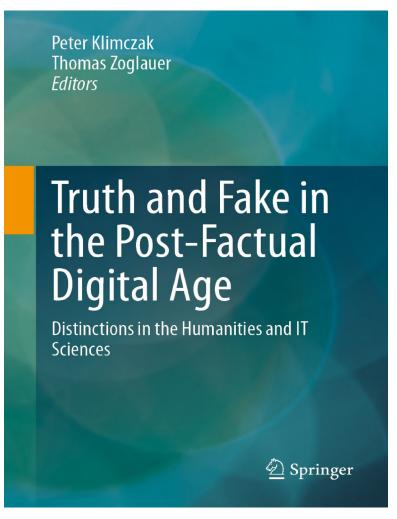# Truth and Fake in the Post-Factual Digital Age: Distinctions in the Humanities and IT Sciences

Truth and Fake in the Post-Factual Digital Age: Distinctions in the Humanities and IT Sciences; by Peter Klimczak and Thomas Zoglauer (Ed.), Springer, 2023, ISBN 9783658404055. DOI: 10.1007/978-3-658-40406-2.

INTRODUCTION

The book "Truth and Fake in the Post-Factual Digital Age: Distinctions in the Humanities and IT Sciences," edited by Peter Klimczak and Thomas Zoglauer, presents a comprehensive exploration of the challenges posed by the surge in fake news and

disinformation in the era of digitalization. Published by Springer in 2023, this work is a translation of the original German edition titled "Wahrheit und Fake im postfaktisch-digitalen Zeitalter," published in 2021 by Springer Fachmedien Wiesbaden GmbH.

The book opens with a thorough examination of the escalating issues associated with fake news, false reports and disinformation campaigns, attributing them to the advancing digitization. The editors propose that information technology, driven by intelligent algorithms and refined data analysis, is crucial to mitigating these undesirable developments. To achieve this, the book emphasizes the necessity of distinguishing between fake and factual information, prompting critical questions about truth, fiction

and their differentiation. The structure of the book encompasses eight chapters, each delving into specific aspects related to truth, fiction and fake in the post-factual digital age. Each chapter critically examines and discusses various theoretical frameworks, historical case studies and technical approaches to understanding and addressing the challenges posed by truth, fiction and fake news. The book encompasses diverse perspectives, ranging from philosophical inquiries into truth relativism and science skepticism to practical, technical solutions for the detection and counteraction of fake news using artificial intelligence and data analysis.

The interdisciplinary nature of the book is evident in its inclusion of contributions from scholars in philosophy, media studies, historical studies and information technology. The authors engage with complex concepts such as post-truth phenomenology, the legitimacy of scientific hoaxes, set-theoretic modeling of represented worlds, fictional epistemologies and the Marxist-Leninist definition of fascism. The editors, provide a cohesive framework that weaves together diverse perspectives and methodologies. The anthology not only highlights the challenges posed by the current truth crisis but also suggests potential solutions and avenues for future research. The inclusion of case studies, such as the Dieter Hötger case and the portrayal of the Berlin Wall, adds depth to the examination of fake news in historical and political contexts. The technical chapters on early detection and countermeasures against fake news demonstrate the book's commitment to addressing real-world challenges using innovative approaches. The tool descriptions, such as TrustyTweet and AI-based machine learning algorithms, provide valuable insights into the ongoing efforts to combat the spread of false information in the digital age. The introductory section of the book provides a concise overview of its contents and each chapter concludes with a list of references for further exploration. The inclusion of an index enhances the book's usability as a reference guide.

Chapter 1 (*Truth Relativism, Science Skepticism and the Political Consequences*) provides an in-depth exploration of the intersection between truth relativism, science skepticism and their ramifications for political discourse and democratic societies. The chapter begins by elucidating how relativist arguments have been co-opted by populist and right-wing movements to justify their narratives, leading to the emergence of post-factual politics. It discusses the phenomenon of "right-wing postmodernism" in the United States, where political figures utilize postmodernist notions to discredit opposing claims and manipulate interpretations of reality. Through examples such as the impeachment trial of President Trump, the chapter highlights the distortion of truth in political arenas and its consequences for democratic processes. The subsequent sections delve into the limits of relativism, critiquing the assertion that everything is relative and examining the necessity of maintaining a stance

