

Fighting political echo chambers via content recommendation: Method and application to the 2017 French presidential elections

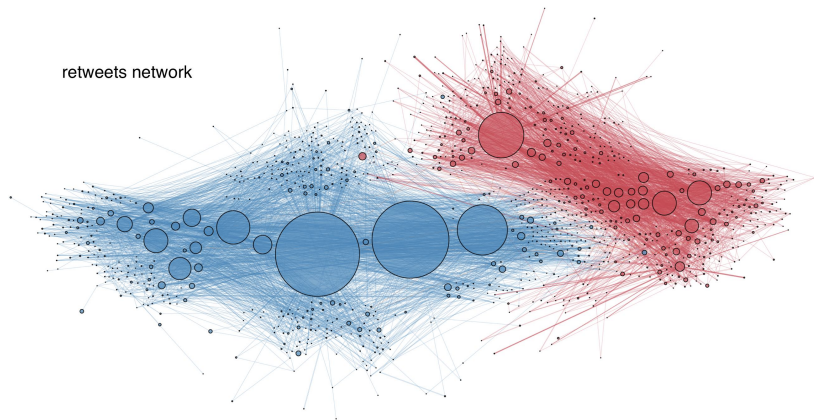
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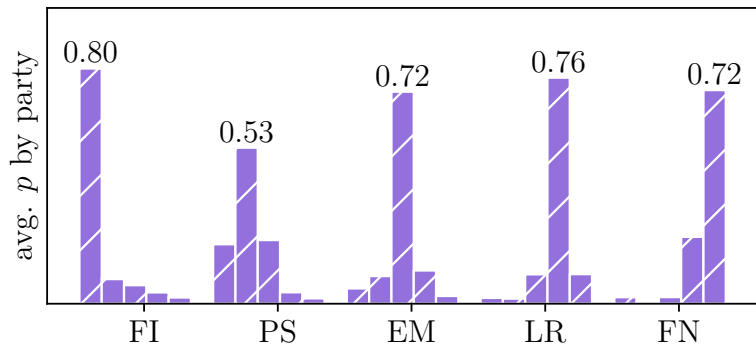


Polarisation and echo chambers



Weber *et al.*(2020). #ArsonEmergency and Australia's "Black Summer": Polarisation and Misinformation on Social Media. MISDOOM 2020.
https://doi.org/10.1007/978-3-030-61841-4_11

Echo chambers in the 2017 elections



Distribution of content users are exposed to. Parties from far-left to far-right: France Insoumise, Parti Socialiste, En Marche, Les Républicains, Front National.

Promoting content diversity

Diversity of content on the newsfeed of n

$$\Phi_n(p) = \frac{S}{S-1} \sum_{s=1}^S p_s^{(n)} (1 - p_s^{(n)}). \quad (1)$$

$p_s^{(n)}$: proportion of content from party s on the newsfeed.

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What type of posts should we insert in each newsfeed to increase average diversity $\bar{\Phi}$?

Optimisation problem

$$\operatorname{argmax}_{x,p} \quad \bar{\Phi}$$

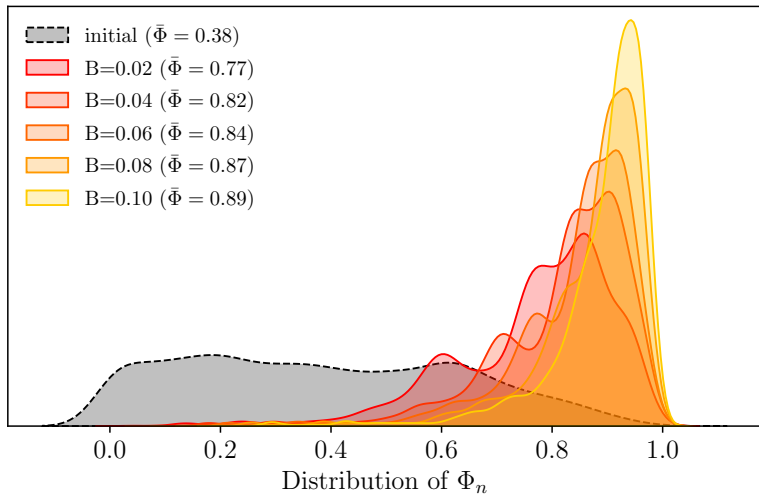
s.t. for all n, s :

$$\underbrace{\frac{p_s^{(n)}}{1-B} \sum_{k \in \mathcal{L}^{(n)}} (\lambda^{(k)} + \mu^{(k)}) = x_s^{(n)} + \sum_{k \in \mathcal{L}^{(n)}} (\lambda_s^{(k)} + \mu^{(k)} p_s^{(k)})}_{\text{model equation}},$$

$$\underbrace{\sum_s x_s^{(n)} = \frac{B}{1-B} \sum_{k \in \mathcal{L}^{(n)}} (\lambda^{(k)} + \mu^{(k)})}_{\text{budget constraint}},$$

$$x_s^{(n)}, p_s^{(n)} \geq 0.$$

Results (1)



Results (2)

