

# A Corpus-Based Critical Discourse Analysis of Chinese and American News Coverage on Climate Change

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## Abstract

As the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) convened, the climate issue remained a focal point of coverage in both Chinese and American mainstream media. This paper seeks to explore the linguistic features of news discourse of climate change in China and the United States and the discursive strategy applied to strengthen national ideologies. Taking the reports on climate change in *China Daily* and *Los Angeles Times* within 2 months after COP27 as the research corpus, this paper examines the language features, the discursive processes of the text and possible social factors through a combination of corpus linguistics (CL) and critical discourse analysis (CDA) under the framework of Fairclough's Three-Dimensional Model of Discourse. The finding suggests that both countries enhance national ideologies by constructing a responsible national image through objective climate reporting. Chinese media tends to focus on national efforts to improve ecological environment and global cooperation, while US newspaper attaches importance to climate security and pursues a leading position in global ecological governance.

**Keywords:** climate change, national ideologies, news discourse, critical discourse analysis, corpus analysis

## 1. Introduction

Given the significance of the environment to every aspect of human life, previous studies have been concerned with the role of media coverage on climate change. The news discourse is considered as the expression of the relation between discourse and ideology (Kuo & Nakamura, 2005). Therefore, news reports on climate change are not completely value-free, especially in state media, which play an important role in enhancing national ideologies (Li, 2009). National ideology refers to the sum of ideas that spread national value, shape national image display national strength, and provide a legitimate explanation for the country as a political subject (Yang & Li, 2019).

Previous studies have found that the news discourses on climate change reflect national ideologies through the choice of topic, speakers, and content in reporting (Song et al., 2021c; K. Chen et al., 2022b), but few apply the corpus-based critical discourse to analyze the comparison between China and the United States, which help to further understand the ecological concerns in the two countries, and how news discourses consolidate national ecological image and political stance. Therefore, this paper seeks to identify similarities and differences in linguistic features of press coverage of climate change in the *China Daily* and *Los Angeles Times* after COP27 and explore the ways China and the United States adopted in climate change reporting to enhance their national ideologies.

The comparison of news discourse in two countries based on the combination of corpus linguistics (CL) and critical discourse analysis (CDA) is conducive to proving Fairclough's Three-Dimensional Model of Discourse. This paper also contributes to improving the readers' critical consciousness for a more objective assessment of news reports. Moreover, it provides new ideas on news discourse's role to enhance national ideologies.

## 2. Literature Review

News discourse refers to the discourse spread, used, or manufactured in news media, raising concerns about the relationship between language and ideology (Fairclough, 1992). As Halliday (1990/2007) proposes, language does not passively reflect reality, but actively constructs reality. Therefore, news discourse from mainstream media not only reflects certain social trends but also reveals the national ideology behind it. The national ideology includes national cognition, national identity, and national expectations, which are shared by the group and constructed in

society through symbolic forms (Wodak, 1988). Many studies have compared the climate news discourse in different countries and found that news discourse can convey ecological concepts through certain discourse strategies, shape the national ecological image, and enhance national identity (Grundmann & Krishnamurthy, 2010c; Gunster et al., 2018; K. Chen et al., 2022). As the world's two largest economies and the largest emitters of greenhouse gases, China and the United States shoulder important responsibilities in addressing climate change, and climate news reports from both countries reflect their different ideologies. The mainstream ideology of contemporary Chinese society is the socialist core value system, including national, social, and individual values of harmony, equality, integrity, and so on, emphasizing the improvement of ideological work by gathering public consensus and spreading the voice of China (Jinping, 2018; Liang & Wang, 2024). Political, social, and economic beliefs such as freedom, democracy, human rights, liberalism, and conservatism are the inherent attributes of the United States and form its unique ideology, which is strengthened by maintaining universal values and building a democratic image (Ellis & Stimson, 2012; Fan, 2023). Some studies have centered on climate news discourse in China and the United States to understand the similarities and differences in the ecological concepts of the two countries and how news discourse shapes national ecological images and political stances. Liu and Huang (2023) conduct a corpus-assisted discourse study on the climate change responsibility frameworks of *China Daily* (CD) and the *New York Times* (NYT), finding that CD focuses on developed countries' historical causal responsibilities for climate change, whereas NYT underlines the current causal responsibilities of developing countries. Yang et al. (2020) explore the discourse positions of China and the United States based on a database of 30 Chinese news reports and 30 US news reports and found that Chinese news is mainly dominated by the government's official and political stance, while US news is often influenced by professional and public stances. Song et al. (2021c) compare the climate change news coverage from a vertical perspective and suggest that the Chinese media tended to take climate change as a global issue while newspapers in the United States and the United Kingdom treated it as a domestic one. The above studies help to understand the manifestations of national ideology in discourse, but few studies have sought to investigate news discourse of a single event, and the methodological combination of CDA and CL can continue to be improved.

This study uses corpus-based critical discourse analysis to explore the national news discourse related to the COP27. CDA is the research of the relations between discourse and power that explores the position of the discourse analyst in such social relationships and it focuses on social and political conundrums and puts an end to the issue of inequality (Van Dijk, 1993b; Van Dijk, 1998). CDA incorporates M. A. K. Halliday's view of systemic functional grammar in linguistic theory, genre analysis of inter-level, and historical background discourse analysis which concern different aspects and complement one another. This enables CDA to be the foremost complement to traditional social and cultural analysis. After almost four decades of development, the theory of CDA has evolved more systematically and contributed to people's critical thinking about discourse.

