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Analysing Fake News in the US Presidential Elections of 2016 through the Perspective of Confirmation Bias

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Agli amici di Roma, che mi hanno fatto passare un'esperienza unica e piena di gioie

Ai miei genitori, che mi hanno accompagnato lungo il mio cammino, sostenendo le mie scelte e rimanendo fiduciosi, nonostante la lunga distanza

Ai miei famigliari, a cui ho pensato sempre, specialmente nei momenti più bui

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"La grandezza dell'uomo è di essere un ponte e non uno scopo: nell'uomo si può amare che egli sia una transizione e un tramonto. Io amo coloro che non sanno vivere se non tramontando, poiché essi sono una transizione" (Nietzsche: Prologo di Zarathustra, 4).

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ABSTRACT

This thesis explores the influence of fake news on voting behaviour during the 2016 US presidential elections, analyzing it through the perspective of confirmation bias. A stable democracy is characterized by its dependence on informed voting, yet through the rise of fake news on social media, informed voting is less obvious, threatening the political system. The research indicates how fake news can amplify confirmation bias, enhancing ideological and affective polarization. Moreover, the thesis introduces various factors that positively or negatively influence bias, such as intuition, peer influence, candidate influence, open-mindedness, and presentation format with source rating. Diverse studies explore the evolution of the spread of misinformation on the Twitter platform during the presidential campaign, underlining how different political factions have been affected by such a process. The last part of the thesis delves into the concept of the fundamental attribution error, examining its impact on confirmation bias and how it can strengthen the latter's efficacy, especially when judged in the context of the 2016 election season.

INTRODUCTION

Western democracies are based on the principle of democratic legitimacy. Citizens express their preferences by voting for the candidate for the parliament whose programme they think is preferable for their lives and the country's future. The people, therefore, vote based on their preferences and what they think is best for the country. Receiving unbiased information is, therefore, a crucial element in the election process (Rau & Redlawsk, 2006). Nonetheless, recent happenings have overturned this scenario by threatening democratic legitimacy. The 2016 US presidential election marked a significant turning point in American politics, with the rise of fake news through social media playing a pivotal role in shaping public opinion and electoral outcomes. For the first time in history, fake news was more impactful than factual news in determining the outcome of the elections (Iyengar, 2019). The question arises thus to what extent this new form of media threatened unbiased decision-making. Nonetheless, theories on cognitive biases suggest that individuals hardly make unbiased choices (Kahnemann, 2003). Most people's decisions are affected by several external factors, which occur unconsciously. Hence, they control us more than we want to control them. In the 2016 US presidential elections, confirmation bias (Wason, 1960) appears to have affected voting behaviour: it is therefore the core subject throughout the thesis.

The first chapter will start with a brief definition of the meaning and an overall description of the positive and negative attributes of the bias and the latter will be analysed in the context of the US presidential elections. Through the spread of fake news on social media, the confirmation bias perpetrated in the minds of the US citizens, giving rise to greater polarisation and wider ideological gaps during the US presidential campaign, therefore also influencing affective polarisation, characterising another category of polarisation namely the emotional attachment to a political party. Thus, knowing that confirmation bias can lead to greater polarisation raises the doubt of whether other elements play a role in this process, facilitating the transition from one factor to another. Positive factors such as intuition and peer and candidate influence strengthen the bias, fostering greater polarisation, while negative factors like open-mindedness and presentation format with source rating halt the transition by mitigating the bias.

These arguments lead us to the essence of the thesis's research question, which addresses how fake news influenced social media during the 2016 US election season and what role confirmation bias played in that period, along with its different influencing factors.

The second chapter of the thesis will present a more in-depth analysis of the research question and outline its various features. First, there will be a short explanation of social media, describing its evolution from the 90s until the 2016 elections and the changes it brought to society over time. Fake news emerged as a negative by-product of the latter, damaging the political balance established by previous institutions and shaking the foundations of democracy. Accordingly, the thesis will explore the spreading misinformation on Twitter during the elections and the exposure of American citizens to fake news on the Twitter platform. Political factions will also be investigated, observing which political ideology, whether left or right wing, received the greatest amount of fake news exposure during the elections. Then, there is an analysis on how confirmation and its influencing factors impacted the voting behaviour during the elections, from echo chamber progression in retweeting networks to the impact of open-mindedness and peer and candidate influence on political polarisation and side switching among political supporters.

The third part of the thesis introduces a concept from social psychology that so far has hardly been related to confirmation bias but could have a strong impact: the fundamental attribution error (Ross, 1977). The latter will be purposely introduced in the thesis to further strengthen the validity and highlight the relevance of the concept of confirmation bias. By drawing out the meaning of the bias and emphasising its capacity to emerge in numerous situations, it will also be indispensable to illustrate scenarios in which it can work interchangeably with confirmation bias. Both biases will be analysed in the context of the elections, especially describing how the attribution bias impacted the presidential polls. Lastly, the two concepts open-mindedness and presentation format with source rating will conclude the thesis by exemplifying the different ways in which they can mitigate confirmation bias and the fundamental attribution error.

Formulation of the Research Question

The research question, which forms the bedrock of this thesis by emphasising its fundamental characteristics, is: "*What was the impact of fake news on social media on the US 2016 presidential elections, and how did confirmation bias shape voting behaviour during that period*?" This question delves into three key elements: social media, fake news, and confirmation bias.

Social media and the spread of fake news are strictly linked and had a crucial impact on the elections. Both concepts will be better defined and addressed in the second chapter, describing their origins and historical evolution. Since Twitter was the social network with the greatest circulation of fake news during the elections, more than Facebook, Instagram or YouTube, all upcoming studies will be conducted based on data from this platform. Clinton and Trump used Twitter to secure more supporting voters and gain a better status in the elections. Both affirmed that social media platforms were instrumental and decisive in the outcome of the polls (Karsten, 2020). Trump had the upper hand in the social media contest of spreading the most possible amount of fake news during the presidential campaign, where the aim was to undermine each of the two competing presidential candidates. Although most of Trump's voters were white people with no college education coming from rural areas of the US and who were among the least likely to use social media, many Trump supporters were also on Twitter; overall, they found the fake news against Hillary as more captivating and attention-grabbing than those against Trump. Indeed, the extent to which Twitter affected Hillary and Trump supporters and their voting behaviour will be the major focus of the second chapter.

Confirmation bias, a key concept in this study, was amplified by the proliferation of fake news on Twitter and social media in general. It was further influenced by various factors, such as peer and candidate influence, echo chambers, and open-mindedness. The resulting polarisation was a direct consequence of this bias. While not explicitly stated in the research question, the discussion will also touch on this aspect, albeit to a lesser extent. Polarisation is an intricate term as it can be both the by-product of confirmation bias and potentially be an influencing factor, even if indirectly, though less impactful. Greater polarisation means greater ideological isolation, hence better chances for the emergence

of more enclosed communities and environments like echo chambers, which provide a green light for the spread of more bias. Despite its absence in the research question, studies will address this concept, adding confirmation bias for a more detailed introspection and analysis of the elections.

CHAPTER 1: LITERATURE REVIEW AND RESEARCH QUESTION

The chapter builds upon the research question: "*What was the impact of fake news on social media on the US 2016 presidential elections, and how did confirmation bias shape voting behaviour during that period?*" In order to explore the research question, first the literature on confirmation bias is presented and then related to its role in the 2016 US presidential elections.

a. Origins of Confirmation Bias and the Wason Selection Test

Cognitive biases have been core studies in both behavioural economics and psychology. In 1974, two psychologists discovered that people often rely on heuristics, namely mental shortcuts, which foster systematic errors. (Tversky & Kahneman, 1974). For instance, the availability heuristic describes the tendency of individuals to judge the likelihood or frequency of events based on how quickly examples come to mind. Nonetheless, such a procedure was demonstrated to result in skewed perceptions and systematic errors.

These biases are especially relevant in the context of political decision-making, and confirmation bias is one of them. In fact, it is "perhaps the best known and most widely accepted notion of inferential error to come out of the literature on human reasoning" (Evans, 1989, p.41). Given its complexity and relevance in the literature, many studies are looking for ways to understand its underlying mechanisms, yet some aspects of the bias remain still unclear or unexplored; for instance, how the bias impacts technology and media or how it interacts with other cognitive biases. The thesis will explore both topics. Confirmation bias "connotes the seeking or interpreting of evidence in ways that are partial to existing beliefs, expectations, or a hypothesis in hand" (Nickerson, 1998, p.175). We actively seek information that aligns with our pre-existing beliefs, using it to bolster our arguments and dismiss any opposing views. However, this mechanism can hinder us from exploring new solutions or considering better alternatives from our initial standpoint. Confirmation bias falls into the category of cognitive biases, defined as

"people's systematic but purportedly flawed patterns of responses to judgment and decision problems" (Wilke & Mata, 2012, p.531). More specifically, such a concept describes the tendency common to all human beings to unintentionally blunder when making judgments or decisions, as cognitive biases are usually unconscious. Such bias can generally result from several factors, including cognitive limitations, adaptations to natural environments, or motivational factors (Wilke & Mata, 2012). Confirmation bias perfectly embodies these characteristics as it relies on a biased judgment, where one focuses only on information that can confirm his pre-existing beliefs.

Confirmation bias is a recurring theme and everyday phenomenon to which people are subjected. However, this bias was not born in recent years with the development of social media. It dates back to ancient Greece to 420 BC when the philosopher Thucydides wrote: "It is a habit of mankind to entrust to careless hope what they long for and to use sovereign reason to thrust aside what they do not want" (Schlosser, 2023). Back then, the concept of confirmation bias did not exist. Instead, Thucydides was more concerned with displaying an essential characteristic of human nature: the fear of being confronted with one's beliefs. Unsurprisingly, humans like to stick to their side of the truth. Thus, when someone challenges their opinion, they immediately try to justify their viewpoint with any reasonable means, sometimes to a hopeless extent.

Only in the 1960s was the cognitive bias theory explored more in-depth. Peter (Wason, 1960) was the first to coin the term "confirmation bias" through the "Wason's SelectionTest" (Wason, 1960). As shown in the image below the experiment consisted in showing several participants 4 different cards. The cards were either red or brown, each with a number on the other side. Two cards were even, and two cards were odd. In the experiment, two cards showed the numbers 3 and 8, while the other two were red and brown. Participants were then told that the opposite side would be red if one of the numbers were even. The rule was not confirmed as participants were asked to test it and see whether it applied. All participants decided to flip both the red and the even card to test the theory. Once they saw that the theory worked, it made them believe the rule to be true as they could test it empirically. However, the experiment's outcome shows exactly how the confirmation bias works. Participants sought to conform to information that they knew to be true without considering any other information that could violate such truth.

All they did was look for evidence that they would get an even number by flipping the red card, yet they did not flip the brown card to check if it would be even. Such a phenomenon clearly aligns with Thucydides' statement that humans desperately hold to their initial belief, looking for any information that can reinforce it while avoiding confrontation with other ideas capable of proving them wrong (Wason, 1960).

b. Negative and Positive Aspects

While defining confirmation bias is beneficial, outlining its positive and negative aspects can help the reader grasp the concept more deeply and offer a more comprehensive outlook.

