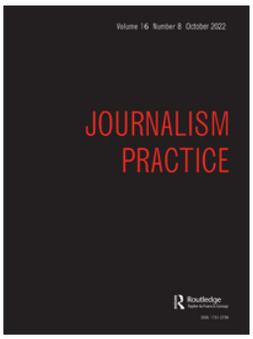
Liquid disinformation tactics



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Liquid Disinformation Tactics: Overcoming Social Media Countermeasures through Misleading Content

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ABSTRACT

Social media have led to profound transformations in the media ecosystem and new communication dynamics. Such platforms have become a competitive source of information and played a decisive role in facilitating the dissemination of false or misleading content, with a particular impact on recent elections. This study analyses the formats and the spread of disinformation during Brazil's 2018 election on social media, considering the countermeasures adopted that year by the platforms to reduce its circulation. Disinformation occupies a central space in the public debate in Brazil, where there is massive use of social media. Based on a content analysis of the 153 false or misleading narratives most shared during the campaign period, the results show that contents changed formats to overcome platforms' countermeasures. Results also highlight a majority of images and a blend of false and accurate information that reshape the phenomenon definition and suggests the inefficacy of current regulations.

KEYWORDS

Disinformation; social media; elections; visual disinformation; journalism; Brazil

Introduction

Traditionally, modern democracies are grounded on debate and decision-making by well-informed citizens, based on a communicational dynamic in which journalism has the fundamental role of mediating and overseeing political actors (Habermas 2006; McNair 2009; Schudson 2008). However, research shows a profound transformation in the media ecosystem and new communication dynamics arising from the internet and, most notably, from social media (Siapera 2013; Bruns 2008; Chadwick 2017). Internet platforms have impacted the production, distribution and reception of content, and these changes have occurred hand in hand with alterations in audience behaviour. While journalism's standards and regulations have always struggled with their weaknesses, producers not subject to their existing commitments and minimal assurances multiply – anyone can now create, spread and receive content at the same time and in the same chaotic arena.

The number of people who use social media to search for news grew significantly between 2016 and 2018, stagnating only with the rise of messaging applications (Newman et al. 2017, 2018, 2019). This process has contributed to eroding journalism's

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social function (Camponez 2018) and to aggravating a press credibility crisis (Ladd 2012; Nielsen 2014; Norris 2011), including the lack of confidence in traditional journalistic media (Newman et al. 2017, 21 and 30-31). However, one should observe that media trust declines consistently but at different rates across the globe. For instance, it still ranks higher in Brazil than in the United States.

The design of these alternative networks of information and this new communication dynamics compromise public debate and boost disinformation campaigns, particularly in electoral contexts (Alaphilippe et al. 2019; Allcott and Gentzkow 2017; Davis 2018; Ferreira 2018, 2019; Keller et al. 2020; Silverman 2016; Wardle and Derakhshan 2017). Recently, a growing number of national political actors and governments (King, Pan, and Roberts 2017; Lukito et al. 2018), hyperpartisan media (Allcott and Gentzkow 2017; Faris et al. 2017), actors with economic motives (Silverman and Alexander 2016), far-right groups and foreign states (Marwick and Lewis 2017; Bennett and Livingston 2018; Ferreira 2019) have tried to influence the public with false, misleading or exaggerated information through social media in several countries.

Although the definition of disinformation is complex and still open to debate, I work with the concept of inaccurate or manipulated information content intentionally spread (Keller et al. 2020; Wardle and Derakhshan 2017; Weedon, Nuland, and Stamos 2017). This definition encompasses the heterogeneity of formats and the complexity of the messages that make up the phenomenon, in its most recent expression and enhancement. Disinformation can include false content, which mimics journalistic legacy media or not. Still, it can involve more subtle methods such as false flag operations, feeding inaccurate quotes or stories to innocent intermediaries, or knowingly amplifying biased or misleading information. Hence, as demonstrated in Ferreira (2019, 136), "more than a binary sense of reality, disinformation implies a complex and nuanced essence, which comprises several motivations, different effects or even different levels of adherence or correspondence to the truth."

This concept integrates a theory of multiple "information disorders" that distinguishes "disinformation" as false information spread with the intent to deceive, "misinformation" as incorrect information distributed without intention to harm, and "malinformation" as strategic dissemination of true facts with hostile intent, such as the leaking of hacked documents, hate speech and arrestment (Wardle and Derakhshan 2017, 20). Nevertheless, the term "fake news", commonly used to describe various facets of the phenomena, has been appropriated by political actors to undermine journalistic scrutiny, which discourages its use in research (see also European Commission 2018, 10; Silverman 2018).

Risks to Democracy

Several studies have identified the presence of disinformation on social media with the potential to influence political debate. Allcott and Gentzkow (2017) tracked 30 million misleading contents considered beneficial for Donald Trump during the 2016 US presidential campaign, in contrast to 8 million potentially positive for Hillary Clinton. Shao et al. (2017, 11) offered empirical evidence of the "fundamental role played by robots in the viral dissemination of false news" in the US election on social media, when "few accounts are responsible for a large portion of the traffic that brings deceptive content." The US election that prompted research on disinformation also sparked a

judicial investigation. The Department of Justice reported fake profiles and paid ads on social media with customised messages created to influence the election (Mueller 2019).

Just a few months before the process that put Trump in the White House, the United Kingdom referendum that defined its departure from the European Union displayed strong connections. News investigations first revealed a global operation also involving micro-target ads and disinformation to influence the result (Cadwalladr 2017). What would come to be known as the Cambridge Analytics scandal also exposed the unauthorised commercialisation of social media users' data and the links between billionaire friends of Trump, the Leave campaign and Russian agents. Following this, Llewellyn et al. (2018) demonstrated that inauthentic Twitter accounts that influenced the debate in the US campaign were active during the UK referendum and boosted pro-leave content posing as grassroots Brexit groups. Despite the critical role attributed to Russia's agents in these operations, the works cited in this section also indicated that domestic political actors, local social media profiles and hyperpartisan media at least amplified the reach of elusive content.

Scholarship identified disinformation campaigns in 2017 France presidential election, particularly content designed to target Emmanuel Macron (Davis 2018, 8; Wardle and Derakhshan 2017, 20–21), as well as in Austria and Germany, linked to extreme right groups (Fuchs 2016; Davey and Ebner 2017). Keller et al. (2020) established that the South Korean government created and controlled a network of Twitter accounts to generate support for the incumbent leadership with an organic appearance during the 2012 election, in an operation lead by its secret service.

The disinformation on social media during Brazil's 2018 election that led Jair Bolsonaro to the presidency of the largest democracy in South America also indicates some specific design and outcomes. According to Ferreira (2019, 126), Bolsonaro was potentially benefited, not only by misleading content that portrayed him positively "but also by the overproduction of content with a potentially negative impact on his competitors" before voters. As in Brazil, India also saw a flow of disinformation campaigns attached to an extreme nationalist discourse that contributed to the consolidation of Narendra Modi's rule, through an accentuated use of social media (Das and Schroeder 2020; Iqbal 2019; Farooq 2017; see also Rao 2018).

With specificities in each part of the globe, disinformation crosses borders and shows features of transnational collaboration, as demonstrated in the 2019 election for the European Parliament. Far-right and anti-European Union groups formed a disinformation network on Facebook to influence the outcome (Avaaz 2019, 6). During the three months before the vote in the 27 member states, 500 pages followed by 32 million people posted misleading content and generated 67 million interactions.

Although more prominently studied in elections, disinformation as a tool to steer public debate isn't used only in elections. For instance, King, Pan, and Roberts (2017) offer evidence that the Chinese government fabricates social media posts for strategic distraction.

Research on disinformation so far offers evidence of the presence of misleading content with the potential to direct public debate and influence choices in society through its distribution on social media. Particularly in the context of electoral processes, results suggest systematic or coordinated distribution, with the presence of content

potentially favourable to specific actors, groups or policies in several cases. These operations could compromise fairness and freedom on public debate and decision-making processes, as well the integrity of elections. Nevertheless, disinformation challenges the role of journalism itself. Silverman (2016) showed that misleading content had more engagement than legacy media news on Facebook during the 2016 US election. Further analysis also attested the high rate of people who believed in this content (Silverman and Singer-Vine 2016). In a more recent study on citizens' perceptions of reliability in Canada, Daoust and Bastien (2021) showed that the profile of an ordinary citizen and the country's most trusted media outlet have the same influence as a source of information for users on social media.