CL is the study of language based on examples of language used in everyday vernacular (McEnery & Wilson, 1996). With the development of computer technology, the method of using machines to process corpus and language research has demonstrated great superiority (Pan, 2001). In the CL, there are differences between corpus-based and corpus-driven approaches. The corpus-based research uses corpus to explore existing theories or hypotheses to verify or revise the existing theories, while the corpus-driven research paradigm takes corpora as the starting point and the only observation object to completely define and describe various phenomena in the language (Tognini, 2001, p. 99). Corpus analysis involves several techniques, such as wordlist analysis, N-gram analysis, keyness analysis, concordance analysis, and collocation analysis (Baker, 2006). The CL has been greatly developed in the past decades and contributed to much research about discourse.

The combination of CL and CDA can be traced back to the 1990s (Subtirelu & Baker, 2018). Stubbs (1996) takes the lead in introducing CL into CDA. In 2006, Baker established the basic analytical framework of corpus critical discourse analysis, a milestone academic breakthrough. In this method, CL adds reliability to CDA (Subtirelu & Baker, 2018) and CDA makes CL hold meaning behind the discourse (Baker et al., 2008). This study combines CL and CDA to further research Chinese and American news discourse on climate change and hidden national ideologies.

In conclusion, the overall situation can be described as follows: climate change has been a topic of great concern, and research on news discourse on this topic have used various methods. Some of them further focus on the national ideologies behind it, but few have used the corpus-based CDA to do comparison analysis, which is a gap that remains to be filled. Previous studies on news discourse of climate change and national ideologies have involved different research methods and themes, but the research gap still exists in the area as follows: Firstly, the discourse study of climate change lacks a connection between discourse and national ideologies; Secondly, few critical analyses on news discourse comparing China and America focus on the reports of single event; Thirdly,

the combination of CL and CDA is rarely seen in discourse analysis on national ideologies.

### 3. Analytical Framework

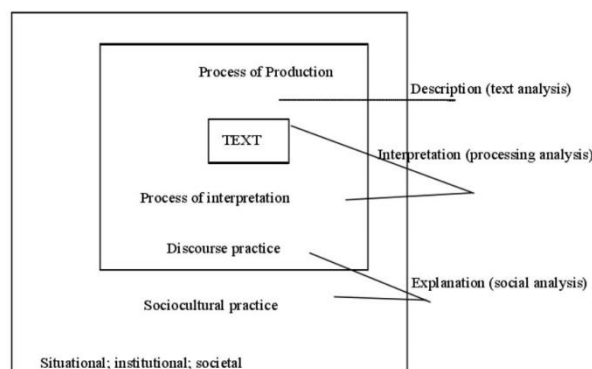


Figure 1. Three-Dimensional Model of Discourse (Fairclough, 1995, p. 98)

This research applies Fairclough's Three-Dimensional Model of Discourse as an analytical framework. The most distinguished part of this model is that the connection between social practice and text is constructed by discourse practice (Fairclough, 1995a). The illustration of the Three-Dimensional Model of Discourse is shown in Figure 1. First comes the description stage which contains text analysis about further linguistic features, ranging from vocabulary, grammar, cohesion to structure. Then, the interpretation stage analyzes the relationship between the discursive process and the text, which helps to comprehend the ideology behind the discourse. Lastly, the explanation stage explores the social origins of the linguistics features (Fairclough, 1995). Since text cannot define things on its own, it needs to be considered under particular social contexts.

### 4. Methodology

#### 4.1 Data Source

The data comes from 128 reports on the *China Daily* and *Los Angeles Times* from November 18, 2022, to January 4, 2023, about a month and a half after the COP27. The reason for picking COP27 as the time node derives from its significance. As the world's largest and most important climate-related conference, it has been held annually since 1995 to negotiate an extension of the Convention to establish legally binding targets for greenhouse gas emissions limits and enforcement mechanisms. This time, the COP27 was held on November 6, 2022, in Sharm el-Sheikh, Egypt, and ended on November 18. A series of plans had been discussed and raised worldwide attention. The reaction of China and America in their press coverage of climate change after COP27 deserves attention. *China Daily* is by far the most influential and authoritative English-language newspaper in China and *Los Angeles Times* is the largest broadsheet daily newspaper in the West of the United States, the influence and status of which is only second to the *New York Times* and the *Washington Post*, making it known as the third largest newspaper in the United States (Wang & Li, 2018).

Taking climate change as a keyword to search the two news websites, this paper selects 64 reports from *China Daily* and 64 reports from *Los Angeles Times*. The irrelevant advertisement words and pictures in the reports were removed to form two corpora, namely Corpus C for *China Daily* and Corpus L for *Los Angeles Times*. The Corpus C has 60566 words and the Corpus L has 68093 words.

#### 4.2 Research Methods

This study applies corpus-based critical discourse analysis to explore the keyword and modality of the text, then focuses on the discursive processes of the text, and finally studies the social factors for the similarities and differences of the linguistics features between the *China Daily* and *Los Angeles Times*. This provides quantitative and qualitative views for measuring the computational frequency and statistical significance and presenting the data in such a way that enables researchers to assess individual occurrences of search terms and qualitatively examine their collocations (Mautner, 2009). The research software employed is AntConc 3.5.7.

