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MISINFORMATION, DISINFORMATION, AND MALINFORMATION: CLARIFYING THE DEFINITIONS AND EXAMPLES IN DISINFODEMIC TIMES

Informação incorreta, desinformação e má informação: Esclarecendo definições e exemplos em tempos de desinfodemia

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ABSTRACT

Objective: It describes and analyzes the theoretical-practical incidences of misinformation, disinformation, and malinformation, including but not limited to the Information Science framework. Besides, it aims to outline an understanding of these three concepts based on 16 arrangements interconnected according to their intentionality.
Methods: To build discourses and descriptions of the phenomenon of misinformation and its derivations, we applied the hermeneutical, rhetorical, and phenomenological principles of intentionality as our work methods.
Results: As a result, we present some theoretical incidences to clarify these three concepts, in addition to outlining and characterizing, according to the intentionality, 16 mis-, dis-, mal- information arrangements associated with these three concepts: bias, propaganda, retracted papers, conspiracy theories, misleading representation in maps, charts and graphics, fake news, clickbait, hoax, satire or parody, imposter website, fake reviews, phishing, filter bubbles, and echo chambers.
Conclusions: We highlight that the complexity that permeates the various fields in the present situation is due to the difficulty of reaching a consensus on the semantic definition of the concepts of information, misinformation, and its disambiguations since these concepts have various properties.
KEYWORDS: Misinformation. Disinformation. Malinformation. Disinfodemic. Infodemic. Intentionality.

RESUMO

Objetivo: Descreve e analisa as incidências teórico-práticas da informação incorreta (*misinformation*), desinformação (*disinformation*) e má informação (*malinformation*), incluindo, mas não se limitando ao arcabouço da Ciência da Informação. Além disso, objetiva delinear uma compreensão desses três conceitos a partir de 16 arranjos interligados de acordo com sua intencionalidade.
Método: Para construir discursos e descrição do fenômeno da desinformação e suas derivações, aplicamos a hermenêutica, a retórica e os princípios fenomenológicos da intencionalidade como métodos de trabalho.
Resultados: Como resultados, apresentamos 14 incidências teóricas com o objetivo de esclarecer esses três conceitos, além de delinear e caracterizar, de acordo com a intencionalidade, 16 arranjos de desinformação associados a esses três conceitos, sendo eles: viés de confirmação, propaganda, artigos retratados, teorias da conspiração, representação enganosa em mapas, quadros e gráficos, notícias falsas, caça-cliques, trote, sátira ou paródia, website impostor, revisões falsas, phishing, filtros-bolha e câmaras de eco.
Conclusões Destaca-se a complexidade que permeia os vários campos da conjuntura atual relacionada à dificuldade de um consenso sobre a definição semântica dos conceitos de informação, desinformação e suas desambiguações, uma vez que estes conceitos também possuem inúmeras propriedades.
PALAVRAS-CHAVE: Informação incorreta. Desinformação. Má Informação. Desinfodemia. Infodemia. Intencionalidade.

1 INTRODUCTION

The history of humanity has been marked and divided by wars. The information society had its boom in the development of telecommunications, information technologies, and informatics based on information and knowledge, but now it is witnessing the opposite — the era of information wars (MCLUHAN, 1970; STENGEL, 2019). In this circumstance, the significance evolution of misinformation meaning, associated with his delivery forms and intentionalities, has given rise to two disambiguation, which are associated with the information phenomenon itself — disinformation and malinformation.

Conspiracy theories, fake news, clickbait, rumors, and hoaxes are just a few examples of information disorders (WARDLE; DERAKHSHAN, 2018). In the current pandemic scenario of COVID-19, for instance, the mass mis-, dis- information practices, have made reappearance or given rise to new words, such as “infodemic” and “disinfodemic” (POSETTI; BONTCHEVA, 2020; ZAROCOSTAS, 2020). In this context, still in February 2020, when the peak of deaths and false news has not yet reached the current proportions[1], Dr. Tedros Adhanom Ghebreyesus, World Health Organization Director-General, at the Munich Security Conference, had already realized the impact of false and inaccurate information by saying that “we’re not just fighting an epidemic; we’re fighting an infodemic”.[2] (MUNICH…, 2020, p. 6).

According to Posetti and Bontcheva (2020, p. 2), the term disinfodemic refers to “the falsehoods fuelling the pandemic and its impacts” because “of the huge ‘viral load’ of potentially deadly disinformation that is described by the UN Secretary General as a poison, and humanity’s other ‘enemy’ in this crisis”. In this new scenario, Baines and Elliott (2020, p. 16) highlight that the first lessons learned of the COVID-19 infodemic are that: “(i) the infodemic is unprecedented in its size and velocity; (ii) unexpected forms of false information are emerging daily; and (iii) no global consensus exists on how best to classify the types of false messages being encountered”. In addition to other examples, one can assume that the world is facing a revolution in the post-custodial paradigm, which this essay will refer to as the **(mis)informational explosion**.

[1] As of February 2021, 2,533,323 deaths have been confirmed worldwide (According the COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University – available at https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6).

[2] According to Oxford Languages, infodemic is “a surfeit of information about a problem that is viewed as being a detriment to its solution”. To see more, visit: https://public.oed.com/updates/new-words-list-april-2020/

Going back a step in the history, we can observe that the exponential growth of information after World War II led to the creation of the metaphor information explosion coined in Vannevar Bush's 1945 paper *As We May Think*. Far ahead of his time, Bush proposed a hypothetical proto-hypertext system, called “memex” (**mem**ory **ex**tender), that would combine artificial intelligence through associative indexing, information storage, and retrieval, which is the reason that Vannevar Bush is considered the precursor of Information Science (BARRETO, 2002). Vannevar Bush's memex interpreted today by what would be the digital computer and its connections between other machines through the Web has made important advances possible. On the other hand, it has become a large superhighway spreading false information (FLORIDI, 1996). In this context, Akers *et al*. (2019, p. 1) points out that the “technology is increasingly used — unintentionally (misinformation) or intentionally (disinformation) — to spread false information at scale, with potentially broad-reaching societal effects”. In this sense, nowadays, to trigger an information war is needed “only computers and smartphones and an army of trolls and bots.” (STENGEL, 2019, p. 16).

Based on this understanding, we can point that the phenomena of mis-, dis-, mal-information grows as diverse and different communities explore the possibilities of creating, exploring, and editing information, which is part of the own democratization of access to knowledge, production, dissemination of information and freedom of expression, guaranteed by The Universal Declaration of Human Rights, in its Article 19. On the other hand, “but when the whole environment of public discourse becomes occupied and dominated by falsehood, it frustrates the primary purpose of freedom of expression.” (EUROPEAN PARLIAMENT, 2019, p. 79).

Indeed, is important to highlight that mis-, dis-, mal- information are not new phenomena, but its intensification, associated with the alterations in the information ecosystem and its development in the post-truth era indicates the importance of this object of study in Information Science.

