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Developing a Procedure for Argument-Checking

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Abstract: One approach to combating disinformation is "fact-checking," but its scope is limited to evaluating the accuracy of factual statements. These statements are often part of broader argumentative and rhetorical strategies. This contribution introduces a method called "argument-checking," which assesses the role of factual and other types of statements within an argumentative context. We outline the theoretical basis for this method, detail its procedural steps, and demonstrate its application and results through illustrative examples.

Keywords: argumentation assessment, argument-checking, argument detection, argument type identification, argument mapping, fact-checking, Periodic Table of Arguments, rhetoric-checking

1. Introduction

In recent decades, technological advancements have led to a massive increase in both the amount of information and the speed at which information is shared.[1] One of the disturbing consequences of these developments is the problem of misinformation or disinformation - the possibility that people, knowingly or unknowingly, are presented with incorrect information, which leads them to make poor decisions or believe in outright falsehoods. Besides resulting in incorrect decisions and beliefs, misinformation or disinformation can also lead to a reduction in intellectual autonomy and a decline in the quality of public debate (van Doorn, 2023).

In 2024, the World Economic Forum (WEF) even ranked the problem of misinformation and disinformation as number one in its annual report on global threats. This high ranking is partly due to the fact that many countries will hold democratic elections in the coming years. The report is based on the assessments of over 1,400 risk experts worldwide, who expect that foreign and domestic actors will use misleading information during these elections to deepen social and political divides and disrupt the democratic process (WEF, 2024).

While communication scientists view the problem of misinformation and disinformation as a relatively new issue linked to the digital age, scholars in rhetoric and argumentation theory see it as an extension of the classical debate over the fine line between persuasion and manipulation. Since antiquity, philosophers and rhetoricians have warned for the power of words, pointed out the dangers of (political) speakers using populist communication strategies, and reflected on the

[1] This paper is an amended version of Plug and Wagemans (forthcoming).

tension between the reasonableness and persuasiveness of arguments (see, for example, van Eemeren & Houtlosser, 2002; Wagemans, 2009).

At present, one of the ways to combat disinformation and help people make responsible selections when forming opinions and making decisions is 'fact-checking' The scope of fact-checking, however, is limited: it assesses the correctness of factual statements, while these are often embedded in arguments and other rhetorical stratagems. Viewed from this perspective, factual statements are not solely aimed at conveying some truth about our reality but also at supporting the acceptability of other statements (which are not always factual in nature but may also express certain values or encourage specific actions).

For these reasons, in earlier work, we proposed to develop a method for what we called 'rhetoric-checking'. Such a method would consist of various procedures for evaluating different aspects of the rhetorical design of the discourse: its argumentative content, its structure, and stylistic features (Plug & Wagemans, 2020, p. 250). In recent years, we have used selected insights from rhetoric and argumentation theory to further refine the procedure for 'argument-checking,' which focuses on the first of the above aspects. In doing so, we have also formalized these insights as much as possible and incorporated them into quasi-algorithmic procedures. With this formalization, we aim to bridge the gap between traditional rhetorical and argumentation-theoretical insights, which are informal by nature, and the formal computational models of argumentation that have been developed in recent years. Argument-checking is thus not only suitable for helping people to examine and assess the quality of arguments, but it can also aid in the development of software to assist people in performing some of the associated tasks (such as identifying types of arguments and suggesting critical questions).

The paper is structured as follows. In Section 2, we discuss fact-checking in relation to misinformation and disinformation and indicate the limitations of this method in terms of scope and effectiveness. In Section 3, we describe the successive steps of the argument-checking method and illustrate its functioning and results with an example. Finally, in Section 4, we highlight the contribution this method can make to identifying misinformation, focusing on overcoming specific limitations of fact-checking.

2. Fact-checking and its problems

According to Elizabeth (2014), the primary goal of fact-checking is to enable citizens to make (political) decisions based on accurate and reliable information. The role of fact-checkers is to contribute to the decision-making processes underlying such decisions. In a letter to the Dutch House of Representatives, *National Strategy for an Effective Approach to Disinformation* (2022), the Ministers and Secretaries of the Interior and Kingdom Relations, Justice and Security, and Culture and Media also emphasize the importance of citizens making informed choices based on available information without being manipulated or misled. In this way, 'citizens can also contribute to monitoring, assessing, and possibly even improving democratic decision-making within the public debate' (2022, p. 1). The letter warns that disinformation can disrupt public debate and even have a destabilizing effect on society as a whole and on the lives of individuals. Due to these effects, the twenty-page letter proposes a comprehensive, nationwide approach to disinformation. Both this letter and various websites of the Dutch government, such as those of the AIVD (General Intelligence and Security Service) and Digital Government (2024), make a distinction between disinformation and misinformation. While disinformation is defined as 'the deliberate dissemination of misleading information, with the goal of causing harm to public debate,

democratic processes, the open economy and knowledge economy, or public health,' misinformation is described as 'false or misleading information that is shared without harmful intent.'

