Original Paper

A Comparative Study of Multimodal Metaphors in Chinese and American Climate News Cartoons

Xiaoyu Wang[1*]

[1] School of Foreign Language, Chongqing Jiaotong University, Chongqing, China

Abstract

The study employs Multimodal Metaphor Theory and Critical Metaphor Analysis to examine data from Chinese and American climate news cartoons using NVivo. This approach enables an exploration of the similarities and differences between China and the United States regarding climate issues, as the cartoons provide valuable insights into the cultural and political values associated with these issues. The main findings of the study are as follows: (1) The cartoons predominantly utilize a range of metaphorical constructs, including the "Threat metaphor," "Responsibility metaphor," "Hoax metaphor," "Disease metaphor," "War metaphor," and "Journey metaphor." (2) Multimodal metaphors are primarily conveyed through the interplay of textual and visual elements, as well as the juxtaposition of foreground and background. (3) A critical metaphor analysis of the data reveals that China and the United States share a similar stance on climate issues, with both nations actively pursuing solutions to combat climate change in cartoon news. However, the analysis of climate cartoon metaphors suggest that the United States adopts a contradictory stance and course of action in relation to China in news media presentation of climate issues.

Keywords

multimodal metaphors, critical metaphor analysis, climate-related cartoons

1. Introduction

The International Meteorological Organization (IMO) defines climate change as the long-term variability of the climate system due to natural factors or human activities, with "long-term" typically referring to time scales of 30 years or more. In 2015, the United Nations adopted 17 Sustainable Development Goals (SDGs), including climate action, at the World Summit on Sustainable Development (WSSD). These goals were designed to encourage active engagement from countries worldwide in addressing climate change. As a pressing global issue, climate change has consistently garnered significant attention.

Editorial cartoons, frequently featured in influential newspapers, play a crucial role in reflecting and reinforcing the editorial stances of their respective publications. Consequently, newspapers remain pivotal in disseminating climate change-related information and shaping public opinion on the matter (Moreno-Tarín et al., 2012).

As the urgency of climate change intensifies, climate reports increasingly incorporate climate news cartoons, a form of visual discourse that combines images and text. These cartoons utilize multimodal metaphors and humorous satire to reveal underlying ideologies and vividly express attitudes toward political or social events. Through their engaging and accessible format, they play a significant role in shaping public perceptions (Bounegru & Forceville, 2011; Refaie, 2003, 2009; Zhao, 2013; Zhao & Feng, 2017).

The term "multimodal metaphor" was first introduced at the beginning of the 21st century, and the seminal collection of essays on the subject, co-published by Forceville & Urios-Aparisi, significantly expanded research in this field. Subsequently, scholars in China have further explored multimodal metaphors, integrating them with various forms of communication such as advertisements, films, and posters, and publishing numerous articles on the topic.

Multimodal metaphors represent a relatively new area of inquiry within the study of conceptual metaphors. They are defined as metaphors in which the source and target domains are conveyed through distinct or predominantly distinct modalities (Forceville, 2006). Within the research framework, scholars have integrated multimodal metaphor research into conceptual integration theory (Liu & Liu, 2019; Zhu & Zheng, 2013), analyzing the final output through the interaction of two input spaces. Zhao (2013) developed a multimodal metaphor integration model based on conceptual integration theory, while other scholars have incorporated conceptual metaphor theory into their analyses (Liu & Zhang, 2020).

As the field of critical metaphor analysis has evolved, scholars have increasingly applied this approach to multimodal metaphor research (Zhao & Dai, 2016). This includes classifying multimodality, examining modal synergy, and analyzing the significance of multimodal metaphors in relation to social factors. These analyses are conducted through the three-step process of critical metaphor analysis. In recent years, critical metaphor analysis methods have gained significant attention, opening new avenues for research in multimodal metaphor studies (Ma & Gao, 2020). Related studies have concentrated on the ecological discourse analysis of cartoons with a bioenergy theme (Zhao, 2022; Li & He, 2023; Zhao & Wu, 2024). The present study employs the multimodal metaphor theory, with an emphasis on the presentation of metaphors and the construction of meaning in cartoons. This provides a novel perspective for understanding how cartoons construct ecological awareness. Therefore, the research questions guiding this paper are as follows:

1). What types of metaphors are present in Chinese and American climate news cartoons?

2). How do different modalities in Chinese and American climate news cartoons collaborate to construct metaphorical meaning?

3). What differences exist between Chinese and American climate news cartoons?