Starting with the negative side, the major flaw of confirmation bias is that it clashes with a relevant epistemic virtue: open-mindedness (Alsharif & Symons, 2020). Confirmation bias avoids any contradictory information, remaining fixed to a prior belief. Consequently, the bias verges toward more closed-minded thinking (Alsharif & Symons, 2020). Focusing on one's truth leads to misleading outcomes and poor decision-making. Overjudging people and building expectations of them might lead to a vicious cycle of constant prejudice, which is further reinforced through future interactions. This process leads individuals to become overly selective and avoid having interactions with certain people they negatively judged. Thus, they will get stuck in echo chambers, whereby they will only look for people who seem to be satisfied with information they can relate to and which reaffirms their pre-existing beliefs, thus affecting the socio-political cooperation in the population. Another negative aspect is social media (Deprez & Raeymaeckers, 2010). The latter strongly impacts people, from voting patterns to affected beliefs and knowledge. Such platforms are full of fake news and misinformation, which is ultimately detrimental to the whole population. There is a real issue regarding the hindrance of democratic discussion. Filter bubbles foster algorithms that expose you only to the information you want to hear, creating real political isolation from any other viewpoint. Hence, avoiding debates and face-to-face conversations makes it easier to fall into the trap of filter bubbles originating from a virtual reality. For instance, conflicts like that of

Palestine and Israel might lead to highly polarised stances further escalated by the spread of fake news (Deprez & Raeymaeckers, 2010).

Although confirmation bias is generally considered a negative attribute, it is useful in everyday life. First, it avoids experiencing cognitive dissonance, where one encounters preference-inconsistent information that evokes negative emotions, threatening one's beliefs (Greitemeyer, 2012). Confirmation bias emerges in searching for presence-consistent information, which can augment feelings of positive association with a positive impact on the self (Greitemeyer, 2012). Nothing is more reassuring than having a clear belief in something or someone. It protects our self-esteem, giving us a sense of security and satisfaction. The more we can reaffirm such conviction, the more it acts as a dopaminergic tool for our brains. Lastly, more polarised groups can create a sense of community (Peters, 2020). In ancient times, ancestral hunter-gatherers only talked to their group members and were hostile to other communities. Although it can be regarded as a maladaptive behaviour, it created a positive sentiment of homogenous values regarding race, culture, and background. Staying close to other community members reinforces your pre-existing beliefs concerning your group, making you feel a stronger sense of belonging and shared values.

c. Potential Positive Factors of Confirmation Bias

Since the nature of the bias is still controversial, a few concepts that act as positive or strengthening factors for the bias will be introduced to foster a greater understanding. The two positive factors in question are: intuition (briefly mentioning backfiring effects as a subcategory of confirmation bias) and echo chambers (like social media, the role of fake news, and peer and candidate influence).

When defining the meaning of the first factor, one must first distinguish between different thinking modes: the foremost involves intuition, while the second has more to do with logic and analytical thinking (Kahneman, 2011). The former way of thinking lies at the basis of the process that generates confirmation bias. Intuition is based on heuristic processes, also known as mental shortcuts, which result from faster, more intuitive

thinking, which is efficient but can often yield inaccurate decision-making. Fast thinking involves a mechanism of sophisticated allocation of attention, which humans developed throughout a long evolutionary history. One had to be alert to threats like dangerous animals and act quickly if the situation required him; the faster his reaction time in averting threats, the greater his chances for survival (Kahneman, 2011). Today, humans constantly find themselves in emergencies where fast thinking takes over as a response mechanism, leading to self-protective actions (Kahneman, 2011). For instance, one can imagine driving a car and suddenly slipping on an oil paddle, which makes him lose control over the steering wheel. In this scenario, fast thinking takes over, making him instantly react to the threat before he can even comprehend what happened (Kahneman, 2011). Therefore, heuristics have evolved because of necessity rather than mere casualty, which can explain why phenomena like confirmation bias exist. People avoid information they do not want to hear and always look for data conforming to one of their prior beliefs. It is quicker and more effortless to confirm what they already know, while it is more annoying to question and justify the validity of their conviction through slower thinking. The following quote summarises it best: "Thinking is difficult, therefore let the herd pronounce judgment!" (Jung, 1959, p.38). Later in the book, the meaning behind the quote was better expanded, outlining that most people are impulsive and prefer judging over thinking critically about an issue. Using analytical thinking takes time and effort, which individuals choose to avoid. Although harsh, the quote flawlessly describes how people get fooled by confirmation bias and how the latter feeds on the naivety of the masses. Moreover, another element strongly linked to the confirmation bias that particularly emerges in debates is the backfiring effect, which describes an individual's tendency to react defensively to criticisms about his views without accepting them (White, 2021). This unwillingness to reject different opinions and criticism is a characteristic of confirmation bias, and backfiring effects only increase the latter through the rejection of new perspectives.

Nonetheless, intuition remains the best and most forthright predictor of confirmation bias. Although, at times, it has proven beneficial for finding quicker and more straightforward solutions to several issues, its immediate availability has led us to exploit it in inadequate, often naïve ways, hence explaining the origins of confirmation bias. In short, such bias mostly emerged as a negative byproduct of intuition mechanisms, accompanying us for

thousands of years, marking the thoughts of ancient thinkers such as Thucydides to modern civilization.

The second factor that will be examined is that of echo chambers. Although similar to confirmation bias, the definition of an echo chamber is slightly different: "an environment in which the opinion, political leaning, or belief of an individual about a certain topic are reinforced due to repeated interactions with peers who share similar points of view" (Cinelli, 2020, p.2). Such enclosed systems only allow existing views on a specific topic and reverberate the same information repeatedly, declining any opposing view that might challenge it. Echo chambers can be found anywhere, among peers and social gatherings, but especially on social media, each exposing you only to information you are used to hearing or searching for, hence very limited perspectives, usually on political issues (Cinelli, 2020). The former types of enclosed environments can be summarised with the definition of peer and candidate influence. Peer influence regards close friends or family members, generally trusted discussion partners with whom you are likely to share similar beliefs or opinions. Instead, candidate influence concerns the political candidate for which you are most likely to vote on the day of the elections, i.e., Trump or Hillary, as my thesis will focus on the 2016 US presidential elections. In both cases, such external influence either arises online, thus through social media posts and online discussions, or through real-life social interactions, such as talking to a friend or listening to your favourite candidate participating in one of his public speeches. Regardless, today, social media is where the biggest forms of echo chambers or peer and candidate influence are found, a topic that will be investigated extensively in the second chapter. Facebook, Instagram, and other social media platforms use this system with a specific strategy: making people more engaged with the platform. The more people feel satisfied with the content they see, the more time they spend on the platform, increasing the companies' profits. Unlike confirmation bias, echo chambers act as a catalyst in forming the bias itself: first, people are exposed to enclosed ecosystems of information and then affected by confirmation bias.

In short, echo chambers increase confirmation bias by channeling information, but the process does not end here. Such bias leads people to engage with one-sided perspectives, resulting in the polarisation effect or forming a more significant ideological gap.

Polarisation is not only based on political ideology but also on a second very similar component: political affection. However, despite their differences, it is important to remark that both can reinforce each other, like a vicious cycle: the stronger the positive feelings for in-groups, thus more negative for out-groups, the greater the social identity divisions, which can also lead to more substantial ideological divides (Jost, 2022). The concept of affective polarisation evolved over the last 50 years and is defined as: "the tendency of people identifying as Republicans or Democrats to view opposing partisans negatively and co-partisans positively" (Iyengar, 2019). During the end of the 20th century, there was a steady increase in partisans in the US, and over time, the attachment to either the Republican or Democratic party became more emphasized. Race and religion also converged with partisanship, fostering the formation of stronger ideological identities. The latter ultimately influenced affective polarisation as: "Observational time-series and panel data indicate that increasing ideological extremity and constraint are both associated with stronger partisan affect" (Iyengar, 2019, p.134). Ordinary US citizens have gradually experienced increased contempt for people of other parties, i.e. outsiders, and an increase in positive feelings for members belonging to the same partisanship. In other words, Republicans and Democrats have progressively become increasingly divided on many issues, widening the ideological gap. Having partisanship means identifying with either the Democratic or Republican party, and the greater the sense of personal identity within a political affiliation, the stronger the divisions. Yet how can affective polarisation be measured? There are three ways. The first one is through Survey Self-Reports. The figure below features a feeling thermometer, where a cross-section of US citizens rated the Democratic and Republican parties on a scale of 0 to 101 (Iyengar, 2019). The higher the score, the more favourable the party. Notably, the graph charts the election years from 1980 to 2016, and the affective polarization curve exhibits a positive increase, reaching its zenith in 2012. This peak in 2012 is a notable observation, indicating a turning point in the affective polarization trend. The first striking observation is that in-party feeling remained constant and always favourable, while out-party feeling became more hostile over time, leaning towards the unfavourable stance, thereby increasing affective polarization. A deeper graph analysis reveals a negative correlation between affective polarization and out-party feeling, but only to the extent that the in-party feeling

curve remains constant. Furthermore, given that the in-party feeling curve is steady, the more negative the feeling for out-parties, the greater the growth for affective polarization.
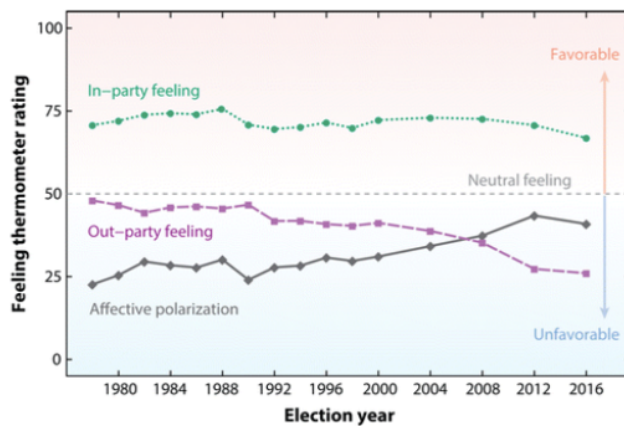

Figure 1: Feeling Thermometer, (Iyengar, 2019)

Secondly, the study delves into implicit measures. For instance, the Implicit Association Test (IAT) is a relevant tool for gauging people's feelings, particularly about their political affiliation. Two researchers replicated the IAT version, measuring unconscious bias concerning political parties (Iyengar, 2019). Their findings reveal a relevant depth of bias, with 70% of Democrats and Republicans showing an implicit preference for their party (Iyengar, 2019). Explicit bias was even more pronounced, with 75 % of Democrats and 91% of Republicans favouring their party (Iyengar, 2019). This stark contrast between implicit and explicit bias underscores the strength of partisan bias. The researchers also used the IAT version to measure racial bias, finding that implicit partisan bias was stronger than implicit racial bias, with the former holding a value of 0.5 while the latter was 0.18 (Iyengar, 2019). This data demonstrates that individuals have a more pronounced unconscious bias for their party than races.

