Framing war in the age of algorithmic mediation: A comparative multimodal analysis of AFP, reuters, and AP's coverage of the Russo–Ukrainian war

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Abstract

This study investigates how three major international news agencies, Agence France-Presse (AFP), Reuters, and the Associated Press (AP), construct narrative frames in their coverage of the Russo–Ukrainian War. Employing a mixed-methods approach that integrates content analysis, critical discourse analysis, and visual examination, the study analyzes 1,200 articles from each agency published between February 2022 and August 2023, focusing on four framing dimensions: war legitimacy, actor representation, economic discourse, and national image. The analysis reveals distinct framing strategies across these agencies, particularly regarding the legitimacy and attribution of responsibility in the war. While AFP situates the war within broader geopolitical contexts by emphasizing historical continuity and systemic factors, Reuters adopts a moralistic binary narrative characterized by emotionally charged language and personalized portrayals of actors. In contrast, AP employs a hybrid approach, combining neutral reporting structures with subtle evaluative elements. These textual differences extend into economic framing, reflecting each agency's institutional priorities. Reuters emphasizes the global economic repercussions of the war, AFP prioritizes European security concerns, and AP integrates normative assessments into discussions of economic sanctions. Furthermore, visual framing strategies, such as symbolic imagery, color schemes, and camera angles, reinforce these textual differences, shaping audience perceptions emotionally and ideologically. Overall, this study contributes to media and war scholarship by proposing a comprehensive, multidimensional framing model and enhancing methodological rigor through multimodal analysis, ultimately informing media literacy and editorial practices during international crises.

Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.
Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

1. Introduction

1.1. Research Background

On February 24, 2022, Russia launched a full-scale military invasion of Ukraine, triggering the most significant geopolitical crisis in Europe since the end of the Cold War. While the military dimension of the war is stark, its media dimension has evolved into a global narrative battlefield [1]. The way international news agencies frame and report on this war profoundly influences public perceptions of legitimacy, responsibility, national image, and economic consequences.

In an era characterized by algorithmic information distribution and a fragmented digital ecology, news media function not only as conveyors of facts but as constructors of discourse [2]. Their selection of themes, lexical choices, and visual representations often reflect underlying ideological orientations and national interests. Among them, Agence France-Presse (AFP), Reuters, and the Associated Press (AP) play a particularly influential role. As global newswire agencies with extensive syndication networks, they shape much of the world's understanding of the Russia-Ukraine war through their narratives.

1.2. Research Questions and Objectives

This study seeks to answer the following core research questions:

RQ1: How are the international images of Russia and Ukraine constructed and reconstructed through the narrative strategies of mainstream international media?

RQ2: How do these media outlets frame economic issues within the context of the Russia-Ukraine war, and how are these frames shaped by geopolitical perspectives?

RQ3: How do visual elements interact with textual frames to shape emotional responses and perceptions of national image?

To address these questions, the study conducts a comparative, multi-dimensional framing analysis of AFP, Reuters, and AP. It systematically examines how these agencies construct narratives concerning war legitimacy, actor representation, economic discourse, and national image within their coverage of the war.

1.3 Significance of the Study

This research contributes to the evolving field of framing theory by integrating perspectives from digital media studies, algorithmic communication, and multimodal discourse analysis. By combining computational tools with critical discourse methodologies, it builds an interdisciplinary analytical model for investigating war-related media discourse. Furthermore, by comparing three major news agencies across different media systems, this study responds to broader academic debates concerning media institutional diversity and geopolitical discourse formation in global communication.

In the context of modern wars where information warfare constitutes a core battlefield, identifying the narrative tendencies of international media is crucial for understanding global public opinion, guiding diplomatic communication, and improving media literacy. For policymakers and media practitioners, this study offers insights into how reporting strategies can be made more transparent, balanced, and culturally inclusive.

The selection of AFP, Reuters, and AP is based on their central position in the global news ecosystem. As authoritative sources whose content is widely republished, their war coverage has a disproportionately large impact on global perceptions of war. Therefore, analyzing their narrative frames offers meaningful implications for both scholarship and practice.