Thus, the purpose of this essay is (1) to describe and analyzes the theoretical-practical incidences of mis-, dis-, mal- information, mainly, but not limited to the Information Science framework, exploring both hermeneutics and rhetoric to build discourses from the ontological analysis and description of the phenomenon of misinformation and its derivations; (2) outline and characterize 16 mis-, dis-, mal- information arrangements associated with these three concepts: bias, propaganda, retracted papers, conspiracy theories, misleading representation in maps, charts and graphics, fake news, clickbait,

hoaxes, satire or parody, imposter websites, fake reviews, phishing, political use of sensitive information, misuse of personal/confidential information, filter bubbles, and echo chambers.

In this exploratory essay, we applied the hermeneutic, rhetorical, and phenomenological principles of intentionality as works methods. Among the various reasoning for analysis, these work methods stand out due to their pragmatic characteristics. Among them, the motivations, and circumstances, such as the political, cultural, and economic scenarios of information production, come to constitute and consolidate the facts. Seminal studies using hermeneutics, for instance, have become fundamental steps in the establishment of the theoretical foundations of Information Science, and precedents of studies of mis-, dis-, mal- information (CAPURRO, 2000).

2 BACKGROUND

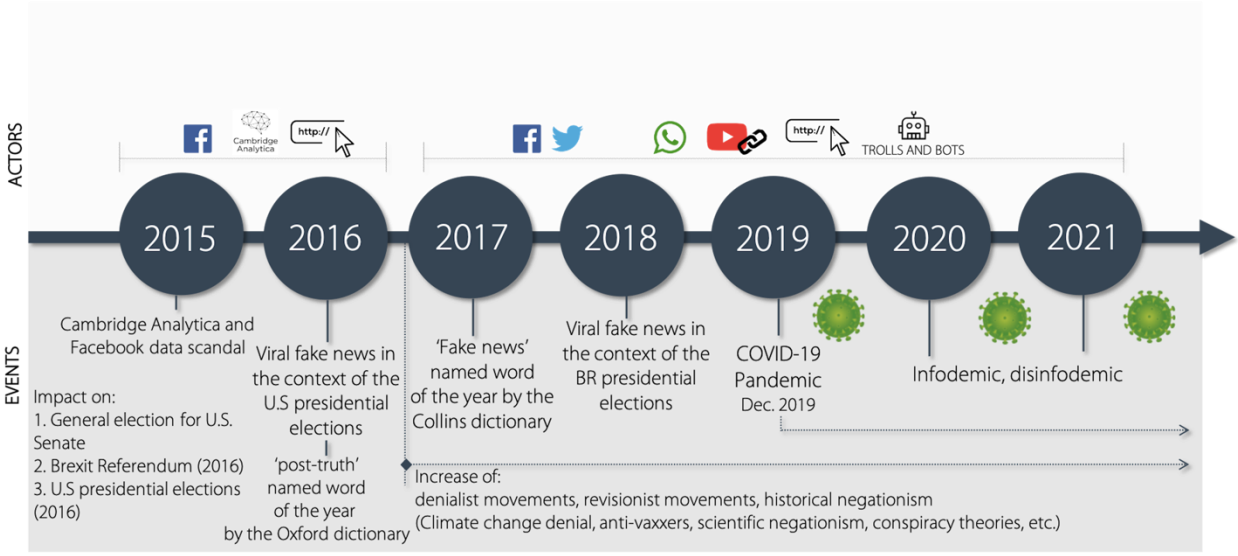
Mis-, dis-, mal- information cases can be found in many scenarios. As political strategy emerges, for instance, in scenarios such as the 2016 election campaign of the United States of America, Brexit in the United Kingdom, and, more recently, in the 2018 presidential elections in Brazil. Akers *et al*. (2019) classify that the current mis- and dis-information situation is due to six factors: (1) democratization of content creation, (2) rapid news cycle and economic incentives, (3) wide and immediate reach and interactivity, (4) organic and intentionally created filter bubbles, (5) algorithmic curation and lack of transparency, and (6) scale and anonymity in online accounts. To this extent, is also important to highlight that social media and other technological tools have changed and accelerated the dissemination of several issues related to the democratic public sphere (KARLOVA; FISHER, 2013; HINDS, 2019).

In an endeavor to understand some current mis-, dis-, mal- information phenomena, Hinds (2019, p. 14) points out that “a major problem nowadays, which still lacks research, is false information in private chat groups, either on WhatsApp or Facebook”. Hinds (*ibid*., p. 16) adds that “the victory of Bolsonaro in Brazil was highly influenced by a disinformation campaign going on in private chat groups of WhatsApp”. Indeed, in a report released by Quartz[3], Brazil was one of the countries that the rate of affirmation that “Facebook is the internet” was higher, with 55%, revealing literacy problems of even bigger, and regulatory problems. Figure 1 summarizes some key events, based on the last years, that allow us to

[3] Available on: https://bit.ly/3hSIVos Access on May 19, 2020.

perceive the use of mis-, dis-, and mal- information as a new war strategy that have direct impacts on society.

Figure 1 – some historical facts about mis-, dis-, mal- information over the last years



Source: The authors (2020).

However, mis-, dis-, mal- information tactics have been used since 1939, during World War Two, such as Operation Bodyguard. The plan was intended to deceive the German High Command as to the time and location of the D-Day invasion indicating that guns are not always the best way to win a war (FALLET, 2001; FALLIS, 2009; ROMERO-RODRIGUÉZ, 2014).

In its etymological sense, the inclusion of the word misinformation in dictionaries can be found from the year 1949 in the Russian language dictionary “Словарь русского языка”. In this context, the word *dezinformatsiya* or *dezinformatsia* (дезинформация) had by its first definition the action to mislead public opinion through the use and propagation of false information. This meaning, until then, defined by the Soviets, referred to the operations of intoxication carried out by the capitalist countries against the Union of Soviet Socialist Republics (URSS) (FALLET, 2001; ROMERO-RODRIGUÉZ, 2014). The mythological horse of Troy, narrated in Homer's “Iliad”, also serves as an example of disinformation. A huge wooden horse as a symbol of peace, which was hollow and full of Greek soldiers against the Trojans.

From the Information Science perspective, the interrelationship between information and misinformation domains is observed in Capurro (1992, p. 5) by saying "information and misinformation are, in some way, pseudonyms" and that "Information Science is the

science of information and misinformation" (*ibid*., p. 6). According to Capurro (1992) information science, conceived as a hermeneutic-rhetorical discipline, studies the *contextual* pragmatic dimensions within which knowledge is shared *positively* as information and *negatively* as misinformation particularly through technical forms of communication (Capurro, 1992, p.6).

In this rationale, Schrader (1986, p. 179 apud CAPURRO) further explains that the definition absence about the negative form misinformation and its derivatives such as “lies, propaganda, misrepresentation, gossip, delusion, hallucination, illusion, mistake, concealment, distortion, embellishment, innuendo, deception” in the Information Science, may “leads to a ‘naïve model of 'information man’, which sometimes takes the form of decision-making man or uncertainty man”. So, the current informational context, based not only on true information but also on misinformation, disinformation, and malinformation, places us before a new paradigm and the need to study this domain.

3 CLARIFYING THE DEFINITIONS AND EXAMPLES

In a broad sense, misinformation can assume many meanings. Hence, this essay highlights three disambiguation: **misinformation**, **disinformation** (FLORIDI, 1996, 2005, 2007, 2011; FALLIS, 2009, 2011, 2014, 2015; KARLOVA; LEE, 2012; KARLOVA; FISHER, 2013) and **malinformation** (BURBULES, 1997; WALKER, 2019; WARDLE; DERAKHSHAN, 2017, 2018; BAINES; ELLIOTT, 2020).