Third, behavioural measures aim to study people's hidden or implicit attitudes towards people of different political groups. Although traditional measures of this kind are not very effective at predicting how people will behave based on their implicit attitudes, recent experiments have tried to break this fashion. Investigators used economic games in experiments looking for evidence on whether people with the same political views tend to favour individuals from the same political affiliation, hence measuring affective polarisation (Iyengar, 2019). One of these experiments was a game where participants

had to lend money to others. The results showed that when people encountered fellows from the same political party, they were given greater amounts of money than people from opposing parties. Another similar experiment was conducted by the same researchers in nonpolitical settings by comparing racial and partisan cues, further documenting the extent of affective polarisation. Participants were tasked with selecting one of two candidates for a college scholarship. The candidates chosen for the experiment had similar academic credentials but different ethnicities and political ideologies. The results showed little bias based on race or ethnicity. Whites even preferred the African American candidate over the other by 55.8% (Iyengar, 2019). However, regarding political affiliation, 79.2% of the Democrats preferred the Democratic applicant, while 80% of Republicans favoured the Republican candidate (Iyengar, 2019). Furthermore, even if the out-party applicant had a higher GPA, the likelihood that a partisan selected such an applicant was low, approximating 30% (Iyengar, 2019).

d. Potential Negative Factors of Confirmation Bias

Besides positive factors (that increase the effect of confirmation bias), there are also negative factors (that decrease the effect of confirmation bias), these are openness and presentation format along with source rating. Both perform a different function, namely depicting different paths to mitigate the effects of the bias and avoiding sliding into the polarization effect.

Open-mindedness can be described as an "attitude toward one's beliefs as believed, and not just toward the specific proposition believed" (Riggs, 2010, p.180). Such a definition fully captures the overall meaning of the term. In other words, disposing of open-mindedness means having an awareness of one's own fallibility as a believer, acknowledging that a belief is such only to the extent that it is believed, therefore leaving room for the possibility that it might be wrong (Riggs, 2010). Hence an open-minded person is a believer in the sense that he is open to the process of experiencing new ideas and being open to the possibility that such ideas might be wrong. In contrast, an attitude oriented to the proposition "believed" (Riggs, 2010), can be described as close-

mindedness, as one remains fixed on the same belief or idea, not acknowledging that such belief might be wrong. Such tendency fully resonates with the effects of confirmation bias: a barrier that restricts the pursuit of an open-minded attitude. Open-mindedness also entails the quality of engagement, meaning a person is open-minded once he is willing to pursue a new idea or concept (Kwong, 2016). The person must be willing to embrace the idea, making enough room in his cognitive space and giving it serious consideration (Kwong, 2016).

Becoming more open-minded is difficult, as it represents a cognitive effort to be open to new standpoints. However, overcoming such discomfort conceals a great benefit: avoiding confirmation bias by making yourself aware of it (Nickerson, 1998). Indeed, the more ideas and perspectives you integrate through interactions with other individuals, the more you become aware of your beliefs and biases, making you overcome prejudice.

The second factor is the presentation format and source rating. Although the concept will be discussed in greater depth in the third chapter, the main reason it has been introduced to the thesis is to present a further alternative to overcome the bias, so whether the way the source is presented can nudge people into being more sceptical and making more mindful decisions, reducing the naivety that derives from believing any article that you agree with (Kim & Dennis, 2018). This concept arises from social media websites, as these are the biggest echo chambers where people's confirmation biases are either formed or reinforced; in fact, when people look for political information, they usually click on the first website they engage with, which either talks positively about their favorite candidate or negatively about the opposing candidate.

e. The 2016 US Presidential Elections

After describing the positive and negative factors of confirmation bias, the next focus will be the 2016 US presidential elections, addressing fake news on Twitter and its usefulness in benefiting each political candidate.

November 6, 2016, the date of the elections, the Republican Donald Trump won against Hillary due to electoral votes, with 306 votes compared to 232 total votes (Oh, 2017). Although Hillary was more popular among US citizens, with 48% of popular compared to Trump's 45.9%, it was not enough for her to win the elections (Oh, 2017). It was the first historical event where fake news influenced an election more than factual evidence. Clinton invested lots of money in her campaign, spending around $450 million out of 513$ million, while Trump 239$ out of 255$ million, thus outspending the latter candidate by approximately 90% (Oh, 2017). Social media played a big role in the elections, with 62% of US adults claiming that they searched all of the news related to the political campaign on social media (Oh, 2017). Twitter was the main platform used in the elections, and in America, about 1 billion Tweets were sent during the election season (Oh, 2017).

Around 70% of Americans felt that fake news significantly affected their levels of confidence in the government, which ultimately influenced their voting behaviour during the 2016 elections (Lee, 2020). Most spreaders of fake news purposely spread disinformation on hot topics or themes regarding migration and race issues, as well as gun rights, where citizens held opposing views (Lee, 2020); this way increasing polarisation, hence the divide amongst the population in such matters. The main target of such fake stories was Hillary Clinton, which was probably the major reason that led to her defeat. An interesting fact about the 2016 US presidential elections is how popular fake news had become during that period. The top 20 fake news stories during the presidential campaign received the greatest engagement by the public or sharing and liking by social media users, compared to the top 20 factual news stories circulating in that period (Iyengar, 2019). Furthermore, undecided voters exposed to false information were more inclined to become more sceptical of Hillary than of Trump, increasing the likelihood of casting their vote for the latter candidate (Lee, 2020). Working class whites were the most likely to vote for Trump as they saw in Trump a leader who could make America great again.

Research also suggests that an older public, made up of people aged 65 or above, was more inclined to be fooled into believing fake news than younger social media users (Lee, 2020). Furthermore, males, more than women, right-extremists and white people from a

lower socioeconomic background, thus with lower levels of education, were also more likely to believe such fake news (Lee, 2020). Young college students presented similar results. Most of them struggled to distinguish a fake news website from a factual one (Lee, 2020). Moreover, students from higher social classes were less likely to believe a fake news story as they were more sceptical, while the opposite is true for students with higher levels of right-wing authoritarianism since they were more susceptible to believing fake news content (Lee, 2020)

CHAPTER 2: SOCIAL MEDIA, FAKE NEWS AND CONIRMATION BIAS DURING THE 2016 US PRESIDENTIAL ELECTIONS

a. Social Media: a Novel Way of Doing Politics

Social media can be ascribed as "Internet-based channels that 'allow users to opportunistically interact and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others" (Ronzhyn, 2023). This statement indicates that one can engage in virtual conversations with people of different ethnicities and backgrounds, sharing with them all kinds of different information. In addition to sending messages, one can share fancy pictures, posts or reels, all through different platforms. The content of different media outlets, like newspapers and magazines, often authored by experts and knowledgeable individuals, offered consumers diverse perspectives and deep insights. This mechanism ensured that trusted sources backed most sites and provided a wealth of truthful information with various viewpoints, thereby fostering a sense of stability among the population.

Nonetheless, with the rise of social media in the late 90s, platforms like Classmates.com and Six Degrees became the first ones where users could create profiles and send messages to friends (Dhingra & Mudgal, 2019). It was only in the early 2000s that social networks like LinkedIn, Facebook, YouTube, and Twitter were created to find new ways of communicating with people (Dhingra & Mudgal, 2019). People use these platforms to share all kinds of information, regardless of the integrity of content, with new algorithms being set up to identify each individual's personal preferences, especially in the political arena. Additionally, fake news represented a large part of the data shared on social media, enabling the spread of the first forms of echo chambers and the fostering of greater confirmation biases and pronounced polarisation.

With the debut of the 2016 US presidential elections, a new era of politics was marked, highlighting the emergence of social media and fake news in determining the outcome of the presidential elections, jeopardizing the integrity of the political system and

undermining any political candidate's professionality and expertise. Political candidates were no longer evaluated based on their political skills but on their popularity among their voters and the amount of negative news spread on their behalf. So far, democratic legitimacy has been severely damaged, and the damage is no longer reversible. Ideally, the only solution would be to delete social media. Although hypothetical, such a happening would be the only remedy to do tabula rasa on the current political situation; yet it is unfeasible.

b. The Impact of Social Media Algorithms and Fake News on Confirmation Bias

Social media uses advanced algorithms to expose you to different kinds of information, usually the ones you are used to hearing. Such filtering systems provide echo chambers where the same information reverberates, increasing the likelihood of forming confirmation bias independently of whether there is fake news; all you need is data that can confirm your pre-existing beliefs. Indeed, algorithms can be regarded as tools similar to confirmation bias, pre-selecting the information you want to hear. They do all the work, with no need for you to worry about disconfirming evidence or cognitive dissonance, as you will hardly ever encounter contrasting information. Fake news, the major negative by-product of social media, worsened this trend. Fake news is "fabricated information that mimics news media content in form but not in organisational process or intent" (Lazer, 2018). In other words, the outlets that contain fake news cannot ensure the credibility of the information as they lack the media's editorial norms and methodology (Lazer, 2018). The 2016 US presidential elections were a pivotal moment for the spreading of fake news, becoming an additional, even greater enhancer of the bias. The grand appeal and engagement it fostered among the population made it stand out above any other news. Hence, given its substantial impact on the 2016 election season and being part of the research question, it is crucial to analyse its influence among the voters more in-depth. Among all social media platforms, fake news was mostly spread on Twitter during the presidential campaign. Different trends of exposure to and sharing of fake news propagated throughout the population, becoming a true online epidemic.

c. Fake News on Twitter influencing the 2016 US Presidential Elections

After reviewing social media algorithms and fake news, and their impact on confirmation bias, the analysis will delve deeper into understanding the role of fake news, i.e., misinformation on Twitter during the elections, thus heading to the research's core, then discussing the implications of the research on confirmation bias.

Given the pivotal role of fake news during the 2016 elections, a study was meticulously designed to delve into identifying the number of shares and exposure to fake news on the Twitter platform of American citizens. A sample was used for US voter registration records linked to Twitter accounts, enabling the construction of a panel of 16,442 accounts, all active during the 2016 election season (Grinberg, 2019). The term "exposure" in this study refers to an estimate comprising the feed of each panel member by selecting a random sample of the tweets posted by one of his followers, therefore estimating the kind of exposures to which each panel member was subject. The panel's aggregate exposure was also considered, meaning that if the other five panel members followed a tweet on an account, that tweet would have been counted five times as a consequence. Moreover, the resulting scores of each political affiliation subgroup were divided into the extreme left (L*), left (L), centre (C), right (R), and extreme right (R*) (Grinberg, 2019).