The Power of Images

Despite the significant advances made by these recent leading studies, the formats and messages of disinformation remain, to some extent, less explored. Analyses on the role of images and its connection with the effects of the phenomenon are exceedingly scarce and call for further contributions (Tucker et al. 2018).

The rise of images in politics parallels the rise of images in society as icons of the communication dynamics, vessels of persuasive intent and efficient carriers of information in the public sphere. From television coverage of elections to memes about political actors on social media, visual content shapes perceptions of the political domain. When used strategically, visual content holds the capacity to frame candidates and issues in particular manners, affecting their acceptance or rejection among citizens (Swigger 2012; Gadarian 2014; Grabe and Bucy 2009).

Visual materials tend to be more persuasive than other forms of communication, which was very evident from the emergence of television (Birdsell and Groarke 1996, 2007; Debray 1992) and reinforced by social media (Bebić and Volarevic 2018; Renner 2017; Gibson and McAllister 2011). Debray (1992) developed the concept that establishes the image as a system for the accreditation of the real. His work is strongly related to the television era but resonates with the post-internet world. Photos, memes and videos are continuously used on social media. Given the characteristics and speed of these environments, they are now also appropriated by the dynamics of disinformation.

Renner (2017, 2) states that "images have the potential to reach more readers than articles—whether fake, real, un-partisan or hyper-partisan." Indeed, according to anti-disinformation projects in the 2017 French and British elections, "visual content was overwhelmingly the most shared and the most difficult to unmask as deceptive content" (Wardle and Derakhshan 2017, 39). Also, Hameleers et al. (2020) demonstrated that disinformation composed of text and visual elements is considered more credible than textual only. Their study analysed United States viewers' reactions to false or misleading content about school shootings and refugees.

The growth of manipulated videos, with the advancement of editing technologies, formats and messages which are more complex to be debunked or "deep fakes" and the use of artificial intelligence for the production of misleading content and control of fake users, not only reinforce this line of thought but is pointed out as the new level of disinformation (Mack 2018; Alba 2019; Martineau 2019).

In this study, I aim to contribute to this literature by providing detailed observations of disinformation features, key formats, production and dissemination as seen in the Brazilian context. More specifically, I start with the following research questions:

RQ1: What formats did disinformation adopt in Brazil's 2018 election?

RQ2: Considering the defined sample and the identified formats, what is the spread (shares) of this disinformation and the relationship, if any, between spread and formats?

RQ3: Which social media are mostly used for this disinformation?

The Case of Brazil

Disinformation occupies a central space in the Brazilian public debate, with records of coordinated interference through social media that go back at least 2012 (Gragnani 2017). The 2018 election was marked by complaints of mass distribution of messages on social media, including disinformation – some associated with major candidates and parties (Mello 2018). Criminal investigations and political enquiries in the Brazilian parliament are still ongoing and continue to mobilise debate, radicalise political forces and increase attacks against the press ("Ex-funcionário" 2020).

Nevertheless, there are specific aspects of the Brazilian context that highlight its relevance for research, such as the particularities of the media system (Bastian 2019), the expressive use of social media for information consumption (Newman et al. 2019, 120–121), the greater exposure of Brazilians to disinformation (IPSOS 2018, 16) and a growing process of political polarisation (Borges and Vidigal 2018; Ortellado and Ribeiro 2018). In 2018, Facebook had 127 million monthly users in Brazil, and the country was the second-largest market for WhatsApp, with 120 million registered users – behind only India (Oliveira 2018).

The country also experiences a growth in the operation of fact-checking agencies, which have increased their capacity to tackle disinformation, following similar initiatives around the world. Becoming a complementary force to journalism, the agencies expanded from monitoring political actors' statements, often transmitted with a poor check by media outlets, to also overseeing the distribution of misleading content on the networks by the most diverse players (Ferreira 2019, 57–58). In Brazil, *Agência Lupa* and *Aos Fatos* stand out in the fulfilment of this role as the oldest agencies dedicated exclusively to fact-checking and with the largest structure.[1] Founded in 2015, both have specialised teams that bring together journalists and social media experts. They adopt the International Fact-checking Network "code of principles" (IFCN 2015), recognised as parameters that enable accurate and impartial practice, and became the Facebook partners in Brazil responsible for checking content marked as suspicious by users (Facebook 2018).

Additionally, Facebook changed its data flow management algorithm precisely at the beginning of the Brazil's election year (Isaac 2018). Its algorithm started to reduce the exposure for users of publications with links to external content and to preferentially display posts considered personal (direct publication of texts, images or audios). The changes reflected an increasing debate about disinformation on the aftermath of 2016 US election, that highlighted a network of false content sites that used Facebook to share links and thus get more access (see also Subramanian 2017).

After similar criticism, WhatsApp also implemented measures for the year 2018 (Hern 2018), not only foreseeing Brazil's election but also India's in 2019. The platform limited the number of times that the same message is forwarded and the number of users in collective conversations (groups), which are often used for massive dissemination of content. An analysis of the characteristics of disinformation during Brazil's 2018 election, as the first major electoral process after the countermeasures adopted by social media platforms, can offer new contributions not just about the dynamics of the phenomenon but on the effectiveness of these countermeasures.

Methodology

Many researchers argue that new technologies in the field of communication and changes in communication dynamics demand new or renewed methods of analysis (Herring 2009; McMillan 2000; Mitra and Cohen 1999; Wakeford 2000). Herring (2009) proposes a broader approach to content analysis on the internet, one that incorporates methodological paradigms from other fields of study, such as linguistics and sociology, but also preserving many of the essential principles of traditional content analysis, such as the objective and systematic quantitative description.

Nevertheless, one of the main difficulties in social media research is the construction of the sample, since the universe of platforms is almost infinite and subject to constant changes, such as content that is rewritten or even deleted. Herring (2004, 2009) argues that the selection and definition of a corpus of analysis may not necessarily depend on the intervention of the researcher, who may resort to alternative tools to mediate the selection of the sample. In a similar vein, Bowen (2009) attests that document analysis can be an effective means of collecting data when events can no longer be observed. This procedure assumes, for the author, the possibility of analysing data that were recorded or collected without direct mediation by the researcher. Given these premises and considering the objectives of this study, the sample was based on content previously selected and classified as false or misleading by the Brazilian leading fact-checking agencies *Agência Lupa* and *Aos Fatos*.

This methodological design offers a sampling criterion for the vast universe of social media, overcoming aforementioned complexities. It also provides a reliable classification of the content as disinformation, based on the credentials and procedures of the agencies. Furthermore, it allows to collect and access content that may have been deleted after the election, ensuring the creation of a relevant sample. According to the agencies, the selection of content to be checked follows criteria such as relevance, scope and repercussion of disinformation in the multiple social media platforms (Agência Lupa 2015; Aos Fatos n.d.). Thus, a sample developed from this database is representative of the content most viewed by voters, with the potential to impact their decision, given the chosen period of analysis.

The verification methods of the agencies include the collection of official data and other journalistic reference publications on the subject of each content, communication with the mentioned sources and consultation of specialised analyses. In the case of image verification, teams look for originals for comparison and use software to identify tampering. The verifications of these agencies are restricted to the analysis of the veracity of the facts underlying the different contents, published in online reports. Each of these reports

comprises a set of contents that has the same central subject. I will adopt the designation "narrative" to refer to each set.

Therefore, the content analysis was done on each original false content that comprise each of the narratives, which is not carried out or integrates the objectives of the checkers. Researched through traditional document analysis procedures (Bowen 2009), the data provided by the checkers on shares, forms of distribution and quotes from excerpts of the original content were also examined. However, the agencies' reports are not the final object of this study. In my research, they function as cardinal points allowing access to the original false or misleading content that constitute the target of my content analysis. In short, I aimed the original publications or the screenshots of the original publications.

Brazil's 2018 election took place in two terms, on October 7th and 28th, as no candidate received 51% of valid votes on the first term. I focus my analysis in the narratives published between August 1st and October 28th, the period considered the official campaign time by the Brazilian electoral authorities and a crucial period in the voter decision-making process. Narratives containing non-electoral issues were discarded. Narratives verified by the two agencies were grouped in the same coding form and counted as one for similar results. Thus, the final sample incorporates the total number of election-related narratives verified and classified as false or misleading by one or both agencies, published between August 1st and October 28th. This selection allowed me to analyse the 153 false or misleading narratives with the greatest impact on the 2018 Brazilian election, which forms the corpus of this study (*N*=153), always starting from the communication of the agencies' checks, indexed on their respective websites.