### 4.3 Research Procedures

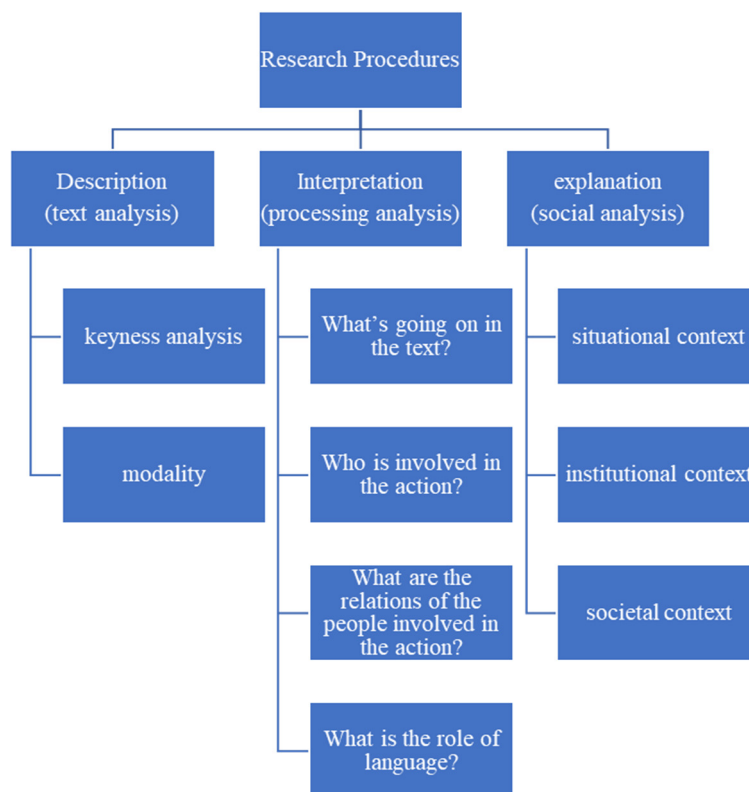


Figure 2. Research Process

The research procedures consist of description, interpretation, and explanation (See Figure 2). In the description, key analysis and modality are discussed. On interpretation, the processing analysis focuses on textual content, participants, relations, and the language role. In explanation, the situational context, institutional context, and societal context are studied.

### 4.4 Research Questions

This study is going to discuss two questions.

- 1) What similarities and differences of linguistic features in climate change news reports are reflected in the *China Daily* and *Los Angeles Times* after COP27?
- 2) How do the language features of climate change news reports reinforce China's and the US's national ideologies?

## 5. Analysis

### 5.1 Description

#### 5.1.1 Keyword Analysis

To clarify the similarities and differences between Corpus C and Corpus L, this paper compares two corpora with Brown Corpus, deleting some words (the, s, los...) that are irrelevant to the research and focusing on the first 15 keywords and their keyness. Keyness refers to the key degree of high-frequency words extracted after comparing the observed corpus with the reference corpus, and can be used to measure the frequency of keywords in different corpus (Scott, 1999). The higher the keyness of a word, the more unique it is in the text, which helps to understand the topic of the corpus.

Table 1. Keyword analysis of two corpora on climate change news discourse

Corpus C			Corpus L		
Keyword	Frequency	Keyness	Keyword	Frequency	Keyness
China	636	3310.29	climate	254	1275.1
climate	314	1680.16	water	431	1265.42
global	261	1505.65	California	274	1225.91
biodiversity	210	1244.31	said	560	751.88
carbon	213	1071.65	energy	150	521.9
energy	217	892.48	drought	91	473.23
countries	188	663.99	Angeles	113	445.47
cop	128	663.85	environmental	76	385.03
emissions	112	663.46	emissions	66	375.32
change	191	563.08	river	123	325.24
percent	127	535.16	gas	99	299.15
sustainable	87	515.33	global	56	289.54
Chinese	116	467.68	lake	81	282.02
hydrogen	97	413.36	solar	64	274.14
cooperation	94	412.23	groundwater	48	272.95

The study first analyzes the same 4 keywords and then explains 3 different keywords in each corpus. From Table 1 the same keywords can be ascertained as *climate*, *global*, *energy*, and *emissions*.

123 of the United Nations Framework Convention on Climate Change (UNFCCC), addressing the New York Climate  
 124 . But pressure on agriculture is increasing as climate change unleashes more intense and longer-lasting  
 125 and damage from the adverse impacts of climate change was a momentous first step, a  
 126 me continue to work on issues of climate change, water resources and resource conflicts fo  
 127 urgent and arduous task of coping with climate change, which requires the concerted and collecti  
 128 bear the brunt of the globe's climate change woes, especially when it comes to  
 129 are asking where they can go that climate change won't affect them. And the  
 130 consensus of countries to actively cope with climate change." Zhang Xiaojang, executive vice-chairman  
 131 climate action. The findings are clear — global climate commitments and needed action are set to  
 132 played for the Cincinnati Reds, before the 2009 climate conference. Thirteen years later, millions of liv  
 133 banks and supervisors, the researchers found that climate considerations have become increasingly mainstrea  
 134 ugh renewable energy infrastructure to tackle the climate crisis: "A new study finds that 54% of  
 135 ? As an energy reporter focused on the climate crisis — and a young person hoping for  
 136 development in the United States, tackle the climate crisis and advance the clean and low-  
 137 she also cares deeply about solving the climate crisis, and doing it equitably. She reached  
 138 comparative advantage, so as to tackle the climate crisis at the lowest cost. Some provisions  
 139 we're too late to solve the climate crisis. But I am determined. I am  
 140 healing in this place." Capitalism fuels the climate crisis. Can it also offer solutions? Constructio  
 141 cooperation, reflecting the global nature of the climate crisis. China already has 38 climate change coope  
 142 issues or who otherwise deal with the climate crisis in their professional lives. I asked  
 143 that critics say is lunacy, considering the climate crisis. Officials at Glendale Water & Power have?  
 144 at risk from the consequences of the climate crisis. Some central banks have also made

Figure 3. Concordance of *climate*

The first keyword is *climate*, for both China and America are influenced by the climate crisis and care about the related issues. The study focuses on concordance lines and discovers that *climate* invariably appears with the words *change*, *crisis*, and *commitments*. It turns out that climate change has caused a myriad of problems for the two countries such as extreme weather, reduced food production, and rising sea levels. In news reports, catastrophic disasters and more emergencies are reported, which shows the concern for change in public discourse. The two countries are actively exploring ways to cope with climate change.