As a starting point, it is important to highlight two main features related to the definition of information and its associations with **truth** and **intentionality**, whose propositions have a direct effect on the interpretations of these concepts. In this regard, perhaps, the best-known discussions around the ontological-semantic properties of information – that Søe (2019) called by a metalinguistic disagreement – about misinformation, disinformation, and its relations with veracity, falsity, and neutral are led by Luciano Floridi and Don Falis. In this arena, Søe (2019) summarizes that Fallis (2009, 2011, 2014, 2015), as well as in the discussions previously held by Fox (1983), Fetzer (2004), Scarantino and Piccinini (2010) defend that information is alethically neutral, where any meaningful data counts as information and does not require truth. On the other hand, Floridi (2007 p. 40) states that “information encapsulates truth, and hence that false information fails to qualify as information at all”. Søe (2019, p. 7), by analyzing what she

calls that Floridian Dilemma[4], argues that “Floridi’s distinction between information as true, and misinformation and disinformation as false, collapses due to the possibility of true misinformation and true disinformation”, as well as Karlova and Fisher (2013, p. 3) argue that Fallis' analysis “builds further support for a subjective, constructionist view of information, as articulated by Hjørland (2007)”.

Looking beyond the verbal dispute[5], we agree that the crucial point for defining the three concepts (misinformation, disinformation, and malinformation) is to discuss them around their intentionality, since that all the three concepts are associated with the intentionality of the action.

Miranda (2018), for instance, states intentionality has an intentional state (need, desire, belief), which, in turn, has an adjustment direction. The adjustment direction determines the conditions of satisfaction of a subject when he reaches a propositional content, that is, the desired information. Manipulations are carried out so that the conditions of satisfaction are adjusted to the propositional content. But some statements of propositional content, even if they have intentionality, can be false. Having intentionality does not guarantee that the conditions of satisfaction are achieved, as the information referred to by the propositional content may not exist. In this case, manipulation occurs as an action applied to the variables of mis-, dis-, mal- information. Besides, that information is directed by intentionality stemming from the notions of network and background, which in turn, determines the conditions of satisfaction and the need for adjustments to determining the direction of information mapping (MIRANDA, 2019).

Still about the intentionality, Ilharco (2004, p. 46) discusses information problems and indicates an association of the phenomenon with the action, questioning “whether the action precedes the information or the opposite?”[6]. Indeed, there is a relationship between communication and information according to the Mathematical Theory of Information created in the 1940s by Shannon and Weaver, for the reduction of uncertainty, associated with the practices of information retrieval.

Thus, Chart 1 summarizes the theoretical incidences used to clarify the features contained in mis-, dis-, mal- information concepts.

[4] “the dilemma that the notion of semantic information as inherently truthful and independent of informees, as opposed to misinformation and disinformation as false semantic content” (SØE, 2019, not paged).

[5] According the *Chalmers’s framework* seen in Søe (2019).

[6] In the original: “A acção precede a informação ou o contrário?”.

Chart 1 – Theoretical incidences about mis-, dis-, and mal-information concepts

	Author	Author's understanding
Misinformation	Fox (1983)	"misinformation is a species of information, just as misinforming is a species of informing … informing does not require truth and information need not be true; but misinforming requires falsehood, and misinformation must be false" (p. 193).
	Floridi (2005)	"false information", i.e. misinformation, is merely pseudo-information" (p. 352).
	Floridi (2011)	"misinformation is 'well-formed and meaningful data (i.e. semantic content) that is false" (p. 260).
	Karlova and Lee (2012)	"misinformation may also be uncertain (perhaps by presenting more than one possibility or choice), vague (unclear), or ambiguous (open to multiple interpretations). Misinformation, however, may still be true, accurate, and informative, depending on the context, and therefore, meet many of the same qualifications accepted for information" (p. 3).
	Fallis (2014)	"Inaccurate information (or *misinformation*) can mislead people whether it results from an honest mistake, negligence, unconscious bias, or (as in the case of disinformation) intentional deception" (p. 1).
Disinformation	Fallis (2009)	"First of all, in order to disinform, you have to intend to deceive someone" (p. 3). "It is also worth noting that you must intend to deceive and not just intend to disseminate false information" (p. 3).
	Floridi (2011)	"Disinformation' is simply misinformation purposefully conveyed to mislead the receiver into believing that it is information" (p. 260).
	Floridi (2011)	"Disinformation arises whenever the process of information is defective. This can happen because of: (a) a lack of objectivity, as in the case of propaganda; (b) a lack of completeness, as in a case of *damnatio memoriae;* and (c) a lack of pluralism, as in the case of censorship" (p. 509).
	Karlova and Fisher (2013)	"Disinformation is deliberately deceptive information. The intentions behind such deception are unknowable, but may include socially-motivated, benevolent reasons […] and personally-motivated, antagonistic reasons" (p. 3).
	Fallis (2014)	"Disinformation is a type of information" (p. 137). "disinformation is particularly dangerous because it is no accident that people are misled. Disinformation comes from someone who is actively engaged in an attempt to mislead" (p. 136).
Malinformation	Walker (2019)	"genuine information that is shared to cause harm" (p. 232).
	Burbules (1997)	"potentially dangerous or damaging information; inappropriate information; information people feel uncomfortable with in openly accessible circulation" (p. 113).
	Wardle and Derakhshan (2018)	"information, that is based on reality, but used to inflict harm on a person, organisation or country" (p. 44).
	Baines and Elliott (2020)	"'malinformation' requires both intention and equivalence and often involves a repurposing of the truth value of information for deceptive ends" (p. 12).

Source: The authors.

Hence, Karlova and Fischer (2013, p. 5), knowing that “human intentionality is typically vague and mercurial”, and that “the diffusion of inaccurate and deceptive information may be motivated by benevolent or antagonistic intents, but the nature or degree of the intent cannot be determined solely by behaviour or discourse”, offer five features for evaluation of information, misinformation, and disinformation through their informativeness. Chart 2 shows these adapted features adding the malinformation concept as discussed, observing these same characteristics.