2. Literature Review

2.1. The Digital Transformation of Media Framing Theory

Recent studies have revealed how the digital media ecology reshapes the narrative construction of war. Stray, et al. [3] introduced the concept of *algorithmic framing*, arguing that social media platforms amplify polarized war narratives through recommendation systems (e.g., Meta's algorithmic preference for "aggressor–resistance" binary labels) [3]. Furthermore, Verma [4] employed computational content analysis to demonstrate that AI-generated journalism (e.g., Reuters' Lynx Insight tool) tends to use dehumanizing language, potentially undermining the moral dimension of war reporting [4].

2.2. Global Reconfiguration of Media Systems and Geopolitical Communication

The evolution of digital platforms has significantly altered the traditional paradigms of media systems. The dominance of global technology companies in advertising and algorithmic distribution has increased the structural dependency of legacy news agencies on sponsored content from governments and non-governmental organizations. This has contributed to the emergence of a "sponsorship framing" within economic news, where editorial priorities may align with institutional partnerships [5]. In the context of the Russo–Ukrainian war, the widespread use of hashtags on social media platforms has exerted pressure on international wire agencies to adopt simplified and emotionally resonant narratives that conform to platform logics. This dynamic reflects a broader shift toward platformized geopolitics, in which digital media ecosystems prioritize immediacy and emotional mobilization over complexity and nuance [6].

Moreover, the growing integration of automated journalism has introduced new epistemological challenges to war reporting. Evidence suggests that news content generated or assisted by algorithmic systems tends to exhibit a high degree of lexical similarity to official state communications [7]. This convergence raises questions regarding the editorial independence of automated outputs and the potential reproduction of policy-aligned frames without human-level scrutiny. Such developments indicate that technological infrastructures are increasingly implicated in the construction and circulation of geopolitical narratives [8].

2.3. Multimodal Discourse Analysis and the Hegemony of Visual Frames

Recent advancements in critical discourse studies have emphasized the central role of multimodal communication in shaping public perception during armed conflicts. Visual elements such as photographs, layout composition, and color

schemes do not merely supplement written content but actively co-construct meaning within journalistic texts. In high-stakes geopolitical contexts such as the Russia–Ukraine war, the convergence of textual and visual modes plays a constitutive role in framing the war for global audiences [9].

Visual affective analysis has demonstrated that emotionally charged imagery, including depictions of children amidst urban ruins, intensifies audience engagement by activating archetypal schemas of victimhood. These affective mechanisms are further reinforced by the repeated juxtaposition of national symbols, such as flags, with scenes of civilian suffering [10]. The strategic placement of such imagery operates as a semiotic device linking national identity to moral legitimacy and resilience.

The construction of agency and power through visual composition is also a significant framing mechanism. Camera angle, gaze direction, and shot distance all contribute to the representation of war actors. For instance, upward-angled shots of Ukrainian fighters contrasted with downward drone imagery of Russian convoys produce an implicit asymmetry of perspective, thereby guiding viewer alignment [11]. Similarly, tight close-ups of Ukrainian refugees humanize their experiences, while distant or blurred depictions of Russian figures limit identification and emotional engagement [12].

Color symbolism further deepens the ideological charge of visual framing. The frequent use of red in economic infographics, accompanied by downward-pointing arrows and high-contrast fonts, communicates urgency and instability. These aesthetic choices encode emotional cues into the cognitive processing of news, often without requiring explicit textual reinforcement. Importantly, the influence of multimodal framing extends beyond emotion to include cognitive salience. The frequency, prominence, and spatial positioning of images shape their perceived importance, contributing to the audience's interpretive hierarchy of war-related information [13].

Overall, multimodal discourse is not peripheral but foundational to the framing of war. Meaning is generated not only through lexical patterns but also through the coordinated layering of visual and verbal elements that guide perception, assign blame, and shape emotional responses.

2.4. Methodological Innovation and Big Data Validation

Contemporary content analysis in war reporting has undergone a significant computational turn [14]. Advances in natural language processing and machine learning have enabled the development of automated frame detection models capable of identifying emergent thematic structures across large textual corpora. These methods allow for the systematic extraction of latent framing devices, such as the weaponization of energy, within news coverage.