The distinction that is made between disinformation and misinformation corresponds to the categories distinguished by Hameleers and Vliegenthart who define misinformation as the result of 'the spread of false information without being purposefully misleading' (2021, p. 60) and disinformation as "fabricated, manipulated, or decontextualized information created and transmitted for the purpose of misleading" (*ibidem*). What these classifications have in common is that the distinction between misinformation and disinformation is based on the author's intent. In the case of misinformation, there is no intent to mislead, whereas such intent is present or possible in disinformation.

According to these definitions, not all information that is incorrect in one way or the other counts as mis- or disinformation. This means, for example, that the finding by van Maanen (2020) that Pippi Longstocking is mistakenly attributed to the words, 'I have never tried that before, so I think I can do it,' may reveal inaccuracies but do not need to be classified as disinformation. Although there may be contexts in which these inaccuracies could be misleading or have harmful consequences, such outcomes are not immediately apparent.

To combat misinformation and disinformation, governments all over the world have proposed a wide range of policies and actions (see, for example, Cipers, Meyer & Lefevere (2023); Tenove (2020). The Dutch government, for instance, in an earlier letter to parliament on this subject (2019), announced three lines of action: prevention, strengthening the information position, and (if necessary) response. The first line of action is aimed at preventing disinformation from having an impact and spreading. Strengthening the information position and sharing information provides timely insights into and interpretations of (potential) threats. Reactive actions, finally, are part of the response perspective when disinformation is present.

Since the letter from 2019, the spread of both misinformation and disinformation has developed further, and the actions announced at that time have been expanded in the 2022 letter. The central principle remains unchanged: freedom of expression and press freedom are paramount, and identifying disinformation (debunking) as primarily the responsibility of independent media and fact-checkers. However, it is noted that it is also important for others to be able to recognize disinformation themselves.

The recognition of the seriousness and potentially far-reaching consequences of disinformation has led, among other things, to an increase in independent 'fact-check' organizations, such as Poynter and Politifact. In addition, the Dutch media also paid increasingly explicit attention to fact-checking, for example in the form of fact-checking sections in (digital) newspapers or TV programs such as Pointer or Factcheckers.

While there appears to be no difference of opinion on the importance of combating disinformation, there are doubts whether fact-checking is the best way to tackle the problem. Van den Bos noted in 2021 that many media, especially newspapers, have stopped having a fact-check section. Previously, the former ombudsman of the Dutch newspaper *NRC Handelsblad*, de Jong (2019), outlined a number of practical objections that explained why the newspaper discontinued its separate fact-check section. One of the objections was that journalists began to experience it as a chore to find interesting facts for the section in addition to their normal reporting in which claims are constantly being checked. They also found it difficult to determine on what grounds exactly

the judgment of the fact-check should be 'true', 'largely true', 'unfounded' or 'unverifiable'. Moreover, when fact-checks related to fellow journalists, they felt uncomfortable about it.

In addition to the complications in practice, a number of more fundamental, methodological complications with fact-checking are noted in the literature. We discuss two of them here.

The scope of fact checking

One of the problems with fact-checking concerns the scope of the facts being checked. Because propositions (facts) are often not presented in isolation but are part of a larger text, the assessment (checking) of a fact alone may be too limited. An example of this occurred with regard to the fact-check of a statement by Dutch politician Thierry Baudet, leader of Forum for Democracy (a right-wing political party in the Netherlands). Baudet claimed that the Dutch government's statement that there was excess mortality in the Netherlands in 2020, was untrue. The fact checkers of the podcast *FactGurus* (BNR, 21 January 2021) determined, based on CBS (Statistics Netherlands) figures, that there was indeed excess mortality in 2020. The politician's claim therefore turned out to be incorrect.

However, since the fact-check is limited to the assessment of the statement about excess mortality, its relationship with the other statements that are part of the politician's discourse remains undiscussed. In this case, Baudet's statement about excess mortality functions as an argument in support of the standpoint that the government and mainstream media are creating panic and are misleading the public with false figures. To overcome this limitation, it is the *justification* of this accusation that should be part of the assessment, that is, the quality of the support relation between the premise and the conclusion.