120 sustainable development. We believe this requires a global effort and collaboration that spans international  
 121 sustainable development. We believe this requires a global effort and collaboration that spans international  
 122 Europe and elsewhere for partners in the global effort to mitigate and ultimately halt and  
 123 al solutions for common challenges and complement global efforts including the UN 2030 Agenda for Sustaina  
 124 resent existential challenges requiring sustained global efforts. Our success on the population issue  
 125 Adaptation" to assess the efficacy of ongoing global efforts to adapt to climate change. Adaptation  
 126 which 41,459 are threatened with extinction. Yet global efforts to date to protect biodiversity have  
 127 be a useful tool in rapidly reducing global emissions, but not if implemented piecemeal, and  
 128 for between 13 percent and 21 percent of total global emissions from 2010 to 2019. However, when consid  
 129 Nov. 18, only 30 countries accounting for 18% of global emissions had updated pledges, and some of  
 130 World Bank says less than 4 percent of global emissions in 2022 are covered by a direct  
 131 banks are expanding their work. However, as global emissions keep rising, more decisive work will  
 132 ical meetings, agreements, and pledges. IPCC says global emissions must be halved by 2030 and be  
 133 accounts for no more than 3 percent of global emissions, yet many of its people are  
 134 provide massive opportunities for Saudi and other global energy and chemical companies, said Zhao Ying,  
 135 has resulted in severe turbulences in the global energy and food markets. This has aggravated  
 136 as a matter of national security. "The global energy crisis," the IEA concluded, "is pushing  
 137 are the sources that will transform the global energy landscape, bringing the world closer to  
 138 biodiversity fund within the UN's existing Global Environment Facility. This came about as a  
 139 creation of one under the pre-existing Global Environmental Facility, or GEF. "Creating a fund  
 140 been fighting climate change and participating in global environmental governance, while forging ahead in

Figure 4. Concordance of *global*

The second keyword is *global*. The noun phrase *global efforts* shows the two countries both demand global attention on climate issues. The media calls for multilateralism in climate governance and hopes to enhance common national recognition. To show the impact of climate change, global energy and emissions are reported more. Carbon emissions have become two countries' concern. China and America have announced plans to reduce emissions and protect the environment. More support is given to green energy industry development.

The third keyword is *energy*. It appears with phrases including *renewable energy* (t score = 4.78), *China's energy* (4.89), *energy development* (4.18), and *hydrogen energy* (4.75). Energy security is attracting attention again. Many countries must face the reality of promoting the energy transition and ensuring energy security. Collocates like *renewable*, *hydrogen*, and *development* mention the new energy technologies adopted to mitigate climate change. Also, China often represents its macroscopic view of the energy industry and policies. It not only introduces the nation's concern and wisdom for climate change but also tends to build a good ecological image.

The fourth keyword is *emissions*. The collocations are invariably *greenhouse gas emissions* (9.09), *reduce emissions* (8.03), and *zero emissions* (7.32), which cover the harm generated by carbon emissions has elicited widespread concern. Under the trend of global warming, the mainstream media helps to disseminate its relevance. With the pursuit of national image and environmental protection, the two countries have set goals to reduce carbon emissions, trying to play a role in climate governance. They both want to reach zero emissions, intending to develop a new economic model and build favorable national images.

Next, three different keywords in each corpus are discussed. According to the keyness, the top 3 keywords in Corpus C are *China*, *biodiversity*, and *carbon*; the other 3 words in Corpus L are *water*, *California*, *said*. Their log-likelihood ratios are analyzed to find the discrepancies between the two corpora.

Table 2. The log-likelihood analysis of two corpora

Word	Freq in Corpus C	Freq in Corpus L	Log-likelihood	Sig.
water	72	431	243.89	0.000***-
California	274	24	276.5	0.000***+
said	560	345	79.86	0.000***+
China	636	9	875.05	0.000***+
biodiversity	210	27	182.7	0.000***+
carbon	213	79	80.55	0.000***+

In Table 2, the words with log-likelihood higher than 50 are marked with three asterisks ("\*\*\*"), which means the degree of difference between two corpora. Regarding the rating scale of one to three asterisks, having more "\*\*\*" indicates a greater degree of difference. All the words achieved three "\*\*\*", signifying that the discrepancy between the two corpora is rather high. The word *China* has 636 frequencies in Corpus C but only 9 in Corpus L. Besides, all the frequency gap numbers between the two corpora for the same word exceed 100. Thus, the different concerns on the same issue of the two corpora need to be discussed in depth.



103 , Canada, on Wednesday. Liu Yinmeng / China Daily China's achievements and practices on biodiversity cons  
 104 attended the event, gave high praise to China's achievements and efforts on biodiversity conser  
 105 ambitious GBF," de Boer said. While applauding China's achievements and contributions on conservation,  
 106 st year, Baoshan Iron & Steel Company (Baosteel), China's biggest listed steelmaker, agreed with Aramco  
 107 ology and environment, highlighted the results of China's biodiversity conservation over the past 10 year  
 108 of 36 individuals. "Through years of hard work, China's biodiversity conservation has achieved remarkab  
 109 her species," he said. COP15 pavilion highlights China's biodiversity efforts An attendee of COP 15  
 110 the sector grows, as has happened to China's chip industry. The IRA aims to  
 111 to speed up usage, reach carbon goals China's development of the hydrogen energy industry  
 112 hina Association for Science and Technology, said China's development of hydrogen has entered a  
 113 into a symbol of the progress of China's ecological civilization, a model for the  
 114 still in its embryonic stage, will lead China's efforts to streamline its protected areas  
 115 the opening of COP15. Active participation in China's energy investment and cultural welfare The  
 116 Forum that ensuring the continuing security of China's energy needs remains the company's  
 117 actively taken part in the development of China's energy sector. Currently, the company's  
 118 has earned Aramco a leading position among China's energy suppliers, meeting around 18 percent of  
 119 the industry is an integral part of China's energy system and it will promote

