Categorisations of developed and developing countries in UN news on climate change

Guofeng Wang[a], Ming Liu[b], Yihang Xin[c]

[a]Foreign Languages College, Shanghai Normal University, Shanghai, People's Republic of China; [b]Department of Chinese and Bilingual Studies, The Hong Kong Polytechnic University, Hong Kong, Hong Kong; [c]Applied Technology College, Soochow University, Suzhou, China

Contact: Guofeng Wang echoking@yeah.net Foreign Languages College, Shanghai Normal University, Shanghai, People's Republic of China

Abstract: Categorisations of social groups involve interpretations of reality that include social cognition, classification of relevant concepts, worldviews and ideologies. To reveal the factors that form the basis for the commonly used terms *developed countries* and *developing countries*, this study uses corpus-assisted critical discourse studies to examine how they are represented in United Nations climate change news reports. Results show these two categorisations are constructed through lexico-grammatical patterns that serve generally as *Locations* specifying the characteristics of various climate change scenarios. In addition, guided by UN mandates, *Agents* (*developed countries*) are expected to provide climate funds to *Patien*ts or *Goals* (*developing countries*) to effectively solve this global problem. The ways in which these patterns are represented in UN news reporting reflect the post-World War II world order and the core value of humanitarianism endorsed by the UN. To address the ongoing problem of insufficient financial support to *developing countries*, it is proposed that provisions of support be included in the Nationally Developed Contributions of *developed countries*.

Keywords: Categorisation; news discourse; climate change; *developed countries*; *developing countries*; United Nations; critical discourse studies

1. Introduction

Categorisation refers to the process in which objects, events or ideas are recognised and classified by associating them with a more abstract group based on commonalities and differences (Croft and Cruse 2004, 74–77; Pothos and Wills 2011, 1). This process is considered to be one of the most fundamental cognitive abilities of human beings and is studied by psychologists and cognitive linguists. However, from the discoursal perspective, any discourse is socially constructed (Fairclough 2006, 33) and categorisation of social groups involves not only people's social cognition, but also their worldviews and ideologies (van Dijk 1998). In climate discourse, it is not uncommon to see that climate governance and climate actions are represented and discussed on the basis of two groups of social actors—a dichotomy of the developed world and the developing world.

Over the last three decades, the issue of climate change has attracted increasing attention from the global media. Since the 1990s, there has been a diverse body of work examining the issue of climate discourse as socially constructed from a critical perspective in the fields of linguistics, political science and media studies. These studies mainly have adopted methods such as case studies, content analysis and discourse studies (employing either traditional qualitative methods or corpus-based methods) to investigate media representations of climate change in one or more countries. Examples include inaccuracies in scientific news reports on climate change published in New Zealand (Bell 1994), the politicisation of climate change in a majority of US national newspapers (Trumbo 1996), biased coverage of both anthropogenic contributions to global warming and resultant actions by the US prestige press (Boykoff and Boykoff 2004), ideological standpoints hidden in the discursive (re)construction of scientific claims in the British quality press (Carvalho 2007) and a weak influence of national political elites on framing climate change information in US and Swedish news sources (Shehata and Hopmann 2012). In addition to the research focusing on developed countries, several studies

were conducted scrutinizing related media discourse in developing countries. For example, Dayrell (2019) investigated discourses on the subject of climate change in Brazilian newspaper articles (2003–2013), playing a key role in raising public awareness of this issue as well as pointing out the lack of serious discussion about the significant rise in carbon emissions from the energy, transport and farming sectors. In addition, Pan et al. (2021) conducted a diachronic framing analysis of *People's Daily*'s coverage of climate change (1995–2018) and found that this official Chinese newspaper persistently emphasised the role of economic growth, attributed the most responsibility for this growth to developed countries and resorted to technology as the ultimate solution.

Aside from the above-mentioned studies, of special note is a corpus-based critical discourse analysis of the representations of developed and developing countries in *The Independent* and *The New York Times*' coverage of the Conferences of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) from 2004 through 2013. In this study, Nhung (2017) found that developed countries were constructed as being reluctant or even indifferent towards their responsibilities in global climate governance while developing countries were represented as dependent upon the support of developed countries in solving climate-related problems. Despite nuanced differences in stance, both newspapers urged developing countries to act together with developing countries to adopt shared responsibilities in the interest of the world's most developed nations.