that allows for objective truth claims while acknowledging the socially constructed nature of reality. Drawing on philosophical insights from Ludwig Wittgenstein and others, the chapter argues for a perspectival realism that acknowledges the existence of both ontological and epistemic realities. It underscores the importance of distinguishing between objective reality and socially constructed interpretations, advocating for a balanced approach that values scientific inquiry while acknowledging the limitations of human knowledge. Moreover, the chapter discusses the role of science in democratic societies, emphasizing its importance in supporting democratic values through its commitment to evidence-based inquiry and skepticism. It calls for a "new Enlightenment" that prioritizes scientific methodology and critical thinking to combat the proliferation of misinformation and pseudoscience. By contextualizing these discussions within contemporary political landscapes and philosophical frameworks, the chapter provides a comprehensive analysis of the challenges posed by truth relativism and science skepticism. Overall, this chapter serves as a critical examination of the complex interplay between truth, relativism and democracy. Through its rigorous analysis and philosophical insights, the chapter contributes to a deeper understanding of the contemporary challenges facing political discourse and the role of science in upholding democratic principles.

Chapter 2 (*Of Fakes and Frauds: Can Scientific 'Hoaxes' Be a Legitimate Tool of Inquiry?*) explores the intricate domain of scientific hoaxes, investigating their viability as valid tools for inquiry while also examining the ethical and epistemic dilemmas they pose. The chapter begins by examining historical instances of hoaxes in literature and science, particularly focusing on Edgar Allan Poe's adept use of hoaxes to engage and captivate audiences. It highlights Poe's ability to blur the lines between fiction and reality, pointing to the "Great Balloon Hoax" as a prime example of a hoax anchored in enough reality to be plausible yet captivating. Moving into contemporary times, the chapter discusses the evolution of hoaxes in the digital age, emphasizing the proliferation of misinformation and the challenges of discerning truth from fiction in online environments. It analyzes the phenomenon of "fake news" and its impact on public discourse, drawing parallels between traditional hoaxes and modern digital disinformation campaigns. The chapter then delves into the ethical implications of hoaxes, particularly focusing on the "Sokal Squared" project as a case study. It examines the motivations behind the project and the methods employed by its creators to infiltrate academic journals with fabricated essays. Through a critical lens, the chapter evaluates the ethical dilemmas posed by such hoaxes, including issues of deception, informed consent and the potential harm inflicted on unwitting participants in the peer review process. However, the chapter reflects on the legitimacy of scientific hoaxes as tools of inquiry. While acknowledging their potential to challenge established norms and provoke critical reflection, it also highlights the risks of eroding trust in the scientific community and exacerbating biases in peer review.

Striking a balance between critique and integrity, the chapter advocates for careful consideration of the ethical and epistemic implications of scientific hoaxes in scholarly discourse.

In chapter 3 (*Fiction, Fake and Fact: A Set-Theoretic Modeling Together with a Discussion of Represented Worlds*), Peter Klimczak examines the complex relationship among fiction, fake and fact within the framework of set theory modeling. The chapter commences with an exploration of the correspondence theory of truth as proposed by Bertrand Russell, which asserts that the truthfulness of statements is contingent upon their correspondence with factual reality. Nonetheless, the discussion also delves into the coherence theory of truth advocated by Rudolf Carnap and Carl Hempel, underscoring the significance of confirmation and coherence in determining the truth validity of statements. The chapter grapples with the challenge of determining the real world amidst a multitude of represented worlds, each with varying degrees of confirmation. It discusses the notion that truth and falsehood are not inherent properties of beliefs but depend on their relation to external factors. Furthermore, it examines the concept of sufficient confirmation and how it pertains to the determination of factual, fictional and fake worlds. A significant aspect of the chapter revolves around the recognition of subjectivity in the determination of truth and confirmation. It acknowledges that confirmation criteria can be subjective and influenced by factors such as religious beliefs, personal biases and ideological perspectives. This subjectivity introduces variability in the set of represented worlds considered for confirmation, complicating the process of determining the real world. Despite these challenges, the chapter proposes a descriptive approach to modeling reality, which allows for the exploration of different perspectives and interpretations without imposing normative judgments. It emphasizes the relational determination of factuality, fictionality and fakeness based on the relationship between represented worlds and the real world. However, this chapter offers a nuanced examination of truth, confirmation and the determination of reality within a set-theoretic framework. It navigates the complexities of subjective confirmation criteria, variability in represented worlds and the interplay between different perspectives, providing insights into the dynamic nature of truth and reality.