Figure 5. Concordance of *China* in Corpus C

In Corpus C, the word *China* represents the highest keyness (3310.29). It always collocates with *has*, *is*. These sentences are usually in an indicative mood, suggesting the current environmental situation and actions taken by China. When *China* is the most frequent word in a news report, the message receiver can well recognize its role and effort. Therefore China's voice can be better spread to the world. Moreover, *China* always serves as a possessive pronoun in phrases like *China's achievements*, *China's biodiversity*, *China's energy*, and so on. These combinations of words build a proactive image, implying that China has received good environmental feedback and making readers better understand China's view on ecological governance.

29 under China's presidency MONTREAL -- The UN biodiversity conference has been "very constructive" so far  
 30 what has been touted as the biggest biodiversity conference in a decade. COP15 took place  
 31 All Life on Earth", is the biggest biodiversity conference in a decade. World leaders are  
 32 COP15", it read. COP15 is the biggest biodiversity conference in a decade, at which world  
 33 at an event during the United Nations Biodiversity Conference in Montreal on Wednesday.[Photo/Agenci  
 34 The Conversation. COP15 was the most important biodiversity conference of the decade. It may have  
 35 biodiversity. The core proposal of the UN biodiversity conference, or the COP15, which is being  
 36 this really started changing around 2018 as the biodiversity conference was nearing and law enforcement was  
 37 Daily China's achievements and practices on biodiversity conservation are being shared with members and  
 38 's biodiversity efforts China's achievements on biodiversity conservation are being shared at the 15th  
 39 Convention and to serve as leaders in biodiversity conservation around the world must be applauded  
 40 NGOs also play an important role in biodiversity conservation, Chinese NGO representative Xu Guang  
 41 to China's achievements and efforts on biodiversity conservation, especially through the COVID-19 pan  
 42 high praise to China's achievements on biodiversity conservation, especially throughout the pandemic.  
 43 obal biodiversity framework, a global roadmap for biodiversity conservation for this decade, are "still a  
 44 . "Through years of hard work, China's biodiversity conservation has achieved remarkable results, eff

Figure 6. Concordance of *biodiversity* in Corpus C

*Biodiversity* with a keyness of 1244.31 is a representative word in Corpus C. The abundant reports of *biodiversity conferences* mostly refer to UNFCCC-COP15, which was held by China to promote global ecological progress, encouraging countries to work towards the sustainable use of biodiversity by 2050. China hopes to be an active defender and promoter of the multilateral climate governance mechanism, continuing to show a positive attitude towards global cooperation. *Biodiversity loss* frequently appears and relates to serious problems like deforestation and land degradation. Its solution in the reports helps shape China into a responsible problem solver.

The word *carbon* has keyness up to 728.82 in Corpus C. It always collocates with *credits* (4.10), *emissions* (4.94), and *neutrality* (1.99). Carbon emission has been a heated topic of climate change, and these noun phrases show that China cares about the entire carbon market's fairness, requiring unified supervisory regulations. China's state media points out the existing problem of carbon emissions and the future goal of carbon neutrality. It is in line with the international conferences' wish for energy conservation and emissions reduction. China's responsible image is represented in the report.

14 new limitations in the coming years. Local water agencies across the San Joaquin Valley are  
 15 assessment each year, state officials said. Urban water agencies are also required to update their  
 16 Lone Pine. Most of California's urban water agencies believe they have enough supplies to  
 17 e tragedies," he said. Nearly 20% of California water agencies could see shortages if drought persists,  
 18 already played a critical role in helping water agencies deal with the current drought, but  
 19 agreement, and the voluntary cuts states and water agencies have proposed remain far from the  
 20 efforts will be required for 20% of urban water agencies if the current drought continues," Gleic  
 21 to?allocate 5% of requested supplies?to urban water agencies in 2023. "We did have some decent  
 22 reduce their use. In October, some California water agencies, including the MWD,?pledged usage reduct  
 23 of Water Resources announced this month that water agencies should prepare to get by with  
 24 includes yearly data through July 1, focuses on water agencies that serve at least 3,000 connections, r

Figure 7. Concordance of *water* in Corpus L

Different from Corpus C, the first word in Corpus L is *water* with a keyness of 1321.68. The continual use of phrases like *water agencies*, *water district*, and *water supply* suggests that America pays attention to the region's water supply and use. The mainstream media reports the water resources' current situation, each party's opinion and plans. It always mentions different districts and their agencies' views. Water is important for agricultural irrigation and wildlife habitats. The anxiety of the public and the urgency of cutting water use can be seen from the text.

The second keyword in Corpus L is *California*. It usually comes up with *districts* (6.95), *water* (5.73), and *southern* (4.21). The *Los Angeles Times* focuses on the overall environmental situation in the state of California. It cites abundant data from related districts and quotes from agencies, focusing on delivering an objective picture. Water protection is a heated topic in relation to the word *California*, especially in southern California given its drought and fields. Environmental problems and responsibilities are reported to substantiate the necessity for climate policies.