The built categories aimed to answer the research questions and the variables were developed from the sample's data (Herring 2009, 235). I employed an inductive-deductive method (Elo and Kyngas 2008; Mayring 2000), through successive partial sample analysis which was adjusted until a definitive analysis matrix was formed (see Table 1).

Table 1. Analysis matrix.

Categories	Variables
Identification	1 to 153
Fact-checking agency	Aos Fatos
	Lupa
	Both
Fact-checking agency report title	Variable
Fact-checking agency report link	Variable
Date	Variable
Format	Photo
	Video
	Link
	Text
	Print screen
	Audio
	PDF
	Graphic
Image state	Adulteration
	Misleading escort
	Not applicable
Shares	Variable
Video views	Variable
Social media (more than one is possible)	Facebook
	WhatsApp
	Twitter

Source: developed by the author

Beyond the very straightforward categories for identification, origin and date, which aims to facilitate further discussion and access, I detail the main ones next.

The category "Format" identifies the main element of the contents analysed in each narrative, for which I use very straightforward variables. Deepening this parameter, for all narratives with imagery formats, I will analyse "Image state", systematised into three variables:

- "Adulteration" – when the image (photo or video) is an adulteration of other material carried out with technical resources, which alters the original message and deceives the reader;
- "Misleading escort" – image, photo or video, without tampering by technical tools and that corresponds to the original material produced by its author, but is accompanied by additional false data, which alter the original context or create an entirely false story;
- "Not applicable" – narratives in a format without an image as the main element.[2]

When I found more than one format and/or more than one state of the image among the various contents that make up the same narrative, I recorded in the coding the one with the highest incidence, as the most representative of the narrative analysed.

In the "Shares" category, I recorded the total number of shares for each narrative. This number is the sum of the shares of each content that integrates a narrative. Whenever possible, numbers indicated in the original content were considered, as well as the data informed by the checkers in the reports. This was done in order to collect the most updated data until its eventual removal. The share data refer only to the content that circulated on Facebook and Twitter. WhatsApp's encrypted system prevent measuring how many times one content has been forwarded through the application. Narratives which circulation was identified on WhatsApp only were assigned the variable "Not applicable".

Although data on shares obtained through this research design are estimated and possibly underestimated, I believe that they can still offer a relevant parameter for the perception of how many people were reached and also to compare the performance of the different formats. The category "Video views" uses the same procedure to quantify the video views for narratives that contain one. The video player tool on social media usually displays this specific data.

Completing the analysis matrix, the category "Social media" indicates the platforms circulating the analysed narratives, considering each content. Fort this reason, each narrative could be assigned to more than one platform.

Following these guidelines, I carefully coded the 153 narratives in the sample, always evaluating the integrity of the reports and all the false or misleading original content that each report allowed me to access. The results obtained from this process were brought together in a single synoptic board, which was the subject of a new recoding to facilitate its statistical analysis through the Statistical Package for the Social Sciences Program.

Results and Discussion

The analysis of disinformation presentation formats is of particular relevance. As mentioned before, certain formats can help to capture more attention from the audience or, in the specific case of false or misleading content, make the narratives more credible for readers. About half of the narratives in the sample had a photo as its main element,

Table 2. The shapes of disinformation (*N*=153).

Formats	Narratives	%
Photo	73	47,7%
Video	29	19,0%
Link	24	15,7%
Text	16	10,5%
Print screen	7	4,6%
Audio	2	1,3%
PDF	1	0,7%
Graphic	1	0,7%
Total	153	100%

Source: author analysis

accompanied or not by other elements, such as additional text in Facebook posts. Video is the second most used format (Table 2).

Compared with the results found in the 2016 US election (Silverman 2016; Allcott and Gentzkow 2017) and the year before the 2018 Brazilian election (Ferreira 2018), the dimension of the resource to the use of links to external content assumes less expressive levels in the scope of this analysis. The publication of links to sites dedicated to the production of disinformation, external to social media, corresponds to only 15,7% of the sample.

The analysis shows that the disinformation in the 2018 Brazilian election sought more imagery formats aiming for a more credible facade and to boost the spread. Its authors prioritised a more fluid content that was more responsive to the new demands typical of social media users and able to move easily across various platforms. As discussed, image-based formats have a particular potential for attraction, and Facebook changed its algorithm before the election to reduce the exposure of publications with links to external contents over more personal posts – direct publication of texts and images. Although there was some perceived reduction in the presence of links to misleading content on the platform, the results suggest that algorithmic change was ineffective to remove disinformation, as message producers sought other formats and circumvented this countermeasure.

The data reinforce the argument that disinformation with visual elements arouses credibility in readers (Wardle and Derakhshan 2017, 38–40; Hameleers et al. 2020). These observations, to some extent, enhance and transform Debray's (1992) concept of the image as a system for the accreditation of the real, from television to social media. The priority given to the use of images suggests that disinformation producers also sought to achieve this outcome. Photo with text or a video sharing evokes a more personal, or even familiar appearance, compared to links to an external website. It is an appearance that helps to convince the reader of its credibility and awakens authenticity, namely in an anti-media and reliability crisis environment. In this sense, research also started to indicate the role of family groups on WhatsApp in the spread of disinformation (Canavilhas, Colussi, and Moura 2019).

The predominance of imagery contents is reflected in the shares obtained by each format (Figure 1). In absolute values, narratives with photos add up to the largest number of shares, followed by those with videos. Hence, narratives with at least one kind of image make up 84% of the whole sample shares. The average sharing confirms the superior attractiveness of images but also reveals a preference for videos among

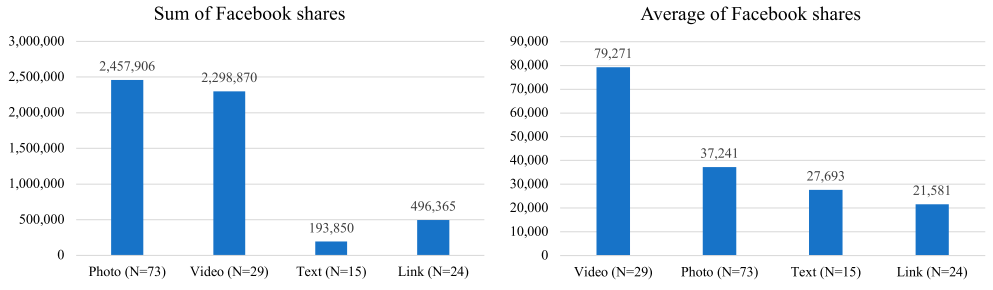


Figure 1. Spread of disinformation by format. The chart on the left shows the sum of shares in each format. The chart on the right presents the average share, considering the number of contents. The total share for the whole sample is 5.667.591. Source: author analysis.

users engaging with disinformation. Although narratives with a video were less numerous (*N*=29 out of 153) compared to the ones with photos (*N*=73), they were more popular (i.e., shared) on average. To add weight to this argument, misleading contents in this format had thousands of shares, while its video's views reach the range of millions. Figure 2 demonstrates this progression for all narratives with contents in which a video was the main element.

The analysis of the state of the images reveals the techniques mostly used by the producers of disinformation, as well as the levels of public engagement that they attract. More than half of the disinformation with an image presented a true and unadulterated photo or video accompanied by false data, misleading the reader (see Table 3). Furthermore, this combination occurred in almost half of the total narratives in the sample. The false data was blended in the photo, was stated by the main actor of the video or, in many cases, was in the text that accompanied the posted photo or video on social media. I highlight the most recurrent examples of the format. Photos and videos of protests for the impeachment of President Dilma Rousseff in 2016 and videos of gatherings during the 2014 World Cup in Brazil were published with false claims that these were demonstrations in favour of the candidate Jair Bolsonaro in 2018 (Figure 3). Other publications display photos of the candidate Fernando Haddad with inserted written potentially damaging quotes that he didn't say (Figure 4). This type of content also attracted a higher number of shares, compared to other "image states".

Table 3 also indicates that adulterated photos and videos represented a relevant 23% of the sample, such as a computer-tampered photo of the Brazilian actor Rodrigo Santoro wearing a pro-Bolsonaro shirt and false magazine covers claiming that Haddad's party,

Table 3. Image analysis (*N*=111).