However, with regard to representations of developed and developing countries, few studies have examined how they are discursively constructed in UN news on climate change. Under the theme of "Global Perspective Human Stories", the UN news organisation seeks through its Strategic Communication, News and Media and Outreach programs to disseminate in multiple languages the missions of the UN and to enhance international cooperation by informing global audiences of UN areas of interest including peace and security, humanitarian aid, climate and the environment, human rights, etc. Therefore, it is very likely that the two categories of countries are represented in significantly different ways in UN news and in national newspapers because they emphasise different themes and target different audiences. In addition, as compared to other UN documents (e.g. UNFCCC conference reports, UN climate change speeches and UN climate change statements), climate news stories may also reflect a richer variety of "social realities" related to this complicated global issue.

From the perspective of critical discourse studies (CDS) (van Dijk 2011), news discourse is a typical form of ideological discourse that offers "categories for reality" which "contribute for the most part to social control and reproduction" (Fairclough 1992, 161). As such, this article adopts the approach of CDS to examine how the UN constructs the issue of climate change with relation to how developed and developing countries are categorised and represented through linguistic devices. By analysing sample news discourses, this study also seeks to reveal the social powers, dominant ideologies and worldviews that influence climate change news published by the UN.

2. The issue of climate change

The issue of climate change involves science, economy and politics on a local and global scale. To counter this enormous non-traditional threat to mankind, the UN has called on the countries across the world to work hand in hand. In 1988, the Intergovernmental Panel on Climate Change

(IPPC) was established with the sponsorship of the World Meteorological Organization (WMO) and the United Nations Environmental Program (UNEP). In 1992, the UNFCCC was passed at the United Nations Environment and Development Conference in Rio de Janeiro. One of the principles of the UNFCCC is "Common but Differentiated Responsibility and Respective Capabilities", later interpreted as a main principle for the division of responsibilities between developed and developing countries. In 2010, the Green Climate Fund (GCF), the world's largest climate fund, was established to help developing countries realize their Nationally Determined Contributions (NDCs) towards low-emission and climate-resilient pathways.[1] In December 2015, the Paris Agreement, the landmark international binding treaty, was adopted by 196 Parties at COP21 of the UNFCCC and came into force in November 2016. Its long-term temperature goal, which limits global warming to well below 2 degrees Celsius, preferably to 1.5, requires ambitious climate actions throughout the world. [2]

In international climate negotiations, responsibilities for climate change have long remained an issue of conflict, particularly as regards the reduction of carbon emission targets, the financing of climate issues and technology transfers (Post, Königslöw and Schäfer 2019). In November 2009, prior to the Copenhagen climate summit, China, Brazil, South Africa and India were organised as the BASIC countries to strengthen cooperation and defend the position of developing countries in climate negotiations (C. Wang 2017). The BASIC group considered developed countries to be historically the most responsible for the volume of climate emissions (Hilton and Kerr 2017) and criticised them (particularly the Trump administration) for their insufficient support and lack of action related to climate issues (Zhang and Orbie 2019; *China Daily* Editorial 2020). On the other hand, industrialised countries have thus far been unwilling to shoulder much of the burden in lowering carbon emission and providing needed financial support. Additionally, because technology transfers involve intellectual property and economic interests, matters often become complicated. When it comes to the introduction of new energy technologies, even the sale of new energy production may evoke conflict between countries. For example, the US raised tariffs three times on Chinese solar products in 2012, 2014 and 2017, claiming that the development of these products by Chinese manufacturers was subsidised by the Chinese government and subsequently dumped into the US market (Chen and Wang 2020).