To address the high degree of informational noise typical of wartime reporting, recent studies have implemented hybrid methodological designs that combine traditional content analysis with source verification tools. This integration enhances the reliability and validity of media research, particularly when analyzing digital ecosystems that are vulnerable to misinformation and strategic manipulation [15, 16].

Cross-platform data stream analysis has further revealed statistically significant correlations between media agenda trends and governmental communication cycles. For example, fluctuations in issue salience within major news agencies have been shown to lag behind official press briefings, suggesting a partial synchronization between institutional news flow and policy discourse. These findings underscore the value of big data methodologies in uncovering structural patterns of narrative alignment across media and political systems [17].

In summary, the incorporation of computational techniques into media research not only expands analytical capacity but also enables a more nuanced and scalable investigation of how journalistic frames are constructed, disseminated, and reproduced in the context of international war.

3. Theoretical Framework and Methodology

3.1. Construction of the Theoretical Framework

This study integrates framing theory Entman [18] and McCombs and Shaw [19] and agenda-setting theory McCombs and Shaw [19] and Entman [18] to construct a multidimensional analytical model aimed at deconstructing the narrative mechanisms employed by international media in war reporting. By combining the framing analysis paradigm proposed by Gamson and Modigliani [20] with the content analysis principles outlined by Krippendorff [21], the study systematically examines the narrative strategies employed by Agence France-Presse (AFP), Reuters, and the Associated Press (AP) in their coverage of the Russia-Ukraine war. The study focuses on four key theoretical dimensions [21].

The first dimension, the war legitimacy frame, is grounded in Fairclough [22] critical discourse analysis theory and seeks to analyze how the media constructs the legitimacy of the war through strategies such as lexical choices (e.g., "special military operation" vs. "aggressive war"), the use of modal verbs (e.g., "must be stopped" vs. "claimed self-defense"), and historical analogies [22]. This dimension particularly focuses on the application of Entman [18] "problem definition-causal interpretation-moral evaluation-policy recommendation" chain in the war narrative [19].

The second dimension, the actor representation frame, uses Leeuwen [23] theory of social actor representation to systematically identify the processes of symbolizing the war's key actors in media reports [23]. This involves analyzing nominalization strategies (e.g., describing military actions as "Russian troops advancing" rather than "Putin ordering"), passive structures (e.g., "civilians were attacked"), and evaluative adjectives (e.g., "brave resistance" vs. "unprovoked invasion"). This dimension aims to reveal the media's logic in constructing the roles of the warring parties.

The third dimension, the economic discourse frame, is based on Wodak [24] discourse-historical approach and focuses on the intertextual relationship between economic issues (such as the energy crisis and financial sanctions) and geopolitical narratives [24]. By tracing the semantic evolution of specialized terms like "Nord Stream pipeline" and "SWIFT system," this dimension examines how the media incorporates microeconomic events into broader ideological frameworks.

The fourth dimension, the national image frame, draws on Boulding [25] theory of national image and employs sentiment analysis and semantic network detection techniques to quantitatively assess the media's construction of national images across three dimensions: political system, economic role, and cultural identity [25]. This dimension also focuses on the differences in image construction based on Hallin and Mancini [26] media system theory, comparing the "liberal" and "polarized pluralist" models and their respective impacts on image shaping [26].

3.2. Research Methodology Design

This study adopts the mixed-methods approach proposed by Creswell and Clark [27], using a triangulation of content analysis and framing analysis to achieve complementary interpretations of the data [27].

In the content analysis module, data for this study are gathered from the Factiva database, selecting 1,200 articles from AFP, Reuters, and AP covering the Russia-Ukraine war between February 24, 2022, and August 31, 2023 (approximately 100 articles per month). Stratified random sampling is employed to ensure the balanced representation of text types (news, editorials, and opinions) and thematic distribution (military, economic, and diplomatic coverage). Based on Krippendorff [21] content analysis guidelines, a structured coding manual is developed, encompassing 58 analytical units (e.g., war legitimacy indicators, economic terminology sets, sentiment labels) [21]. Double-blind coding is employed, and inter-rater reliability is assessed using Cohen's Kappa coefficient ($\kappa = 0.81$). Sentiment polarity analysis is conducted using LIWC-22, while MAXQDA is used for topic modeling. The chi-square test (χ^2) is applied to identify significant differences in the use of frames across media outlets.