Image state	Narratives	% of the total	% valid
Misleading escort	75	49%	67,6%
Adulteration	36	23,5%	32,4%
Valid total	111	72,5%	100%
Not applicable	42	27,5%	
Total	153	100%	

Content with photos and videos constitutes the majority of the valid total. This sub-sample includes one adulterated graphic that combined photos of candidates and one PDF document with false data and symbols. Not applicable are contents without an image but includes links, even those with a thumbnail (see methodology). Source: author analysis

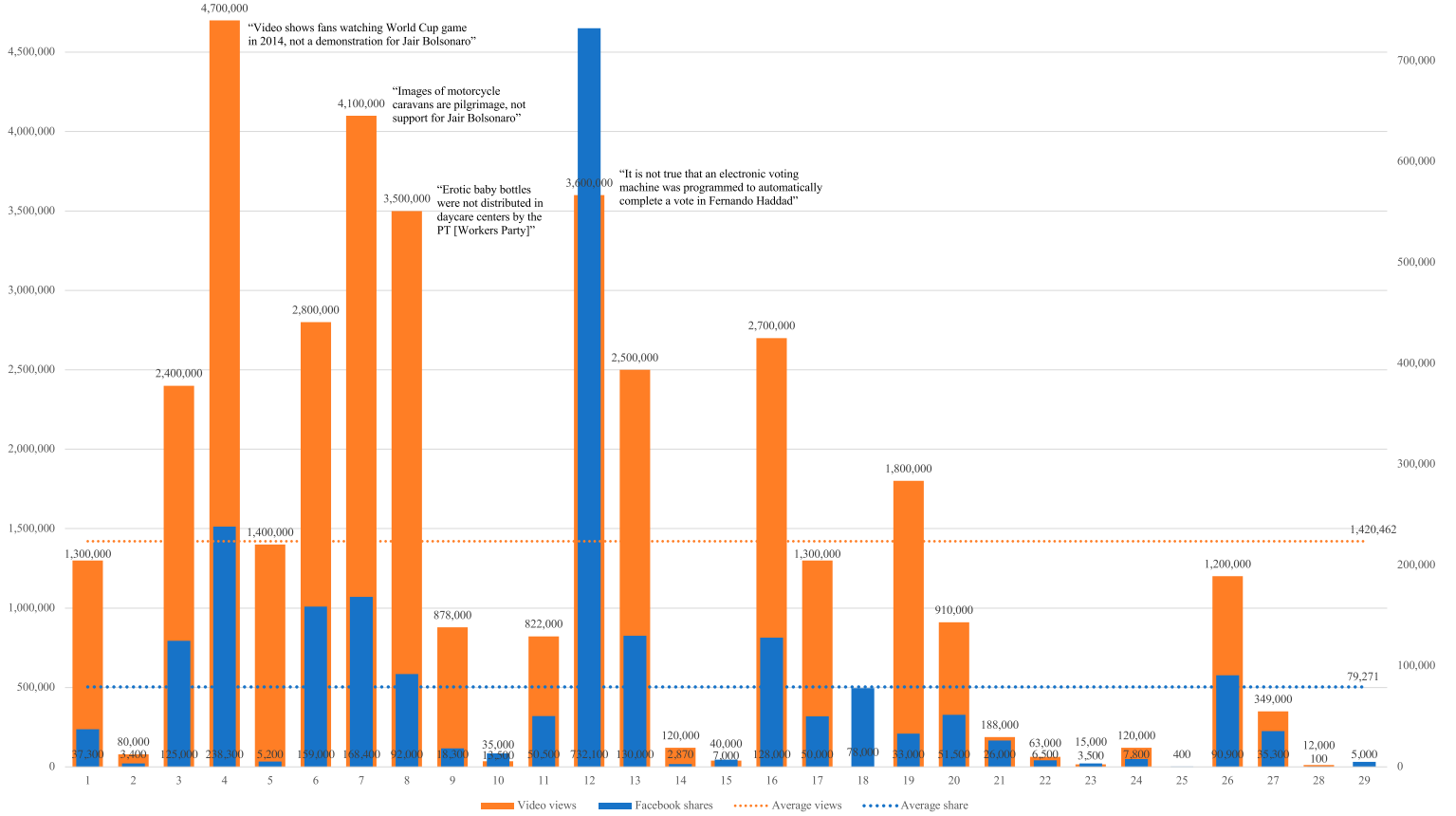


Figure 2. Spread of disinformation with video (*N*=29). All content had more views than shares, but each variable has a different scale to facilitate display. Video views use a range of millions (y-axis on the left), and Facebook shares one of the thousands (y-axis on the right). Content 18, 25 and 29 do not present video views because the information was not available. Fact-checking report titles for the top four were included to give a sense of the more attractive themes. The analysis focus on the original false or misleading contents (see methodology). Source: author analysis.

Figure 3. Example of a real video accompanied by a false claim in a Facebook post. Source: author sample.

Partido dos Trabalhadores (PT, Workers Party) and the *Organização dos Estados Americanos* (OEA, Organization of the American States) were getting ready to defraud the Brazilian electronic voting machines (Figure 5). For this type of content, several doctored photos of former Brazilian President and PT leader, Luiz Inácio Lula da Silva, alongside the man who stabbed Bolsonaro scored the highest share rate in this variable. The knife attack, indeed, occurred during the election campaign. However, the images showing the most well-known Bolsonaro's opponent and his aggressor in a Workers Party event years before are also the product of computer tampering (Figure 6; see also Tardáguila 2018).

These results demonstrate that, as is the case with text format, the most frequent tactic with imagery content for Brazil's 2018 election disinformation was a mixture of false and true data. Berghel (2017) and Wardle and Derakhshan (2017) stated that this compound is a key element for the success of disinformation spread and its better acceptance by the audiences. The results corroborate these theories and

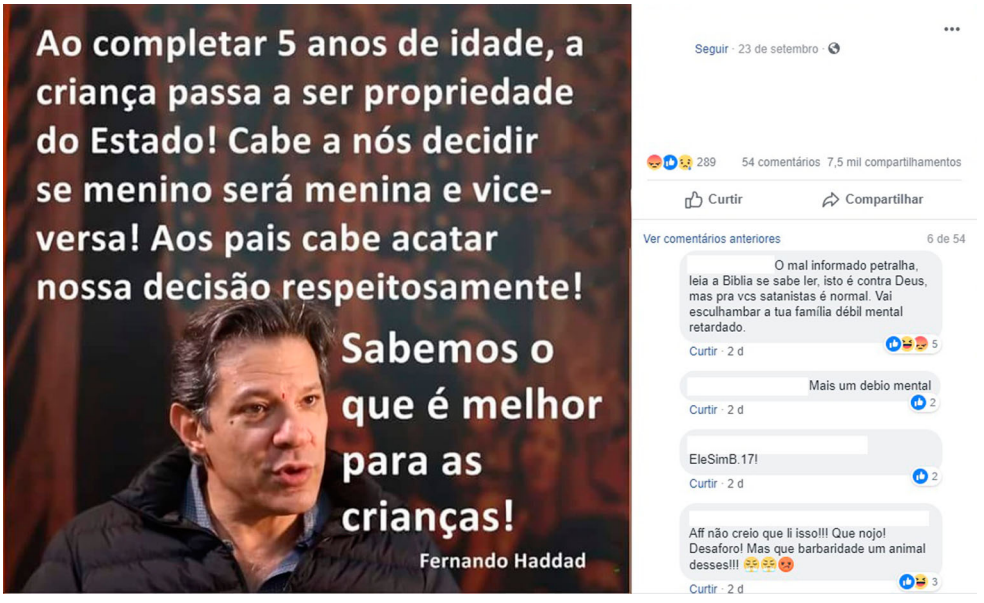


Figure 4. Example of a real photo of a presidential candidate (Fernando Haddad) accompanied by a statement he never made, which was posted on Facebook. The misleading text is in Portuguese and can be translated into: "Upon completing 5 years of age, the child becomes property of the State! It is up to us to decide whether a boy will be a girl and vice versa! It is up to the parents to comply with our decision respectfully! We know what is best for children!" Source: author sample.