This study applies critical metaphor analysis to examine multimodal metaphors in climate news cartoons. It conducts a comparative analysis of climate news cartoons from China and the United States, adopting a social perspective to explore the similarities and differences between the two nations in their responses to climate change, conflicts in value orientation, and issues of positivity. By applying critical metaphor analysis to a new thematic context—climate news cartoons—this study aims to demonstrate the value of this approach and contribute to the broader understanding of multimodal metaphors in socio-political discourse.

2. Multimodal Metaphor, Climate Cartoon

Since the publication of the Multimodal Metaphor collection, research on multimodal metaphors has primarily focused on applied studies, integrating theories and methodologies from diverse fields such as cognitive psychology and pragmatics. Additionally, research perspectives and dimensions have expanded significantly (Han, 2024). The foundational classification of multimodal metaphor construction types was established by Forceville (1996), who identified four categories of visual metaphors: MP1, MP2, visual similes, and verbo-pictorial metaphors. Building on this framework, Liu and Zhang (2020) further subdivided multimodal metaphors into nine smaller categories based on Lakoff and Johnson's conceptual metaphor classification standards. Further advancing the field, Liu and Liu (2019) applied Fauconnier's conceptual integration theory to analyze poverty-themed cartoons. They categorized these cartoons into six types based on the features of input spaces, providing detailed case analyses for each type.

Concurrently, Chinese scholar Feng critiqued Forceville's classification, arguing that it does not account for all varieties of visual and verbal-pictorial metaphors (Feng, 2011). Feng proposed an alternative system, categorizing multimodal metaphors into three principal categories and eight subcategories based on the mapping methods between modalities. Building on Feng's framework, scholars have explored the configuration of visual and textual modes in news cartoons and their metaphorical mappings (Yu, 2013). However, due to inconsistencies in classification standards, scholars have proposed a wide array of multimodal metaphors, resulting in the current lack of a unified classification system.

As research on multimodal metaphors advances, the construction of meaning through intermodal relationships has become a central focus of academic inquiry. The study of intermodal relationships has expanded from its initial emphasis on the relationship between images and text to include coordinated relationships involving three or more modalities. The interplay between images and text in advertisements has garnered significant academic attention. For instance, Forceville (2007) and Zhang and Zhan (2011) analyzed the combinations of images and text, as well as background and foreground, in advertisements. Similarly, Huo (2012) argued that the source and target domains between images and text can be mapped in a crisscross manner.

In the edited volume *Multimodal Metaphor*, Forceville and Urios-Aparisi encouraged scholars to conduct more detailed analyses of the relationship between images and text (Koller, 2009; Caballero, 2009; Teng, 2009). Additionally, researchers have explored the interplay between visual, auditory, and linguistic

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modalities, examining how these modalities work together to represent metaphors (Guan, 2015; Lan & Cai, 2013; Yu, 2009; Zhong & Li, 2014). A central goal shared by researchers in multimodal metaphor studies is the investigation of multimodal collaborative representation. To date, the most explored domains for such research have been advertising and film.

In recent years, Zhao has integrated metaphorical scenarios into multimodal metaphor research (Zhao & Dai, 2016), conducting extensive studies on the social issue of the bioenergy crisis (Zhao, 2022; Zhao & Wu, 2024). Building on this work, other scholars have applied critical metaphor analysis to bioenergy-related cartoons, later extending this approach to the study of metaphorical scenarios in anti-fraud awareness cartoons (Wang & Zhao, 2024). In the context of climate-related cartoons, Manzo (2012) argued that cartoons can serve as effective tools for communicating climate change issues, making them highly valuable for climate change discourse. In her analysis of the interplay between metaphor and metonymy in cartoons, Wang (2014) found that metonymy provides the contextual foundation for triggering metaphors and highlights the corresponding elements of metaphorical mappings. Additionally, she observed that metaphors can reinforce metonymic mappings.

Further contributing to this field, Domínguez et al. (2022) analyzed climate cartoons in the United States, revealing that the polarization depicted in these cartoons—between climate change believers and deniers—mirrors the country's political climate. Despite these contributions, research on multimodal metaphors in climate-related news cartoons remains relatively limited. To address this gap, this study aims to compare the multimodal metaphors in climate change-related news cartoons from China and the United States, offering new insights into how these two nations represent and respond to climate issues through visual discourse.

Therefore, the objective of this study is to identify the types of multimodal metaphors employed in Chinese and American climate news cartoons and to examine how different modalities interact to construct metaphorical meaning. Additionally, this research aims to compare the metaphors in Chinese and American cartoons to determine whether there are commonalities and differences in their approaches to climate issues, as well as to explore the potential factors underlying these similarities or differences.