Starting with Figure 4, graph A accurately represents the evolution of the 2016 US election season from August to December, displaying the differences in daily aggregate political exposures to fake news before and after the 2016 election. The graph distinguishes among three types of fake news, each showing different methods of producing lists of sources, characterized by the colours black, red, and orange. Black-labelled websites are a list of fake news sites labelled as such by academics and fact-checkers who claimed them to be fabricated stories. Red-labelled websites are fake news websites originating from a flawed editorial process spreading misinformation, while orange-labelled websites can be identified as more uncertain versions of red-labelled sites, as it is unclear whether they stem from a systematically defective process. About 5% of

the aggregate exposures to political websites measured by graph A were from fake news sources (Grinberg, 2019). Each day across the US election period represented a different fraction of content of fake news sources, with the latter increasing during the campaign's final weeks, from November 21st to December 5th. Content sharing had a similar trend as aggregate exposure: 6.7% of political URLs or websites the panel members shared came from fake news sources (Grinberg, 2019). graph B measures the distribution of exposures among websites. It shows a significant statistic, where among each category with fake news content, approximately 5% of sources resulted in more than 50% of exposures, with greater exposures to red and orange sources, 2.4 and 1.9 respectively, amounting to more than 50% of fake news exposures, compared to the black ones, only 0.7% (Grinberg, 2019). Graphs C and D show, respectively, the distribution of shares by panel members and the distribution of exposures among panel members (Grinberg, 2019). Both graphs display how such content was especially concentrated among tiny fractions of panel members, again by all categories of fake news sources, with 0.1% of the panel representing 79.8% of shares and 1% of panel members consuming 80% of the volume from fake news sources (Grinberg, 2019).
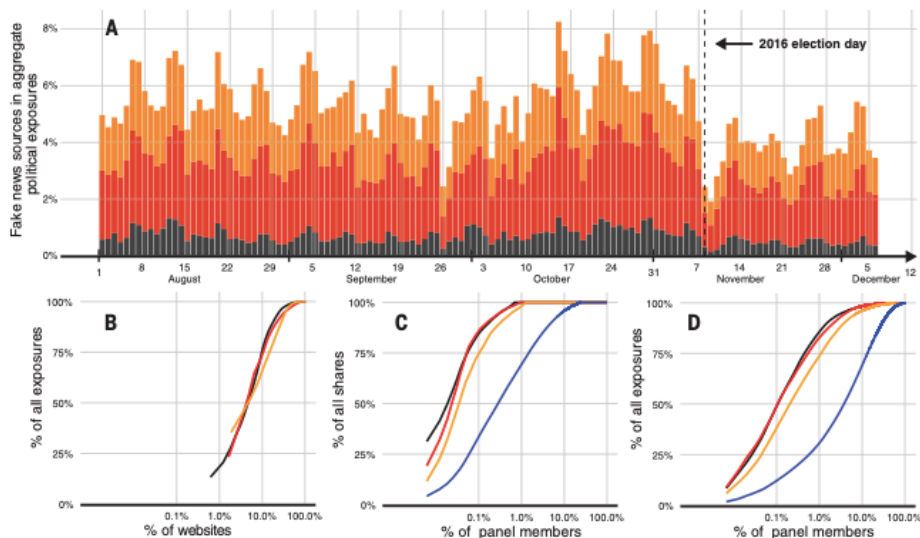

Figure 2: Prevalence over time and concentration of fake news sources (Grinberg, 2019)

When interpreting figure 5 there are two considerations to make. The first is that the yellow or grey bars indicate the non-fake content while the black, red, and orange bars regard the fake news content, as was explained previously. Second, the bar on the far right depicts the remainder of the panel's fake news shares or exposures. Third, every bar on

the graph has a letter on top representing the political party: Republican or Liberal. What stands out from the graph above (A) is the number of shares in proportion to super sharers, representing the top 38 by political URL: the top 1% of the panellists that share political URLs (super sharers) accounts for 49% of all the shares and concerning fake news share the amount rises to 82% (Grinberg, 2019). Instead, graph B focuses on the super consumers in proportion to the overall exposure, highlighting the top 164 by exposures; more specifically, the top 1% of the panellists (super consumers) that are exposed to political URLs represented 12% of all exposures with an even higher amount of 74% for fake news (Grinberg, 2019). In short, supersharers and super-consumers account for 80% of the fake news shares or exposures (Grinberg, 2019). Furthermore, useful data can be provided when computing users' average daily shares and exposures. For shares, the median panel member tweeted an average daily amount of 0.1 times, while the super-sharer of fake news or SS-F tweeted 71.0 times (Grinberg, 2019). Then, for exposure, the median panel member had approximately 49 daily exposures to fake news, while the median super-consumer of fake news surpassed the number by far with 4700 daily exposures (Grinberg, 2019).
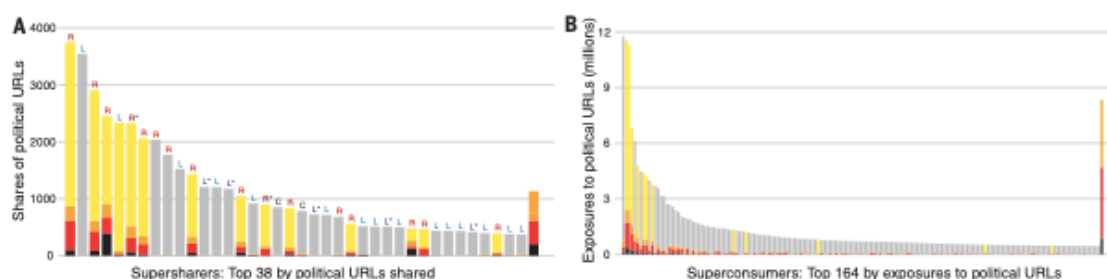

Figure 3: Shares and exposures of political URLs by outlier accounts, many of which were also SS-F accounts, (Grinberg, 2019)

Likewise, the number of shares and exposures, just as equally important, are the individual characteristics that lead to exposure and sharing of fake news sources. The most powerful predictors were age and the number of political URLs in each individual's feed. Figure 6 depicts various graphs regarding exposure and sharing of fake news and conditioned sharing based on prior exposure. Graphs A and B measure the ratio of a panel member's political exposures deriving from fake news as a function of the number of political exposures (without counting the fake news) in the case of A and B as a function of age. Each political subgroup, from extreme right (R*) to extreme left (L*), is fitted

separately based on each binomial regression model. Graph A shows that with a 10-fold increase in political exposure, there was almost double the amount of exposure to fake news sources, hence a 20-fold increase in the exposure to the latter in absolute numbers (Grinberg, 2019). Similarly, in graph B, age was also positively correlated to increased exposure to fake news; hence, the older the person, the greater the exposure to fake news content.

Graphs C, D, and E depict how different factors affect the media's likelihood of sharing fake news content. In other words, sharing political content correlates positively with political tweetings, fake news exposure, and political affinity, as functions of all graphs. Graphs C and D show a positive increase in overall shares of fake news, with a greater likelihood of sharing fake news when put in function to political shares compared to fake news exposure. Graph E, instead, showed how political affinity was linked to the likelihood of sharing fake news sources. Notably, people in the centre or the left hardly shared any fake news content, representing less than 5% of people overall. People on the right and extremes showed a different tendency, with more than 11% sharing such fake news content (Grinberg, 2019).

Graphs F to I display the likelihood of a liberal or conservative sharing a political URL to which they priorly exposed, in dependence on the source's veracity: congruent or incongruent fake news sources and congruent or incongruent non-fake source. Moreover, examining the data on the graph, one notices no relevant differences between conservatives and liberals in sharing rates and fake and non-fake sources. Despite incongruent sources being less shared than congruent ones, conservatives shared both congruent and incongruent sources at similar rates. Based on this analysis, people are more critical at evaluating incongruent or fake news than congruent data, hence supporting a key finding of the research, i.e., that fake news might not be so viral after all, at least not more than factual news.
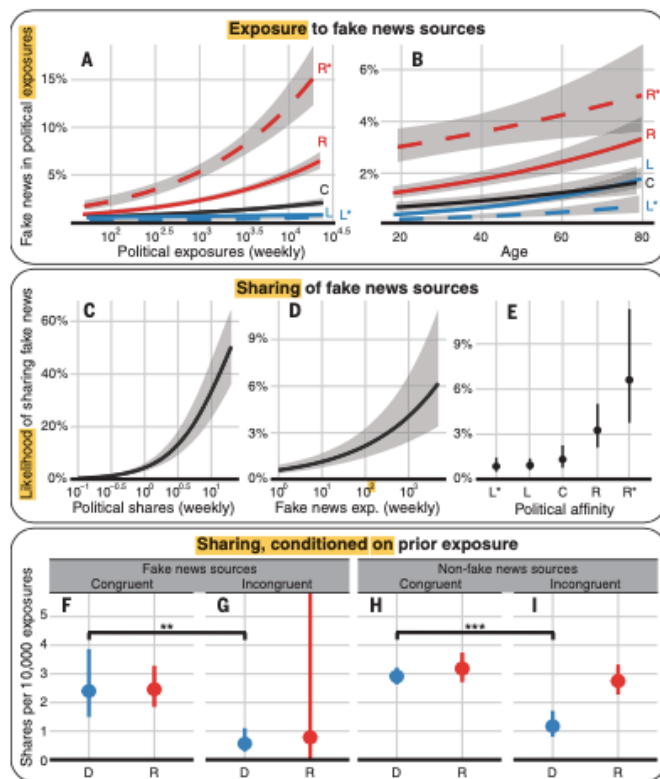
Figure 4: Key Individual characteristics associated with exposure to and sharing of fake news sources, (Grinberg, 2019)

Lastly, the graph below shows an ecosystem of networks, depicting different nodes (the bigger-sized being linked to higher levels of exposure), with filled ones being fake news sources representing political news or fact-checking websites. The colours of the nodes allude to different political factions, with the orange, green, and purple clusters incorporating the largest subsets and grey the remaining nodes. Instead, the node distance illustrates the degree to which individuals are exposed to divergent sources: the longer the distance, the greater the divergence, indicating higher levels of open-mindedness. Overall, the network graph shows, first, that the more traditional media sources with the highest exposure (e.g. Washington Post, New York Times, ...) are, generally, not diffusers of fake news; this also means that a large part of individuals consulting websites is not subject to fake news. Furthermore, there is a very dense network of fake news providers. Thus, those individuals reading these sources are very likely to be exposed to multiple sources of fake news and, given the distance from the other network clusters, also very unlikely to receive objective news. The purple cluster denotes left-leaning individuals with much lower exposure to fake news than any other cluster, just 2% exposure