3. Categorisation and ideology in news discourse: A perspective on critical discourse studies

CDS is an interdisciplinary approach that seeks to unveil the underlying power, inequality and ideology in spoken and written discourse by deconstructing linguistic patterns and discoursal devices (Fairclough and Wodak 1997; Weiss and Wodak 2003). In the CDS approach, an ideology is the equivalent of a worldview, which refers to an (often) one-sided perspective with related mental representations, convictions, opinions, attitudes and evaluations shared by specific social groups (Reisigl and Wodak 2009, 88). It is practically impossible for news discourse to reflect social realities in a totally objective and value-free way (Jäger and Maier 2009) in the inevitable process of "discursive simplification" (Fairclough 2005, 55). In general, the formation of news discourse is affected by the ideology held by the dominant bloc or communities of a given society, and its dissemination strengthens the existing dominant

ideology. In this process, media act as the predominant channel for mediating, shaping, consolidating and normalising "public knowledge and information, beliefs, values and attitudes" (Fairclough 2010, 468).

As a way of perceiving the world, ideology is embedded in the discursive construction of the categorisation of groups. In this sense, categorisation is socially constructed, which may be used not only to regulate and organise the actions of group members in a historical and socio-political context, but also to justify or even challenge the social position of one group in relation to others (van Dijk 1998, 258). So far, most of the related studies have focused on the portrayal of the positive "us" in contrast to a negative "other". For instance, Khosravinik (2015) found that when reporting on Iran's nuclear program, influential Iranian newspapers used grammatical, lexical and multi-modal strategies to legitimise the actions by Iran and perceived the West as an alien power intervening in Iran's internal affairs. Chan (2014) examined the coverage of the Diaoyu Islands dispute by *China Daily* and found that in order to support China's national interests, the newspaper recategorised intergroup relations by assimilating Japan under a superordinate "Asian" identity and constructing the US as an "outsider" purposefully interfering in China–Japan relations.

At the discoursal level, the frequent use of certain linguistic patterns representing a particular group will lead to normalising or perpetuating the representation of this group whereby the ideological underpinnings eventually become invisible to the audience in a given society (Fairclough 2015; Krzyżanowski 2020). G. Wang (2017) investigated news reporting on the Diaoyu Islands dispute published by five newspapers of record in western countries (*The New York Times*, *The Guardian*, *Sydney Morning Herald*, *Le Monde* and *Frankfurter Allgemeine Zeitung*). She found that all these newspapers used the phraseology *China and Taiwan* instead of the legitimate terms in China's English-language publications—*Chinese mainland and Taiwan* or *China's mainland and Taiwan*. On the one hand, the wide use of the phraseology *China and Taiwan* in international communication provides evidence for van Dijk's (2011, 63) argument that the categorisation of groups is usually congruent with the dominant ideology adopted by the powerful and the elite; on the other hand, this example provides evidence for the perception that a misconception can be consolidated and naturalised in certain contexts through the process of repeated use of a certain phraseology.

4. Data and methods

The two established phraseologies in this study—*developed countries* and *developing countries*—were introduced by the Statistics Division of the UN Secretariat to the standard country or area codes for statistical use (known as M49) in 1996; the assignment of countries to specific groups was intended for statistical convenience.[3] However, any socially constructed groupings are inevitably affected by and used with ideological implications in a specific historical, economic and socio-political context. Standing on this premise, this study adopted the approach of corpus-assisted CDS. The marriage of corpus linguistics (CL) and CDS in recent years has helped address the criticisms of small data sizes and cherry-picking of linguistic features to prove a preconceived point (Partington 2004; Widdowson 2000, 2004) and has enabled corpus linguists to "answer socially inspired research questions" beyond grammar or lexicography (Nartey and Mwinlaaru 2019, 19; Yating 2019). CL helps to identify linguistic patterns salient in large quantities of data and suggests entry points for further

qualitative discourse analysis in context (Morley and Bayley 2009). With the application of additional corpus analytic tools, an increasing number of new perspectives on the data are provided to the CDS researcher (Hunston 2002; Partington 2004, 2015), and the statistics generated from these corpus tools lays a solid foundation for making reasonable interpretations from the CDS perspective, thus achieving "a useful methodological synergy" between CL and CDS (Baker et al. 2008).