3. Methodology

The corpus for this study was selected from the China Daily Cartoon website (http://cartoon.chinadaily.com.cn) and the Cagle Cartoons website (https://caglecartoons.com) in the United States. The cartoons included in the study were chosen based on the following criteria: they must (1) relate to climate change and (2) contain metaphors. A search for the term "climate change" yielded 87 relevant cartoons from the China Daily Cartoon site and 214 from the Cagle Cartoons site, resulting in a total of 301 cartoons published between January 1, 2006, and December 31, 2023. Both websites provide cartoons to authoritative media outlets in China and the United States. The temporal starting point for the search was determined by the earliest available post on the chosen websites, while the cut-

off date of December 31, 2023, was selected to allow sufficient time for the identification and categorization of multimodal metaphors in the collected data.

This study adheres to the standards proposed by Forceville (2008). Next, 301 selected cartoons are identified in accordance with the following standards.:

1). The two phenomena depicted can be classified into distinct categories based on the context in which they appear.

2). The two phenomena can be identified as the target domain and the source domain, respectively, forming an "A is B" metaphorical structure. This structure enables readers to map one or more features, meanings, or characteristics from the source domain onto the target domain.

3). These phenomena may be expressed through various semiotic systems and sensory modalities.

This study employs the Critical Metaphor Analysis (CMA) method to analyze Chinese and American climate-related news cartoons. First proposed by Charteris-Black in 2004, CMA integrates metaphor analysis with insights from critical discourse analysis. Its aim is to uncover the underlying (or unconscious) intentions of language users through metaphor analysis (Wu & Li, 2023).

The CMA method consists of three stages: Metaphor identification, Metaphor interpretation, and Metaphor explanation. This approach combines linguistic analysis, cognitive understanding, and social knowledge to analyze the collected data. By compiling instances of metaphorical usage and mapping patterns of conceptual multimodal metaphor frameworks through illustrative examples, CMA ultimately identifies the contextual factors that underpin these patterns (Song & Wang, 2024).

CMA extends metaphor analysis from a sociocultural perspective, offering practical applications and a problem-oriented approach. Additionally, CMA incorporates corpus linguistics as a research tool, enabling a systematic examination of large volumes of textual data. This enhances the precision and efficiency of the analytical process compared to traditional metaphor analysis methods.
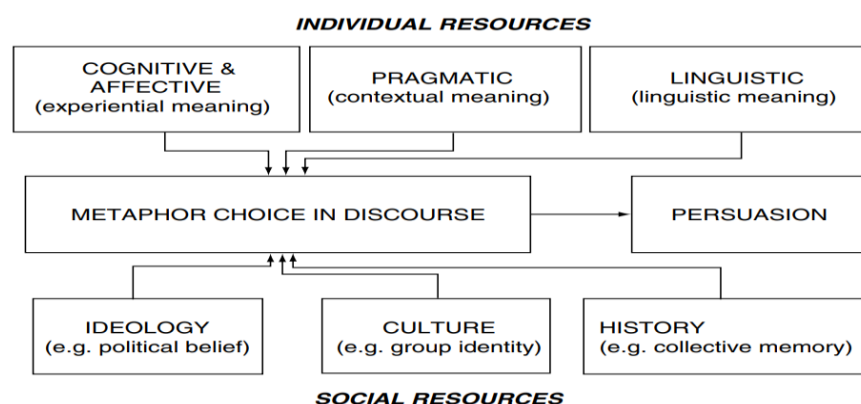

Figure 1. A Discourse Model for Metaphor (Charteris-Black, 2004)

In this study, climate change serves as the target domain, while the source domains in Chinese and American climate news cartoons are identified and analyzed. The study employs the qualitative analysis

software NVivo 11 to identify and categorize the types of multimodal metaphors present in the cartoons. The coding process is conducted in two principal stages:

1)   Open coding: In the initial stage of analysis, the types of multimodal metaphors in the dataset are identified and categorized. Data points are marked using the "A is B" format, which is used to classify the types of metaphors.

2)   Axial coding: The results of the open coding stage are summarized based on their similarities, establishing connections between categories and subcategories.