Ferreira's (2019, 136) definition that disinformation comprises complex nuances and different levels of adherence to the truth. Nonetheless, the evidence that content producers used primarily true images and left the misleading component in accompanying texts also reinforces the image's power.

WhatsApp's encrypted system makes it impossible to measure the extent to which the narratives circulated on the platform and a direct comparison with other social media. However, the amount of misleading content identified in each platform is a valid indicator of their role in the election. As expected, Facebook and WhatsApp were the most used social media for disinformation distribution during Brazil's 2018 election. Among 153 narratives, 133 circulated on Facebook and 58 on WhatsApp. The proportion rather reflects the use of these platforms in the country but around one-third of the sample circulated in more than one, with the highest overlap between Facebook and WhatsApp (Figure 7). The pronounced role of WhatsApp supports, to some extent, the investigative news findings that political actors used the platform for illegal mass messages distributions, including disinformation, carried out by hired specialised propaganda agencies (Mello 2018; Turollo 2019).

WhatsApp's more private and poorly regulated operation favours the spread of disinformation, where manipulated photos can be easily shared without the input of fact-checkers (Boadle 2018). As with Facebook, the countermeasures adopted by the platform before the election did not result in a significant effect – as already explained, limitations to message forwarding and groups' size. Reinforcing this assessment was WhatsApp's

Figure 5. A computer-tampered photo that creates a fake cover of a traditional Brazilian news magazine shared on Facebook and WhatsApp. The false headline in Portuguese is: "Bomb! Gerardo de Icaza, OEA director, admitted negotiation to defraud electronic ballot box and collaborate with PT." Source: author sample.

decision to ban users and open a reporting mechanism after public criticism and press coverage, but only in the final moments of the campaign (see also Frier and Camillo 2018). In early 2019, the platform again reduced the limits for shares and groups (WhatsApp 2019).

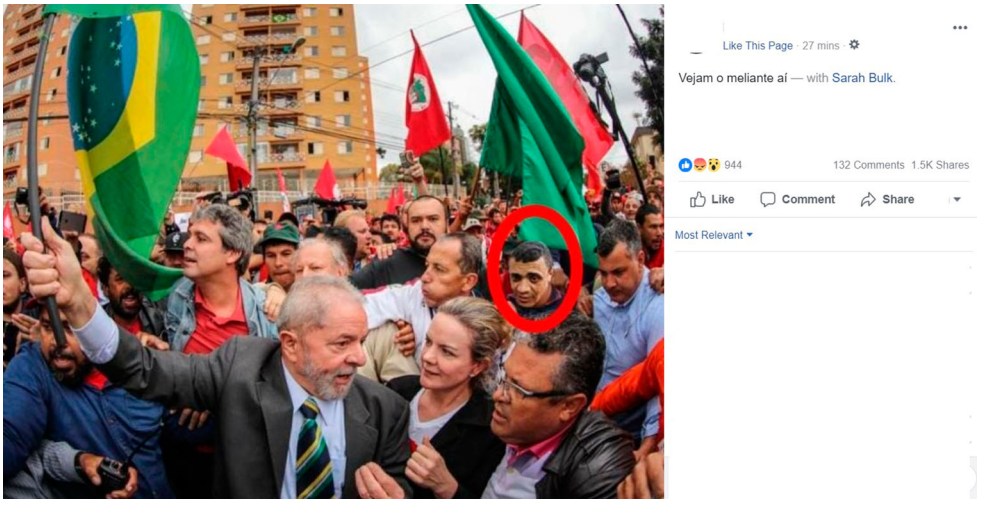
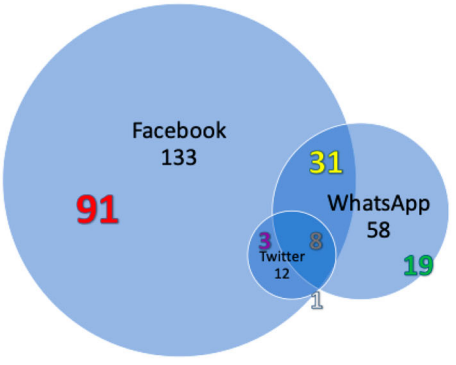


Figure 6. Adulterated photo places the man who stabbed candidate Jair Bolsonaro close to the former President Lula in an event of his party. Source: author sample.



Social media	Narratives	%
Facebook only	91	59,5%
>> Facebook and others	133	86,9%
WhatsApp only	19	12,4%
>> WhatsApp and others	58	37,9
Facebook e WhatsApp	31	20,3%
Facebook e Twitter	3	2%
Facebook, WhatsApp e Twitter	8	5,3%
Twitter	1	0,7%
>> Twitter and others	12	7,8%
Total	153	100%
Mixed platforms total	42	27,5%
Single platforms total	111	72,5%

Figure 7. Disinformation distribution per platform. Contents from the same narrative or even the same content can be found in more than one platform. The combinations are detailed in the table and proportionally represented in the chart, according to a corresponding color. Source: author analysis.

Conclusion

The results indicate that the disinformation during Brazil's 2018 elections took on attractive formats for the social media environment, mainly photos and videos. As I discussed, images are more attractive to audiences and can reinforce the content's credibility. Moreover, it is symptomatic of the power of the image in contexts of disinformation that the content producers have chosen to use real photos or videos and have left the false or misleading data for the accompanying texts, in more than half of the narratives with images. High incidence of a blend of false and true elements in the sample also corroborates the definition of disinformation that goes beyond a binary sense of reality and comprises a complex and nuanced essence, several motivations, different effects or even different levels of adherence or correspondence to the truth.

The low use of links and the over-dimension of more fluid and imaginary publications also suggest the intention of the producers of these contents to 1) circumvent the social media countermeasures for disinformation, more focused on reducing the visibility of links, and 2) facilitate shares on the same social media platform and also the migration from one platform to another, increasing the diffusion of content. This second assessment is also corroborated by the significant rate of narratives that appear on more than one platform.

The results also show that, in visual and technical terms, the disinformation in the 2018 Brazilian election was able to adapt to new platform control measures and to meet the most recent audience preferences. Nonetheless, it is evidence that image-based formats have higher power of attraction and acceptance by audiences and that this connection is crucial for the spread of disinformation. Photos and videos offer the viewer the feeling of being taken to the place of a certain event, and memes synthesise (or even reduce) complex themes in micronarratives. If, on the one hand, new video editing techniques and the imprecision of meme micronarratives facilitate distortions, these formats meet the demands of audiences on social media, who seek quick and possibly interactive or moving readings. Additionally, as pointed out, the use of photos and videos in misleading content has the potential to make the messages more credible for readers. Still in this regard, through the results one can argue an amplification and a transformation of the

concept of the image as a system of accreditation of the real – developed by Debray (1992) in the context of the emergence of television –, in a way that benefits disinformation. However, this calls for further and specific research.

Disinformation has evolved and continues to circulate fiercely on social media. From these results about Brazil in 2018 to the recent news reports on the 2020 US election, this phenomenon still is a major obstacle to democratic decision-making processes. Although the platforms' partnership with fact-checking agencies successfully brought down false and misleading contents, the production of disinformation is greater and faster than the capacity of the agencies, as stated by several initiatives endorsed by IFCN. The functioning of the partnership also presents problems, including the clash between the rules of the platforms and the standards of the agencies. Some fact-checkers already abandoned the partnership (Hern 2019). Not only is professional checking activity subject to its own flaws (Marietta, Barker, and Bowser 2015; Ostermeier 2011; Uscinski 2015; Uscinski and Butler 2013), it also became a target of disinformation with the emergence of false fact-checking sites and reports (Bramatti 2018; Jackson 2017; Waterson 2019). Studies also indicate that the checking itself, veracity labels or links to the reports on misleading contents still have no substantial effect in reduce readers believe and willingness to share (Clayton et al. 2019; Marietta and Barker 2019; Vraga and Bode 2017).

On the other hand, in addition to being ineffective, as suggested by this study, the change in the algorithm also reduced the visibility of all links. Links to disinformation sites not only lose organic visibility in users' feeds but so do also links to legacy media news, which could give context to the voters exposed to false or misleading content. Again, more research is needed in this respect, namely through comparative analyses on the performances of both accurate news and disinformation contents within the platforms, after the change in the algorithm. Some news media have adapted to some changes, such as posting a photo and leaving the link to their news in the first comment. However, if more than half of the users do not open the link when it is placed in the main post (Gabielkov et al. 2016), what can one expect from what is left in the comment box? Other publications decided to completely abandon Facebook, as is the case of the largest newspaper in Brazil ("Folha deixa" 2018).