The data for this study were collected from the web pages of the *UN News* on the website of the United Nations (http://news.un.org/). Of the eight languages published, the English version was chosen for this study due to its wide use throughout the world. A pilot study showed that it was not until 2015 that the term *climate change* began to occur frequently in the *UN news*. For this reason, the time frame of the corpus in this study was set between 2015 and 2020. The year of 2015 also happens to be when the historic Paris Climate Conference was held, while 2020 is the closest full year at the time of data collection. Considering that *global warming* was a more frequently used term long before *climate change*, the authors also used this term to search for related news articles in this time period to ensure that the corpus includes all relevant news articles. As a result, 535 news reports were obtained after manually eliminating the duplicates and the ones deemed irrelevant. Selection of news reports was based on the theory of news framing which states that the coherent construction of an issue in a news report usually involves four elements—problem definition, causal interpretation, moral evaluation and/or treatment recommendation (Entman 1993). Those containing at least two of these elements were considered related because not all four elements are always present in a given news report (Wang 2018). The general information obtained from the data is shown in Table 1, which indicates an upward trend in terms of the number of related news reports over this period. There also is a decline in the number of news reports in the year 2020, which may be accounted for by the spread of the COVID-19 pandemic, resulting in fewer climate-related activities by the UN and related organizations.

Table 1. General information of the data for this study.

	2015	2016	2017	2018	2019	2020	Total
Number of news reports	3	10	26	130	213	153	535
Word types	1,056	2,299	3,191	6,435	9,076	7,729	13,640
Word tokens	4,253	12,265	20,182	64,775	138,068	95,510	335,053

Following data collection, the next step was to build models that provide an overview of the specific topics relevant to these data. Topic models are algorithms for discovering the main themes of unstructured and unlabeled texts. Their basic idea is to treat a text as a "bag of words" composed of one or more topics, each having a distinctive weight. By using contextual clues, connecting words with similar meanings and distinguishing between the uses of words with multiple meanings, the word probabilities in topics are inferred and topics are generated based on statistical calculation (Diesner et al. 2015). As is a common practice in topic modelling, an English stop words list included in the R package *tidytext* (Silge and Robinson 2016) was used to exclude items that carry little semantic meaning. A few tailor-made words—i.e. words that occur in more than three topics after several attempts at building a topic model (such as *climate*,

change, *action*, *countries* and *people*)—were also used as stop words in this process.

The third step was to use the Antconc software, a freeware corpus analysis toolkit for concordancing and text analysis (Anthony 2020), to examine how the two social actors (*developing countries* and *developed countries*) in UN news on climate change were represented. A pilot study was conducted using the word list and concordance functions of AntConc to identify the most frequently occurring phraseologies denoting the two categories respectively in the corpus. The results obtained included *developed countries* (28 times) and *developing countries* (117 times). Particular attention was paid to whether such alternative terms as *periphery*, *semi-periphery*, and *core*, as informed by world systems theory and *Global North* and *Global South*, occurred in the corpus. After carefully examining the corpus, only eight instances of *Global South* were found. Therefore, *developing countries* was chosen as the entry for analysis in this study. Afterwards, and to increase validity, this reference was combined into a single term in the research corpus (i.e. by altering the expression *developed countries* into *developed.countries* and *developing countries* into *developing.countries*). Collocates were then generated respectively. Sentences containing the social actor and its selected strongest collocates were then sorted out and manually divided into several types, followed by a detailed and contextualised analysis of sample sentences.

5. Findings

5.1. Topic modelling

Topic modelling was then conducted to discover underlying topics in the collection of the UN news reports on climate change – particularly, what topics were highlighted during the time period of 2015 to 2020. Using the Text Analytics Toolbox software, a Latent Dirichlet Allocation (LDA) model (a topic model) was generated, each topic with a group of keywords. The number of keywords was determined using an automatic calculation feature of the toolbox.[4] This step included tokenising the text using tokenisedDocument, erasing punctuation using erasePunctuation, removing the list of stop words (as mentioned in the previous section) using removeStopWords, removing words with two or fewer characters using the removeShortWords function and then removing words with 15 or more characters using removeLongWords. In this step, we compared the results of keywords generated first through using the normaliseWords function and then when not using it. Finding few differences between the two keyword lists, we recorded the results without using normaliseWords in Table 2. This result may suggest that UN news tends to emphasise the developing world more than it does the developed world.