Chapter 4 (*Stranger than Fiction: On Alternative Facts and Fictional Epistemologies*), delves into the contemporary phenomenon of alternative facts in politics and their relationship to fictional epistemologies. It begins by examining how films portray deviations from the correspondence theory of reality as curiosities or falsehoods, questioning whether the rise of alternative facts in politics challenges established epistemologies. The chapter analyzes the role of figures like Donald Trump and Kellyanne Conway in the dissemination of fake news and alternative facts, arguing that while they undermine the credibility of traditional media, they do not fundamentally challenge the correspondence

theory of reality. Instead, their actions are seen as strategic attempts to maintain power and control the narrative. Drawing parallels to the postmodern literary works of Thomas Pynchon, particularly "Gravity's Rainbow," the chapter explores themes of conspiracy and paranoia. Pynchon's novels critique rationalist approaches to understanding the world, suggesting that attempts to impose order on reality are ultimately circular and self-serving. This literary analysis provides a framework for understanding the contemporary political landscape and the erosion of truth and credibility. The chapter concludes by emphasizing the importance of credibility in media and politics, arguing for a theory of truth based on quality criteria for assessing the credibility of news sources. It warns against the dangers of undermining this credibility, as it erodes trust in institutions and democratic processes. Overall, the chapter offers a nuanced examination of the intersection between politics, media and fiction, highlighting the ways in which alternative facts and fictional epistemologies shape contemporary discourse and challenge established norms of truth and reality.

In Chapter 5 (*The Marxist-Leninist Definition of Fascism and the Berlin Wall: Individual Consequences of Fake News and Conspiracy Theories Spread by the Media*) Andreas Neumann, explores the complex relationship between Marxist-Leninist ideology, the construction of the Berlin Wall and the dissemination of propaganda through media platforms in the German Democratic Republic (GDR). Neumann examines how the narrative of anti-fascism was utilized by the GDR leadership to legitimize its regime and justify the construction of the Berlin Wall. The chapter offers a comprehensive analysis of the ideological underpinnings of the GDR state apparatus and its impact on individual perceptions and behavior. Neumann begins by elucidating the Marxist-Leninist definition of fascism, which formed the cornerstone of GDR ideology. According to this perspective, fascism was not merely a historical phenomenon but a perpetual threat emanating from capitalist societies, particularly West Germany. The GDR leadership portrayed itself as the vanguard of the anti-fascist struggle, casting communist forces as heroic defenders against the resurgence of fascism in the Western world. This narrative served to unify the population under the banner of socialism and justify the authoritarian measures implemented by the state. Central to Neumann's analysis is the role of media in disseminating propaganda and shaping public perception. He examines how films such as "For Eyes Only" and television series like "Rendezvous mit Unbekannt" propagated the narrative of Western imperialism and the necessity of the Berlin Wall for protecting the GDR from fascist infiltration. These media representations not only reinforced the official party line but also engendered a sense of moral righteousness among the populace, bolstering support for the regime. Moreover, Neumann explores the individual consequences of consuming state-sponsored propaganda and internalizing Marxist-Leninist ideology. He suggests that repeated exposure to fake news and

conspiracy theories may have led some individuals to uncritically accept the regime's narrative, while others remained skeptical, especially those with access to Western media. However, even among dissenters, the pervasive nature of state propaganda likely influenced attitudes and behaviors to some extent, illustrating the nuanced relationship between ideology, media and individual agency in the GDR.

Chapter 6 (*Caution: Possible "Fake News"-A Technical Approach for Early Detection*) of the book delves into the intricate process of detecting fake news within the realm of social media platforms, focusing on linguistic and metadata analyses as key methodologies. The chapter outlines the multifaceted approach employed, encompassing both content-based and network-based strategies to identify and combat misinformation effectively. Beginning with a linguistic analysis of content, the chapter elucidates the various modules involved in parsing and understanding textual data. Tokenization serves as the initial step, breaking down the text into discrete units such as words and punctuation marks. Language identification follows, enabling the system to discern the language of the text, which is crucial for subsequent analyses. Part of Speech (POS) tagging assigns grammatical categories to words, facilitating syntactic analysis and providing insights into the structure of the text. Lemmatization further enhances understanding by reducing words to their base or dictionary form, thereby standardizing vocabulary and aiding in feature extraction. Moreover, the chapter highlights the significance of Named Entity Recognition (NER) in identifying entities such as people, organizations and locations mentioned in the text. Sentiment analysis is employed to gauge the tone of the text, distinguishing between neutral, positive and negative sentiments, which can be indicative of biased or misleading content. These linguistic analyses, conducted using Natural Language Processing (NLP) pipelines and machine learning techniques, contribute to the formulation of feature patterns essential for fake news detection.

