Polarization as a Proxy of Misinformation Spreading

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Abstract : Information, rumors, and debates may shape and impact public opinion heavily. In the latest years, several concerns have been expressed about social influence on the Internet and the outcome that online debates might have on real-world processes. Indeed, on online social networks users tend to select information that is coherent to their system of beliefs and to form groups of like-minded people –i.e., echo chambers– where they reinforce and polarize their opinions. In this way, the potential benefits coming from the exposure to different points of view may be reduced dramatically, and individuals' views may become more and more extreme. Such a context fosters misinformation spreading, which has always represented a socio-political and economic risk. The persistence of unsubstantiated rumors –e.g., the hypothetical and hazardous link between vaccines and autism– suggests that social media do have the power to misinform, manipulate, or control public opinion. As an example, current approaches such as debunking efforts or algorithmic-driven solutions based on the reputation of the source seem to prove ineffective against collective superstition. Indeed, experimental evidence shows that confirmatory information gets accepted even when containing deliberately false claims while dissenting information is mainly ignored, influences users' emotions negatively and may even increase group polarization. Moreover, confirmation bias has been shown to play a pivotal role in information cascades, posing serious warnings about the efficacy of current debunking efforts. Nevertheless, mitigation strategies have to be adopted. To generalize the problem and to better understand social dynamics behind information spreading, in this work we rely on a tight quantitative analysis to investigate the behavior of more than 300M users w.r.t. news consumption on Facebook over a time span of six years (2010-2015). Through a massive analysis on 920 news outlets pages, we are able to characterize the anatomy of news consumption on a global and international scale. We show that users tend to focus on a limited set of pages (selective exposure) eliciting a sharp and polarized community structure among news outlets. Moreover, we find similar patterns around the Brexit –the British referendum to leave the European Union– debate, where we observe the spontaneous emergence of two well segregated and polarized groups of users around news outlets. Our findings provide interesting insights into the determinants of polarization and the evolution of core narratives on online debating. Our main aim is to understand and map the information space on online social media by identifying non-trivial proxies for the early detection of massive informational cascades. Furthermore, by combining users traces, we are finally able to draft the main concepts and beliefs of the core narrative of an echo chamber and its related perceptions.

Keywords : information spreading, misinformation, narratives, online social networks, polarization