

III PMMIS 2019
Post mass media in the modern informational society
"Journalistic text in a new technological environment:
achievements and problems"

DETECTION OF DISINFORMATION IN A MEDIA TEXT
(STRUCTURAL AND PRAGMA-LINGUISTIC APPROACHES)

Maria Samkova (a)*, Lilia Nefedova (b)
*Corresponding author

(a) Department of Theory and Practice of the English Language, Chelyabinsk State University, 129 Bratiev
Kashirinykh st., Chelyabinsk, Russia, maria.a.samkova@gmail.com

(b) Department of Romano-Germanic Languages and Intercultural Communication, Chelyabinsk State University,
129 Bratiev Kashirinykh st., Chelyabinsk, Russia, lan2@mail.ru

Abstract

The article deals with the analysis of disinformation in a media text. Disinformation is defined as information which promotes cognitive biases and cannot be critically evaluated by a recipient because it violates the Cooperative Principle maxims. After analysing media texts using the pragma-linguistic and structural approaches, it is concluded (1) misleading information is often located in rhythmically structured intervals of a media text; (2) disinformation is a statement or proposition that violates the maxims of quality, manner, relation, and quantity. Most frequently, the maxim of manner is violated. The rather general proposition allows for multiple, obscure, and ambiguous interpretations. The maxim of relation is violated when cited sources are not exactly relevant to the arguments stated in a media text but is used to manipulate recipients' perception. The maxim of quality is often violated when media strives to share something sensational and post the unchecked information. Repetition in media texts is a matter of attracting abundance which violated the maxim of quantity. Repetition forms the symmetrical structure of a media text which facilitates perception and information from symmetrically structured intervals is easier to be remembered. The findings pose a challenge to the possibility of detection of disinformation. The study has a contribution to the existing knowledge in the area of pragmatics and structural linguistics.

© 2019 Published by Future Academy www.FutureAcademy.org.UK

Keywords: Disinformation, media text, text structure, Grice's maxims, implicature, implicitness.



1. Introduction

In the age of information overload, including abundant fake news, unsubstantiated rumours, media bias in news reporting, the detection of disinformation is the initial step to ascertain facts and opinions objectively.

To single out disinformation, experts and computer programs fact-check news, governments encourage the public to check news and social media posts and flag them, researchers design algorithmic detection of disinformation, thereby, mitigating the spread of harmful disinformation and helping the society make unbiased decisions.

Here we suggest two approaches to the detection of disinformation – the structural and the pragma-linguistic approaches. The structural approach is used to analyze the rhythmic structure of a media text while the pragma-linguistic approach is used to comprehend the implied meaning in a media text.

A media text reflects the context of a certain political situation, the historical and cultural setting. Media texts are created with a target audience in mind. They express particular intentions. Therefore, the Gricean framework and cooperative principles are laid out. They help to distinguish between sentence meaning and writer's/utterer's (author's) meaning and detect disinformation.

The article is structured as follows: the problem of disinformation is stated in section 2; section 3 extends the problem into two research questions – the definition and detection of disinformation; section 4 deals with the purpose of the study; the structural and pragma-linguistic approaches are elaborated in section 5; section 6 includes two main findings that are (1) certain media texts contain disinformation which is located in the interval of a text with a more symmetrical structure and (2) disinformation deliberately violates the maxims of manner, relation, quality, and quantity; section 7 provides the concluding remarks that disinformation is often located in rhythmically structured intervals and it promotes cognitive biases and cannot be critically evaluated by a recipient due to unclarity, ambiguity, obscurity, generalization, irrelevance and abundance of repeated keywords.

2. Problem Statement

One of the problems is to define the notion 'disinformation' that we understand as false information which is intended to mislead. Grant (1960), Garifullin (2004), Antsupov (Antsupov & Baklanovskij, 2016) and Shipilov (Antsupov & Shipilov, 2006) point out disinformation corresponds with a recipient's expectations. Therefore, a recipient is predisposed to be misled. The predisposition of a recipient to the uncritical perception of disinformation is likely if disinformation corresponds to a recipient's beliefs. The message of a media text retrieved by a recipient is exposed to stereotyping and biases. The disinformation in media texts about hacker attacks on the USA is believed due to the predisposition of a recipient to perceive the negative image of Russia.