60 that trend continues through the winter," Lareau said. "But the spigot can turn off just  
 61 who are not going to change," Wolfson said. "But there are also people who do  
 62 based on what's already happened," Swain said. But there is a "tilt in the  
 63 be easy, to say the least," Martinez said. "But there was a commitment from all  
 64 this year they were record dry," Anderson said. But though the storms have brought welcome  
 65 continue to produce most of them," Sumner said. "California agriculture is incredibly resilient.  
 66 . Though much of it is grim, officials said California continues to take "world-leading actio  
 67 droughts," Medellin-Azuara said. The researchers said California lacks sufficient programs to assist la  
 68 also protects our nation's water," she said. Capitalism fuels the climate crisis. Can it  
 69 dinner plate — have all been wild caught," said Carmelle Joyner, a farm biologist and tour  
 70 was expected even a few years ago," said Carmen Milanes of the Office of Environmental  
 71 for continued reliance on nuclear power, he said. Cavanagh doesn't put much stock in  
 72 going on politically here that really smells," said Chrislock, a longtime resident of Carmel, who  
 73 ttuce to carry suppliers through that transition, said Christopher Valadez, president of the Grower-Ship  
 74 unities are equally served by infrastructure," he said. Climate change is rapidly accelerating in Calif  
 75 about California. We get the extremes." He said climate change is altering what is considered

Figure 8. Concordance of *said* in Corpus L

*Said* with a keyness of 751.88 represents the linguistics feature of Corpus L. It always collocates with different names or identities like *officials*, *researchers*, *solar installers*, *environmental activists*, and so on. Here, American mainstream media prefers to show different parties' opinions and their concern for interests. The obvious indication of speakers help different opinion groups express their attitudes on climate change. The Biden administration has paid much attention to climate justice (Yu, Zhang, & Wang, 2021). This action is for winning people's support and rebuilding U.S. global leadership on climate.

### 5.1.2 Modality

Modality is a useful tool for examining news reports' attitudes and the certainty of the events. Halliday (2004) proposes that the value of modal verbs can be divided into "low", "medium" and "high" according to their contribution to certainty. *Has to*, *must*, *ought to*, and *need to* belong to a modal of high value. *Will*, *would*, *should*, etc. belong to the modal of value median; *Can*, *may*, *could*, and *might* are models of low values. The value of modal conveys the speaker's moral commitment. The higher the modal value, the stronger the discourse obligation and willingness expressed by the discourse, the narrower the dialogue space with readers, while the modal with



lower value conveys less obligation and willingness, and the larger the communication space with readers (Thompson, 2014).

Table 3. The number and distribution of modal verbs in two corpora

Value	Modal Verbs	Corpus C		Corpus L	
		Num.	Per.	Num.	Per.
Modal verbs of low value	Can	129	19.6%	147	17.9%
	May	32	4.9%	53	6.5%
	Might	7	1.1%	27	3.3%
	Could	49	7.4%	123	15.0%
Sub-total		217	33.0%	350	42.6%
Modal verbs of median value	Will	249	37.8%	221	26.9%
	Would	42	6.4%	125	15.2%
	Should	62	9.4%	56	6.8%
	Shall	0	0.0%	0	0.0%
Sub-total		353	53.6%	402	49.0%
Modal verbs of high value	Has to	7	1.1%	8	1.0%
	Must	43	6.5%	16	1.9%
	Ought to	0	0.0%	0	0.0%
	Need to	38	5.8%	45	5.5%
Sub-total		88	13.4%	69	8.4%
Total		658	100.0%	821	100.0%

Table 3 shows two corpora's distribution of modal verbs. Generally, Corpus L (821) enjoys a higher frequency of modal verbs than Corpus C (658). In Corpus C, compared to low-value modal verbs (217) and high-value modal verbs (88), medium-value modal verbs (353) are preferred. In Corpus L, medium-value modal verbs (402) occupy the largest of the total, followed by low-value modal verbs (350) and high-value modal verbs (69).

#### 1) Modal verbs of low value

As shown in Table 3, the use of low-value modal verbs is more frequent in Corpus L(350) than in Corpus C(217). Both corpora are characterized by the overwhelming use of *can*, which reveals the uncertainty of discourse as it uncovers the equivocal stands of the speaker.

(1) China's National Climate Change Adaptation Strategy 2035 provides a tangible national blueprint that **can** help guide other countries looking to prepare climate change action plans. (*China Daily*)

(2) Both the UAE and China understand our immense duties in nurturing and conserving our natural landscapes so that future generations **can** continue to enjoy their wonders. (*China Daily*)

(3) And such concentrations of birds **can** lead to outbreaks of avian botulism or other deadly illnesses. (*Los Angeles Times*)

(4) But pressure on agriculture is increasing as climate change unleashes more intense and longer-lasting droughts, as well as heat waves that **can** harm crop yields. (*Los Angeles Times*)

As can be seen from the above examples, both Chinese and American discourse use *can* convey the objectivity of news, which makes it easier for readers to accept. For example, *China Daily* highlights the beneficial results that can be brought about by China's contribution to other countries and the environment in (1) and (2), while *Los Angeles Times* uses *can* to describe the environmental damage that could be caused.

#### 2) Modal verbs of median value

Modal verbs of median value are found to be most prevalent in two newspapers, and the word *will* is more frequent in Corpus C (249) than in Corpus L(221). This indicates that both *China Daily* and *Los Angeles Times* try to avoid extreme tones of voice and prefer the more neutral discourse, while *China Daily* appears to be more objective, as in the following:

(5) It is convinced that the holistic strategy **will** enable it to become a sustainable, social, and technological leader by 2030. (*China Daily*)

(6) The number of hydrogen fuel cell vehicles **will** reach about 50,000. (*China Daily*)

(7) Such heavy reliance on wells **will** face new limitations in the coming years. (*Los Angeles Times*)

(8) With many fields now bone dry, Bransford and other farmers say they're concerned about how the birds and other species **will** fare. (*Los Angeles Times*)

*Will* is often used to predict the development of green industry and environmental policies. Sometimes news reports can not directly tell their opinions so they apply such predictions to show their expectation for future trends. For instance, China is constructed as a main supporter of the new energy industry in discourse and the newspaper of the United States presents encouragement for regulations and concern for animals. The use of *will* allows journalists to take less responsibility when giving judgements, and increase the authority for the report.