In parallel, the chapter discusses the metadata analysis, which entails evaluating supplementary information associated with social media posts. Metadata such as timestamps, user profiles and network data are scrutinized to discern patterns indicative of misinformation dissemination. Network analysis plays a pivotal role in identifying relationships between users, detecting potential bot activity and elucidating the dynamics of information diffusion within online networks. By examining micro-level interactions and macro-level structures, such as cliques and diffusion networks, the system can discern orchestrated information campaigns and strategically manipulated dissemination patterns. Furthermore, the chapter underscores the integration of linguistic and metadata analyses into a comprehensive framework for fake news detection. This holistic approach enables the system to leverage linguistic features and network dynamics synergistically, enhancing its

efficacy in identifying and combating misinformation. Moreover, the chapter discusses the limitations of fake news detection tools, emphasizing that they do not verify the accuracy of news items but instead identify potential indicators of misinformation. It underscores the importance of selecting appropriate training corpora to ensure that detection systems are capable of recognizing diverse forms of fake news. Additionally, the chapter acknowledges the ongoing challenge of adapting detection systems to counter evolving strategies employed by purveyors of fake news. Despite these challenges, the chapter concludes that fake news detection systems play a crucial role in mitigating the spread of misinformation by increasing the effort required to generate and disseminate fake news, thereby potentially reducing its prevalence.

Chapter 7 (*Countering Fake News Technically-Detection and Countermeasure Approaches to Support Users*) of the book written by Katrin Hartwig and Christian Reuter, explores technical approaches to counter fake news and support users in assessing the credibility of information, particularly within social media platforms. The chapter underscores the growing significance of addressing fake news in both political and social contexts and highlights the lack of user-centric approaches in existing studies, which primarily focus on detection and labeling of fake news.

The scholars discuss the distinction between black-box and white-box approaches, noting that while black-box methods offer higher accuracy in detecting fake news, they lack transparency in explaining automated decision-making to end-users. In contrast, white-box approaches, such as TrustyTweet, aim to provide users with transparent indicators of fake news, thus enabling them to make informed assessments without generating reactance. Detection methods for fake news on social media encompass various approaches, including user reporting, manual fact-checking by professionals and automated techniques such as style-based, propagation-based and context-based detection. The chapter highlights the importance of interdisciplinary approaches to tackle the complexity of fake news dissemination. Furthermore, the chapter explores the effectiveness of different countermeasures implemented by social media platforms, such as Facebook, to mitigate the spread of fake news. It discusses the challenges and limitations of these approaches, including the potential for counterproductive outcomes and emphasizes the role of media literacy training in empowering users to critically evaluate online content. The authors present TrustyTweet as a white-box approach to assist Twitter users in identifying fake news by providing politically neutral and transparent indicators. They discuss the design principles underlying TrustyTweet, including personalization, transparent information provision, unambiguous warnings, personalized perceptibility and minimization of false alarms. Initial empirical findings suggest promising potential for TrustyTweet in enhancing users' media literacy and combating

the spread of fake news on social media platforms. However, the chapter advocates for a combination of automatic detection methods and user-centric support measures to effectively address the challenges posed by fake news. It highlights the need for further research to evaluate the effectiveness of such approaches in enhancing users' ability to discern credible information and mitigate the impact of misinformation.