While platforms and news organisations are still wrestling with content commercial exploitation, the results of this study indicate that social media are becoming an environment that is more favourable to the spread of disinformation than information.

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Notes

1. See also https://piaui.folha.uol.com.br/lupa/quem-somoss/ and https://www.aosfatos.org/quem-somos/

2. Includes narratives with the format "Link", even those with a thumbnail. A thumbnail can be automatically generated when a user publishes a link on social media, merging a part of an image related to the external content and the title for it in one clickable piece. These were considered part of the link and weren't analysed at this point.

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References

Agência Lupa. 2015. "Como a Lupa faz suas checagens?" http://piaui.folha.uol.com.br/lupa/2015/10/15/como-fazemos-nossas-checagens/.

Alaphilippe, Alexandre, Alexis Gizikis, Clara Hanot, and Kalina Bontcheva. 2019. *Automated Tackling of Disinformation*. Brussels: European Parliamentary Research Service. doi:10.2861/368879. https://www.europarl.europa.eu/RegData/etudes/STUD/2019/624278/EPRS_STU(2019)624278_EN.pdf

Alba, Davey. 2019. "Facebook Discovers Fakes That Show Evolution of Disinformation." *The New York Times*, December 20. https://www.nytimes.com/2019/12/20/business/facebook-ai-generated-profiles.html.

Allcott, Hunt, and Matthew Gentzkow. 2017. "Social Media and Fake News in the 2016 Election." *Journal of Economic Perspectives* 31 (2): 211–236. doi:10.1257/jep.31.2.211.

Aos Fatos. n.d. Nosso Método. https://www.aosfatos.org/nosso-m%5B%C3%A9e%5Dtodo/.

Avaaz. 2019, 22 de maio. Far Right Networks of Deception. Avaaz Report. https://avaazimages.avaaz.org/Avaaz%20Report%20Network%20Deception%2020190522.pdf?slideshow.

Bastian, Mariella. 2019. *Media and Accountability in Latin America: Framework – Conditions – Instruments*. Wiesbaden: Springer.

Bebić, Domagoj, and Marija Volarevic. 2018. "Do not Mess with a Meme: The Use of Viral Content in Communicating Politics." *Comunicación y Sociedad* 31 (3): 43–56. doi:10.15581/003.31.3.43-56.

Bennett, W. Lance, and Steven Livingston. 2018. "The Disinformation Order: Disruptive Communication and the Decline of Democratic Institutions." *European Journal of Communication* 33 (2): 122–139. doi:10.1177/0267323118760317.

Berghel, Hal. 2017. "Alt-News and Post-Truths in the "Fake News" Era." *Computer* 50 (4): 110–114. doi:10.1109/MC.2017.104.

Birdsell, David S., and Leo Groarke. 1996. "Toward a Theory of Visual Argument." *Argumentation and Advocacy* 33 (1): 1–10. https://public.wsu.edu/~ericsson/birdandgroar.pdf.

Birdsell, David S., and Leo Groarke. 2007. "Outlines of a Theory of Visual Argument." *Argumentation and Advocacy* 43 (3–4): 103–113. doi:10.1080/00028533.2007.11821666.

Boadle, Anthony. 2018. "Facebook's WhatsApp flooded with fake news in Brazil election." *Reuters*, October 20. https://www.reuters.com/article/us-brazil-election-whatsapp-explainer/facebooks-whatsapp-flooded-with-fake-news-in-brazil-election-idUSKCN1MU0UP.

Borges, André, and Robert Vidigal. 2018. "Do lulismo ao antipetismo? Polarização, partidarismo e voto nas eleições presidenciais brasileiras." *Opinião Pública* 24 (1): 53–89. doi:10.1590/1807-0191201824153.

Bowen, Glenn A. 2009. "Document Analysis as a Qualitative Research Method." *Qualitative Research Journal* 9 (2): 27–40. doi:10.3316/QRJ0902027.

Bramatti, Daniel. 2018. "Disseminadores de boatos promovem falsa checagem sobre protesto contra Bolsonaro." *Estadão Verifica*, September 30. https://politica.estadao.com.br/blogs/estadao-verifica/disseminadores-de-boatos-promovem-falsa-checagem-sobre-protesto-contra-bolsonaro/.

Bruns, Axel. 2008. *Blogs, Wikipedia, Second Life, and Beyond: From Production to produsage*. New York: Peter Lang.

Cadwalladr, Carole. 2017. "The great British Brexit robbery: how our democracy was hijacked." *The Guardian*, May 7. https://www.theguardian.com/technology/2017/may/07/the-great-british-brexit-robbery-hijacked-democracy.

Camponez, Carlos. 2018. "Novas responsabilidades do jornalismo face à liquidificação da profissão: Fundamentos normativos, valores, formação." *Media & Jornalismo* 18 (32): 19–30. doi:10.14195/2183-5462_32_2.

Canavilhas, João, Juliana Colussi, and Zita-Bacelar Moura. 2019. "Desinformación en las elecciones presidenciales 2018 en Brasil: un análisis de los grupos familiares en WhatsApp." *El profesional de la información* 28 (5): 211–236. doi:10.3145/epi.2019.sep.03.

Chadwick, Andrew. 2017. *The Hybrid Media System: Politics and Power*. Oxford: Oxford University Press.

Clayton, Katherine, Spencer Blair, Jonathan A. Busam, Samuel Forstner, John Glance, Guy Green, Anna Kawata, et al. 2019. "Real Solutions for Fake News? Measuring the Effectiveness of General Warnings and Fact-Check Tags in Reducing Belief in False Stories on Social Media." *Political Behavior* 2019: 1–23. doi:10.1007/s11109-019-09533-0.

Daoust, Jean-François, and Frédérick Bastien. 2021. "Should We or Should We Not Include Confidence Intervals in COVID-19 Death Forecasting? Evidence from a Survey Experiment." *Political Studies Review*, 1–9. doi:10.1177/1478929920985686.

Das, Anupam, and Ralph Schroeder. 2020. "Online Disinformation in the run-up to the Indian 2019 Election. Information." *Communication & Society*, 1–17. doi:10.1080/1369118X.2020.1736123.

Davey, Jacob, and Julia Ebner. 2017. *The Fringe Insurgency. Connectivity, Convergence and Mainstreaming of the Extreme Right*. London: Institute for Strategic Dialogue. https://www.isdglobal.org/wp-content/uploads/2017/10/The-Fringe-Insurgency-221017.pdf.

Davis, Susan. 2018. *Russian Meddling in Elections and Referenda in the Alliance*. NATO Parliamentary Assembly - 181 STC General Report, November 18. https://www.nato-pa.int/download-file?filename=sites/default/files/2018-11/181%20STC%2018%20E%20fin%20-%20RUSSIAN%20MEDDLING%20-%20DAVIS%20REPORT.pdf.

Debray, Régis. 1992. *Vie et mort de l'image: Une histoire du regard en occident*. Paris: Gallimard.

Elo, Satu, and Helvi Kyngas. 2008. "The Qualitative Content Analysis Process." *Journal of Advanced Nursing* 62 (1): 107–115. doi:10.1111/j.1365-2648.2007.04569.x.

European Commission. 2018. *A Multi-Dimensional Approach to Disinformation: Report of the Independent High Level Group on Fake News and Online Disinformation*. Luxembourg: Publications Office of the European Union.

"Ex-funcionário de empresa de disparo em massa mente a CPI e insulta repórter da Folha". 2020. *Folha de S.Paulo*, February 11. https://www1.folha.uol.com.br/poder/2020/02/ex-funcionario-de-empresa-de-disparo-em-massa-mente-a-cpi-e-insulta-reporter-da-folha.shtml.

Facebook. 2018. "Facebook lança produto de verificação de notícias no Brasil em parceria com Aos Fatos e Agência Lupa." *Facebook Newsroom*, May 10. https://about.fb.com/br/news/2018/05/facebook-lanca-produto-de-verificacao-de-noticias-no-brasil-em-parceria-com-aos-fatos-e-agencia-lupa/.