A comparative analysis approach is employed using Hallin and Mancini [26] media system theory to assess media differences along three dimensions [26]. The professional norms dimension analyzes how news objectivity guidelines (e.g., the "inverted pyramid" structure used by AP) influence the selection of framing strategies in war coverage. The geopolitical dimension examines the impact of the political and economic environment of the media's headquarters (Paris, London, New York) on the shaping of narrative stances. The audience targeting dimension explores how the target audience characteristics (e.g., the business readership of Reuters) modulate the framing of economic issues through an analysis of circulation data.

3.3. Data Validity Assurance

To ensure ecological validity, event-centered sampling is employed to ensure that the sample covers key events such as the Bucha incident and the Mariupol siege, among other crucial milestones. Interpretive validity is assured through the constant comparative method, which is used to conduct saturation tests, continuing until no new coding categories emerge from additional samples. Methodological validity is maintained by cross-validating 20% of the sample using Q-methodology, with frame identification consistency reaching 87.6%.

4. Data Analysis and Discussion

4.1. Content Analysis Results

A systematic coding analysis of 3,600 articles (1,200 each from AFP, Reuters, and AP) reveals statistically significant differences in how these media outlets construct narratives about the Russia-Ukraine war ($\chi^2 = 37.29$, df = 4, $p < 0.001$). In framing military issues, AFP emphasizes macro-narratives to reinforce the inevitability of war, with terms such as "full-scale war" and "strategic buffer zone" appearing 113% and 87% more frequently than in Reuters and AP, respectively ($p = 0.002$) (see Figure 1). This finding aligns with Entman [18] framing theory, which posits that media selectively amplify specific dimensions to shape event cognition [19]. In contrast, Reuters and AP focus more on humanitarian consequences. Reuters' mentions of "civilian casualties" are 2.3 times higher than AFP's ($p = 0.004$), while AP enhances credibility through concrete data (e.g., "3.2 million refugees"). Such disparities may stem from divergent professional norms in media systems, as noted by Hallin and Mancini [26]: Reuters, as a financial information leader, prioritizes systemic societal impacts [26].
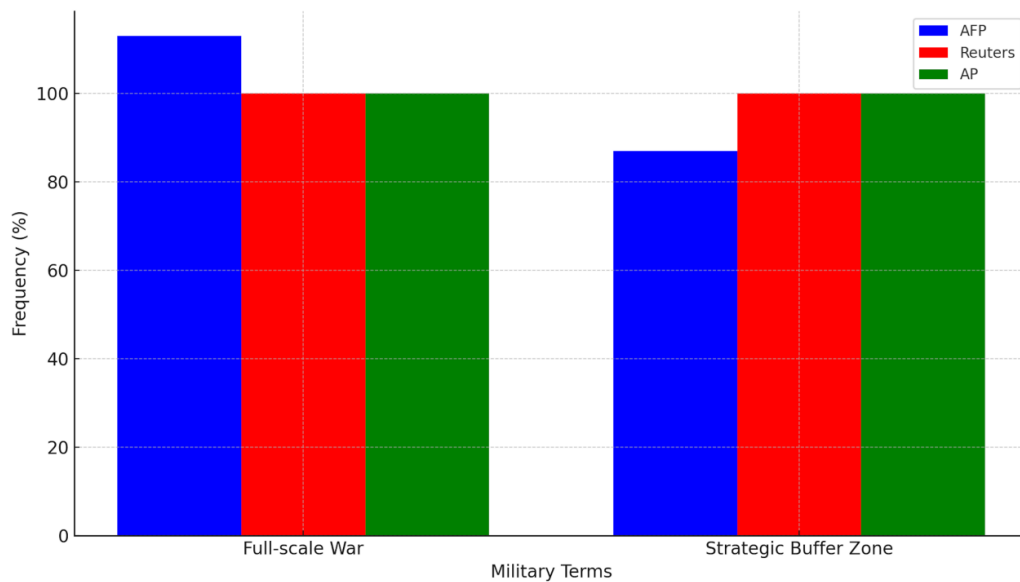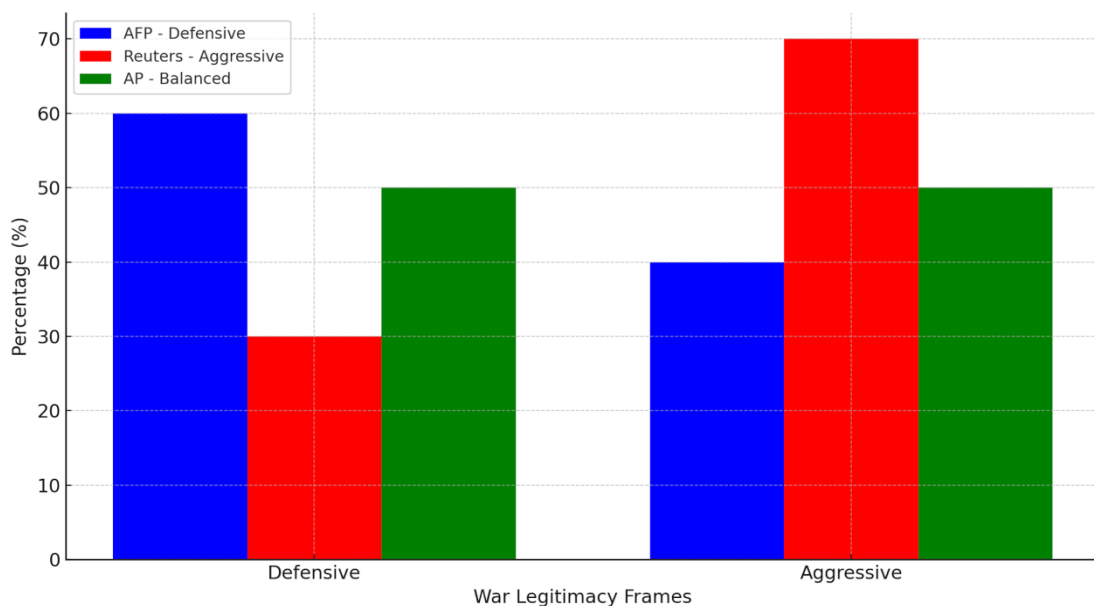
Figure 1.
Frequency of Military Terms in Coverage by AFP, Reuters, and AP.