(Grinberg, 2019). They are also exposed to more divergent sources of information (as indicated by the node distance), indicating that liberal individuals are more open-minded than any other political faction. In contrast, we can see how right-wing voters were the main targets of fake news and less varied media exposure, hence embodying lower open-mindedness when engaging with various perspectives. Indeed, when observing the orange cluster, one can notice that the majority of nodes are filled, containing 68.8% of the total fake news sources, thus making up the majority compared to any other cluster, with more conservatives than liberals (Grinberg, 2019). Next, the green cluster contains many more centric individuals in total. Although it had just 18.4% of sites, it still accounted for most political URL exposures (including both fake news and factual news) among individuals, with an average of all affinity groups ranging from the extreme left with 72% to the extreme right with 86% (Grinberg, 2019). Additionally, among the 7484 non-outlier members of the panel, 95.6% saw at least 2 of the political URLs on fake news they were exposed to, while 56.4% experienced exposure to at least 5 of such URLs (Grinberg, 2019).
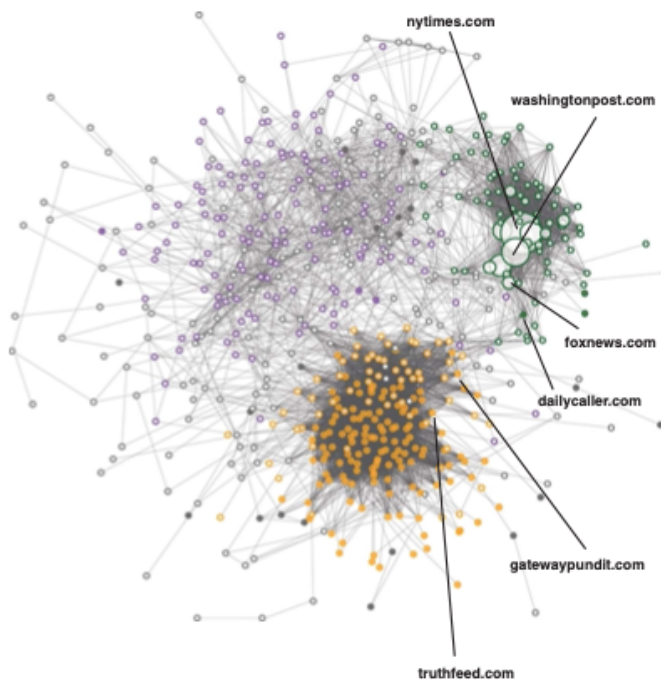

Figure 5: The Coexposure Network, (Grinberg, 2019)

The relevance of the study for the thesis is emphasized by the fact that despite all odds, fake news impacted only tiny parts of the population, with very few people either being exposed to or sharing fake news content online: only 1% of the population accounting for approximately 80% of fake news source exposures and 0.1% for 80% of shared fake news sources (Grinberg, 2019). Also, most sources came from popular websites, all fact-checked, thus validating the site's legitimacy. Just 6% of all those who shared URLs with political content decided to share fake news.

Hence, in answering the research question of whether fake news was impactful on social media during the 2016 US presidential elections, it is important to distinguish between two groups: the overall population and the minorities. Indeed, while fake news had little effect on the overall population, it still had a major influence on minorities consisting of right-leaning parties, usually of older people, and very active in engaging with political news. It follows that since conservatives were the ones mostly subject to fake news, they would have been more likely Trump supporters than Hillary, given the large ideological gap between the two. Moreover, given the high activity of such groups on Twitter, one can establish a significant link with affective and ideological polarisation that, as mentioned in chapter one, both have the capacity to reinforce each other. The higher the exposure to fake news, the greater the confirmation bias, leading to more polarisation.

Confirmation bias among more radicalized groups was extreme, yet it is essential to remark that also social media algorithms affect the bias independently of fake news. Hence, one limit of the study is that it concentrated mainly on fake news, disregarding the effects of factual news on the overall population, as it also contained fervid Trump or Hillary supporters, something which is not covered in the thesis, as the latter relies mainly on the effects of fake news on in affecting the 2016 electoral season through social media, hence Twitter. Second, the results from the Twitter platform are not a universal indicator, as other social networks may present different conclusions. Twitter was the most used platform for fake news and, therefore, the most relevant for the research, but other platforms were also influential and could be useful for further research on this topic.

d. Confirmation Bias affecting Voting Behaviour on Twitter

Social media and fake news were the first two components of the research question. Now the thesis will focus on the third and last aspect: confirmation bias. Besides fake news influencing the bias there were also other factors that had a relevant impact. Positive and negative factors of the bias such as echo chambers, open-mindedness, peer and candidate influence, played a substantial role during the 2016 election season, affecting voting behaviour. A study was conducted to analyse the different ways in which these factors would have affected the course of the elections through the effect of confirmation bias. Given the popularity of the Twitter platform during that period, the study based its findings on data collected from Twitter accounts, mainly identifying the amount of retweet volumes among the American population.

Beginning with the first graph, the latter presents key insights into the evolution of echo chambers in retweet networks during presidential debates (Wang, 2020). Notably, the node's size reflects the retweet volume. In a.), the red nodes signify Donald Trump's supporters, while the blue nodes represent Hillary Clinton's. The yellow clusters indicate individuals who support both candidates. In b.), the red nodes represent the vice-presidential debates, showing Mike Pence or Trump's vice, and the blue nodes depict Time Kaine or Hillary's vice. Interestingly, there are no yellow supporters, suggesting a lack of undecided supporters. The stacked bar graph on the right illustrates the growth in support for each candidate in both the presidential and vice-presidential debates.

What is interesting to observe in the graph is how yellow clusters get smaller and smaller over time as they get absorbed into one of the two factions. Political campaigns forming echo chambers can turn off moderates by making them more radicalised and less indecisive. Furthermore, another aspect is that the clusters for Pence and Kaine become more polarised over time compared to Trump and Clinton, likely because of the lack of

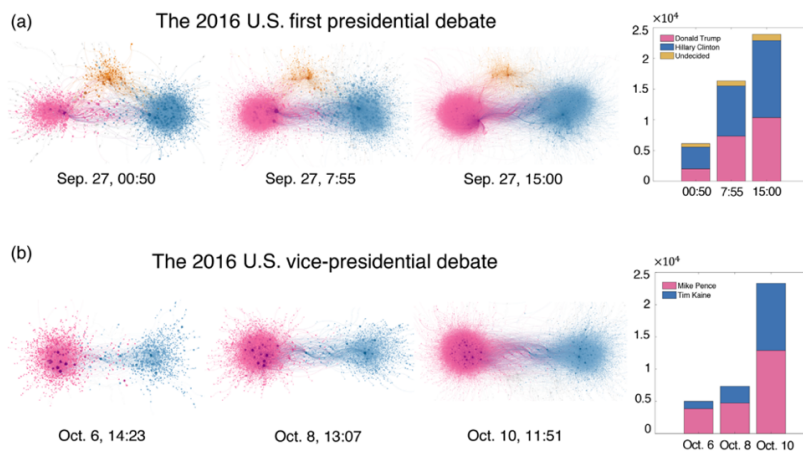yellow   clusters,   making   the   result   more   tangible.

Figure 6: Progression of Echo Chambers in retweet networks, (Wang, 2020)

Next, Figure 7 does a breakdown of candidate support during the presidential campaign, highlighting the impact of open-mindedness on voting behaviour (Wang, 2020). Graphs from (c) to (e) are a more in-depth representation of graph (a), where one can notice that the greater the levels of open-mindedness, the more varied and less polarised the candidate support becomes. At point 0.17, open-mindedness is weak; hence, we can see in graph (c) that there is still a yellow cluster separated from the rest. Getting closer to 0.33, we can see on the graph that the yellow cluster is no longer there, and only two opposing nodes remain. Finally, heading to 0.48, the nodes become one single mixed-up cluster, supporting the idea that the higher the levels of open-mindedness, the more people are open to their opponent's views, shifting from extreme to more moderate ideologies.

In conclusion, open-mindedness can often avoid the trap of echo chambers, with consequent confirmation bias. However, there are exceptions: too-agreeable people might be more susceptible to manipulation by candidates. In contrast, too-disagreeable people are likely to prefer ideologically similar connections rather than listening to diverse or contrasting opinions. In both cases, echo chambers might have an impact. Nevertheless, these are extreme examples, and most open-minded people remain equally open to both sides rather than picking just one because of manipulation or similar ideology.
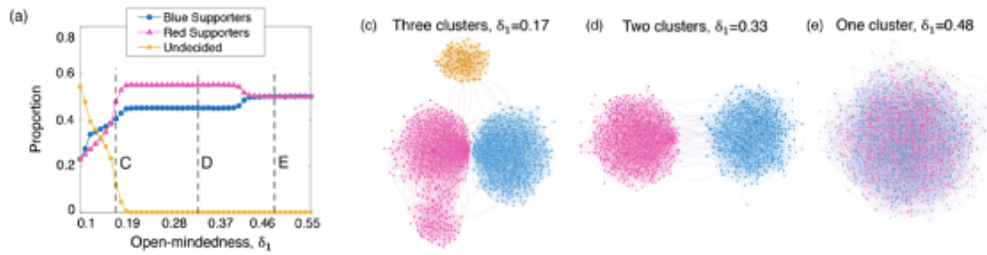
Figure 7: Breakdown of Candidate Support and Emergence of Echo-chambers through Open-mindedness, (Wang, 2020)

Along with open-mindedness, candidate and peer influence also play a major role in the elections. The graph below depicts the extent to which people were influenced by their peers, i.e. trusted discussion partners (μ2) or the selected candidate (μ1) during the presidential campaign (Wang, 2020). This way, the echo chamber formation levels can be measured and seen where they are most present. Graph A is about the proportion of undecided voters, while Graph B is about the proportion of red supporters. Regardless, both graphs depict an almost identical pattern. Therefore, there is no need to separate the two as both lead to the same conclusions.

At first glance, one would intuitively think that high levels of (μ1) or candidate influence would foster greater political alignment to the candidate's viewpoints, while (μ2) or peer influence would lead to more decentralized convergence and more arbitrary views. However, such a statement would be incorrect as it is not supported by evidence. In contrast, the graph below shows a different paradigm: the greatest emergence of echo chambers leading to confirmation bias arises from moderate levels of peer influence (μ2) combined with lower levels of candidate influence (μ1). Moderate peer influence does a better job of pulling people into an ideological spectrum. The slower the integration process, the easier for individuals to leave behind their indecisiveness moving to a more solid standpoint. Nonetheless, in the case of graph (a), if the levels of peer influence are too high (with candidate influence remaining moderate), this might lead to unwanted results as undecided individuals might convert too quickly to their peers' viewpoints, leaving some people behind as they are still undecisive and not fully convinced. However, such a process is the opposite when it comes to high levels of candidate influence, which leads all undecided people to extremist views with no individual left behind.