Chart 2– Features of mis-, dis-, mal- information

	Information	**Misinformation**	**Disinformation**	**Malinformation**
True	Y/N	Y/N	Y/N	Y
Complete	Y/N	Y/N	Y/N	Y/N
Current	Y/N	Y/N	Y/N	Y/N
Informative	Y	Y	Y	Y
Deceptive	Y/N	Y/N	Y	N

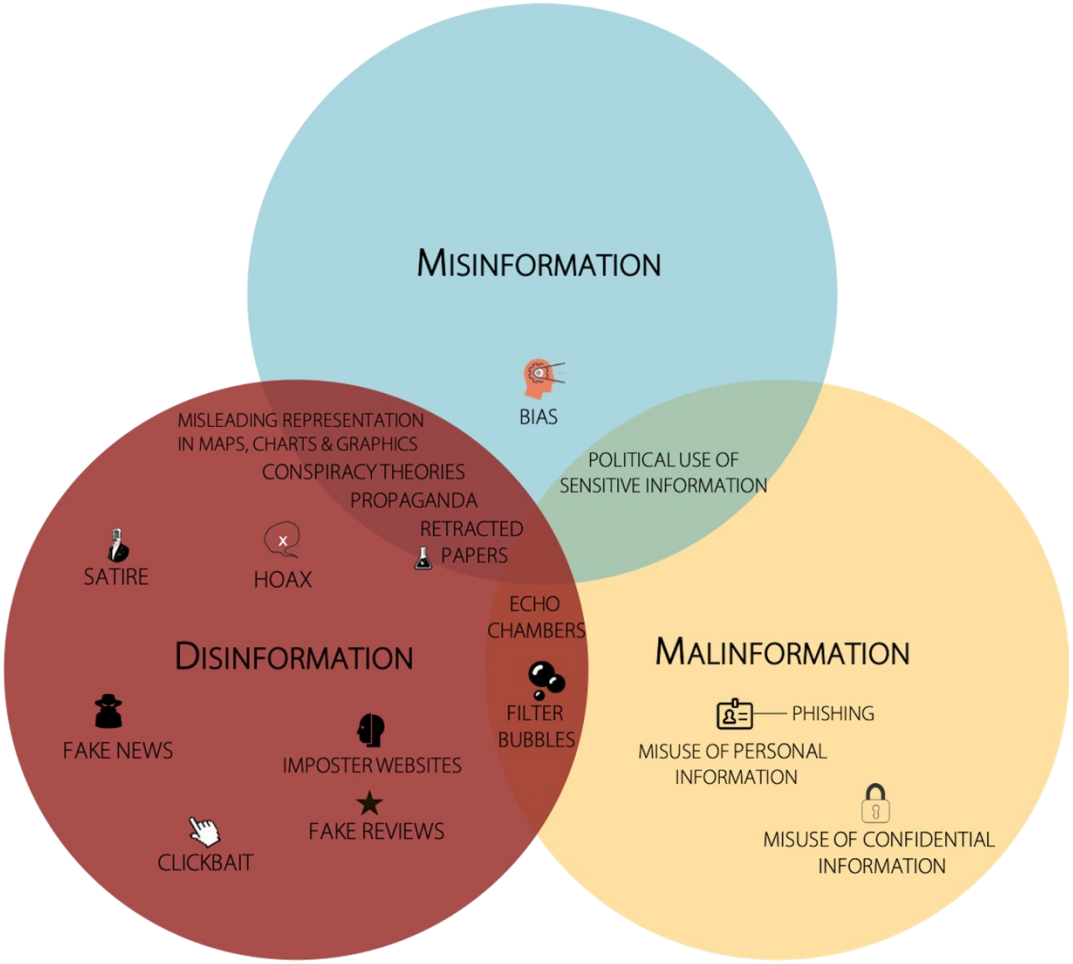
Caption: Y = Yes; N = No; Y/N = Could be Yes and No, depending on context and time.
Source: Adapted from Karlova and Fisher (2013).

For interpretative purposes, based on the understandings presented in the Chart 2, we assume in this essay that (1) misinformation, disinformation, and malinformation are a type of information, regardless of the characteristics indicated by Karlova and Fisher (2013) – if are true, complete, current, informative, deceptive, or not, as already foreseen in Fox (1983), Karlova and Lee (2012), and Fallis (2014). Hence, (2) misinformation is imprecise information, open to multiple comprehensions and uses; (2) disinformation is information deliberately deceptive, intending to deceive or not; and (3) malinformation is the sensitive information (true) that is strategically used to cause advantage. The next subsection provides some examples.

3.1 Misinformation, disinformation, and malinformation examples

The universe of this essay is composed of 16 types of dis/mis/mal-information arrangements associated with these three concepts. Figure 2 illustrates these 16 arrangements, according to the intentionality of each one, including, but not limited to considerations made by Fallis (2014, 2015) Rubin, Chen, and Conroy (2016), Wardle and Derakhshan (2017, 2018), Disinformation… (2018), and Zannettou *et al.* (2019).

Figure 2 – Practical incidences about mis-, dis-, mal-information according to their intentionality



Source: The authors (2020).

3.1.1 Disinformation arrangements

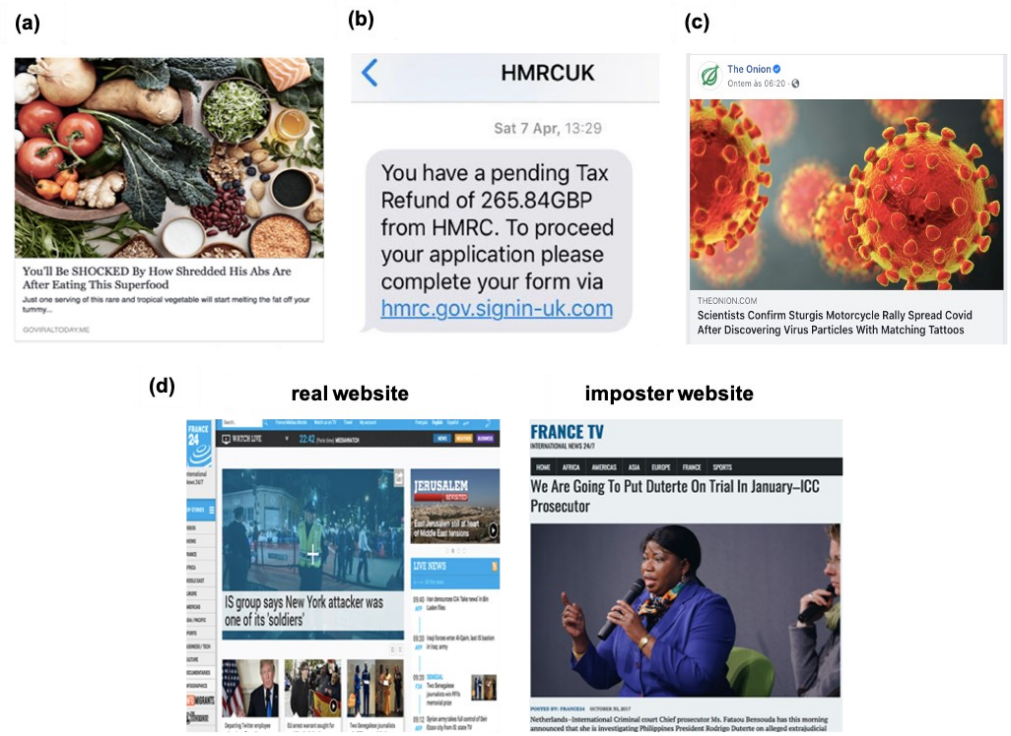
Fake News. Since the U.S. presidential elections in 2016, the term fake news has gained prominence as a disinformation device and even named word of the year 2017 by Collins dictionary. Another example involving fake news in political campaigns happened recently in the Brazilian presidential elections. Tardáguila, Benevenuto, and Ortellado (2018) found that among 100,000 images disclosed in WhatsApp, only 8% were true, and more than half contained misleading or flatly false information. According to Barclay (2018, p. 6), fake news is “information that is completely fabricated for the purpose of either making money or advancing a particular political or social agenda, typically by discrediting others”. However, it is important to emphasize that the term fake

news has been used by politicians “as a weapon to attack a free and independent press” as Wardle (2019, n.p.) points out. In this sense, Rubin, Chen, and Conroy (2016) classify three types of fake news: **exposed fabrications**, **hoaxes**, and **news satire**. An exposed fabrication example is the yellow press and its unverified articles, which, through **clickbait** (Figure 3a) and sensationalist articles, aim to increase its traffic and consequently generate profit.