One key point in topic modelling is to decide on an optimal number of topics based on the keywords. One of the advantages of the Text Analytics Toolbox is that it enables the researcher to evaluate the goodness-of-fit of an LDA model by calculating the perplexity of the dataset. While perplexity indicates how well a model describes a dataset, a lower perplexity suggests a better fit. After experimenting with several numbers, seven topics were found to be reasonably conducive to meaningful thematic interpretation related to the issue of climate change. Table 2 shows the seven topics in descending order in terms of topic probabilities and their associated keywords in descending order in terms of frequency. Topic probabilities that were automatically calculated by the software refer to the proportion of a specific topic in the overall corpus.

Table 2. Topics and their associated keywords.

Rank	Topic Label	Topic Probabilities	Keywords
1	*The Paris Agreement*	22.8%	energy, carbon, agreement, paris, cop, economy, nations, developing, sector, conference, economic, fossil, gas, greenhouse, governments, green, cities
2	*International Cooperation*	20.8%	cooperation, guterres, secretary, chief, summit, leaders, international, nations, future, developing, president, youth, assembly, ant, nio, meeting, action, world
3	*Biodiversity*	18.5%	species, water, biodiversity, land, forests, reefs, marine, nature, forest, life, fish, natural, plants, resources, coral, security, ecosystems
4	*Human Rights*	10.6%	rights, children, human, conflict, humanitarian, food, health, women, agency, region, africa, security, violence, refugees, crisis, un, government
5	*Natural Disasters*	9.7%	disaster, risk, affected, disasters, hurricane, flooding, mozambique, news, reduction, cyclone, storm, lives, island, tsunami, government, hit, caribbean, emergency
6	*Global Warming*	9.0%	weather, record, wmo, temperatures, warming, extreme, temperature, meteorological, c, levels, rise, average, heat, ice, agency, impact, organization, arctic
7	*Pollution and Clean Energy*	8.6%	environment, plastic, pollution, air, waste, environmental, industry, ozone, power, solar, energy, clean, production, water, india, transport

Table 2 suggests the complexity of this issue, which covers the environmental aspects (e.g. *Biodiversity*, *Global Warming* and *Pollution and Clean Energy*), the political aspect (e.g. *Human Rights*) and the economic aspect (e.g. the keywords *economy* and *economic* in the topic *The Paris Agreement*). Table 2 also indicates the salience of *The Paris Agreement* (22.8%) and *International Cooperation* (20.8%), followed by *Biodiversity* (18.5%) and *Human Rights* (10.6%). Additionally, *Natural Disasters* (9.7%)*, Global Warming* (9.0%) and *Pollution and Clean Energy* (8.6%) rank fifth, sixth and seventh respectively.

It can also be seen from Table 2 that *developing* appears as a keyword in the first two topics, which occupies 43.6% of the total in terms of topic probabilities. In addition, *governments* and *government* appear respectively in the first topic and the fifth topic, which occupies 32.5% altogether. The occurrence of these keywords indicates the vital importance of a country's government and of developing countries in the corpus, thus further justifying *developing countries* as an entry for further analysis in this study.

5.2. Collocation analysis

In order to determine the collocates salient with *developed countries* and *developing countries*, their collocates were generated respectively with the default window span from 5 left to 5 right. Log-likelihood was used in this case to determine the collocates. Log-likelihood tends to place more emphasis on grammatical words (Baker 2006, 102), so these collocates were obtained after excluding all the grammatical words except modal verbs because modal verbs may show the inclination or obligation of an *Agent* (Halliday and Matthiessen 2004, 147), which is meaningful in this study for the analysis of *developed countries* and *developing countries*. According to this standard, 20 collocations of *developed countries* were obtained. To be parallel to those of *developed countries*, 20 collocations of *developing countries* were also selected. Table 3 displays their 20 strongest collocated words respectively in terms of the descending log-likelihood value.

Table 3. Collocates of *developing countries* and *developed countries* in the corpus.