Furthermore, the last observation of the graph suggests that low levels of both parameters lead to greater indecisiveness among individuals, as can be seen by the yellow stripe at the bottom left.
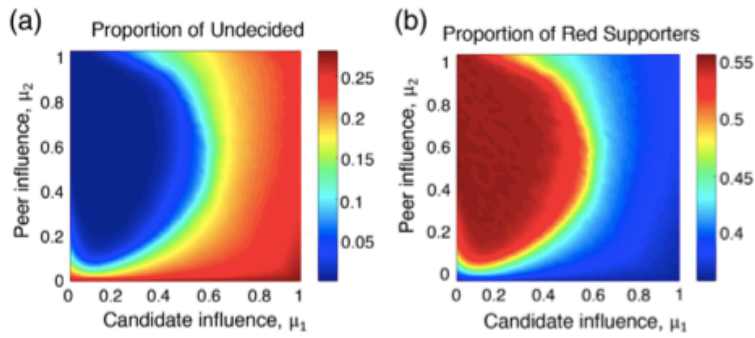

Figure 8: Candidate and Peer influence in the formation of Echo chambers, (Wang, 2020)

Lastly, in figure 9 there are two graphs, where graph B depicts a further representation of graph A, including some additional information. Graph A reintroduces the retweet networks of all three presidential debates of 2016 (Wang, 2020). Graph B adds another element by showing the evolution of individual-level opinion through all three debates, with very few undecided people as most are firm supporters of their candidate and would never consider changing their political stance. However, the trajectories of the retweeting patterns indicate that Trump won most undecided voters during the second and third debates.
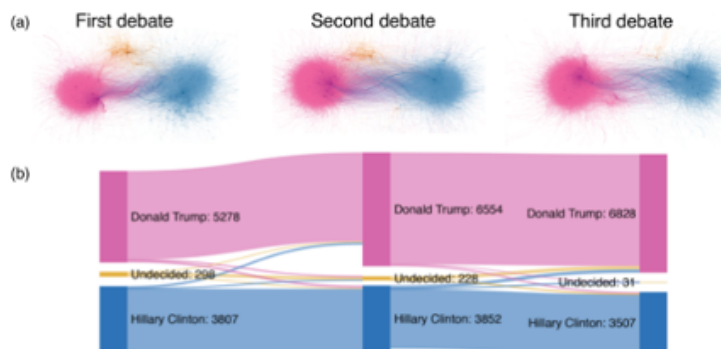

Figure 9: Retweet Networks of all Three Presidential Debates and the Evolution of Individual-level opinion Evolution through all 3 debates, (Wang, 2020)

Lastly, graph C (the one below) illustrates all the possible processes that can lead supporters to switch sides, from blue to red or vice versa. There is a total of two possibilities. The first is that blue supporters switch sides within their ideological range due to strategic campaigning undertaken by the opposing candidate, also called candidate influence. The second is via multiple updates, such as talking to friends or trusted discussion partners who are red supporters and persuade you to switch sides, namely peer influence. Again, open-mindedness plays a crucial role in this framework, implying greater openness to new perspectives, facilitating campaign efforts and peer persuasion. Instead, close-minded people are detested as they are immune to most external influences, especially the ones cast by high-spending campaigns.
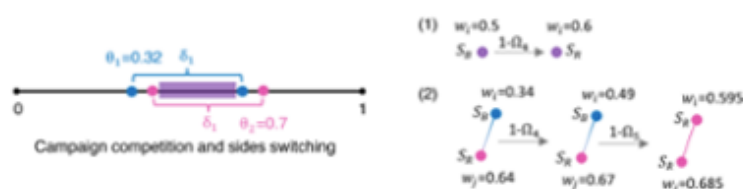

Figure 10: The possible Mechanisms leading to Side Switching among the Supporters, (Wang, 2020)

Addressing the research question, confirmation bias, through its positive and negative factors, definitely impacted voting behaviour, affecting the outcomes of the 2016 US presidential elections. The factors influencing the bias had either the task of reinforcing the bias or weakening it: Echo chambers with peer and candidate influence reinforced the bias, leading to more polarised stances, while open-mindedness acted as a counterbalance, decreasing the bias and thus polarization.

Echo chambers increased confirmation bias and thus polarisation through the constant spread of the same information, leading to more biased beliefs. The steady promotion of each candidate's political agenda on Twitter enabled the formation of a higher number of enclosed virtual environments, where people were constantly fed with positive or negative narratives about one of the two competitors. Echo chambers also impacted undecided voters, most absorbed over time into one of the two political factions. Peers and candidate influence are major elements of echo chambers: the former representing a friend or a trusted discussion partner and the latter a political candidate. In addition, both influences happen mostly virtually on digital platforms like Twitter and on rarer occasions

physically, thus face-to-face or hearing a public speech. Moderate levels of peer influence combined with lower levels of candidate influence showed the strongest correlation with the emergence of echo chambers. In contrast, the correlation was weak if done vice versa. Moreover, slower integration worked best for helping undecisive voters choose their political faction, while fast integration or conversion to new political views was ineffective, leaving voters unconvinced and reluctant to take a side.

Instead, open-mindedness, or better, open-minded people, avoided most echo chambers as they disposed of higher levels of curiosity and openness to new ideas. Being open-minded is a useful tool against confirmation bias. It decreases the bias by letting you experience multi-faceted perspectives and opening you to your opponent's beliefs and arguments, critically affecting your voting behaviour. Figure 6 confirms this trend, showing that the higher the levels of open-mindedness, the greater the shift leading two politically clashing clusters into one big, joint cluster. Indeed, since open-mindedness avoids slipping into confirmation bias, it specifically acts as a barrier against political polarisation, decreasing any feeling of political ideology and partisanship. Hence, the greater the level of open-mindedness, the less judgemental you become of others' opinions.

CHAPTER 3: ADDITIONAL ELEMENTS FOR REINFORCING AND WEAKENING CONFIRMATION BIAS

a. Fundamental Attribution Error, a Theoretical Construct that reinforces Confirmation Bias

After analysing the research question, the fundamental attribution error (or attribution bias) will be a further component of the thesis. The idea is to expand the boundaries of the thesis research by initially exploring the meaning behind such cognitive error and then looking for ways to reinforce the concept of confirmation bias. Both attribution and confirmation bias will be implemented to explore the election outcome and examine how Trump won the elections through fake news.

A comprehensive description of fundamental attribution error is: "the tendency for people to over-emphasise dispositional or personality-based explanations for behaviours observed in others while under-emphasising situational explanations" (Mcleod, 2023). Hence, it is a cognitive bias or disposition whereby people naïvely judge someone's behaviour solely based on his personality and personal characteristics, excluding any relevant external factor like environmental forces which probably triggered such a person's unusual or suspect behaviour. In other words, people are too quick to recompute a person (judging the latter as weird or an exception to the ordinary) while too slow to reconstrue or recompute the situation at hand (not acknowledging one's erroneous judgement into disregarding the original circumstance that affected that person's behaviour) (Ross & Nisbett, 2011). The bias can also be understood under lay-dispositionism, namely the tendency for people to prefer dispositional explanations like personal traits instead of situational ones, as the major unit of investigation in circumstances of social perception (Ross & Nibbett, 2011). It follows that individuals tend to overlook factors of substantial importance, like situational contexts, or make overly confident predictions even with minimal trait-relevant information (Ross & Nibbett, 2011). The term fundamental attribution error, later coined by Lee Ross in 1977, derived from experiments conducted by the two psychologists Jones and Harris in 1967 that hypothesised that individuals would attribute freely chosen behaviours to personality and behaviours that seemed directed by chance to the situation. The latter hypothesis

formed the basis from which the fundamental attribution error originated its meaning (Mcleod, 2023).

Likewise, the confirmation bias and the fundamental attribution error belong to the family of cogntive biases, where both biases influence our judgement and decision-making in everyday life. Moreover, the concept of fast or premature thinking introduced in chapter one perfectly fits within the framework of the attribution bias. The latter is like confirmation bias, a poorly constructed judgement whereby we build a wrong assumption on a given fact for convenience. Since we often lack the general picture of the situation to judge a person or a piece of information correctly, jumping straight to conclusions is much less tiring. Indeed, through such an easily accessible mechanism, we create ourselves a favour, either by reinforcing our pre-existing belief in the case of confirmation bias or by finding a victim to blame for his personality, in the case of the attribution bias, disregarding any external influencing circumstance.

The same pattern could be observed during the 2016 US presidential elections, where the presence of fake news played a major role. As mentioned in chapters one and two, fake news greatly affected the course of the elections, making people more polarised in their ideological spectrum and sharing positive feelings for in-party members while despising out-party members. Despite polarisation, fake news also greatly enhanced confirmation bias, having formed disparate opinions on several topics, particularly when these subjects concerned one of the candidates for the presidential elections: Trump and Hillary.

b. The Impact of Fake News and Attribution Bias in the 2016 US Election Season

Fake news was the main influencing factor of the US 2016 electoral season. Studies even suggest that the spread of such false information granted Donald Trump the victory in the elections (Gunther, 2018). Trump was strategic in the way he conducted his political campaign. By continuously letting his followers know that they are good people while their enemies bad, he managed to depict Hillary as an evil image while For instance, scientists conducted an experiment where they put three popular fake news narratives in the YouGov Survey with 281 questions and gave the sample to 585 Obama 2012 supporters (Gunther, 2018). The reason for selecting this subset of Obama supporters was twofold. First, it provides a form of control, avoiding any confusing factors such that you

cannot assume that people who decided to leave the Democratic candidate (Obama) in 2016 became suddenly extreme conservatives or disliked the democratic party. Second, based on the fact that those who voted for Obama were Democrats, if Hillary obtained support from these electors, she would have likely won the election. Instead, what is surprising is that despite the sample being formed exclusively by Democrats, only 77% of them supported Clinton, with data clearly showing that 10% of them voted for Trump, hence supporting the claim that Trump's success in the elections could be attributed to other factors beyond mere polarisation and ideological differences. Regardless, the study presented a total of three fake stories that were presented to the sample of people, two of them negative against Hillary and one positive for Trump: 1. Clinton was in "very poor health due to a serious illness" (12%), 2. Pope Francis endorsed Trump (8 percent), 3. Clinton approved weapons sales to Islamic jihadists, "including ISIS" (20%) (Gunther, 2018, p.2). Each percentage respectively depicts the claim of the electors that the news was likely true. Nonetheless, one-quarter of the Obama supporters generally thought that at least one of the three stories was likely true, while 45% voted for Clinton. Of the remaining three-quarters of the Obama supporters, 89% among them voted for Clinton. Nonetheless, whether fake news alone could have changed such voting preferences was still unclear. Hence, to account for potential defections from the Democratic side, the researchers used a multiple regression model to make a comparison of multiple independent variables like gender, race, age, education, personal feelings for both candidates and political leanings, measuring their impact on the elections, (Gunther, 2018.) The impacts of these variables were summarised the following way: 38% of the defection of Obama voters was explained through the previously listed independent variables, while 11% of the defection was still explained by fake news (Gunther, 2018). Although Obama voters defecting from Clinton who were likely to believe in at least one of the fake news (one-quarter of the sample) were 3.9 times more likely to defect from the 2016 Democratic ticket, belief alone does constitute a solid enough indicator for causing defection (Gunther, 2018). Instead, the scientists suggested that exposure to fake news significantly affected voting behaviour and decisions (Gunther, 2018).

The defecting voters were more impacted by fake news by simple exposure than just believing in it, with no clear explanation. The fundamental attribution error arises as a solution to the mystery surrounding Trump's success in the 2016 presidential election.