Faris, Robert, Hal Roberts, Bruce Etling, Nikki Bourassa, Ethan Zuckerman, and Yochai Benkler. 2017. *Partisanship, Propaganda, and Disinformation: Online Media and the 2016 U.S. Presidential Election*. Cambridge, MA: Berkman Klein Center Research Publication 2017-6. https://ssrn.com/abstract=3019414.

Farooq, Gowhar. 2017. "Politics of Fake News: how WhatsApp Became a Potent Propaganda Tool in India." *Media Watch* 9 (1): 106–117. doi:10.15655/mw/2018/v9i1/49279.

Ferreira, Ricardo Ribeiro. 2018. "Rede de mentiras: a propagação de fake news na pré-campanha presidencial brasileira." *Observatorio (OBS*)* 12 (5): 139–162. doi:10.15847/obsOBS12520181272.

Ferreira, Ricardo Ribeiro. 2019. "Desinformação em processos eleitorais: um estudo de caso da eleição brasileira de 2018." Master's diss., Universidade de Coimbra. https://estudogeral.sib.uc.pt/handle/10316/88690.

"Folha deixa de publicar conteúdo no Facebook". 2018. *Folha de S.Paulo*, February 8. https://www1.folha.uol.com.br/poder/2018/02/folha-deixa-de-publicar-conteudo-no- facebook.shtml.

Frier, Sarah, and Giulia Camillo. 2018. "WhatsApp Bans More Than 100,000 Accounts in Brazil Election." *Bloomberg*, October 19. https://www.bloomberg.com/news/articles/2018-10-19/whatsapp-bans-more-than-100-000-accounts-in-brazil-election.

Fuchs, Christian. 2016. "Racism, Nationalism and Right-Wing Extremism Online: The Austrian Presidential Election 2016 on Facebook." *Momentum Quarterly* 5 (3): 172–196. doi:10.15203/momentumquarterly.vol5.no3.p172-196.

Gabielkov, Maksym, Arthi Ramachandran, Augustin Chaintreau, and Arnaud Legout. 2016. "Social Clicks: What and Who Gets Read on Twitter?" Proceedings of the 2016 ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Science, Antibes Juan-les-Pins, June 2016. doi:10.1145/2896377.2901462.

Gadarian, Shana Kushner. 2014. "Scary Pictures: How Terrorism Imagery Affects Voter Evaluations." *Political Communication* 31 (2): 282–302. doi:10.1080/10584609.2013.828136.

Gibson, Rachel K., and Ian McAllister. 2011. "Do Online Election Campaigns win Votes? The 2007 Australian "YouTube" Election." *Political Communication* 28 (2): 227–244. doi:10.1080/10584609.2011.568042.

Grabe, Maria Elizabeth, and Erik Page Bucy. 2009. *Image Bite Politics: News and the Visual Framing of Elections*. Oxford: Oxford University Press.

Gragnani, Juliana. 2017. "Exclusivo: investigação revela exército de perfis falsos usados para influenciar eleições no Brasil." *BBC*, December 8. https://www.bbc.com/portuguese/brasil-42172146.

Habermas, Jürgen. 2006. "Political Communication in Media Society: Does Democracy Still Enjoy an Epistemic Dimension? The Impact of Normative Theory on Empirical Research." *Communication Theory* 16 (4): 411–426. doi:10.1111/j.1468-2885.2006.00280.x.

Hameleers, Michael, Thomas E. Powell, Toni G. L. A. Van Der Meer, and Lieke Bos. 2020. "A Picture Paints a Thousand Lies? The Effects and Mechanisms of Multimodal Disinformation and Rebuttals Disseminated via Social Media." *Political Communication* 37 (2): 1–21. doi:10.1080/10584609.2019.1674979.

Hern, Alex. 2018. "WhatsApp to Restrict Message Forwarding after India Mob Lynching." *The Guardian*, July 20. https://www.theguardian.com/technology/2018/jul/20/whatsapp-to-limit-message-forwarding-after-india-mob-lynchings.

Hern, Alex. 2019. Facebook's only Dutch factchecker quits over political ad exemption. *The Guardian*, November 27. https://www.theguardian.com/technology/2019/nov/27/facebook-only-dutch-factchecker-quits-over-political-ad-exemption.

Herring, Susan C. 2004. "Computer-mediated Discourse Analysis: An Approach to Researching Online Behavior." In *Designing for Virtual Communities in the Service of Learning*, edited by Sasha Barab, Rob Kling, and James H. Gray, 338–376. New York: Cambridge University Press.

Herring, Susan C. 2009. "Web Content Analysis: Expanding the Paradigm." In *The International Handbook of Internet Research*, edited by Jeremy Hunsinger, Lisbeth Klastrup, and Matthew Allen, 233–249. Dordrecht: Springer.

IFCN [International Fact-Checking Network]. 2015. "Code of principles." https://ifcncodeofprinciples.poynter.org/.

IPSOS. 2018. "Fake news, filter bubbles, post-truth and trust." https://www.ipsos.com/sites/default/files/ct/news/documents/2018-08/fake_news- report.pdf.

Iqbal, Humera. 2019. "Partisan Media Under Modi: Nationalism a Driving Force Behind Fake News in India." *Quarterly Journal of the Institute of Regional Studies, Islamabad* 37 (2): 3–40. http://irs.org.pk/journal/3RSSummer19.pdf#page=5.

Isaac, Mike. 2018. "Facebook Overhauls News Feed to Focus on What Friends and Family Share." *The New York Times*, January 11. https://www.nytimes.com/2018/01/11/technology/facebook-news-feed.html.

Jackson, Jasper. 2017. "In the post-truth era Sweden's far right fake fact checker was inevitable." *The Guardian*, January 19. https://www.theguardian.com/media/2017/jan/19/in-the-post-truth-era-swedens-far-right-fake-fact-checker-was-inevitable.

Keller, Franziska, B. David Schoch, Sebastian Stier, and JungHwan Yang. 2020. "Political Astroturfing on Twitter: How to Coordinate a Disinformation Campaign." *Political Communication* 37 (2): 256–280. doi:10.1080/10584609.2019.1661888.

King, Gary, Jennifer Pan, and Margaret E. Roberts. 2017. "How the Chinese Government Fabricates Social Media Posts for Strategic Distraction, not Engaged Argument." *American Political Science Review* 111 (3): 484–501. doi:10.1017/S0003055417000144.

Ladd, Jonathan M. 2012. *Why Americans Hate the Media and How It Matters*. Princeton: Princeton University Press.

Llewellyn, Clare, Laura Cram, Andrian Favero, and Robin L. Hill. 2018. "For Whom the Bell Trolls: Troll Behaviour in the Twitter Brexit debate." Cornell University Library. https://arxiv.org/abs/1801.08754.

Lukito, Josephine, Cheris Wells, Yini Zhang, Larissa Doroshenko, San Jung Kim, Su Min-Hsin, Jiyoun Suk, Yiaping Xia, and Deen Freelon. 2018. "*The Twitter exploit: How Russian propaganda infiltrated U.S. news*." Social Media and Democracy Research Group, University of Wisconsin—Madison. https://uwmadison.app.box.com/v/TwitterExploit.

Mack, David. 2018. "This PSA About Fake News From Barack Obama Is Not What It Appears." *BuzzFeedNews*, April 17. https://www.buzzfeednews.com/article/davidmack/obama-fake-news-jordan-peele-psa-video-buzzfeed.

Marietta, Morgan, and David C. Barker. 2019. *One Nation, Two Realities: Dueling Facts in American Democracy*. Oxford: Oxford University Press.

Marietta, Morgan, David C. Barker, and Todd Bowser. 2015. "Fact-Checking Polarized Politics: Does The Fact-Check Industry Provide Consistent Guidance on Disputed Realities?" *The Forum* 13 (4): 577–596. doi:10.1515/for-2015-0040.

Martineau, Paris. 2019. "Facebook Removes Accounts With AI-Generated Profile Photos." *Wired*, December 20. https://www.wired.com/story/facebook-removes-accounts-ai-generated-photos/.

Marwick, Alice, and Rebecca Lewis. 2017. *Media Manipulation and Disinformation Online*. New York: Data and Society Research Institute. https://datasociety.net/output/media-manipulation-and-disinfo-online.

Mayring, P. 2000. "Qualitative Content Analysis." *Forum: Qualitative Social Research* 1 (2): 1–10. doi:10.17169/fqs-1.2.1089. http://www.qualitative-research.net/index.php/fqs/article/view/1089/2386.