### 3) Modal verbs of high value

The frequency of modal verbs of high value is less than the first two modal verbs, but there is still a certain gap between the two corpora. *Must*, a modal with a strong subjective and imperative connotation, appears more in Corpus C(43) than in Corpus L(16), which indicates that *China Daily* is more certain about the report than *Los Angeles Times*, as in the following:

(9) The Glasgow decision to "at least double" climate finance for adaptation **must** be urgently fulfilled. (*China Daily*)

(10) China **must** continue to promote the construction of national parks. (*China Daily*)

(11) The region **must** be prepared for the river to permanently yield less water because of climate change. (*Los Angeles Times*)

(12) So our entire service area **must** take measures to protect our limited Colorado River supplies.

The modal *must* reinforces the commitment to discourse. *China Daily* demonstrates the determination of China to enhance the measures towards climate change, and the *Los Angeles Times* presents the same attitude by conveying the urgency of adjusting to environmental change and taking relevant protection.

## 5.2 Interpretation

Interpretation includes the text structure and points. Fairclough (1989) thinks the point of the text is the general topic. To fully understand the discourse and keep it in long-term memory, the interpreter must challenge four questions.

First, concerning the question of what is going on in the text, this can be divided into activity, topic, and purpose. The analysis of activity refers to identifying a situation from a series of types. Both China and America's news discourse embody climate change reporting activities. They contain the current environmental problems, related industrial situations, and hopes and worries for the climate future. On this topic, both media discuss the issue of climate change, and the common purpose is to adapt to the change and get involved in climate governance to consolidate national ideologies. Specifically, China hopes to unify more countries to tackle problems with more concerted efforts, and America focuses more on enhancing its leadership in governance.

Second, regarding the question of who is involved in the activity, journalists transmit the messages to the readers via news reports. The reports are not value-free because the writers not only record the latest events but also give implied opinions through interviewees or the report itself. In the news, officers, scientists, businessmen, and other people influenced by climate change are mentioned. They convey the imperativeness of the protecting environment to the readers, building a common national recognition.

Third, concerning the relations of the people involved in the action, the reports in both countries refer more to power, society, and ideology. The journalists are from different countries and work for the *China Daily* or *Los Angeles Times*. Their social position cannot be judged as low or high, but their voices represent the mainstream opinion of the countries and influence readers from various ranks and groups.

Fourth, regarding the role of language, here it serves the purpose of message transmission. It helps to spread the latest narrative and the nation's opinion to readers. In this sense, the genre is news and the channel is the written text.

## 5.3 Explanation

At the explanation stage, discourse is regarded as a social practice. The text has a close relation with social background. Three levels of context are studied in this part: the situational context, the institutional context, and the societal context.

### 5.3.1 Situational Context

According to Fairclough (1989), the situational context is treated as the immediate social environment in which

the news discourse is generated. The discourses in this study are the latest environmental events reported after COP27. Climate change in recent years is taken as the situational context of discourse.

The United States is suffering from severe climate change, which brings more intense and dangerous wildfires, dried-up farmland, and insufficient vegetation to support livestock and wildlife. It is not only the government but also the public who is requiring actions on climate governance. The measures to protect the environment like financial support and desalination projects have been carried out. American mainstream media take both a positive and negative stance during reporting. On the positive side, the situational context can be easily seen from the headlines of the news, like “*Cleaner air, arriving soon by U.S. mail*”, “*An experimental green suburb rises in Riverside County. Is it the future of single-family housing*”, where the journalists report proactive measures to tackle climate change, giving the public confidence and belief in the government. On the negative side, reports like “*‘It’s a disaster.’ Drought dramatically shrinking California farmland, costing \$1.7 billion*”, and “*Europe’s carbon tariff is the right general idea, but doomed by details*” give readers the impression that environmental problems are very serious, and the methods used by other countries are less than ideal. These discourses lead people to recognize the deficiency of the present climate governance, providing justification for the American strategy and welcoming the leadership of the United States.

China also encounters many environmental problems like energy transition and wetland protection. Toward the goal of carbon peaking and carbon neutrality, the Chinese government supports the new energy industry and builds nature reserves. From headlines like “*Lyuliang leads charge in forging a cluster for the hydrogen industry*”, and “*Nation ups efforts for hydrogen*”, China’s concern for green energy development is obvious. These discourses enhance people’s confidence in the nation’s environmental outlook. China also pays close attention to the international society’s attitude toward climate change and actively calls on cooperation to prevent catastrophic damage. In the headlines “*Experts see China and Australia spurring low-carbon economy*”, and “*Meeting global climate ambitions through regional collaboration*”, the *China Daily* uses declarative sentences to indicate the countries’ efforts on environment protection, expressing proactiveness and hope for cooperation. China actively carries out bilateral and multilateral climate diplomacy to promote reform of the global climate governance mechanism, which is conducive to shaping the image of an active participant in global environmental governance and enhancing public recognition of China’s ecological philosophy.

### 5.3.2 Institutional Context

Institutional context is the social institution that constructs a broader matrix for the text (Fairclough, 1989). This research discusses the background of the *China Daily* and *Los Angeles Times* as the institutional context of the reporting.