Fake news distorted the reality of facts, tainting a person's image with falsehood and invented stories. Hillary Clinton got the worst out of it, while Trump got the upper hand. Trump made his supporters feel special. He referred to his supporters as a force for good while the enemies as one for evil, in this case, Hillary (McAdamas, 2024). Such distinction of good and evil greatly contributed to his electoral success. Unsurprisingly, most fake news was targeted at Clinton, the same way that two out of three questions were set up negatively against Clinton, while the positive ones supported Trump; embodying the more appealing the fake news, the greater the attribution bias. When hearing bad news about a candidate, people immediately blame the person due to his inner characteristics, excluding any other external factors. For example, the popular fake news about Clinton's health and the mysterious illness that she had is a leading example. When hearing the news, people blamed Clinton in the first place for being sick, claiming she would have a natural predisposition and poor overall health, which welcomed the formation of such illness, a clear fundamental attribution error. Most electors excluded the possibility that the news could have been false or attributable to other external circumstances, which caused Clinton to become sick. Whether people were Obama 2012 supporters, Clinton supporters or just Democrats, direct exposure to fake news made it possible for them to become sceptical even of their most preferred or suitable candidate based on their political views.

Attribution bias can also work in combination with confirmation bias. For instance, one can take the sample of radical Trump supporters, leaving aside Clinton or Obama 2012 supporters. Supposing that the fake news about Clinton's health concerned Donald Trump instead, things would take a different route. The fervid Trump supporters would immediately become defensive after reading such news, protecting his persona, using all kinds of excuses like attributing his sickness to external circumstances, refusing any explanation that blames his personal characteristics, or completely denying the accusations against him. Confirmation bias lies at the root of the latter behaviour, as people use the fake news about Trump as a backfiring effect, not only denying them but getting even more encouraged that Trump is the right candidate. However, when the fake news involves Hillary Clinton, everyone attacks her persona. Similarly, the same is true for fervid Clinton supporters when judging Trump.

Despite fervid supporters or groups of people who always remain loyal to their favourite candidate, it is important to understand why fundamental attribution errors can lead most electors to assume that politicians' actions are determined more by personal characteristics rather than by incentives and circumstances. The latter tendency is more common amongst more irrational electors (Ponzetto & Glaeser, 2017). They likely use the following thought process: a leader's past performance must ensure future excellence. Hence, when a politician performs poorly, they might attribute it entirely to his personal characteristics, i.e., the politician himself, leading to greater reluctance in supporting the politician in future scenarios, especially if the pattern repeats itself. In contrast, more rational voters avoid bias using a more mindful approach, avoiding any emotional attachment to the candidate. Such voters determine a politician's mediocre performance to either bad luck or temporary circumstances, which might explain certain cause-effect mechanisms more efficiently. Moreover, rational voters place greater trust and reliance on experts when there is a need to interpret economic events on a national scale, helping sort out the principal causes of economic booms or busts. These electors are overconfident in believing what truly drives their nation. They do not want independent experts as they attribute all responsibility to the White House. Whenever it causes them economic troubles, they blame it for being incompetent or indifferent, excluding any external factor that might have led to such misfortunes. Lastly, like not believing in expertise, policy preferences are influenced similarly by the fundamental attribution error. For instance, regarding the area of transportation, when there is the suggestion for the implementation of a Pigouvian tax, a tax applied against any market that creates negative side effects, electors might become susceptible to it as they will only consider its immediate downside; hence paying it, compared to its benefits in the long-run: reducing travel times. Such a scenario happened in Stockholm in 2006 when voters hesitated to pay a congestion charge. Despite this reluctance, the fee was implemented on a trial basis, and once drivers saw traffic reductions, they supported the charge in a later referendum. This event is another indicator of how people can be negligent of external situations or contexts, in this case, the long-run benefits of the tax, which improved traffic congestion and only focused on the immediate drawbacks of a project or performance. In short, these examples illustrate a pattern of how most voters get manipulated by bias, judging situational and

long-term factors as misleading while dispositional and currently accessible situations as relevant.

c. Open-mindedness and Confirmation Bias

Besides the ability of fundamental attribution to work alongside confirmation bias, it is now crucial to address the factors that decrease confirmation bias: open-mindedness and format-presentation with source rating. Both contribute to increasing people's awareness of confirmation bias and the fundamental attribution error, guiding everyone towards a more mindful and functioning society.

Open-mindedness is often judged as a vague term with a complex meaning. It can indicate anything from being open to new experiences to being curious to explore new ideas and concepts. Nonetheless, it attains a more concrete function when using the term in the context of confirmation bias and examining how it can serve as a solution for the latter. As mentioned in Chapter 1, open-mindedness consists in being willing to integrate new ideas and trying them serious consideration (Kwong, 2016). Thus, open-mindedness is a good indicator of curiosity and is juxtaposed with confirmation bias. A study analysed the implications of open-mindedness and its use as a corrective virtue for the vice of confirmation bias. In this case, virtue represents an objection to the risk of loss deriving from the bias or cognitive dissonance. Its main investigation is to understand how open-mindedness can be a constitutive and fundamental element for being a good thinker, thus reducing confirmation bias (Alsharif & Symons, 2020).

The term "good thinker", which is mentioned in the study, is assumed to be a by-product and constitutive part of open-mindedness and denotes someone who can reason well, regardless of whether such pursuit can grant him additional advantages (Alsharif & Symons, 2020). The following analogy can help: many people who enjoy fishing do it to develop fishing skills, being uninterested in the benefits of catching the fish; a good thinker should follow the same line of thought without using his skills to reach an ultimate benefit or end goal (Alsharif & Symons, 2020). A further analogy is that of the magic hook (Alsharif & Symons, 2020). One should hypothesise a scenario where he has two choices. The first choice involves having the capacity of a magic hook, which allows you to obtain any fish with no skill required. The second option consists of developing high-

level fishing skills, such that the benefit is not only attached to catching the fish but that the skill per se holds an intrinsic value. Although some might choose the first option for unlimited fish resources, many others would value the second option for the sheer willingness to acquire such advanced fishing skills, which one can be proud of. In both metaphors, the main idea is to define that the goodness per se of developing a skill is better than the goodness or benefit per se of just having a pragmatic payoff (Alsharif & Symons, 2020). The former skill emphasises a cognitive success, which is to be independently appreciated irrespectively of any other advantage. What also characterises a good thinker is his eagerness to expand his knowledge, thus constructing or adjusting his beliefs in direct accordance with epistemic norms (Alsharif & Symons, 2020). What needs to be avoided when stepping on the trail of open-mindedness, thus a better thinker is to avoid epistemic vice, thus the opposite of open-mindedness. Confirmation bias is a good example of an epistemic vice. Such bias usually constitutes an obstacle to expanding one's knowledge as it entails the fear of losing one's pre-existing belief. Assimilating the traits of a good thinker reduces the effects of confirmation bias, as well as those of fundamental attribution errors. Indeed, through a greater willingness to improve one's reasoning skills and openness, one can be less judgmental overall, hence reducing the chances of being subject to the attribution bias.

d. Mitigating Confirmation Bias through Presentation Format and Source Rating

Format and Source Rating can have a relevant impact of nudging individuals into making more thoughtful decisions, increasing their awareness of the topic and making them more doubtful of the authenticity of the article they are reading. Experts tested this claim, observing the influence of such factors on confirmation bias. The study's main finding is that contrary to previous expectations, the source-primacy format was the most efficient format at increasing people's scepticism. In contrast, the best at boosting people's believability in an article was the headline-primacy format, which is also the one we see on Facebook. Therefore, the study concluded that, although experimenters did not manage to affect the user's believability levels, simple interface modifications increased the user's scepticism about the source.

Reality is different than social media. People live in a source-primary world, where before talking to anyone, even a stranger, they first want to know who this person is before they can think about what they say. The reason for such a cognitive alerting system is that people do care about the source of a story, and to test the veracity of the speaker, they first need to know who it is. Therefore, people generally prefer to evaluate a source with a solid reputation, which is fact-based. Nonetheless, things are different on social media. Although much more fake news is spread on social networks than anywhere else, people might place their trust in a good amount of misinformation. There are different categories of social media users: those who use social media for hedonistic purposes and those who use it for utilitarian reasons. The former people are the individuals who get more easily deceived by fake news using socials as dopaminergic tools and bearing a more naïve view of reality: expecting reality to be the way they desire instead of judging it for what it is. The latter uses social platforms to do work tasks or get informed on topics of their interest, which they might use for future research. Most people are part of the first category, and when they use Facebook, the largest social media platform, they usually do not mind the veracity of the source. The source remains an afterthought, if at all. As a result, researchers decided to test six different hypotheses in their research, observing whether the study would prove them right or wrong: hypothesis 1 is about confirmation bias and states that users are more prone to believe an article alligning with their pre-existing beliefs; hypothesis 2 argues that users are more likely to believe an article presented in a headline-highlighted format than in a source-highlighted format; hypothesis 3 contends that the effect of source reputation on an article's believability can be increased through the source-highlighted format; hypothesis 4 asserts that the believability of an article is directly affected by source reputation, such that lower source reputation ratings foster lower believability on the source itself; and the last two hypotheses claim that each user is more likely to either, read, comment, like or share an article either alligning with their pre-existing beliefs on the subject (H5) or when they believe it to be true (H6) (Kim & Dennis, 2018).

The first study was conducted on 445 participants, of whom 125 were picked through Facebook posts set up by the study's authors, while 320 from the Qualtrics comprised adults from the US. Half of the sample's applicants were women; 45% had no bachelor's degree, while 27% did (Kim & Dennis, 2018). In addition, 26% of them were Republican,

49% were Democrats, and 15% were Independent (Kim & Dennis, 2018). The study was based on a fifteen-minute survey, where each participant was presented with three treatments, each containing four headlines (Kim & Dennis, 2018). So, in total, there were twelve headlines for each treatment that, although randomly assigned, had six specifically designed to appeal to politically left-leaning participants and another six for right-leaning ones (Kim & Dennis, 2018). In short, each of the three treatments had two left- and two right-leaning headlines. Each treatment comprised a different format: the first was headline-primacy, hence in a headline-highlighted format, the second was source-primacy, or source-highlighted format, while the third was also source-primacy, just with an included rating of the source. Each source is listed below in the respective order:

Figure 11: Three treatments depicting different site formats, (Kim & Dennis, 2018)

Individually, the headlines were developed to avoid any imbalance in how they were presented to the sample of people, i.e., avoiding having one site with a shocking headline while another with a dull one. Moreover, the poster contained a gender-neutral invented name, and the commentary of the poster was simply a summary of the headline itself.