The effectiveness of evaluating the veracity of 'facts'

The literature regularly points out the importance of empirical research into the effectiveness of fact-checking (for a recent overview see Droog et al., preprint). The results of such research are not clear: while some authors, such as Walter et al. (2019) and Porter and Wood (2021), conclude that fact-checking in general has a moderate positive effect, others point out that fact-checking can have a 'backfire effect', that is, correcting incorrect information can strengthen belief in that information.

In addition, it is also noted that despite fact checks, the so-called 'continued influence effect' (CIE) can occur, which means that belief in misinformation continues after it has been refuted. Even if someone knows something to be untrue, the fake news still influences their judgment. Susmann and Wegener (2021) recall the following example to illustrate this effect. In 1998, a fraudulent study published in *The Lancet* claimed that the measles vaccine made children more susceptible to developing autism. Despite efforts by governments, scientists and media to refute and retract this misinformation, widespread belief in this falsehood persisted. This likely helps explain why millions of Americans believe vaccines are not safe.

Lewandowsky et al. (2012) mention a number of psychological mechanisms that may be responsible for the CIE. Apart from possible discomfort that may hinder the recognition of misinformation, their literature review shows that feelings of affiliation with a source, or lack thereof, also influence whether corrections of misinformation are effective or not (2012, p. 116). Their research also shows that retracting or correcting misinformation can be ineffective due to 'social reactance'. This phenomenon - the motivation to regain freedom or autonomy when it is limited or threatened - leads people to resist the social influence of others. Or, as they put it: people generally do not like being told what to think and how to act, which means that they may reject

corrections by authorities in particular (2012, p. 116). What these findings suggest is that offering rebuttals or corrections by others, such as fact-checkers, can negatively impact the effectiveness of corrections. According to van der Linden (2022, p. 465), it could therefore be more effective to make people resistant to disinformation or fake news if, instead of passively receiving rebuttals from others, they can resist disinformation themselves and are encouraged 'to generate their own "antibodies".' Argument checking is one such active method, and we will explain it in more detail in the next section. We will also discuss how this method can help overcome the limitations of fact-checking regarding the issues of scope and effectiveness discussed above.

3. The procedure of argument-checking

Within the field of argumentation theory and critical thinking more generally, the assessment of argumentation is closely associated with fallacy theory. To decide whether or not to accept a claim, one should be aware of bad arguments or sloppy thinking. By teaching people about fallacies, they will become better at recognizing them in the wild and at avoiding believing or doing something that should not be believed or done because the reasons provided are no good.

In our view, there are a couple of disadvantages to teaching people what a good argument is through giving them a list of fallacies and training them how to recognize failed instances of argument. First of all, there are theoretical flaws. As Hinton and Wagemans put it, 'methods centring around the notion of "fallacy" […] can […] be considered "vague", since the term "fallacy" comprises negative judgments about a great many different aspects of argumentative discourse, varying from the acceptability of an individual argument to the reasonableness of the behaviour of participants in an argumentative exchange' (2022, pp. 61-62). As a result, the lists of fallacies are a mixed bag, hindering people to explain in a systematic way how they arrived at their fallacy judgment or to justify it in a more profound manner than by just saying that it was 'on the list'.

Secondly, there are methodological issues. The method of finding fallacies by comparing concrete instantiations with idealized descriptions of them can be called 'comparative'. This burdens the evaluator with the task of determining whether the level of similarity is high enough to label an argument as a fallacy, thereby not only conflating descriptive and normative dimensions of analysis but also creating other identification problems. How to deal with discrepancies between the idealized description of a fallacy and a concrete instantiation of something similar? If there are differences, are they crucial? Does it mean a new fallacy should be added to the list? Which norms and criteria are involved in taking such decisions? These are some of the problems associated with the comparative method of fallacy identification – for an elaboration of similar problems with the comparative method of argument type identification, see Wagemans (2020, pp. 1-3).

The method of argument-checking takes a different approach to assessing arguments. Rather than comparative, it is procedural: instead of trying to find bad arguments by taking a list of fallacies and comparing their characteristics with concrete instantiations of arguments, argument-checking separates the descriptive and the normative dimension by first describing the characteristics of the argumentation under scrutiny and subsequently assessing the quality of these characteristics by projecting evaluation criteria onto them.

In the following, we will give a brief overview of the various stages in the procedure of argument-checking and illustrate these through analyzing an example. Full descriptions of the stages in the procedure can be found in Wagemans (2023) and Hornikx and Wagemans (2023).

The procedure of argument-checking comprises three distinct phases. Initially, the textual components are examined to determine their argumentative relevance, as well as their function: what is the main claim advocated by the author and by what argumentation is it supported? This stage, denoted as 'argument detection and mapping', yields an argument map, a comprehensive depiction of the content and the interconnectedness of the main claim and its supporting argumentation.