Rank	developed countries			developing countries		
	Collocates	Log-likelihood	Freq.	Collocates	Log-likelihood	Freq.
1	must	41.84389	5	support	164.57372	20
2	their	39.22323	6	developed	87.64909	9
3	commitment	28.25934	3	climate	83.23669	21
4	vehicles	22.80376	1	assist	66.83844	6
5	climate	19.9876	2	billion	41.4944	6
6	deliver	19.84125	2	enhanced	40.36721	4
7	developing	18.07997	1	dependent	39.79601	4
8	meet	17.92065	2	finance	38.55743	5
9	financial	17.51292	2	landlocked	38.1557	3
10	thorny	16.04264	1	poverty	38.03761	5
11	fulfil	14.99632	2	adaptation	37.87027	5
12	fished	14.99632	1	people	36.02396	9
13	exporting	14.99632	1	commodity	34.22398	3
14	counterparts	14.99632	1	vulnerable	33.31043	5
15	machines	14.31689	1	rural	32.547	4
16	exported	14.31689	1	mitigation	32.43736	4
17	obligation	13.07445	1	decreased	26.26527	2
18	conditioning	13.07445	1	resilience	25.42665	4
19	dropped	12.53744	1	small	24.91057	4
20	gives	12.31493	1	invest	24.57793	3

It can be seen from Table 3 that the collocates of *developed countries* include words indicating responsibilities or duties (e.g. *must*, *commitment* and *obligation*), whereas those of *developing countries* include words denoting adapting to climate change (e.g. *adaptation* and *resilience*) and negative evaluative words indicating the present situation of developing countries (e.g. *poverty* and *vulnerable*).

In addition, their collocates both involve a financial aspect, as shown by *financial* collocated

with *developing countries* as well as *finance* and *invest* collocated with *developing countries*. This may suggest its importance in this issue as constructed by the UN. What's more, the word *developing* is among one of the strongest collocated words of *developed countries*. Similarly, *developed* is also in the list of the 20 strongest words collocated with *developing countries*. This indicates the close relationship between the two groupings represented in the corpus.

5.3. Semantic roles analysis

Following the step of identifying the collocates with the two groupings of countries, the authors used the functions of concordance and file view of AntConc to sort out the sentences containing one of the two categories of countries and at least one collocate corresponding to it. After that, according to semantic roles defined by Yule (2017, 127–128), the authors categorised them into six types (*Agent*, *Patient*, *Location*, *Source*, *Goal* and Others) based on the roles that *developed countries* and *developing countries* play in the sentences. An *Agent* refers to an entity that performs an action while a *Patient* refers to an entity that is involved in or affected by an action, or an entity that is described (Yule, 2017, 127). The *Location* defines where an entity is. The place from which an entity moves fulfils the role of *Source* and the place to which it moves fulfils that of *Goal*. The type of Others refers to entities that do not belong to any of these types. Table 4 shows the frequency and percentage of each type. One sentence may include both groupings of the countries and more than one of the selected collocates.

Table 4. The semantic roles that *developing countries* and *developed countries* play in the sentences containing at least one of the social actors and their 20 strongest collocates.

Items	*Agent*	*Patient*	*Location*	*Source*	*Goal*	Others	Total
developed	11	0	4	1	0	1	17
countries	64.7%	0	23.5%	5.9%	0	5.9%	100%
developing	8	23	22	1	17	5	76
countries	10.5%	30.3%	28.9%	1.3%	22.4%	6.6%	100%

Table 4 shows that *developed countries* functions as the *Agent* in 64.7% of the total 17 sentences and as the *Location* in 23.5% of the total, followed by the *Source* and Others (5.9% respectively). In contrast, *developing countries* acts as the *Theme* in 30.3% of the total 76 sentences and as the *Location* in 28.9% of the total, followed by the *Goal* (22.4%), the *Agent* (10.5%), Others (6.6%) and the *Source* (1.3%).

Obviously, similarities and distinctions exist between the two groupings. That the percentage of the *Location* ranks the second in both categories may indicate the common use of *developed countries* and *developing countries* as the background of a scenario in the corpus. Their greatest difference lies in that the *Agent* is the most frequently used semantic role for *developed countries* while the *Patient* is the most frequently used for *developing countries*. Another visible difference is that *developing countries* functions as the *Patient* or the *Goal* in these sentences while *developed countries* do not. This may further suggest the relation between the two groupings that the developed world is represented generally as an *Agent* providing support to the developing world as a *Patient* or a *Goal*.