In Chapter 8 (NewsDeps: Visualizing the Origin of Information in News Articles) Felix Hamborg, Philipp Meschenmoser, Moritz Schubotz, Philipp Scharpf and Bela Gipp, addresses the pressing issue of information authenticity and transparency in news articles. Unlike scientific publications that often include citations for verification, news articles lack citations, making it difficult for readers to assess the credibility of the information presented, especially in the era of "fake news" and media centralization. The authors introduce NewsDeps, a pioneering approach that analyzes and visualizes the sources of information in news articles. Utilizing techniques from natural language processing and plagiarism detection, NewsDeps measures the similarity between articles and constructs a temporal-force-directed graph to chronologically position articles and connect them based on their similarity. This visualization allows users to discern which previously published articles serve as the primary sources for a given article, enhancing transparency and aiding in the assessment of authenticity. The rise of online news consumption has led to a decrease in reporting quality due to the pressure to publish quickly, resulting in information reuse and potential spread of unverified information. NewsDeps addresses this challenge by identifying instances of information reuse, including direct copying, paraphrasing and merging of text segments. By categorizing articles based on their similarity, NewsDeps provides users with insights into the authenticity and novelty of information presented in news coverage. The system workflow consists of three phases: news import, similarity measurement and visualization. NewsDeps imports news articles from various sources, computes document-to-document similarity matrices using established similarity measures and visualizes news dependencies in a directed graph. The visualization allows users to explore articles at different levels of detail and provides interaction techniques for enhanced exploration and understanding. A case study demonstrates the effectiveness of NewsDeps in two scenarios: assisting non-expert news consumers in identifying information reuse and providing an overview of multiple news topics. The visualization reveals patterns of information reuse among articles reporting on the same topic and facilitates understanding of the evolution of news coverage over time. The authors discuss future directions for research, including the identification of more complex forms of information reuse and the development of neural architectures for information reuse detection. They also highlight the potential applications of NewsDeps in social

sciences research and propose enhancements to the visualization to further aid users in understanding news dependencies.

An Appraisal

The edited volume offers a comprehensive exploration of the intricate relationship between truth, misinformation and technology in the contemporary digital landscape. The book, comprising eight chapters authored by experts in both humanities and information technology sciences, delves into various facets of this complex issue with depth and rigor.

One of the book's strengths lies in its interdisciplinary approach, bridging the gap between the humanities and IT sciences to provide a nuanced understanding of truth and falsehood in the digital age. Each chapter offers unique insights into different aspects of the phenomenon, from the detection and countermeasure approaches for fake news to the visualization of information origin in news articles. Moreover, the book's examination of the societal implications of misinformation, including its impact on news consumption habits and the erosion of trust in media, is particularly relevant and timely. By shedding light on the mechanisms of information dissemination and manipulation in online platforms, the book equips readers with valuable knowledge to navigate the contemporary media landscape more critically and responsibly. Additionally, the inclusion of case studies and practical applications, such as the analysis of news dependencies using innovative approaches like NewsDeps, enhances the book's relevance and applicability to real-world contexts. Overall, the book stands out as a valuable resource for scholars, practitioners and anyone interested in understanding and addressing the challenges posed by misinformation in the digital era. Its interdisciplinary approach, insightful analysis and practical insights make it a comprehensive and indispensable contribution to the ongoing discourse on truth and falsehood in the digital age.

While the book offers valuable insights into the complex interplay between truth, misinformation and technology, there are certain areas that could benefit from critical examination. Firstly, while the book provides innovative approaches and tools for detecting and visualizing misinformation, it could engage more deeply with the ethical implications of such technologies. For instance, the use of algorithms and artificial intelligence in identifying fake news raises concerns regarding privacy, bias and the concentration of power in the hands of tech companies. A critical examination of these ethical dilemmas would enrich the discussion and prompt readers to consider the broader societal implications of technological solutions to misinformation. Furthermore, the book could explore the role of political, economic and social factors in the proliferation of misinformation. While technological advancements certainly play a significant role, broader structural issues such as media ownership, political

polarization and economic incentives also contribute to the spread of fake news. A critical analysis of these systemic factors would provide a more holistic understanding of the problem and inform more comprehensive solutions.

In conclusion, "Truth and Fake in the Post-Factual Digital Age" stands as a significant contribution to the scholarly discourse on the challenges posed by fake news and disinformation. Its interdisciplinary approach, rigorous examination of theoretical frameworks and practical insights make it a valuable resource for researchers, scholars and practitioners across philosophy, historical studies, information technology and media and communication studies.

Reviewed by

Sanjoy Kar
Institute of Development Studies Kolkata (IDSK),
Salt Lake City, Kolkata, West Bengal INDIA.
Email: sanjoy@idsk.edu.in
ORCID: 0000-0001-5050-5945