Using this method, the study identified four types of multimodal metaphors in Chinese climate news cartoons (including Threat, Responsibility, Disease, and War metaphors) and six types in American climate news cartoons (including Threat, Hoax, War, Responsibility, Disease, and Journey metaphors). The coding results are presented in the Table 1 and Table 2 below:

Table 1. The Number of References for Open and Axial Coding in Chinese Cartoons

Axial coding (Multimodal metaphors)	Open coding (Typology)	References	Codes
Threat Metaphors	Destroy (17)	68	64
	Threat (15)		
	Disaster (10)		
	Demon (10)		
	Compression of living space (7)		
	SOS (4)		
	Boiling frog (3)		
	Rockfall (1)		
Responsibility Metaphors	Responsibility (27)	31	29
	Collective action (4)		
War Metaphors	Bomb (1)	3	3
	Battlefield (1)		
	Extinction (1)		
Disease Metaphors	Bacteria (1)	2	2
	Sick (1)		
Total		**104**	**98**

Table 2. The Number of References for Open and Axial Coding in American Cartoons

Axial coding (Multimodal metaphors)	Open coding (Typology)	References	Codes
Threat Metaphors	Threat (72)	126	118
	Destroy (23)		
	Compression of living space (18)		
	Disaster (8)		
	Burden (2)		
Threat Metaphors	Problem (1)		
	Paradise lost (1)		
	Challenge (1)		
Responsibility Metaphors	Responsibility (28)	42	42
	Take action (8)		
	Ignore (3)		
	Capital (3)		
	Legislation (1)		
War Metaphors	Death (4)	7	7
	War (1)		
	Extinction (2)		
Disease Metaphors	Depression (3)	7	7
	Infection (3)		
	Weaken (1)		
Hoax Metaphors	Denier (33)	66	66
	Hoax (25)		
	Denial (5)		
	Don't believe (2)		
	Fake (1)		
Journey Metaphors	End (2)	3	3
	Goal (1)		
Total		**251**	**243**

4. Data Analysis and Discussion

The coding results from NVivo 11 reveal distinct differences in the types of multimodal metaphors present in Chinese and American climate news cartoons. While four multimodal metaphor types were identified in Chinese cartoons, American cartoons exhibit two additional types: the hoax metaphor and the journey metaphor.

In this analysis, the Critical Metaphor Analysis (CMA) approach will be employed to conduct a comparative investigation of the four shared multimodal metaphor types between China and the United States, followed by a detailed examination of the two distinctive multimodal metaphor types found in American cartoons. This chapter is divided into two sections: The first section will provide a comparative analysis of the shared metaphorical tropes present in both Chinese and American cartoons. The second section will offer a detailed examination of the distinctive metaphorical tropes identified in American climate news cartoons.

4.1 Threat Metaphors

The Threat metaphor is the most prevalent in the collected Chinese and American climate news cartoons, appearing in 50 percent of the cartoons in the United States and 65 percent in China. In cartoons employing this metaphor, animals—particularly penguins and polar bears from the North and South Poles—are frequently depicted as subjects. These animals are often portrayed as victims of climate change or extreme weather events, symbolizing the broader dangers posed by environmental degradation.

Figure 2

As illustrated in Figure 2, the cartoon presents an illustrative representation of the context of climate change through the use of yellowish and black lines, and depicts a dialogue between polar bears and humans, expressing their plight of starvation. The newspaper in the lower right corner of the cartoon contains the text message "CLIMATE CHANGE IN THE FAR NORTH PUTS TRADITIONAL FOOD SOURCES AT RISK", which suggests that climate change may pose a threat to the food supply for polar bears and humans in the Arctic. In the cartoon, the dialogue between polar bears and humans and the sound of their stomachs grumbling ("GGRRRRRR") represent the source domain, while the textual message "CLIMATE CHANGE" in the newspaper and the background of the cartoon represent the target domain. This results in the metaphor "CLIMATE CAHNGE IS THREAT".

The effective identification of the metaphor in this cartoon relies on the interaction between text and images. Without the textual information, the details of the source domain may become ambiguous (Wu & Zhong, 2014), potentially casting doubt on the existence of the metaphor. The text provides essential context, clarifying the meaning of the image and enhancing the metaphor's expressive power.

This cartoon was published in 2015, a year documented in the World Meteorological Organization's 2015 State of the Global Climate report as one of record-high global temperatures. These temperatures were driven by a combination of human activities and the El Niño phenomenon, leading to extensive ice melt in the North Pole. This, in turn, caused a significant reduction in the polar bear's primary food source. The cartoon powerfully conveys the severe consequences of climate change on the natural environment, exemplified by the depiction of hunger and the dialogue between polar bears and humans.

Figure 3

Figure 3 depicts an anthropomorphic Earth, penguins, and polar bears standing on a small ice floe, which serves as the only foothold above a pot of boiling water. The polar bears and penguins, representing the fauna of the Arctic and Antarctic, respectively, are positioned on the melting ice floe, symbolizing the melting of glaciers and the reduction of polar habitats due to a warming climate. The creatures are portrayed as trapped in a hot pan, representing the extreme existential crisis that global climate change poses to these regions.