The second problem is to detect disinformation, especially the one which is not stated but implied, a statement which can be easily misinterpreted. The case in which a statement an utterer said is distinct from what he/she thereby meant or implied is called 'implicature.' Within a Gricean framework, 'implicature' denotes either the act of saying one thing but implying or meaning something else, or the

object of that act. Therefore, disinformation detection should be conducted within communicative structures.

In addition, disinformation is deliberately intended to mislead. Thus, the third problem is to detect disinformation in a media text and analyze the structure of this text. The location of misinforming statements in a text determines whether it is deliberately stated or not, and whether it will be easily perceived and remembered by the recipient or not.

All problems considered above, the objectives of this research are to define and exemplify disinformation in a media text, to detect disinformation applying a Gricean framework of meaning, cooperation, and communication, and to figure out to what extent disinformation is deliberately intended to manipulate analyzing the structure of a media text using the method of text linearization and a metro-rhythmical matrix.

3. Research Questions

The notion ‘disinformation’ may vary from one research to another. It is interconnected with the notion ‘misinformation.’ Karlova and Fisher (2013) define misinformation as inaccurate information and disinformation as deceptive information. Kumar and Geethakumari (2014) have the opposite view of these notions. They define misinformation as false or inaccurate information and disinformation as false information (Kumar & Geethakumari, 2014, p. 3). Misinformation aims at deceiving while disinformation is intended to mislead. According to the researchers, rumors and hoaxes can be categorized as misinformation while propaganda issued by a government organization is categorized as disinformation. In UNESCO Series on Journalism Education (Ireton & Posetti, 2018) disinformation is used to refer to deliberate attempts to confuse or manipulate people (Journalism, ‘Fake News’ & Disinformation, UNESCO, 2018, p. 7) while misinformation is defined as misleading information created without manipulative or malicious intent. Since this article analyzes media texts which are fact-checked, proof-read, created for specific target groups, and have particular goals, information in media texts always has manipulative intent. Thus, the scope of this research refers to disinformation only.

The detection of disinformation is conducted within the framework of communicative structure analysis. Grice’s (1975) Cooperative Principle and maxims are designed to explain and predict conversational implicatures and how they are understood. Conversational implicatures lie beyond the sentence/utterance and determined by the author’s intention and context. Grice (1975, p. 45) postulated a general Cooperative Principle and four maxims specifying how to be cooperative and have efficient communication: quality, quantity, relation, and manner.

Table 01. Grice’s Cooperative Principle

Grice's Maxims	Meaning
The maxim of quality	Be truthful, and do not provide false information or information that is not evidence-supported
The maxim of quantity	Be informative, and give no more information than is needed
The maxim of manner	Be brief, clear, orderly, and avoid obscurity and ambiguity
The maxim of relation	Be relevant and give information that is pertinent to the argumentation

Within this framework, disinformation is expressed linguistically and can be defined as propositions expressed through sentences. Therefore, the notion 'disinformation' is bound to the notion 'implicature' and understood as the violation of Grice's Cooperative Principle. The analyzed media texts most often violate the maxims of manner, relation, and quality.

The notion 'implicature', as well as 'presupposition', arises from the category of implicitness. Chernov (1986) defines 'implicature' as "the conclusion that the recipient of the message draws from the antecedent" while 'presupposition' is "the antecedent A implied by the sender of the message, which constitutes the condition of meaningfulness (semantic completeness) of the explicit sequential B" (p. 12). Therefore, 'presupposition' is a wider notion than 'implicature', which corresponds to the fact that any statement can be understood incompletely, incorrectly, erroneously, or it can be incomprehensible to the recipient of a text.

Understanding the implied meaning is possible through effective speech strategies and speech acts, that is, knowledge of a pragmatic nature. Pragmatics is associated with the deliberate and purposeful choice of language means in order to best express or hide, veil one's own thoughts, feelings, motives and most effectively influence the interlocutor (Borisova & Martemyanov, 1999, p. 81).