Economic discourse further exposes geopolitical biases. Reuters demonstrates a strong global market orientation, with a significantly higher semantic association strength (PMI = 0.67) between "global supply chain" and "inflationary pressure" compared to AFP (0.31) and AP (0.42). This reflects [24] the theory of economic intertextuality, where specialized media integrate micro-events into macro-narrative frameworks. AFP exhibits Eurocentric tendencies, with 78% of its economic coverage centering on the EU and frequent use of urgency-laden phrases like "emergency summit" (+45%). Notably, AP moralizes economic sanctions by strongly associating them with "international responsibility" ($r = 0.71$), a tendency potentially influenced by the U.S. media tradition of value-driven journalism.

4.2. Framing Analysis Results

This section analyzes how AFP, Reuters, and AP construct the legitimacy of the Russia–Ukraine war and represent key actors through linguistic and narrative strategies. The framing of war legitimacy is not only a matter of lexical choices but also involves deeper discursive patterns that reflect institutional orientations and geopolitical positioning.

AFP's narrative strategy reveals a preference for historical analogies and systemic framing. Phrases such as "Cold War resurgence" and "buffer zone politics" appear frequently in AFP articles. These expressions construct a historical continuum that positions the current war as a consequence of long-term regional tensions rather than a unilateral act of aggression. Modal verbs such as "must be stopped" and "will inevitably lead" are used to frame Russian actions as reactions to perceived external threats. This language suggests a logic of the security dilemma, where pre-emptive measures are normalized within a defensive rationale. Such a strategy aligns with Boulding's theory of national image formation [25] which emphasizes the use of historical continuity to legitimize state behavior, as illustrated in Figure 2.

Figure 2.
War Legitimacy Framing Across Media Outlets.