Following the elucidation of the overarching structure of the argumentative discourse, a closer scrutiny is directed towards individual arguments for the purpose of determining their type. This stage, termed 'argument type identification', serves to elucidate the underlying mechanisms through which each argument contributes to the support of the main claim.

Once the types of the individual arguments have been identified, evaluative criteria are invoked to gauge their acceptability. This stage, termed 'argumentation assessment', involves so-called *critical questions*, which relate to different aspects of the argument and depend in part on their type.

In Table 1 (translated from Hornikx & Wagemans, 2023, p. 159), we provided an overview of the name, central question, and results of the three stages of argument-checking.

Stage	**Central question**	**Result**
argument detection and mapping	What elements count as argumentative and how do they hang together?	argument map
argument type identification	What is the type of each of the individual arguments on the map?	arguments tagged with the name of the type
argumentation assessment	What is the quality of the individual arguments and the support they constitute together?	evaluated argumentation

Table 1: The three stages of argument-checking

We will now exemplify the working and results of this procedure by analyzing the statements put on the side of the notorious 'Brexit bus' (see Figure 1).

Figure 1. The Brexit bus

In the first stage of argument-checking, the argumentative relevance and function of the various textual elements are scrutinized. In this case, this means examining how the following four statements hang together:

- We send the EU £350 million a week
- Let's fund our NHS instead
- Vote leave
- Let's take back control

Using insights from argumentation theory relevant for this stage, especially those regarding claim detection, statement reconstruction, and argumentation structure (see, for example van Eemeren & Snoeck Henkemans, 2021), we can draw the following argument map (see Figure 2):

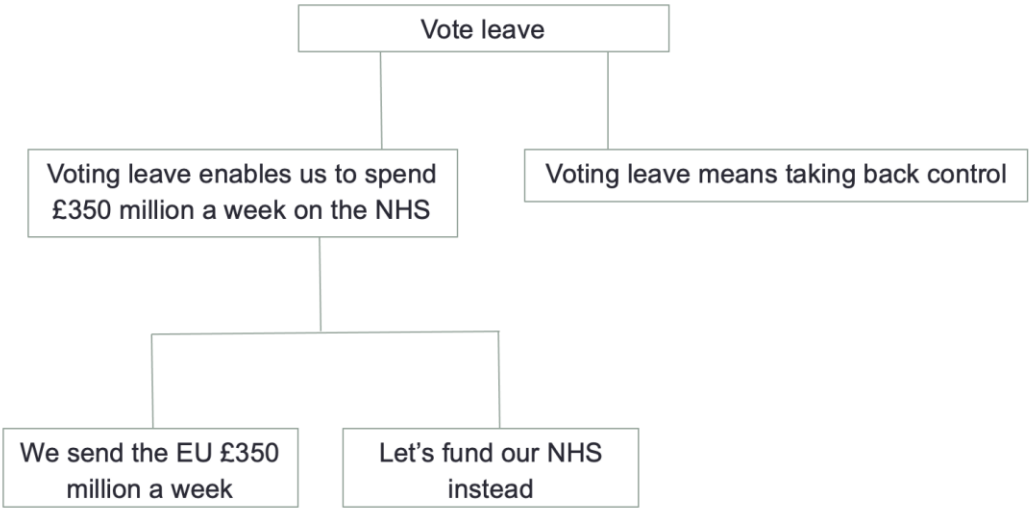

Figure 2. Argument map of the statements on the Brexit bus

The second stage of argument-checking comprises an identification of the type of the individual arguments contained in the map. By means of the above example, we will zoom in on the argument consisting of the conclusion 'Vote leave' supported by the premise 'Voting leave enables us to spend £350 million a week on the NHS'. By analyzing the argument form and substance of this argument, we can formulate the argument lever, which expresses its underlying mechanism and provides its name. In this case, the argument lever is 'enabling us to spend £350 million a week on the NHS' is a pragmatic reason for 'voting leave' and the argument is identified as a 'pragmatic argument'.

The identification of the individual argument allows us to specify the following three critical questions pertaining to the acceptability of the premise content, the relevance of the support it provides, and the sufficiency thereof:

1. **Acceptability**
Does leaving the EU indeed enable us to spend an extra £350 million a week on the NHS?

2. **Relevance**
Is enabling us to spend £350 million a week on the NHS a relevant reason to leave the EU?

3. **Sufficiency**
Is enabling us to spend an extra £350 million a week on the NHS a sufficient reason to leave the EU?