The *China Daily* is China’s national English daily newspaper, founded in 1981. It is also the only Chinese newspaper that has entered mainstream Western society, being an important part of the Chinese government’s outbound propaganda (Duan & Zhou, 2007). As a state media, it conveys the countries’ opinions and attitudes to the world. Rather than focusing on reporting a single event, it conveys China’s position and solution. The *China Daily* harbors the mission of allowing China to better communicate with the world. The active ecological actions towards climate change give readers a good impression of China’s ecological image. China’s hope for cooperation in the news discourses helps the country to attain more international rights of speech, enhancing the people’s pride in the nation.

The *Los Angeles Times* was founded in 1881, belonging to “Mirror Group Newspapers”. It is the largest metropolitan daily newspaper in America, with a Sunday print readership of 1.6 million and a combined print and online local weekly audience of 4.4 million (LOS ANGELES TIMES, N.D). Zhang (2014) believes the medium is an economic concept in the U.S. The newspaper desires more attention and readers, therefore it chooses to report the most concerning environmental problems, discussing the worrying crisis and realizing the climate-related political interests. Zhang (2014) also points out that the intense competition in the media has reduced risk-taking in news reporting. The news sometimes reports the positive side of climate change, such as the headline “*They’re knee deep in the climate trenches. Here’s what gives them hope*”, which matches the official ideologies of the United States to build ecological leadership in the world.

### 5.3.3 Societal Context

The societal context of news discourse heavily affects the production of news reports (Fairclough, 1989). China still faces developing challenges from some Western countries which propagate the “China threat theory” and harbor strong suspicion towards China’s rise. According to Tai and Ma (2024), for a long time, the “discourse hegemony” of the Western medium represented by BBC, CNN, and AP gave Western countries a more favorable balance of power in international cultural communication. Under this international environment, China has to

apply national media to spread its voice. China exerts much effort on national broadcasting to enhance people's sense of national belonging, therefore deepening their national identity. The Chinese media are trying to introduce China's experience to countries in need and build a respectable image.

America has long faced trouble brought by climate change. The United States government has gone from neglecting climate change to giving it strategic attention. According to Li (2009), the number of Congress members who want to curb climate change is growing; public awareness of climate change is also deepening. Therefore, America has given more attention to the climate crisis, making it the center of U.S. foreign policy and national security (Yu, Zhang, & Wang, 2021). The discourses about the policy such as innovating science and technology, boosting demand, and investing in infrastructure convey a positive message to the readers, which builds the strong leadership of government in the mind of the public and enhances the citizens' sense of national expectation. The construction of a responsible national image is in line with the core value of American ideologies, which needs to prove that "democracy can still deliver" (THE WHITE HOUSE, 2021).

## 6. Discussion & Conclusions

Based on Fairclough's Three-Dimensional Model of Discourse, this paper combines the relevant research results of CDA and CL, exploring the similarities and differences in the discourse characteristics of climate news reports in China and the United States after COP27, and how news discourse strengthens national ideologies. Regarding to RQ1, the findings suggest that the similarities between Chinese and American news are that both focus on climate issues and energy industry development around keywords such as *climate*, *global*, *energy*, and *emissions* and call for countries around the world to participate in environmental protection. Modal verbs of median value are often used to reflect the objectivity of the report. In the process of producing, distributing, and consuming texts, both countries convey the urgency of addressing climate change by showing the opinions of different people, which is consistent with the national ideological requirements for creating a good ecological image.

The differences between Chinese and American climate news are mainly reflected in the social origins of the linguistics features. The mission of *China Daily* is to promote communication between China and the world, therefore, it often chooses to emphasize China's environmental actions and international cooperation when facing communication difficulties. The *Los Angeles Times* hopes to bring economic benefits to the newspaper through controversial topics and demonstrates American leadership in this context. The results echoed findings from prior studies in that Chinese news supports the government's official and political stance, while US news is often influenced by public stances, mostly presenting environmental issues faced by the public (Yang et al., 2020).

News media always report news events from a specific ideological standpoint and promote and consolidate the reproduction of ideology (Fowler, 2013). Concerning RQ2, this study finds that the discourse strategies to consolidate national ideologies in the climate news discourse of both countries are mainly through the concentrated reporting on climate issues like industrial development, emission issues, and government actions, to clarify climate responsibility, and shape a responsible national image that actively solves climate problems. The news media in China and the United States attach great importance to reflecting objective attitudes in reporting and use modal verbs of median value to reduce reporters' responsibilities. However, there is no complete objectivity and neutrality in news reporting. (Fowler, 2013). Chinese media hope to promote public recognition of China's climate policies and national pride by showing the country's willingness to cooperate with other countries. This is in line with the previous finding of Chinese reporting, which tends to highlight positive developments and requires global support to tackle climate change (Song et al., 2021c). The American media applies a similar strategy by stressing shaping the leadership of American climate governance through discourse, conveying the universal value of democracy, and strengthening the national identity of the American people.

This study combines CL and CDA methods to explore how climate change news discourse in China and the United States consolidates national ideology. It not only broadens the field of critical discourse analysis but also helps to improve readers' critical awareness and critically evaluate news discourse in reports of a single event. It should be noted that this study selects Chinese and American news from one and a half months after COP27 as the corpus, where the generalizability of the results may be limited by the number of reports. Moreover, this paper only compares the news discourse of China and the United States. Further research should extend into a broader comparison between the climate news discourse of different countries, based on the wider corpus with more mainstream media discourse besides *China Daily* and *Los Angeles Times*. This paper hopes that the combination of CDA and CL can stimulate a deeper engagement with the study of news discourse on climate change.

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### Authors' contributions

Che and Huang were responsible for study design and revising. Huang drafted the manuscript and Che revised it. All authors read and approved the final manuscript.

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No additional data are available.

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