The extraction of specific contextual meaning and implicature by the recipient is one of the conditions for effective communication. However, if the meaning is ambiguous or obscure, it can be misinterpreted, and an implicature becomes misleading.

The article also deals with patterns of text self-organization which can be altered naturally or intentionally. The text structure influences the recipient's perception. Comparing the content of a media text and self-organized text structure, we can figure out how disinformation might influence a recipient. At particular intervals in a text where coherence is low, disinformation might occur. If it is frequently repeated, especially in the interval of harmonic center (according to the rule of harmonic proportion), it will be remembered by a recipient. Subsequently, a recipient might not perceive disinformation critically, but the attention will be focused on it. Text structure analysis also helps to identify where disinformation is localized which can be helpful in further studies of the detection of disinformation.

4. Purpose of the Study

The purpose of this article is to define the notion 'disinformation', analyse it from the linguistic perspective within the Gricean framework and compare the content of a media text with its self-organized structure to conclude how disinformation manipulates the recipient's perception.

5. Research Methods

Since disinformation is defined in terms of Gricean implicatures, the first approach to apply is the pragma-linguistic analysis which is used to determine the meaning of the implicature and render the proposition misleading. The focus of this study is to analyse a media text to detect disinformation which is the violation of the Grice's maxims. According to Grice (1975), violation takes place when a writer/utterer intentionally refrains to apply certain maxims to mislead or to manipulate. This article

provides the analyses of propositions taken from media texts, sorted out and collected those in which the maxims are violated.

We also apply the structural approach to a media text analysis. Within this analysis, we detect repeated words as the minimal structural units and identify the way they are distributed in a text. Therefore, the rhythmic structure of a media text is identified. Subsequently, we use the method of text linearization and geometric modelling to indicate the structure's coordinates and intervals. The method specifies the position of the sentence/utterance that violates the Cooperative Principle and also reveals the features of the rhythmic structure that influences the recipient's perception.

The combination of structural and pragma-linguistic approaches detects disinformation in a media text and specify the extent to which it may manipulate recipients and impact their perception.

6. Findings

The media texts under analysis are retrieved from the Washington Post from 2014 to 2018. The scope of these texts deals with the hacker attacks or malware attributed to the Russian governments. Having conducted the pragma-linguistic and structural analyses, we conclude that certain media texts contain disinformation which deliberately violates the maxims of manner, relation, quality, and quantity.

The maxim of manner is related to the way the news is presented. Here, we deal with the evaluation or degree of confidence in a proposition of the sentence/utterance, obscurity, and ambiguity.

The rather general proposition allows for multiple and ambiguous interpretations. In the following sentence, the authors state, "Intelligence agencies have identified *individuals with connections to the Russian-government* (Entous, Nakashima, & Miller, 2016). The evidence for the proposition is not provided. Therefore, the sentence is obscure. The media text does not state who are the individuals and what (if any) connections they have to the Russian government. A recipient might interpret the proposition differently. Since the statement can apply to almost anyone, a recipient can confirm their beliefs and ignore the fact that it is general information.

Another violation of the maxim of manner is the unclear proposition, for example, U.S. government officials have not officially attributed that attack to the Russian government, but *some privately* say they concur with the private-sector analysis (Nakashima, 2017). The pronoun 'some' does not mean a certain number of speakers. The author does not mention names and refers to certain people. The word 'privately' adds uncertainty to the statement as well. The statement has a general meaning and non-informative, which creates ambiguity and context which is more likely to be misinterpreted by recipients (readers).

The ambiguity of statements happens with the use of different modal verbs. The modal verbs 'can', 'could', 'may' express the possibility and probability. The media text is entitled "Russia has developed a cyberweapon that *can* disrupt power grids, according to new research." One of the experts the authors site states, "But with modifications, it *could* be deployed against U.S. electric transmission and distribution systems to devastating effect." In the statement, the modal verb 'could' denotes a lower probability and degree of expert confidence. Thus, the use of the modal verb 'can' in the title makes the statement more convincing, therefore, the importance of the event will increase the interest and conversion of this page of the Washington Post site.

