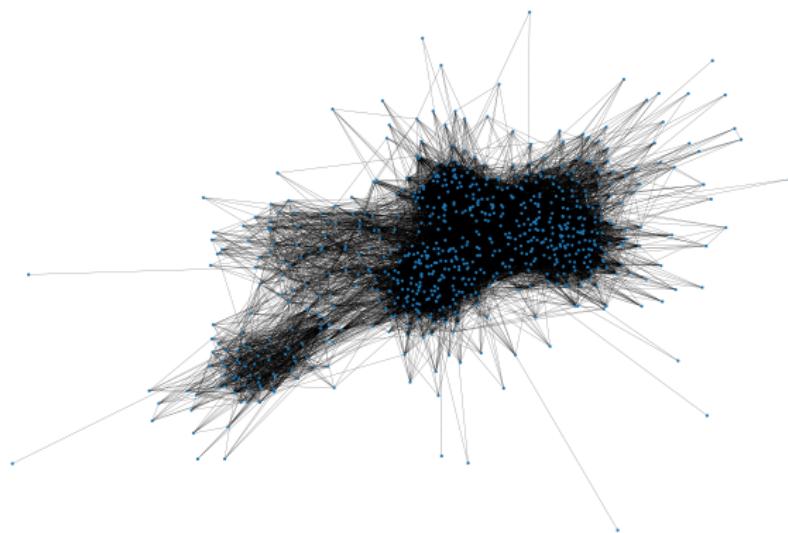


Projection

Some visualizations of the MEP social network graph (there were also some 0 degree nodes):

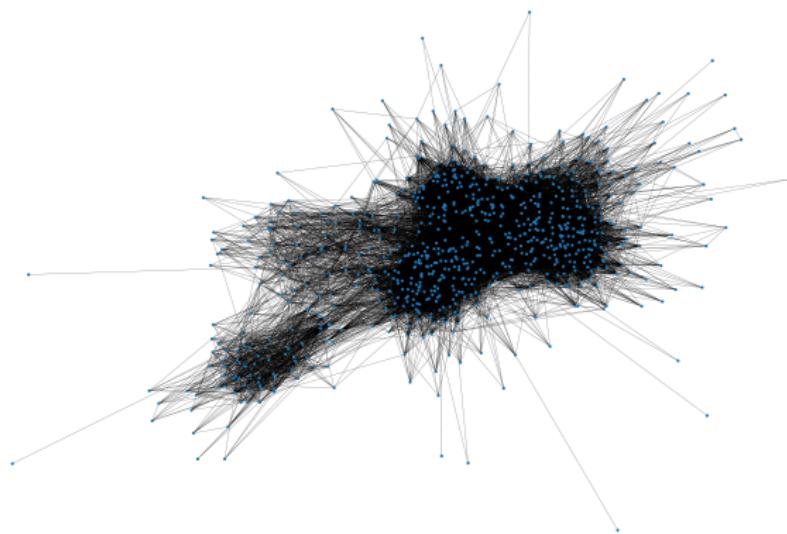
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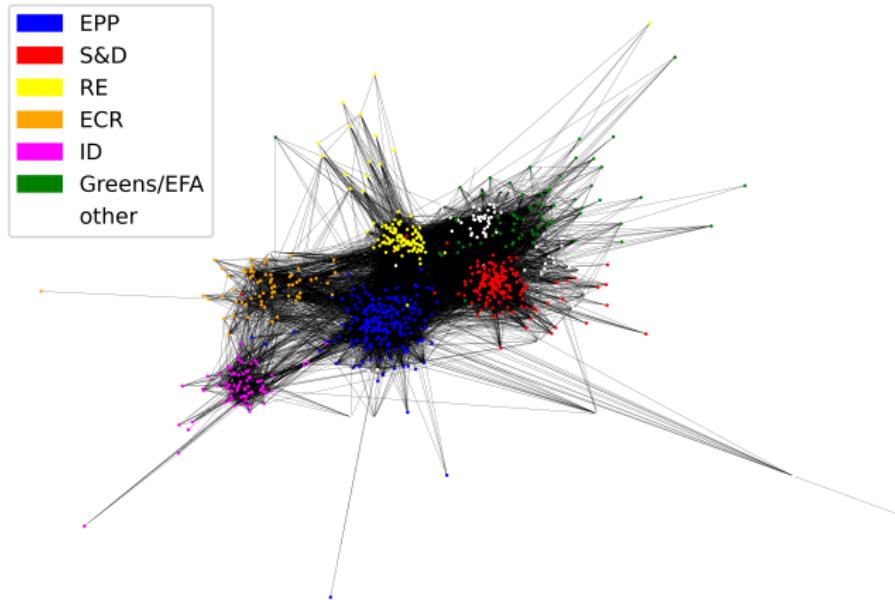
The Smaller interval ones look similar, however they aren't necessarily connected like this one

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Color coding the nodes (according to EP groups):

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What's next?

We require additional data for multiple reasons:

- Cutting at more relevant dates, for finer distinction.

Further consideration might be fruitful, namely, the further usage of weighted projection. (Some machine learning opportunity)

Thank you for your attention!