Hoaxes. According to Rubin, Chen, and Conroy (2016, p. 3), a hoax is “another type of deliberate fabrication or falsification in the mainstream or social media”. Rumors, fake graphics or tables, false attribution of authorship, dramatic images, etc., are examples of hoaxes (Figure 3b).

News satire or **parody**. Can be found as humorous news websites based on irony, often in a mainstream format, such as 'The onion' website in Figure 3 (c). In some cases, if readers are not aware of the humorous slant intended, such news may be a source of misinformation. It is important to point out that they should not be mistaken for an imposter website, whose deliberate intention is to deceive or confuse by copying a traditional media source, such as can be observed in Figure 3 (d).

Figure 3 – Clickbait, hoax, satire, and imposter website examples



Source: Screenshots of (a) Facebook advertisement (2017); (b) www.gov.uk (2019); (c) *The Onion* webpage at Facebook (2020); (d) verafiles.org/articles/vera-files-fact-check-news-dutertes-icc-trial-fake (2017).

Fake reviews. Regarding fake reviews as a disinformation tool, examples can be found in e-commerce platforms (KUMAR; SHAH, 2018) where they are used to influence the purchasing of products and services. In this respect, the authors have demonstrated that humans are not always able to discern misleading opinions. Cases of fake reviews can also be found in the peer-review process of science communication, such as the fraudulent peer-review case that led to three articles from the same authors being retracted (ENAGO, 2018).

3.1.2 Mis-, dis-information arrangements

The categorization of the following mis- and dis-information arrangements was conducted considering the ambiguity of their intentionality:

- **Bias**. The phenomenon of bias and its inter-relations has been studied for a long time and in several areas. According to Gackowski (2006, p. 735), "bias may occur in all types of information, although in passive information its source is ignorance; hence, it is classed as an aspect of misinformation". Some examples are belief bias, confirmation bias, and anchoring.
- **Propaganda**. As a mis/dis-information device, propaganda is closely correlated with the memory-history binomial because it is commonly used as a dangerous persuasive political tool to shape a large-scale opinion. The discourse made to influence people has an intrinsic relationship with the knowledge of reality so that it can differentiate what is true and what is not. According to Fallet (2001), this form of manipulation uses Pavlov's theory of conditioned response that pairs a stimulus with a conditioned response. Through the emotional appeal used to trigger emotions at the expense of reason, propaganda has become a modern and postmodern weapon. An example of this was the Nazi propaganda that by using anti-Semitic defamation wiped out millions of Jews. It is important to highlight that propaganda does not always take on a negative connotation and is not always a lie (FALLET, 2001). It is also important to highlight that propaganda "does not necessarily have to originate from a government or other organization" (BARCLAY, 2018, p. 34).
- **Retracted Papers**. As to the mis/dis-information phenomenon in scholarly communication, retracted papers demonstrate that mis/dis-information is not exclusive to political and economic scenarios or daily life (SANTOS-D'AMORIM;

MIRANDA; CORREIA, 2020). Retractions present two approaches according to intentionality: unintentional (misinformation — e.g., methodological, analysis, and data error) and intentional (disinformation, — e.g., plagiarism, image manipulation, fabrication, and forged authorship). Articles retracted by deliberate fraud as well as honest mistakes that may be on a large scale undermine confidence in science (JAMIESON, 2018). However, this is not a new phenomenon. In the scientific field, one of the first significant frauds became known as the Piltdown man, where about 100 years ago a hominid fossil was forged by joining fragments of an orangutan's jaw to a human skull that was supposed to reveal facts about the evolution of man. This fraud took about 40 years to be detected and its author was only identified in 2016. One hundred years after his death, about 500 works were backed by this false discovery, which hampered studies such as the Australopithecus africanus in 1920, the first one of a true humanoid species, delaying the development of science for several years (MILLAR, 1972).

- **Conspiracy theories**. At first glance, conspiracy theories might sound pathetic, however, they "have the potential to cause harm both to the individual and the community", (KLEIN; CLUTTON; DUNN, 2019, p. 1), just as the anti-vaccine movement. For instance, Ball (2020, p. 1) highlights that the "anti-vaccine movement could undermine efforts to end coronavirus pandemic". Thus, the popularization of social media and internet forums increases and amplify discussions about conspiracy theories, challenging even already consolidated scientific discoveries, such as the flat-Earth conspiracy.
- **The incorrect use of maps, charts, and graphics**. Sampling bias, truncated axis distortion, deceptive visualizations, (PELTIER, 2011), changes in time span (HUFF, 1993), and 3D Optical illusion (CUDMORE, 2014) are examples of misleading representations with the attempt to support arguments. In this context, Tufte's Lie Factor (TUFTE, 1983), can be used to warrant the integrity of a graphic, represented by the equation

$$Lie\ Factor\ = \frac{\text{size of the effect in the visual}}{\text{size of the effect in the data}}$$

Hence, according Tufte (1983, p. 57)

> if the Lie Factor is equal to one, then the graphic might be doing a reasonable job of accurately representing the underlying numbers. Lie Factors greater than 1.05 or less than .95 indicate substantial distortion, far beyond minor inaccuracies in plotting.

> The logarithm of the Lie Factor can be taken in order to compare overstating (log LF > 0) with understating (log LF < 0) errors. In practice almost all distortions involve overstating, and Lie Factors of two to five are not uncommon.

Nowadays, the incorrect use of charts and graphics, particularly, can be found in the current pandemic scenario, many times used to shape public opinion on certain topics of interest, and are constituted as an object of study increasingly studied in different fields.

3.1.3 Dis-, mal- information and mis-, mal-information arrangements

In this subsection, the arrangements can assume a dis-, mal- information way or/and a mis-, mal-information way:

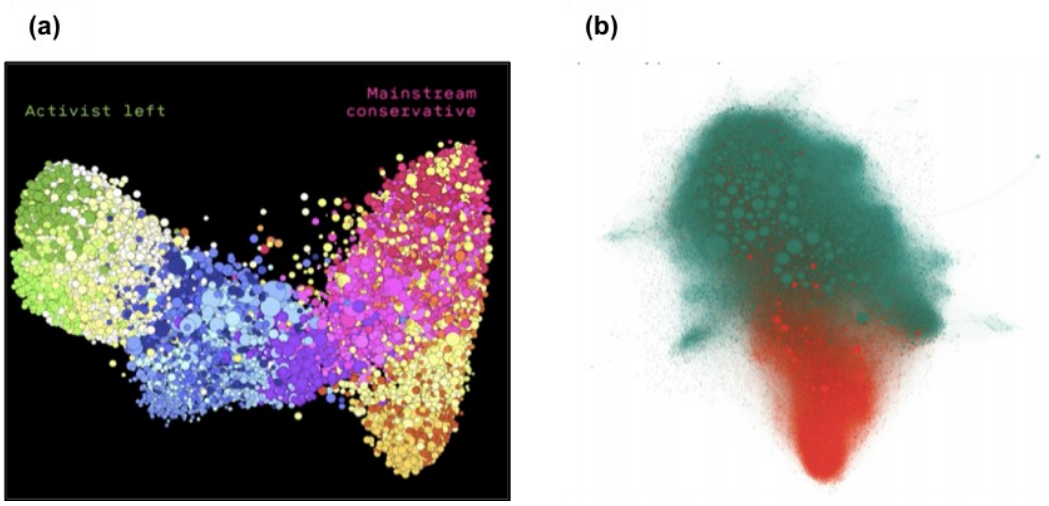
Phishing. As a malinformation device, phishing is a type of misuse of personal and/or confidential information. Theft of personal information by copying a popular website and inserting personal data has become a common tool. According to Apte, Palshikar, and Baskaran (2019), identity theft, attempt to tarnish a reputation, profile cloning, denying access to e-mail, and financial loss are, for example, results of phishing.