Finally, in media texts published from 2014 to 2017, the word ‘hacking’ is frequently used with the collocation ‘the Russian government.’ The media texts dated 2018 use a euphemism, more precisely, an occasional individual contextual substitution: the word ‘hacking’ is replaced by the word ‘meddling’ with regard to what was previously stated as Russian hacking attack on U.S. presidential election providing similar evidence. We assume the word ‘meddling’ is used as a hedge to mitigate or lessen the impact of the proposition. Thus, it is the violation of the maxim of manner because the word ‘meddling’ is defined as ‘the act of trying to change or have an influence on things that are not your responsibility, especially by criticizing in a damaging or annoying way’ (Cambridge Dictionary. Retrieved from <https://dictionary.cambridge.org/dictionary/english/meddling>) while ‘hacking’ is the activity of illegal use of a computer to access information (Cambridge Dictionary. Retrieved from <https://dictionary.cambridge.org/dictionary/english/hacking>). Having different meaning, these terms are used interchangeably, imprecisely, and ambiguously in The Washington Post’s news coverage.

The maxim of relation is violated in the same media text. The author sites the research (Crashoverride. Analysis of the Threat to Electric Grid Operations, 2017) which is not exactly relevant to the media text about the possibility of the hacker attack by the Russian government. The research confirms that the malware they analyzed was employed in the December 17, 2016 cyber-attack on the Kiev, Ukraine transmission substation. However, it does not denote that the malware or the attacks are related to the Russian government and that these attacks are related. Therefore, the author making the link to this research downplays those things that do not confirm their bias and notice those that confirm their beliefs.

The other media text with misleading sensational title “Russian operation hacked a Vermont utility, showing risk to U.S. electrical grid security, officials say” (Eilperin & Entous, 2016) violates the maxim of quality. The information was changing for the following three hours after it was posted and shared (Leetaru, 2017). The Washington Post finally appended an editorial note which states “an earlier version of this story incorrectly said that Russian hackers had penetrated the U.S. electric grid. Authorities say there is no indication of that so far. The computer at Burlington Electric that was hacked was not attached to the grid.” This is significant that 59 % of the links shared on social media are shared based on the title alone (Dewey, 2016). It is explained by the utter lack of intelligence on the Internet and by the strive to share something sensational.

The maxim of quantity is violated when the text has keywords (e.g. hacking, meddling, Russian government) repeated every 70 words. The repetition is a matter of attracting abundance.

Having used the method of text linearization and a metro-rhythmical matrix (Moskalchuk & Manakov, 2014), we have identified seven positions and six intervals of the rhythmical structure of media texts. As a form of logical, semantic and structural relatedness, the rhythmic organization appears in the intervals from 0.236 (harmonic center of the beginning of a text) to 0.618 (harmonic center of the whole text), in which the main theme is revealed, and the structure of a text is more symmetric. The author most frequently violates the maxims in this interval. Whereas the further intervals in which the author quotes the sources is more asymmetric and not that easily perceived. Pragmatically marked and rhythmically structured intervals of a media text are easier perceived and remembered. Therefore, recipients are pre-programmed to have a biased opinion that might influence their decisions.

7. Conclusion

With the use of pragma-linguistic and structural analyses of misleading media texts, we have detected disinformation in media texts and concluded that disinformation is a statement or proposition that violates the maxims of quality, manner, relation, and quantity. It often confirms a recipient's bias and cannot be critically evaluated due to unclarity, ambiguity, obscurity, generalization, irrelevance, and abundance of repeated keywords.

Violating the maxim of manner, the author uses euphemisms or hedges as tools of epistemic modality. Even though they are used to signal the author's degree of confidence in a proposition, they influence the recipient's perception because they are located in symmetrically structured intervals which are easier to be remembered. The symmetric structure of a media text is created by frequently repeated words which have a negative connotation (e.g. hacking, meddling) and add to the biased proposition.

Citing not relevant sources, publishing unverified or distorted information, sharing these links, and commenting having read only the title of a media text are led by the strive for sensationalism and the lack of intelligence in the Internet discourse. What is important is that when a recipient extracts by a misleading contextual meaning and implicatures, disinformation promotes cognitive biases (e.g. giving high ratings to general and repeated information which is negative and/or confirms the biases) that influence a recipient's decisions and judgments.