The Earth's posture and expression convey a sense of concern and apprehension about its inevitable fate. The polar bear, as a symbol of the Earth's ecosystem, highlights the interdependence of the planet's natural systems and the global impact of climate change. In the cartoon, the yellow flames and boiling water represent the target domain of climate change, while the planet, penguin, and polar bear's urgent state on the melting ice floe symbolize the source domain of threat. Together, these elements form the metaphor: "CLIMATE CHANGE IS A THREAT".

Due to the richness and diversity of elements, modalities in multimodal discourse correspond to various conceptual attributes such as size, shape, and color (Wang & Wang, 2019). In this cartoon, the absence of text allows the threat faced by the Earth and living beings to be conveyed solely through size comparison. Additionally, the state of water and the color of the flames (yellow) signify the target domain of climate change.

This cartoon was published on 22 July 2022, a time when China was experiencing extreme heat and a summer drought, significantly impacting people's lives and productivity. Concurrently, the Antarctic was

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undergoing the strongest surface warming event in recorded history, while the Arctic experienced rare hot weather, with temperatures at the center of the Greenland ice sheet even exceeding zero degrees Celsius (Polar Climate Change Annual Report 2022).

4.2 Responsibility Metaphors

The Responsibility metaphor primarily conveys the idea that human beings bear the obligation to address global climate change and should collectively take measures to mitigate its effects. The proportion of Responsibility metaphors in Chinese and American climate news cartoons is 30 percent and 17 percent, respectively. This suggests that Chinese cartoons place greater emphasis on the concept of responsibility compared to their American counterparts.

Figure 4

Figure 4 depicts an American cartoon featuring a devil in a suit positioned at the center of the image. The devil is smoking with his left hand, while his right arm bears the words "human activity". In the lower right quadrant of the cartoon, two children are shown confined within an oven labeled "climate change", symbolizing future generations. This imagery illustrates the impact of current actions on future generations and the threat that climate change poses to them.

The devil's right hand is turning a dial to increase the oven's temperature, symbolizing the intensification of climate change. This suggests that human activity is the primary cause of climate change and poses a direct threat to future generations. The yellow flames on the oven, combined with the text "climate change", collectively represent the target domain of climate change. Meanwhile, the devil's left hand, holding a cigarette, metonymically represents human activity as the main driver of climate change.

The text "NO NEED TO WORRY..." and the children inside the oven symbolize the burden of climate change falling on future generations, thereby forming the source domain of responsibility. Together, these elements construct the multimodal metaphor: "TACKLING CLIMATE CHANGE IS A BURDEN".

Furthermore, the cartoon includes an image of Donald Trump, directly referencing the political context of his presidency. Since assuming office in November 2016, Trump announced the United States' intention to withdraw from the Paris Agreement and pursued an "America First" policy. This approach prioritized energy security and economic growth over long-term climate concerns, effectively adopting

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a "de-climatization" stance. The cartoonist uses this imagery to express dissatisfaction with Trump's policies and to warn of the potential severe consequences for future generations.

The cartoon employs the multimodal metaphor "TACKLING CLIMATE CHANGE IS A BURDEN" to deliver a clear message: climate change poses a grave threat to future generations, and humanity must take responsibility for their protection. This metaphor emphasizes the urgent need for prompt and decisive action to address climate change, particularly in light of the detrimental effects of certain policies.

Figure 5

In contrast, a cartoon from the China Daily Cartoon website features a central image of the Earth, surrounded by people from various countries, a sun in the top-right corner, and text in the top-left corner. The Earth is depicted as experiencing fatigue, symbolizing the stress and pressure caused by global warming. The sun and the text function as symbols for global warming, representing the target domain of the cartoon.

The diverse clothing worn by the figures metonymically represents the global community, highlighting the world's varied nations. The individuals are shown holding hands and jumping together in a collective effort to shift the Earth and alleviate global warming. This action satirizes the notion that global warming can be solved by a simple act of collective physical movement, while simultaneously emphasizing the necessity for global cooperation in addressing this environmental crisis. The text and the people collectively represent the source domain of responsibility, constructing the metaphor: "TACKLING CLIMATE CHANGE IS A SHARED RESPONSIBILITY."

The phrase "global warming", along with the image of the sun, collectively refers to the target domain of global warming. Through metonymy—where a part represents the whole—the cartoon activates the conceptual domain of people around the world. The accompanying text signifies the conceptual domain of actions aimed at addressing global warming, thereby activating the source domain of responsibility.

The cartoon's title reveals that it is based on activities from Earth Day, highlighting its intention to raise public awareness about climate change and encourage active participation in combating global warming. By drawing attention to the global nature of the climate crisis, the cartoon underscores the necessity for a unified global effort. While employing humor to critique the simplistic notion of solving climate change through symbolic gestures, the cartoon also emphasizes the grave implications of climate change and the urgent need for collective action on a global scale.