These evaluative questions have been developed in informal logic (Johnson & Blair, 1983) and further systematized in the argument-checking procedure and aligned with the more formal framework of the Periodic Table of Arguments (see, for example, Hinton & Wagemans, 2022; Hornikx & Wagemans, 2023).

In the procedure of argument-checking, answering these questions is left to the evaluator. If the premise is unacceptable, one could decide that the argument fails on that level and no further investigations are necessary. This happened in a fact-check carried out in the *Guardian*, by Henley (2016), resulting in correcting the figure to £248 million a week. In argument-checking, two more evaluative questions play a role. First of all, things might have gone wrong on the relevance level. Whether this is the case can be checked by asking the relevance question. And thirdly, if the premise is both acceptable and relevant, it still might not be deemed sufficient to accept the conclusion. After evaluating each individual argument on the map in this way, in combination with the information about the structure of the argumentation included in the argument map, the evaluator can determine whether to accept the main claim.

4. Conclusion

In this paper, we started with describing fact-checking as a means for combating mis- and disinformation and discussing some limitations thereof. We noted that fact-checking suffers from several practical problems, such as the vagueness of the labels of the results (what does it mean for something to be 'partly true') or the unease felt when fact-checking colleagues. In addition, we described two more fundamental issues. First of all, the scope of fact-checking is limited to determining the veracity of isolated factual statements, while these are often embedded in

arguments. Secondly, doubt is raised regarding the effectiveness of fact-checking in changing beliefs or behavior of people.

We then expounded our method of argument-checking, which consists of three stages: argument detection and mapping, argument type identification, and argumentation assessment. An application of the three steps to a running example is presented here to illustrate the general idea of argument-checking, whereas we refer to earlier work for more elaborate and detailed descriptions of the specific procedural sub-steps.

While fact-checking suffers from limited scope and effectiveness, the method of argument-checking we propose partly resolves these issues. When an individual argument, understood as a conclusion supported by a premise, is checked, it means that it is assessed through posing critical questions related to the acceptability of the premise content, the relevance of the premise for supporting the acceptability of the conclusion, and the sufficiency of that support. In as far as the premise contains a factual statement, answering the first question coincides with fact-checking. At the same time, argument-checking has a broader scope: it includes evaluating the acceptability of premises expressing values and policies as well as evaluating the relevance and sufficiency of statements functioning as premises in relation to the acceptability of the claim they intent to support. Compared to fact-checking, argument-checking thus includes the argumentative context in which factual statements are used into the assessment, overcoming an important limitation of fact-checking. As we illustrated through an example, the sole determination of the veracity of a factual statement does not say much about the acceptability of the claim supported by that statement.

Regarding the second problem related to fact-checking, that of its limited effectiveness, our method of argument-checking addresses the possible causes of this limitation. According to the literature, the effectiveness of fact-checking is hindered by several factors. First of all, fact-checking requires specific expertise and is usually carried out by journalists or professional experts. While argument-checking also requires a certain expertise, its effectiveness might benefit from the fact that people carry it out by themselves instead of being told by others what is true or not. Secondly, there is the inertia of people's beliefs and habits. Once people believe something, it is very difficult to convince them of believing the opposite or something that contradicts it.

Based on a review of a large number of studies on the effectiveness of fact-checking, Droog et al. recommend 'to design media literacy interventions that provide people with technical (non-content related) heuristics to differentiate misinformation from correct information in the information selection phase (rather than in the information processing phase)' (preprint, p. 38). Argument checking, as an activity that is carried out by people themselves, is not substantive but procedural and leaves the final judgment to themselves, could therefore be more effective than fact checking. Although argument checking also requires a certain expertise or experience, the quality of the information is assessed by the reader or listener themselves. This approach to the effectiveness problem is comparable to that of Musi and Reed (2022), whose method aims to teach people to recognize fake news based on identifying fallacies. In the case of argument checking, however, critical questions are used for argumentation types instead of fallacies, because of the aforementioned objections to working with a preconceived idea of what a 'bad' argument is. Ultimately, the problem of the effectiveness of interventions is a psychological problem, and cognitive-psychological research will have to show which direction will appear to be the most effective.

Another line of further research involves developing software that allows people to analyze and evaluate argumentative discourse. The availability of such software reduces the requirements

for expertise in rhetoric and argumentation theory as well as for training in applying theoretical insights to concrete cases, which is one of the factors that potentially limits the effectiveness of argument-checking. While our method is based on established theoretical insights, we believe that its formalization and incorporation into a quasi-algorithmic procedure is a significant and necessary step towards the development of such computer-assisted assessment of persuasive discourse (see also Brave et al., 2022).

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