Acknowledgments

The publication of the article is done within the State task MES RF №34.6111.2017 / BC "Media translation in modern information-driven conditions".

References

- Antsupov, A.Ya., & Baklanovskij, S.V. (2016). *Konfliktologiya v shemah i kommentarijah [Conflictology in charts and comments]*. Moscow: Prospekt.
- Antsupov, A.Ya., & Shipilov, A.I. (2006). *Slovar konfliktologa [The conflictologist's dictionary]*. Saint Petersburg: Piter.
- Borisova, E.G., & Martemyanov, Yu. S. (Eds.) (1999). *Implicitnost' v jazyke I rechi [Implicit in language and speech]*. Moscow: Jazyky russkoj kul'tury.
- Chernov, G.V. (1986). *Implicitnost' teksta, smyslovoj vyvod i perevod [The implicitness of a text, semantic output and translation]*. In *Scientific works collection of Moscow State Linguistics University*, 278, 10-25.
- Crashoverride. *Analysis of the Threat to Electric Grid Operations*. (2017). Retrieved from <https://dragos.com/wp-content/uploads/CrashOverride-01.pdf>
- Dewey, C. (2016, June 16). 6 in 10 of you will share this link without reading it, a new, depressing study says. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news/the-intersect/wp/2016/06/16/six-in-10-of-you-will-share-this-link-without-reading-it-according-to-a-new-and-depressing-study/?utm_term=.bdf1e3230b83
- Eilperin, J. & Entous, A. (2016, December 31). Russian operation hacked a Vermont utility, showing risk to U.S. electrical grid security, officials say. *The Washington Post*. Retrieved from https://www.washingtonpost.com/world/national-security/russian-hackers-penetrated-us-electricity-grid-through-a-utility-in-vermont/2016/12/30/8fc90cc4-ceec-11e6-b8a2-8c2a61b0436f_story.html?utm_term=.680d628d3814

- Entous, A., Nakashima, E., & Miller, G. (2016, December 9). Secret CIA assessment says Russia was trying to help Trump win White House. *The Washington Post*. Retrieved from https://www.washingtonpost.com/world/national-security/obama-orders-review-of-russian-hacking-during-presidential-campaign/2016/12/09/31d6b300-be2a-11e6-94ac-3d324840106c_story.html?utm_term=.49902a286738
- Garifullin, R.R. (2004). *Psikhologiya politicheskogo blefa [The psychology of political bluff]*. Retrieved from <http://kitap.net.ru/garifullin/4.php>
- Grant, N. (1960). Disinformation. *National Review*, 9, 41-48.
- Grice, H. P. (1975). Logic and conversation. *Speech acts*, 3, 41-58.
- Ireton, Ch., & Posetti, J. (2018). *Journalism, 'Fake news' & Disinformation. Handbook for Journalism Education and Training*. UNESCO.
- Karlova, N. A., & Fisher, K. E. (2013). A social diffusion model of misinformation and disinformation for understanding human information behaviour. *Information research*, 8(1), 1-17.
- Kumar, K.P.K., & Geethakumari, G. (2014). Detecting misinformation in online social networks using cognitive psychology. *Human-centric Computing and Information Sciences*, 4(1), 1-22.
- Leetaru, K. (2017, January 1). 'Fake News' And How The Washington Post Rewrote Its Story On Russian Hacking Of The Power Grid. *Forbes*. Retrieved from <https://www.forbes.com/sites/kalevleetaru/2017/01/01/fake-news-and-how-the-washington-post-rewrote-its-story-on-russian-hacking-of-the-power-grid/#153f8ed97ad5>
- Moskalchuk, G.G., & Manakov, N.A. (2014). The form of a text as a multilayer construction. *Znanie. ponimanie. Umenie*, 4, 291-302.
- Nakashima, E. (2017, June 12). Russia has developed a cyberweapon that can disrupt power grids, according to new research. *The Washington Post*. Retrieved from https://www.washingtonpost.com/world/national-security/russia-has-developed-a-cyber-weapon-that-can-disrupt-power-grids-according-to-new-research/2017/06/11/b91b773e-4eed-11e7-91eb-9611861a988f_story.html?utm_term=.54c463690254