Filter bubbles. As dis/mal-information device, filter bubbles (algorithm-based) can amplify and at the same time isolate viewpoints and narratives spreading misinformation. In the information flood age (GLEICK, 2011), filter bubbles appear as a tool for content personalization through invisible algorithms provided by web search engines and social media, creating a personal ecosystem of information (PARISER, 2011). Figure 4 (a) represents an example of this, reported by Kelly and François (2018), illustrating the US political spectrum on the eve of the 2016 elections on Twittersphere. In this figure, it is possible to see a clear polarization, represented by the small colored groups that divide opinions on not such small lines between the left-wing activists and the main conservatives.

Echo chambers. Echo chambers emerge as one increasingly has an emotional relationship with information rather than a rational one (WARDLE, 2019). According to Karlsen (2017, p. 258) “people have a tendency to favour information that reinforces their preexisting views”, thus, as a result of this selective exposure, echo chambers can maximize ideological polarization, reinforcing different types of intolerance as well as spreading false information (KUMAR; SHAH, 2018). An observational study made by Dunn *et al.* (2015, p. 7) involving a network of 30,621 users in Twitter found that “twitter users who were more often exposed to negative opinions about the safety and value of HPV vaccines were more likely to tweet negative opinions than users who were more

often exposed to neutral or positive information", as shown in Figure 4 (b). The orange clusters represent a majority of negative tweets, cyan clusters represent the users exposed to mostly neutral/positive tweets, while the gray clusters represent those users not exposed to HPV vaccine tweets.

Figure 4 – Real examples of filter bubbles (left) and echo chamber (right)



Source: Kelly and François (2018) (left) and Dunn *et al*. (2015) (right).

- **Political use of sensitive information**. Nowadays it is possible to identify highly complex relationships involving mis/mal-information and dis/mal-information devices at the same time, as observed in the ongoing pandemic scenario of the Severe Acute Respiratory Syndrome (SARS-CoV-2) caused by the new coronavirus (COVID-19), where some political opinions have affected the scientific criteria for containment measures worldwide, as in the case of vaccines, for example. "Exaggerations to make a point, or purposely inflating or deflating numbers" exemplified by Keiser (2019, p. 27) reminds the case of Brazil, in which the Federal Government - in what they called a change of methodology - changed the format of the disclosure of the pandemic statistics in the country (PHILLIPS, 2020).
- **Misuse of personal/confidential information**. A malinformation device example was the Cambridge Analytica and Facebook data scandal that involved the data collection that influenced the U.S. Presidential Election Results 2016. The unprecedented data breach involved a harvest of private information over 50 million Facebook profiles. Thus, based on this matter, issues about user data privacy and data protection have been raising to the present (CADWALLADR; GRAHAM-HARRISON, 2018; ISAAK; HANNA, 2018).

4 CONCLUDING REMARKS

In conclusion, based on the considerations discussed in this essay, as an attempt to clarify mis-, dis-, mal-information concepts, (1) we presented 14 theoretical definitions distributed among the three concepts discussed, exploring hermeneutics, rhetoric, and the phenomenological principles of intentionality as works methods to build discourses and descriptions of the phenomenon of misinformation and its derivations; and (2) we outlined an understanding of practical misinformation, disinformation, and malinformation concepts, based on 16 arrangements interconnected with these three concepts, according to your intentionality.

Given the complexity that permeates the various fields of the current conjuncture, as well as the difficulty of a consensus on the semantic definition of information, as already seen in Shannon (1993, p.180) by saying that “it is hardly to be expected that a single concept of information would satisfactorily account for the numerous possible applications of this general field”, we can observe the same difficulty related a consensus on the semantic definition about the terms of mis-, dis-, mal-information. This is due to the fact that misinformation, disinformation, and malinformation, as well as information, have also numerous properties that indicate their causes and use. Therefore, incorrect, misleading, or uncertain information may present many possibilities and be open to multiple interpretations.

Over the 16 arrangements presented - bias, propaganda, retracted papers, conspiracy theories, misleading representation in maps, charts, and graphics, fake news, clickbait, hoaxes, satire or parody, imposter websites, fake reviews, phishing, political use of sensitive information, misuse of personal/confidential information, filter bubbles, and echo chambers - we can summarize that our view about misinformation, disinformation, malinformation is that the three are **types of information**, each with multiple use possibilities, according to the intentionality. Hence, (i) misinformation is inaccurate information, open to multiple comprehensions and uses, being the prefix mis–, an indication of mistake or something wrong. (ii) disinformation is information deliberately deceptive, intending to deceive; and (iii) malinformation is the sensitive information that is strategically used to cause advantage, whether personal or institutional.

We can also infer that the phenomena of misinformation, disinformation, malinformation, and its derivations, occur as incessant actions in search of the conditions of satisfaction in reaching the intentionality of propositional content, that is, the needs of specific groups in search of the information so desired.

Finally, we can point out some perspectives for further works in Information Science, such as a possible understanding of regulation and co-regulation of the digital environment, and regulation tools for the web in the next electoral scenario, besides the critical thinking issues perspectives. To think beyond truth and non-truth binaries values (DEVINE, 2018; SØE, 2019), besides seek to join transdisciplinary efforts with other fields of knowledge can also set itself up as one of the ways for solving real problems on the spectrum of misinformation and its effects on society. Thus, Information Science revisits its first proposal: to act with social responsibility in this technological and informational paradigm, and now, in the era of information wars and the misinformational explosion age.

REFERENCES

AKERS, J. *et al*. Technology-Enabled Disinformation: Summary, Lessons, and Recommendations. **arXiv.org**, [*S. l.*], v. 1, 2019. Available at: https://arxiv.org/abs/1812.09383. Access on May 28, 2020.

APTE, M.; PALSHIKAR, G.; BASKARAN, S. Frauds in online social networks: A review. *In*: ÖZYER, T. *et al*. (ed.). **Social Networks and surveillance for Society**. Switzerland: Springer International Publishing AG, 2019.

BALL, P. Anti-vaccine movement might undermine pandemic efforts. **Nature**, London, v. 581, p. 251, 2020. Available at: https://www.nature.com/articles/d41586-020-01423-4. Access on May 17, 2020.

BAINES, D.; ELLIOTT, R. J.R. Defining misinformation, disinformation and malinformation: An urgent need for clarity during the COVID-19 infodemic**. Discussion Papers**, p. 20-06, 2020.