McMillan, Sally J. 2000. "The Microscope and the Moving Target: The Challenge of Applying Content Analysis to the World Wide Web." *Journalism and Mass Communication Quarterly* 77 (1): 80–98. doi:10.1177/107769900007700107.

McNair, Brian. 2009. "Journalism and Democracy." In *The Handbook of Journalism Studies*, edited by Karin Wahl-Jorgensen, and Thomas Hanitzsch, 237–249. New York: Routledge.

Mello, Patricia Campos. 2018. "Empresários bancam campanha contra o PT pelo WhatsApp." *Folha de S.Paulo*, October 18. https://www1.folha.uol.com.br/poder/2018/10/empresarios-bancam-campanha-contra-o-pt-pelo-whatsapp.shtml.

Mitra, Ananda, and Elisia Cohen. 1999. "Analyzing the Web: Directions and Challenges." In *Doing Internet Research: Critical Issues and Methods for Examining the net*, edited by Steve Jones, 179–202. Thousand Oaks: SAGE Publications.

Mueller, Robert S. 2019. *Report On The Investigation Into Russian Interference In The 2016 Presidential Election. Volume I*. Washington, DC: U.S. Department of Justice. https://www.justice.gov/storage/report.pdf.

Newman, Nic, Richard Fletcher, Antonis Kalogeropoulos, David A. L. Levy, and Rasmus Kleis Nielsen. 2017. *Digital News Report 2017*. Oxford: Reuters Institute for the Study of Journalism, University of Oxford.

Newman, Nic, Richard Fletcher, Antonis Kalogeropoulos, David A. L. Levy, and Rasmus Kleis Nielsen. 2018. *Digital News Report 2018*. Oxford: Reuters Institute for the Study of Journalism, University of Oxford.

Newman, Nic, Richard Fletcher, Antonis Kalogeropoulos, David A. L. Levy, and Rasmus Kleis Nielsen. 2019. *Digital News Report 2019*. Oxford: Reuters Institute for the Study of Journalism, University of Oxford.

Nielsen, Rasmus Kleis. 2014. *The Many Crises of Western Journalism: A Comparative Analysis of Economic Crises, Professional Crises, and Crises of Confidence*. Cambridge: Cambridge University Press.
Norris, Pippa. 2011. *Democratic Deficit: Critical Citizens Revisited*. Cambridge: Cambridge University Press.
Oliveira, Felipe. 2018. "Facebook chega a 127 milhões de usuários mensais no Brasil." *Folha de S.Paulo*, July 18. https://www1.folha.uol.com.br/tec/2018/07/facebook-chega-a-127-milhoes-de-usuarios-mensais-no-brasil.shtml.
Ortellado, Pablo, and Márcio Moretto Ribeiro. 2018. "Mapping Brazil's Political Polarization Online." *The Conversation*, August 3. https://theconversation.com/mapping-brazils-political-polarization-online-96434.
Ostermeier, Eric. 2011. "Selection Bias? PolitiFact Rates Republican Statements as False at Three Times the Rate of Democrats." *Smart Politics*, February 10. https://editions.lib.umn.edu/smartpolitics/2011/02/10/selection-bias-politifact-rate/.
Rao, Shakuntala. 2018. ""Making of Selfie Nationalism: Narendra Modi, the Paradigm Shift to Social Media Governance, and Crisis of Democracy."." *Journal of Communication Inquiry* 42 (2): 166–183. doi:10.1177/0196859917754053.
Renner, Nausicaa. 2017. "Memes trump articles on Breitbart's Facebook page." *Columbia Journalism Review*, January 30. https://www.cjr.org/tow_center/memes-trump-articles-on-breitbarts-facebook-page.php.
Schudson, Michael. 2008. *Why Democracies Need an Unlovable Press*. Cambridge: Polity Press.
Shao, Chengcheng, Giovanni Luca Ciampaglia, Onur Varol, Alexandro Flammini, and Filipppo Menczer. 2017. "The spread of fake news by social bots." Cornell University Library. https://arxiv.org/abs/1707.07592v1.
Siapera, Eugenia. 2013. "Platform Infomediation and Journalism." *Culture Machine* 14: 1–28. https://culturemachine.net/wp-content/uploads/2019/05/509-1144-1-PB.pdf.
Silverman, Craig. 2016. "This Analysis shows How Fake Election News Stories Outperformed Real News on Facebook." *BuzzfeedNews*, November 16. https://www.buzzfeednews.com/article/craigsilverman/viral-fake-election-news-outperformed-real-news-on-facebook.
Silverman, Craig. 2018. "Eu ajudei a popularizar o termo "Fake News", mas hoje sinto calafrios ao ouvi-lo." *BuzzfeedNews*, January 12. https://www.buzzfeed.com/craigsilverman/historia-fake-news.
Silverman, Craig, and Lawrence Alexander. 2016. "How Teens in the Balkans are Duping Trump Supporters with Fake News." *Buzzfeed News*, November 3. https://www.buzzfeednews.com/article/craigsilverman/how-macedonia-became-a-global-hub-for-pro-trump-misinfo.
Silverman, Craig, and Jeremy Singer-Vine. 2016. "Most Americans Who see Fake News believe It, New Survey Says." *BuzzfeedNews*, December 7. https://www.buzzfeednews.com/article/craigsilverman/fake-news-survey.
Subramanian, Samanth. 2017. "Inside the Macedonian Fake-News Complex." *Wired*, February 15. https://www.wired.com/2017/02/veles-macedonia-fake-news/.
Swigger, Nathaniel. 2012. "What You See is What You Get: Drawing Inferences from Campaign Imagery." *Political Communication* 29 (4): 367–386. doi:10.1080/10584609.2012.722174.
Tardáguila, Cristina. 2018. "Atentado contra Bolsonaro: pega fogo a luta contra imagens falsas no Facebook." *Agência Lupa*, September 10. https://piaui.folha.uol.com.br/lupa/2018/09/10/imagens-falsas-atentado-bolsonaro/.
Tucker, Joshua A., Andrew Guess, Pablo Barberá, Cristian Vaccari, Alexandra Siegel, Sergey Sanovich, Denis Stukal, and Brendan Nyhan. 2018. "Social Media, Political Polarization, and Political Disinformation: A Review of the Scientific Literature." *SSNR: 1–95*. doi:10.2139/ssrn.3144139.
Turollo, Jr., Reynaldo. 2019. "Investigação eleitoral sobre disparos em massa pelo WhatsApp engatinha no TSE." *Folha de S.Paulo*, July 18. https://www1.folha.uol.com.br/poder/2019/06/investigacao-eleitoral-sobre-disparos-em-massa-pelo-whatsapp-engatinha-no-tse.shtml.
Uscinski, Joseph E. 2015. "The Epistemology of Fact Checking (Is Still Naïve): Rejoinder to Amazeen." *Critical Review* 27 (2): 243–252. doi:10.1080/08913811.2015.1055892.
Uscinski, Joseph E., and Ryden W. Butler. 2013. "The Epistemology of Fact Checking." *Critical Review* 25 (2): 162–180. doi:10.1080/08913811.2013.843872.

Vraga, Emily K., and Leticia Bode. 2017. "Using Expert Sources to Correct Health Misinformation in Social Media." *Science Communication* 39 (5): 621–645. doi:10.1177/1075547017731776.

Wakeford, Nina. 2000. "New Media, new Methodologies: Studying the Web." In *Web.Studies: Rewiring Media Studies for the Digital age*, edited by David Gauntlett, 31–42. London: Arnold.

Wardle, Claire, and Hossein Derakhshan. 2017. *Information Disorder: Toward an Interdisciplinary Framework for Research and Policy Making*. Strasbourg: Council of Europe.

Waterson, Jim. 2019. "Tories Pretend to be Factchecking Service during Leaders' Debate." *The Guardian*, November 19. https://www.theguardian.com/politics/2019/nov/19/tories-tweet-anti-labour-posts-under-factcheckuk-brand.

Weedon, Jean, William Nuland, and Alex Stamos. 2017. "Information Operations and Facebook." *Facebook*, April 27. https://fbnewsroomus.files.wordpress.com/2017/04/facebook-and-information-operations-v1.pdf.

WhatsApp. 2019. "More Changes to Forwarding." *WhatsApp Blog*, January 21. https://blog.whatsapp.com/10000647/More-changes-to-forwarding?lang=en.