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4.3 War Metaphors

The War metaphor frames climate change as analogous to elements of war, including weapons, battlefields, combat strategies, and outcomes. Given that war has constituted a recurrent aspect of human history, it is frequently employed as a metaphor to represent interpersonal and societal relationships. Apparently, news discourse usually makes a statement on the conflict, tension, political confrontation, which can be expressed using a cartoon in the news discourse more efficiently (Wang & Xin, 2019).

Figure 6

In the context of American cartoons, the "climate change yellow vest" cartoon is selected as a representative example. The term "yellow vest" refers to the protests that erupted in France in 2018, where citizens rebelled against the government's decision to increase fuel taxes. This tax was introduced as part of France's efforts to fulfill the Paris Climate Agreement, but the policy sparked widespread protests, which later spread to countries such as Belgium. In this cartoon, penguins and polar bears are depicted wearing yellow vests on a shrinking ice floe. The yellow vests serve as a visual reference to the French "yellow vest" protest movement, symbolizing the source domain of protest movements. The melting ice, which reduces the available space for the penguins and polar bears to survive, acts as a metonym for climate change, the target domain. Thus, the cartoon presents the metaphor "CLIMATE CHANGE IS A PROTEST MOVEMENT."

The metonymy "elements of the event metaphors the whole event" is used in this cartoon. The symbol "yellow vet" metonymies the event of protest movement, known as the source domain. Besides, a successive metonymy (the ice floe metonymies ice-melting, ice-melting metonymies climate change) used to activate the conceptual domain "climate change". The cartoon employs this metaphor to highlight the parallel between the challenges posed by climate change and the public's resistance to governmental climate policies. The cartoon reflects the fact that, while climate action is necessary, it can also provoke societal resistance. It draws attention to the broader conflict between policy initiatives aimed at tackling climate change and the social upheaval they might generate.

Figure 7

As reported in Chinese news, the year 2011 was marked by severe droughts and wildfires in multiple regions, caused by prolonged heatwaves. Additionally, the year was notable for the occurrence of the strongest La Niña phenomenon in 60 years, which triggered extreme weather events across various parts of the globe. In a cartoon employing a war metaphor, a massive bomb occupies the center of the frame. The upper portion of the bomb depicts a sky filled with black smoke, while the lower portion is characterized by red-brown tones. The fuse of the bomb is connected to the ground, which is strewn with the remains of trees. The primary colors used in the cartoon – red, brown, and grey – metaphorically represent high temperatures, with the extreme heat visually symbolizing climate change. The central image of the bomb serves as the source domain, constructing the metaphor "EXTREME HEAT IS A BOMB'S FUSE."

Published in 2011, the cartoon reflects the gravity of global climate change, portraying it as a threat with the potential to endanger the world. By depicting climate change as a looming catastrophe, the cartoon underscores the urgency of taking action to combat it. The metaphor emphasizes the immediacy of the threat posed by climate change, driven by events such as heatwaves, and calls for immediate and decisive global efforts to mitigate its impact.

4.4 Disease Metaphors

Disease is a familiar term for most people, often used in daily life with a negative connotation. The disease metaphor is employed to represent hotly debated social phenomena, such as conflicts between nations, financial crises, and societal issues like climate change.
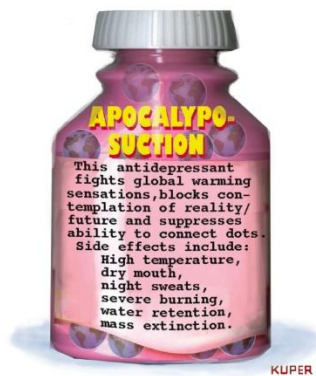
Figure 8

In an American climate news cartoon, the disease metaphor is constructed through the image of an antidepressant medication bottle. The cartoon's central focus is a purple pill bottle, bearing text and an image of the Earth on its label. This suggests that the medication's purpose is to "block global warming sensations." Additionally, the accompanying text explains that the side effects of this medication include "high temperatures, dry mouth, and night sweats," which can be interpreted as metaphorical representations of the adverse effects of global warming. Furthermore, the phrase "blocks contemplation of reality" implies societal indifference or numbness toward the global climate crisis.