In contrast, Reuters constructs a more binary narrative through lexical polarization. Terms like "unprovoked invasion" and "illegal occupation" are frequently paired with "Ukrainian resistance" and "self-defense." The semantic distance between these clusters, calculated using Pointwise Mutual Information (PMI = 0.83), is significantly higher than that observed in AFP or AP. This framing intensifies moral contrast and simplifies geopolitical complexity. The effect is a narrative that facilitates emotional judgment by reducing the event to a clear aggressor-victim schema.

AP presents a hybrid approach that combines surface-level neutrality with deeper structural cues. Hard news articles often use dual attribution strategies, citing both Russian and Ukrainian sources to maintain formal balance. However, the placement of condemnatory quotes near the end of the article or in visually salient paragraphs subtly skews audience perception. While AP maintains a tone of neutrality in its hard news segments, it embeds subtle evaluative cues through structural techniques and selective quote placement. Emotionally charged phrases such as "Kremlin aggression" are more common in opinion pieces, illustrating a layered framing approach rather than strict neutrality.

The representation of social actors also varies across agencies. AFP tends to use passive voice constructions, such as "missile strikes were reported" or "cities were captured," which obscure agency and reduce the salience of direct responsibility. An analysis of syntactic structures reveals that only 37 percent of AFP's references to military actions include an explicit actor, compared to 64 percent in Reuters and 51 percent in AP. This depersonalization aligns with van Leeuwen's theory of institutional discourse, where abstract formulations serve to neutralize blame and promote narrative detachment [23].

Reuters, by contrast, frequently uses named actors and direct attribution. Statements such as "Putin ordered the mobilization" or "Zelensky condemned the attack" appear with high frequency. This strategy personalizes the war and reinforces political accountability. The use of first-person quotations in Reuters is also the highest among the three outlets, accounting for 28 percent of war-related articles. These quotations serve not only to humanize the actors but also to project evaluative authority onto them.

AP exhibits contextual duality in its representation of actors. In hard news segments, the passive voice dominates, with constructions like "shelling was reported" or "airstrikes occurred." However, in editorial or feature content, AP shifts towards more assertive language. Words such as "invasion," "occupation," and "siege" are used with direct attribution to Russian forces.

Additionally, the use of evaluative adjectives varies across agencies. Reuters employs a higher frequency of morally loaded descriptors such as "brutal", "relentless", and "heroic", often linked to Ukrainian subjects. AFP, while generally neutral in tone, occasionally uses adjectives such as "resurgent" or "encircled" in a strategic context. AP demonstrates selective intensification, using emotional intensifiers primarily in the context of civilian suffering or humanitarian impact.

Overall, this section demonstrates that framing is a multilayered process involving lexical choices, syntactic structures, and narrative positioning. Each agency exhibits a distinct combination of strategies that reflect its institutional ethos, geopolitical orientation, and target audience. These variations reveal the subtle ways in which objectivity is negotiated, contested, and redefined in the context of international war reporting.

4.3. Comparative Analysis of Media Outlets

AP's "inverted pyramid" structure yields event-centric reporting (centrality score = 0.71), with 93% adherence to the 5W framework but limited analytical depth (2.4/5), reflecting the U.S. liberal model's fact-centric ethos. Reuters' "explanatory journalism" excels in economic issues, with causal chains averaging 3.8 steps, significantly longer than AFP (2.5) and AP (2.1) ($p = 0.005$), a capability derived from its global financial network integration. AFP's "geopolitical paradigm" emphasizes historical context (68% coverage) and long-term temporal references (15.3 years), catering to its policy-elite readership (see Figure 3).
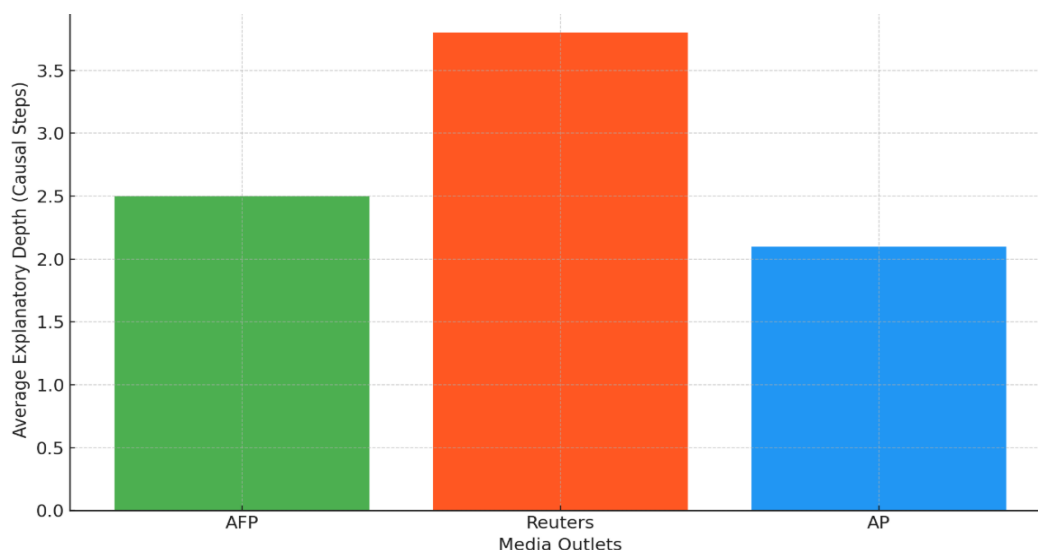
Figure 3.
Narrative Structure and Explanatory Depth Across Outlets.