The foremost result of the study illustrated that the mean believability for headline primacy articles is higher than that for those in source primacy format (the one without the rating). Hence, the headline primacy format, which is the one that Facebook uses for its sites, turned out to be the most effective one in affecting believability. Second, the study addressed each of the six hypotheses listed earlier, either supporting them or rejecting them in relation to collected evidence. Hypothesis 1, or confirmation bias, is supported as it presents a positive coefficient that positively impacts the believability scale. Hypotheses 2 and 4 were also supported as both source primacy and higher source

ratings equalled higher believability (with low source ratings matching lower believability). Hypothesis 3 was not supported as there were no relevant interactions between reputable sources and source-primacy format; consequently, there was no possibility of measuring the latter's effect on believability. Hypothesis 5 finds support, demonstrating that confirmation bias significantly influences the extent to which users share, read, and like articles that align with their standpoint. This includes backing comments to articles they agree with while disagreeing with those not to their liking. Similarly, for hypothesis 6, believability significantly impacts the user's actions, such as acting on articles they believe to be true. Importantly, most of the effects regarding source primacy are primarily mediated not by confirmation bias but by believability.

The second study builds upon the first, addressing a key issue: the fixed order. This order may have led participants to become increasingly sceptical as they progressively read the articles. Furthermore, this procedure has left a wide range of questions unanswered, such as whether the source-primacy format was more effective simply because it was inserted as a treatment right after the headline primacy format, or if ratings were impactful only if they were presented after the source-primacy format. Accordingly, the researchers developed this second study to address these questions, similar to the first but with some differences. Participants were divided into four treatment groups: 1. headline-primacy format, 2. source-primacy treatment, 3. source-rating treatment, and 4. source-primacy with source-rating treatment (Kim & Dennis, 2018). Hypothesis 3 was not tested this time since only unknown sources were used. Source ratings were altered into star-formed ratings, thus increasing their believability as this arrangement is found on many famous e-commerce sites. The number of participants increased to 501, all active Facebook users selected from a Qualtrics panel, each assigned to one of the four treatments. Half were female, with 21% having a bachelor's degree and 70% lacking one (Kim & Dennis, 2018). Moreover, 37% were Republicans, 46% were Democrats, and 17% were Independent (Kim & Dennis, 2018).

The results of the second study demonstrated no significant differences from the first one. Changing the order of the presentation had no significant impact on the results of the hypotheses, except for the fourth one, which, in this case, was partially supported: low ratings had a significant effect on belief, while high ratings did not. By providing a system

where subjects were exposed to only one kind of treatment (like the rating treatment), not seeing the articles in other formats, researchers could note an even better outcome compared to the first study. Since low-rated sources are often the ones to be blamed for the spread of false information, it is interesting to note how the latter has impacted the source's credibility.

Altering the levels of belief through different source formats showed a significant effect on confirmation bias. The greater the scepticism in the article, in this case through the low ratings sources, the more it contrasts with the individual's pre-existing beliefs, thus leading to lower levels of trust. The opposite is true for headline-primacy sources as they increase the user's believability of the source, hence making room for greater confirmation bias. Yet, since greater levels of confirmation bias lead to a higher likelihood of believing in fake news, this implies greater levels of fundamental attribution bias, especially when analysing it in the context of a political election, like that of the US 2016 presidential elections. The study managed to increase scepticism among users through lower source ratings, reducing confirmation bias and, by default, the attribution bias.

CONCLUSION

The thesis mainly focuses on investigating the 2016 US presidential elections and analysing the election's outcome through the spread of fake news. The latter increased people's confirmation bias, which also harmed the elections, undermining democracy as a whole. Although unbiased information and fact-checked sources are crucial elements during an election process, these elements were missing for a relevant fraction of voters that demonstrated to be indifferent on regarding the legitimacy of the sources. Even more concerning was data indicating how fake news was given more credit than factual news, as the former was considered more appealing, emphasising a turning point in history on how information is perceived and selected by the overall population.

Research could show how confirmation bias operates through the use of positive and negative factors. Intuition, peer influence, and candidate influence strengthen the bias, leading to greater ideological or affective polarisation. Instead, open-mindedness and presentation format with source rating minimise the effects of the bias, avoiding slippage into polarisation. The last chapter of the thesis used a second major cognitive bias, namely the fundamental attribution error, constituting an additional element increasing the effects of confirmation bias on voting behaviour. Using the 2016 US presidential elections through a multitude of examples, it could be analysed how both cognitive biases influenced the outcome of the elections, given the consistency of their interactions.

To sum up, through the depiction of different studies, each making use of different datasets collected, it was possible to identify strategies that could help to mitigate the effects of both fake news and confirmation bias, contributing to the overall aim of preserving the integrity and stability of a democratic society and civilisation. Promoting a critical and more mindful attitude, raising awareness on the subject by exposing people to a wider range of perspectives and fostering greater scepticism regarding websites through a different format presentation could be effective means for achieving this goal. With democracy increasingly involved in digital information creation and diffusion, the introduction of policy measures increasing more unbiased voting, will be vital for keeping a healthy democratic society that relies on a more well-informed electorate, thus facilitating democratic legitimacy.

REFERENCES

- Alsharif, H., & Symons, J. (2021). Open-mindedness as a Corrective Virtue. Philosophy, 96(1), 73–97. doi:10.1017/S0031819120000352
- Cinelli et al. (2020). Echo Chambers on Social Media: A comparative analysis. arXiv (Cornell University), 1-15. https://doi.org/10.48550/arxiv.2004.09603
- Deprez, A., & Raeymaeckers, K. (2010). Bias in the News? The Representation of Palestinians and Israelis in the Coverage of the First and Second Intifada. The International Communication Gazette, 72(1), 91–109. https://doi.org/10.1177/1748048509350341
- Dhingra, M., & Mudgal, R. K. (2019). Historical Evolution of Social Media: An Overview. Social Science Research Network, 1-8. https://doi.org/10.2139/ssrn.3395665
- Evans, J. St. B. T. (1989). Bias in human reasoning: Causes and consequences. Hillsdale, NJ: Erlbaum, 41.
- Glaeser, E., & Ponzetto, G. (2017). Fundamental error in the voting booth margins. Ideas For India. https://www.ideasforindia.in/topics/miscellany/fundamental-errors-in-the-voting-booth-margins.html#
- Greitemeyer et al. (2012). The effects of social exclusion on confirmatory information processing. European Journal of Social Psychology, 42(4), 462–469. https://doi.org/10.1002/ejsp.1851
- Grinberg et al. (2019). Fake news on Twitter during the 2016 U.S. presidential election. Science, 363(6425), 374–378. https://doi.org/10.1126/science.aau2706
- Gunther, Richard et al. (2018). Fake News May Have Contributed to Trump's 2016 Victory. Study, Ohio State University, 1-6. https://www.documentcloud.org/documents/4429952-Fake-News-May-Have-Contributed-to-Trump-s-2016.html
- Iyengar et al. (2019). The origins and consequences of affective polarization in the United States. Annual Review of Political Science, 22(1), 129–146. https://doi.org/10.1146/annurev-polisci-051117-073034
- Jost et al. (2022). Cognitive–motivational mechanisms of political polarization in social-communicative contexts. Nature Reviews Psychology, 1(10), 560–576. https://doi.org/10.1038/s44159-022-00093-5
- Jung, C. (1978). Flying Saucers: A modern Myth of Things Seen in the Sky. Princeton University Press, 38.
- Kahneman, D. (2003). Maps of Bounded Rationality: Psychology for Behavioral Economics. The American Economic Review, 93(5), 1449–1475. http://www.jstor.org/stable/3132137
- Kahneman, D. (2011). Thinking, Fast and Slow. Farrar, Straus and Giroux, 59-60.
- Kim, A., & Dennis, A. R. (2017). Says who?: How news presentation format influences perceived believability and the engagement level of social media users. Social Science Research Network, 1-25. https://doi.org/10.2139/ssrn.2987866
- Kwong, J. M. C. (2016). Open-Mindedness as engagement. The Southern Journal of Philosophy, 54(1), 70–86. https://doi.org/10.1111/sjp.12163

- Lau, Richard R., & Redlawsk, David P. (2006). How Voters Decide: Information Processing during Election Campaigns. Cambridge University Press, 336. https://doi.org/10.1017/CBO9780511791048
- Lazer et al. (2018). The science of fake news. Science, 359(6380), 1094–1096. https://doi.org/10.1126/science.aao2998
- Lee, J. (2022). How fake news affects U.S. elections. University of Central Florida News | UCF Today. https://www.ucf.edu/news/how-fake-news-affects-u-s-elections/
- McAdams, D. P. (2024). The mass psychology of Trumpism. New Lines Magazine. https://newlinesmag.com/argument/the-mass-psychology-of-trumpism/
- Mcleod, S., PhD. (2023). Fundamental attribution error in psychology. Simply Psychology. https://www.simplypsychology.org/fundamental-attribution.html
- Müller, K. (2020). How Twitter affected the 2016 presidential election. CEPR. https://cepr.org/voxeu/columns/how-twitter-affected-2016-presidential-election
- Nickerson, R. (1998). Confirmation Bias: A Ubiquitous Phenomenon in Many Guises. Review of General Psychology, 175-220. https://doi.org/10.1037/1089-2680.2.2.175
- Oh, C., & Kumar, S. (2017). How Trump won: The Role of Social Media Sentiment in Political Elections. AIS Electronic Library (AISeL). http://aisel.aisnet.org/pacis2017/48
- Peters, U. (2020). What is the function of confirmation bias? Erkenntnis, 87(3), 1351–1376. https://doi.org/10.1007/s10670-020-00252-1
- Riggs, W. (2010). OPEN-MINDEDNESS. Metaphilosophy, 41: 172-188. https://doi.org/10.1111/j.1467-9973.2009.01625.x
- Ronzhyn et al. (2022). Defining affordances in social media research: A literature review. New Media & Society, 25(11), 3165–3188. https://doi.org/10.1177/14614448221135187
- Ross, Lee, & Nisbett, Richard E. (2011). The Person and The Situation: Perspectives of Social Psychology. Ashford Colour Press, 4 & 125-126.
- Schlosser, J. A. (2023). 'What really happened'. Cambridge University Press. 301–316. https://doi.org/10.1017/9781316227442.023
- Tversky, A., & Kahneman, D. (1974). Judgement under Uncertainty: Heuristics and Biases. Science, 1124-1131. https://www2.psych.ubc.ca/~schaller/Psyc590Readings/TverskyKahneman1974.pdf
- Wang et al. (2020). Public Discourse and Social Network Echo Chambers Driven by Socio-Cognitive Biases. Physical Review.X, 10(4), 1-20. https://doi.org/10.1103/physrevx.10.041042
- Wason, P. C. (1960). On the Failure to Eliminate Hypotheses in a Conceptual Task. Quarterly Journal of Experimental Psychology, 12(3), 129–140. https://doi.org/10.1080/17470216008416717
- White, A. (2021). Overcoming 'confirmation bias' and the persistence of conspiratorial types of thinking. Continuum, 36(3), 364–376. https://doi.org/10.1080/10304312.2021.1992352
- Wilke A. and Mata R. (2012). Cognitive Bias. In: V.S. Ramachandran (ed.) The Encyclopedia of Human Behaviour, vol. 1, Academic Press, 531-535. https://webspace.clarkson.edu/~awilke/EoHB_Wilke_12.pdf