In this cartoon, the target domain is global warming, while the source domain is the antidepressant. The use of purple, a color often associated with extreme conditions such as high heat or pressure, underscores the severity of the global warming crisis. The antidepressant bottle symbolizes society's "depressed" and "numb" response to climate change, suggesting that people may attempt to alleviate their anxiety temporarily without addressing the root cause. The metaphor, "CLIMATE CHANGE IS DEPRESSION," establishes a connection between the domains of medication and climate change, conveying the sense of helplessness and inaction that people experience in the face of the crisis.

The metaphor is created through the similarity of shapes and attributes between climate change and depression. This similarity is not pre-existing but is instead constructed by the author in the creation of the cartoon (Black, 1979; Forceville, 2007). The disease metaphor employed in the cartoon illustrates that global warming has reached a critical point where it can no longer be ignored. It has become a pressing issue that demands tangible solutions and immediate action. By invoking the metaphor of depression, the cartoonist emphasizes the urgency of addressing climate change and critiques those who attempt to evade or downplay the climate crisis through temporary fixes.

Figure 9

The cartoon from China Daily depicts a treatment scenario featuring two doctors, an ill "Grandpa Earth," and various medical equipment. The doctors wear green scrubs and blue-and-green hats, while "Grandpa Earth" is hooked up to an IV and a monitor. The data displayed on the monitor and the doctors' sweat indicate that "Grandpa Earth" is critically ill. Surrounding the patient are four flame symbols, representing high temperatures and metaphorically signifying climate change. Through this medical setting and equipment, the cartoon constructs the multimodal metaphor "CLIMATE CHANGE IS EARTH GETTING SICK." The title explicitly states the theme of healing the Earth, and the text and monitor readings suggest a dire condition. Compared to the cause of an event, the result is often more concrete and relatable for readers (Wen & Ye, 2006). The red flames symbolize extreme heat, further emphasizing the target domain of climate change through the metonymy of "result for cause." The doctors' worried expressions imply that current treatments are insufficient, and the title "We need surgery now!" suggests that more decisive actions are necessary. This serves as a warning that current climate responses are far from adequate and urges more effective measures to combat global warming.

4.5 Hoax and Journey metaphors

In U.S. climate news cartoons, two distinct multimodal metaphors emerge: the "hoax metaphor" and the "journey metaphor." The hoax metaphor frames specific phenomena or events as deceptive, using terms like "hoax," "lying," and "fake" to define the source domain as a false phenomenon. And climate scepticism in America is hot discussed during 2020 to 2022 (Augé, 2024, p. 1). In contrast, the journey metaphor focuses on various aspects of a journey, including the starting point, destination, and obstacles encountered along the way, embodying rich narrative elements. Together, these metaphors effectively capture the complexity and challenges of climate change.

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Figure 10

The hoax metaphor in U.S. climate news cartoons is closely tied to the domestic political landscape and the policies of national leaders. Based on the collected cartoon data, climate policies have often been portrayed more negatively, particularly during Republican administrations. The elephant, a symbol of the Republican Party, frequently appears in these hoax metaphors. For example, in one cartoon, three elephants sit on melting ice, while a polar bear on the left struggles to stay afloat, highlighting its dire predicament. Melting icebergs flank the scene, and a large sun on the right symbolizes the high temperatures caused by climate change, leading to glacial melting. These visual symbols collectively represent climate change as the target domain. The three elephants in the center cover their ears, close their eyes, and refuse to speak, symbolizing the Republican Party's denial of climate change. The cartoon's title, "Climate Change Skeptics," alongside the depiction of the elephants, reveals the hoax source domain. Through the collaborative use of text and visual symbols, the cartoon constructs the multimodal metaphor "CLIMATE CHANGE IS A HOAX," satirizing the Republican Party's refusal to take meaningful action against climate change.

Figure 11

In U.S. climate news cartoons, the use of the journey metaphor is relatively rare, with research indicating that only three cartoons employ this metaphor. These cartoons illustrate the challenges of addressing

climate change (taking years), the endpoint of climate change (end of the road), and the irreversible nature of the climate change process.

For example, in Figure 11, a family (metonymically representing humanity) is driving on a central road. The road sign ahead indicates "Climate Warming", with "Floods" on the left and "Fires" on the right. A no U-turn sign on the right suggests that the road cannot be reversed. The background features a sun's halo, black smoke in the upper right corner, and warning signs (WARNING, FLOODS, FIRES) that collectively symbolize climate change, with the warning (NO U-TURN) and the three paths representing a point of no return. Thus, this cartoon constructs the metaphor "CLIMATE CHANGE IS A ONE-WAY ROAD", where the three paths symbolize different environmental disasters caused by climate change. The irreversibility of the road emphasizes that we are faced with choices that cannot be undone. Through this metaphor, the cartoon underscores that human society must continue to move forward and take effective measures to mitigate the progress of climate change to avoid disastrous consequences.