BARCLAY, D. A. Confronting the Wicked Problem of Fake News: A Role for Education? **Cicero Foundation Great Debate Paper**, n.18/03, 2018. Available at: http://www.cicerofoundation.org/lectures/Donald_Barclay_Confronting_Fake_News.pdf. Access on January 27, 2020.

BARRETO, A. A. Condição da Informação. **São Paulo em Perspectiva**, São Paulo, v. 16, n. 3, p. 67-74, 2002. Available at: https://doi.org/10.1590/S0102-88392002000300010. Access on December 22, 2019.

BURBULES, N. Struggling with the World Wide Web. **Campus Review**, [s. *l.*], v. 19, p. 20-22, 1997.

CADWALLADR, C.; GRAHAM-HARRISON, E. Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach. **The Guardian**, London, 17 Mar. 2018. Available at: https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election. Access on Mar. 13, 2020.

CAPURRO, R. What is information science for? A philosophical reflection. *In*: VAKKARI, P.; CRONIN, B. (ed.). **Conceptions of library and Information Science: Historical, empirical and theoretical perspectives**. London: Taylor Graham, 1992. p. 82-98.

CAPURRO, R. Hermeneutics and the Phenomenon of Information. *In:* MITCHAM, C. (ed.). **Metaphysics, Epistemology, and Technology. Research in Philosophy and Technology**. Amsterdam: JAI/Elsevier Inc, 2000. v. 19, p. 79-85.

CUDMORE, B. Five Ways to Lie with Charts. **Nautilus**, [*S. l.*], n. 19, 6 Nov. 2014. Available at: http://nautil.us/issue/19/illusions/five-ways-to-lie-with-charts. Access on December 30, 2019.

DEVINE, N. Beyond Truth and Non-truth. *In*: PETERS, M. A. *et al.* (ed.) **Post-Truth, Fake News**. Springer: Singapore, 2018, p. 161-168.

DISINFORMATION and 'fake news': Interim Report Contents. **UK Parliament**, London, 29 July 2018. Available at: https://publications.parliament.uk/pa/cm201719/cmselect/cmcumeds/363/36304.htm#_idTextAnchor002. Access on Aug. 31, 2020.

DUNN, A. *et al*. Associations Between Exposure to and Expression of Negative Opinions About Human Papillomavirus Vaccines on Social Media: An Observational Study. **Journal of Medical Internet Research***,* [*s. l.*], v. 17, n. 6, Jun. 2015. Available at: https://www.jmir.org/2015/6/e144/. Access on December 31, 2019.

ENAGO. Retractions Due to Fake Peer Reviews. **Enago Academy website**. 23 May 2018. Available at: https://www.enago.com/academy/retractions-due-to-fake-peer-reviews. Access on December 30, 2019.

EUROPEAN PARLIAMENT. Disinformation and propaganda – impact on the functioning of the rule of law in the EU and its Member States, Feb. 2019, p. 79. Available at: https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608864/IPOL_STU(2019)608864_EN.pdf Access on March 31, 2020.

FALLET, L. **La désinformation, mal incontournable des médias?** Mémoire de Communication*.* Rouen: INSA, 2001.

FALLIS, D. A conceptual analysis of disinformation. In: iCONFERENCE, 2009, Chapel Hill. **Proceedings** […]. Chapel Hill: University of North Carolina, 2009. Available on: http://hdl.handle.net/2142/15205. Access on December 22, 2019.

FALLIS, D. Floridi on disinformation. **Etica & Politica**, [*s. l.*], v. 3, n. 2, p. 201–214, 2011.

FALLIS, D. A Functional Analysis of Disinformation. *In*: iCONFERENCE, 2014, Berlin. **Proceedings** […]. Berlin: University Humboldt, 2014. Available at: http://hdl.handle.net/2142/47258. Access on December 22, 2019.

FALLIS, D. What Is Disinformation? **Library Trends**, Champaign, Ill., v. 63, n. 3, p. 401–426, 2015. Available at: https://doi.org/10.1353/lib.2015.0014. Access on May 05, 2019.

FETZER, J.H. Information: does it have to be true? **Minds and Machines**, Dordrecht, vol. 14, p. 223-229, 2004.

FLORIDI, L. Brave.net.world: The internet as a disinformation superhighway? **The Electronic Library***,* Oxford, v. 14, p. 509–514, 1996. Available at: https://doi.org/10.1108/eb045517. Access on May 10, 2019.

FLORIDI, L. Is Semantic Information Meaningful Data? **Philosophy and Phenomenological Research**, Buffalo, v. 70, n. 2, 2005.

FLORIDI, L. In defence of the veridical nature of semantic Information. European Journal of Analytic Philosophy, Rijeka, v. 3, n. 1, 2007.

FLORIDI, L. **The philosophy of information**. New York: Oxford University Press, 2011.

FOX, C. J. **Information and misinformation**: An investigation of the notions of information, misinformation, informing, and misinforming. Westport, CT: Greenwood Press, 1983.

GACKOWSKI, Z. Quality of Informing: Bias and Disinformation Philosophical Background and Roots. **Issues in Informing Science and Information Technlogy**, [*s. l.*], v. 3, p. 731-744, 2006.

GLEICK, J. **The Information**: A History, a Theory, a Flood. New York: Pantheon Books, 2011.

HINDS, S. **The European Union approach to disinformation and misinformation**: the case of the 2019 European Parliament elections. 2019. Dissertation (Master's Degree in Human Rights and Democratisation) University of Strasbourg, Estrasburgo, 2019.

HJØRLAND, B. Information: objective or subjective/situational? **Journal of the American Society for Information Science and Technology**, New York, v. 58, n. 10, p. 1448-1456, 2007.

HUFF, D. **How to Lie with Statistics**. New York: W.W. Norton & Company, 1993.

ILHARCO, F. Filosofia da Informação: alguns problemas fundadores. *In*: SOPCOM, 3., 2004, Covilhã. **Anais** [...]. Covilhã: Universidade da Beira Interior, 2004. p. 41-48.

ISAAK, J.; HANNA, M. J. User Data Privacy: Facebook, Cambridge Analytica, and Privacy Protection. **Computer**, Long Beach, v. 51, n. 8, p. 56-59, 2018. Available at: https://ieeexplore.ieee.org/document/8436400 Access on December 15, 2020.

JAMIESON, K. H. Crisis or self-correction. **Proceedings of the National Academy of Sciences of the United States of America**, Washington v. 115, n. 11, p. 2620-2627, Mar. 2018. Available at: https://doi.org/10.1073/pnas.1708276114. Access on December 10, 2019.

KARLOVA, N.; FISHER, K. A social diffusion model of misinformation and disinformation for understanding human information behavior. **Information Research**, Sweden, v. 18, n. 1, 2013. Available at: http://InformationR.net/ir/18-1/paper573.html Access on October 30, 2019.

KARLOVA, N.; LEE, J. H. Notes from the underground city of disinformation: A conceptual investigation. **Proceedings of the American Society for Information Science and Technology**, [*s. l.*], v. 48, n. 1, p. 01-09, 2012. Available at: https://doi.org/10.1002/meet.2011.14504801133. Access on December 30, 2019.