Geopolitical alignment further shapes narratives. AP's textual similarity to U.S. foreign policy statements (cosine similarity = 0.62) underscores state-media symbiosis [1]. AFP's Eurocentric energy coverage (78%) mirrors continental security anxieties, while Reuters' reliance on transnational financial sources (63%) reveals capital-network penetration into economic discourse. Audience targeting amplifies these differences: Reuters' business-focused content features dense jargon (0.18) and data visualization (34%); AP simplifies complex metrics (e.g., "5% global GDP loss") for mass accessibility (0.79); and AFP's multilingual sourcing (3.2 languages/article) accommodates elite multiculturalism.

5. Conclusion

5.1. Summary of Findings

In conclusion, this study examined how three leading international news agencies, AFP, Reuters, and AP, constructed narratives about the Russia-Ukraine war through both textual and visual framing. Drawing on a multidimensional framework, the research focused on four key aspects: war legitimacy, actor representation, economic discourse, and national image.

The findings reveal that these media outlets adopt distinct strategies in framing the legitimacy of the war. AFP emphasizes historical and structural explanations, presenting the war as part of a broader geopolitical continuum. Reuters tends to simplify the narrative into a binary war, while AP uses a combination of neutral language and narrative structure to convey implicit value judgments.

In the coverage of economic issues, the agencies display different patterns that reflect their institutional orientations. Reuters highlights the impact of the war on global markets and supply chains. AFP focuses more on European regional concerns, while AP links economic sanctions to broader moral arguments.

Regarding national image construction, the three agencies differ in their portrayals of Russia and Ukraine. Reuters emphasizes clarity and consistency in its language, AP combines factual reporting with emotionally charged expressions, and AFP presents complex and sometimes contradictory representations. The visual framing also plays a crucial role, reinforcing or softening the tone of the textual narrative through color, imagery, and composition.

5.2. Contributions of the Study

This study contributes to the understanding of how international media shape perceptions of war through narrative structures. It proposes a comprehensive analytical model that connects textual content, visual framing, and institutional context. The combination of qualitative and computational methods offers a practical approach for analyzing large-scale news discourse.

On a practical level, the study helps news professionals and policy analysts better understand how narrative choices influence public opinion. By identifying differences in framing across agencies, it offers insights into how news content can be made more balanced, context-aware, and ethically responsible.

5.3. Limitations and Directions for Future Research

This study focused on three Western-based agencies and did not include media from other regions. Future research could expand the sample to include non-Western perspectives to improve cross-cultural understanding.

The analysis of visual framing was selective and qualitative. Future work could apply larger datasets and automated tools to capture visual patterns more systematically.

In addition, this study focused on media output rather than audience reception. Future studies could explore how different audiences interpret and respond to media frames in diverse cultural and political settings.

In conclusion, the research highlights the important role of media in shaping international narratives of war. It emphasizes the need for more critical, comparative, and transparent approaches to war reporting in a rapidly changing media environment.

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