5. Discussion

This study conducts an in-depth comparative analysis of multimodal metaphors in climate news cartoons retrieved from Chinese and U.S. websites. According to the data presented in Chapter 3, the usage proportions of multimodal metaphors in Chinese climate news cartoons are as follows: threat metaphors (65%), responsibility metaphors (30%), war metaphors (3%), and disease metaphors (2%). In contrast, U.S. cartoons show the highest proportion of threat metaphors (50%), followed by hoax metaphors (26%), responsibility metaphors (17%), and equal usage of disease and war metaphors (3% each), with journey metaphors at the lowest proportion (1%). This indicates that both China and the U.S. primarily employ threat and responsibility metaphors regarding climate issues. However, U.S. cartoons also prominently feature hoax metaphors and a small amount of journey metaphors, which account for approximately 1%. This study focuses on the multimodal metaphors in climate news cartoons from China and the U.S., exploring their modal synergy characteristics. Due to the unique nature of cartoons, their expression relies on the combined effects of language, symbols, media, and modalities (Zhu, 2020). News cartoons construct meaning collaboratively through the integration of images and text, forming a complete narrative. A defining characteristic of news cartoons is that images dominate, while text plays a supplementary role (Pan, 2011). In multimodal discourse, specific parameters of modalities—such as size, shape, and color—correspond to different conceptual attributes (Wang & Wang, 2019). Therefore, this study primarily analyzes the interactive relationship between text and images. Typically, text expresses the target domain (climate change), while images represent the source domain (e.g., threats and responsibilities). Common textual symbols include phrases like "climate change," while visual symbols often feature representative polar animals, such as penguins and polar bears, as well as anthropomorphized images of the Earth.

The data suggests that both China and the U.S. share a consensus on climate issues, viewing them as a significant threat. Cartoons illustrate the impact of climate change on the survival environments of

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humans, the Earth, and polar animals like polar bears and penguins, highlighting issues such as food shortages and water scarcity. This portrayal reflects the increasingly severe realities of climate change. Notably, the high prevalence of the "hoax" metaphor in American cartoons is closely tied to the U.S. political system. The two-party system creates ideological divides between the Republican and Democratic parties, which significantly influence attitudes toward climate change. During Republican administrations, climate change has often been framed as a hoax, casting doubt on the authenticity of climate science (Campbell, Troy H. & Aaron C. Kay, 2014).

In both Chinese and American climate news cartoons, the use of responsibility metaphors is relatively high (30% and 17%, respectively), indicating a shared recognition of the need to address climate change. These cartoons often depict symbolic representations of industrial activities, such as smoking chimneys, suggesting that human actions—particularly industrial emissions—exacerbate the severity and pace of climate change, increasing the frequency of extreme weather events. In contrast, war and disease metaphors are less prevalent in both countries' climate cartoons. This may reflect a reluctance to frame the impacts of climate change through these metaphors, as they imply significant human and financial costs and can impose a heavy psychological burden on the public. To avoid evoking negative emotions, cartoonists generally refrain from using these metaphors. Similarly, journey metaphors are extremely rare in American cartoons (only 1%). Although journey metaphors are more common in news reporting, their use in cartoons is limited, and current research has not identified a widespread application of this metaphor in climate news cartoons.

6. Conclusion

Cartoons are a unique genre rich in imagination and interpretive power, and news cartoons are no exception. They present social issues in a concise and impactful manner, offering strong communicative effectiveness. The classification of multimodal metaphors reveals notable differences between Chinese and American climate-themed cartoons. In Chinese cartoons, the identified types include Threat, Responsibility, War and Disease metaphors, whereas in American cartoons, the identified types are more diverse, including Threat, Responsibility, War, Disease, Hoax and Journey metaphors. Through analysis, it was found that the primary mode collaboration in climate-themed cartoons is verbo-pictorial collaboration. This aligns with the findings of several scholars who have identified political cartoons as primarily relying on a combination of image and text as their main forms of representation (Yu, 2013; Pan, 2011). However, the content of climate news cartoons in China is relatively limited and less diverse compared to those in the U.S. While there is a shared recognition of climate change's severity, the focus within the shared metaphor types differs. China emphasizes the impact on ecosystems, particularly polar regions, reflecting its collectivist values, whereas the U.S. centers on societal functioning and individual livelihoods, aligning with its individualistic values.

News cartoons not only effectively capture public attention but also raise awareness of climate change, encouraging greater public participation in climate action. The findings suggest that both nations use

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multimodal metaphors to address the urgency of climate change, their metaphorical representations reflect divergent cultural, social, and political contexts.

Project

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