KARLSEN, R.; STEEN-JOHNSEN, K.; WOLLEBÆK, D.; ENJOLRAS, B. Echo chamber and trench warfare dynamics in online debates. **European Journal of Communication**, London, v. 32, n.3, p. 257-273, 2017. Available at: https://journals.sagepub.com/doi/pdf/10.1177/0267323117695734 Access on December 30, 2019.

KEISER, B. E. 2019. The Truth, the Whole Truth, and Nothing but the Truth in a Post-Truth World. **Online Searcher**, Medford, v. 43, n.5, p. 26-33, 2019.

KELLY, J.; FRANÇOIS, C. This is what filter bubbles actually look like. **MIT Technology Review**. [*s. l.*], 22 Aug. 2018. Available at: https://www.technologyreview.com/s/611807/this-is-what-filter-bubbles-actually-look-like/2018. Access on December 31, 2019.

KLEIN, C.; CLUTTON, P. DUNN, A. G. Pathways to conspiracy: The social and linguistic precursors of involvement in Reddit's conspiracy theory forum. **Plos One**, [*s. l.*], v. 14, n. 11, 2019. Available at: https://doi.org/10.1371/journal.pone.0225098. Access on December 24, 2019.

KUMAR, S.; SHAH, N. False Information on Web and Social Media: A Survey. ***arXiv*.org**, [*S. l.*], v. 1, n. 1, 2018. Available at: https://arxiv.org/pdf/1804.08559.pdf. Access on December 30, 2019.

MCLUHAN, Marshall. **Culture Is Our Business**. Toronto: McGraw-Hill Book Co., 1970.

MILLAR, Ronald. **The Piltdown Men**. New York: St. Martin's Press, 1972.

MIRANDA, M. K. F. O. A Teoria da Intencionalidade e a Informação: definições e propriedades para a informação. *In*: RENDON-ROJAS, M. A. (Org.) **La intencionalidad en la Ciencia de la Información Documental.** UNAM: Cidade do México, 2018, p. 35-60.

MIRANDA, M. K. F. O. Encontrabilidade e Teoria da Intencionalidade: propriedades para a informação. **Pesquisa Brasileira em Ciência da Informação e Biblioteconomia**, João Pessoa, v. 14, n. 2, p. 130-140, 2019.

MUNICH Security Conference. **Speech**. Available at: https://www.who.int/dg/speeches/detail/munich-security-conference Access on February 23, 2021.

PARISER, E. **The filter bubble***:* What the internet is hiding from you. New York, NY: Penguin Books, 2011.

PELTIER, J. Broken Y Axis in an Excel Chart. **Peltier Tech Blog**. [*S. l.*], 18 Nov. 2011. Available on: https://peltiertech.com/broken-y-axis-in-excel-chart. Access on December 30, 2019.

PHILLIPS, D. Brazil stops releasing Covid-19 death toll and wipes data from official site. **The Guardian**, London, 7 Jun. 2020. Available at: https://www.theguardian.com/world/2020/jun/07/brazil-stops-releasing-covid-19-death-toll-and-wipes-data-from-official-site Access on September 7, 2020.

POSETTI, J.; BONTCHEVA K. **Disinfodemic**: Dissecting responses to COVID-19 disinformation. Paris: UNESCO, 2020. Available at: https://en.unesco.org/sites/default/files/disinfodemic_dissecting_responses_covid19_disinformation.pdf . Access on August 20, 2020.

ROMERO-RODRÍGUEZ, L. M. **Pragmática de la desinformación**: Estratagemas e incidencia de la calidad informativa de los médios. 2014. Tese (Doctorado Interuniversitario en Comunicación) – Universidad de Huelva, Espanha, 2014.

RUBIN, V.; CHEN, Y.; CONROY, N. Deception detection for news: Three types of fakes. **Proceedings of the Association for Information Science and Technology**, [*s. l.*], v. 52, n. 1, p. 1-4, 2016. Available at: https://doi.org/10.1002/pra2.2015.145052010083 . Access on September 20, 2019.

SANTOS-D'AMORIM, K.; MIRANDA, M. K. F.; O; CORREIA, A. E. G. C. Retracted Papers e a Desinformação Na Comunicação Científica Brasileira. In: LATMETRICS, 2., 2019, Cusco. **Anais** [...]. Cusco: Universidad Andina del Cusco, 2020. p. 79-86. Available at: https://app.uff.br/riuff/handle/1/14146. Access on December 22, 2020.

SCARANTINO, A.; PICCININI, G. Information without truth. **Metaphilosophy**, Oxford, v. 41, p. 313-330, 2010. Available at: doi:10.1111/j.1467-9973.2010.01632.x. Access on 01 July 2020.

SHANNON, C. E. **Claude Elwood Shannon**: Collected Papers. New York: IEEE Press, 1993.

SCHRADER, A. M. The domain of information science: problems in conceptualization and in consensus-building. **Information Services & Use***,* Amsterdam, v. 6, p. 169-205, 1986.

STENGEL, R. Information Wars: How We Lost the Global Battle Against Disinformation and What We Can Do About It. New York: Atlantic Monthly, 2019.

SØE, S.O. A Floridian dilemma. Semantic information and truth. **Information Research**, Sweden, v. 24, n. 2, 2019. Available at: http://InformationR.net/ir/24-2/paper827.html. Access in February 2020.

TARDÁGUILA, C.; BENEVENUTO F.; ORTELLADO, P. Fake News Is Poisoning Brazilian Politics. WhatsApp Can Stop It. **The New York Times**, New York, 17 Oct. 2018,

Opinion. Available at: https://www.nytimes.com/2018/10/17/opinion/brazil-election-fake-news-whatsapp.html. Access on December 14, 2019.

TUFTE, E.R. **The Visual Display of Quantitative Information**. Graphics Press, Cheshire, Connecticut: 1983.

WALKER, A. S. Preparing Students for the Fight Against False Information with Visual Verification and Open Source Reporting. **Journalism & Mass Communication Educator**, Columbia, v. 74, n. 2, p. 227-239, 2019. Available at: DOI:1177/1077695819831098. Access on 10 July 2020.

WARDLE, C.; DERAKHSHAN, H. **Information disorder**: Toward an interdisciplinary framework for research and policy making. Council of Europe: Strasbourg Cedex, 2017.

WARDLE, C.; DERAKHSHAN, H. Thinking about 'information disorder': formats of misinformation, disinformation, and mal-information. *In*: IRETON, C.; POSETTI, J. (org.). **Journalism, 'fake news' & disinformation**. Paris: UNESCO; 2018. p. 43-54. Available on: https://bit.ly/2FW3Esb. Access on December 20, 2019.

WARDLE, Claire. *[S. l.: s. n.]*, 2019. 1 video (12 min). Published by the TED channel. Available at: https://www.youtube.com/watch?v=3iD4HwJ-67Q&t=89s. Acess in February 2021.

ZANNETTOU, S. *et al.* The Web of False Information: Rumors, Fake News, Hoaxes, Clickbait, and Various Other Shenanigans. **Journal of Data and Information Quality**, New York, v. 11, n. 3, p. 10-37, 2019.

ZAROCOSTAS, J. How to fight an infodemic. **The Lancet**, London, v. 395, n. 10225, Feb. 29, 2020.

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