To further examine the discursive construction of the developed and developing world in the

UN climate change news, some sample extracts were chosen for detailed analysis. First, the sample sentence in which *developed countries* act as an *Agent*, and then the sample sentences in which *developing countries* function respectively as an *Agent* and a *Patient*, were selected as follows:

Extract 1 Even as they pursue net zero, *developed countries must deliver* on their *commitments* to provide $100 billion dollars a year for *mitigation*, *adaptation* and *resilience* in *developing countries* ("The race to zero emissions, and why the world depends on it", 2 December 2020).

Extract 2 *Developing countries* are most *vulnerable* to *climate* change, which aggravates the effects of population growth, poverty and rapid urbanization, resulting in habitat fragmentation and the loss of biodiversity ("UN chief, Prince Charles, rally 'coalition of the willing' to end biodiversity destruction," 30 September 2020).

Extract 3 The Green *Climate* Fund, which *assists developing countries* in *climate* change *adaptation* and mitigation practices, joined up, and its environmental information was included in the report ("UN makes progress on 'greening the blue'," 10 December 2020).

The main clause in Extract 1 is a statement made by the journalist on behalf of the UN. It emphasises the responsibility of the developed world to provide a large sum (*$100 billion dollars*) annually to support the developing world in terms of climate governance. The modal verb *must* indicates that this is a duty for developed countries.

The main clause in Extract 2 is also a statement made by the journalist, which puts emphasis on the vulnerability of developing countries in terms of climate change by adding the adverb *most* before the adjective *vulnerable* to indicate a very great degree. The attributive clause points out three reasons for this vulnerability (*population growth*, *poverty* and *rapid urbanization*) and the consequences (*habitat fragmentation* and *the loss of biodiversity*), all suggestive of negative aspects in this regard.

Extract 3 indicates the developing world as the one funded by developed countries in the non-restrictive attributive clause introduced by *which*. *The Green Climate Fund* functions as an *Agent* while *developing countries* functions as a *Patient*. It is clear that the purpose of this attributive clause is to provide background knowledge to the audience by clarifying what the Green Climate Fund is.

Then, Extract 4 was chosen as a sample sentence to see how *developed countries* and *developing countries* function respectively as the *Location*. Extract 5 and Extract 6 were selected to illustrate how *developed countries* and *developing countries* act as the *Source* respectively. Additionally, Extract 7 was chosen to show how *developing countries* functions as the *Goal*.

Extract 4 "Despite some recent improvements in fisheries management and stock status in *developed countries*, the proportion of stocks *fished* within biologically sustainable levels has *decreased* significantly in *developing countries*," the UN agency says. ("World 'off track' to meet most Sustainable Development Goals on hunger, food security and nutrition," 18 July 2019).

Extract 5 As to the *thorny* question of financing from *developed countries* in *support* of

climate action in *developing countries*, the document proposes a way to decide on new, more ambitious targets from 2025 onwards, from the current commitment to mobilize US$100 billion per year as of 2020. ("At COP24, countries agree on a concrete way forward to bring the Paris climate deal to life," 15 December 2018).

Extract 6 It is clear that tackling climate change needs to involve all people, young and old, privileged and underprivileged, from both *developed* and *developing countries*. ("The world's 1.8 billion youth must 'have a say in the future of the planet'," 20 September 2019).

Extract 7 The UN chief stressed that it is not funds but trust that is lacking. "We need to fix it. This means, first and foremost, ensuring that rich countries honor their commitments and provide $100 *billion* a year through 2020 for *developing countries*." (Note by the authors: *The UN chief* refers to the Secretary-General, António Guterres.) ("'Invest in the future, not the past;' green business is key to winning the war on climate change – UN chief," 12 December 2017).

The strategy of perspectivization is used in Extract 4 by quoting from the UN agency. The strategy of perspectivization refers to positioning the speaker's or writer's point of view and expressing involvement or distance through the use of discursive devices such as direct, indirect or free indirect speech, animating prosody and deictics (Reisigl and Wodak, 2009, 94). The quotation implies a sharp contrast between *developed countries* and *developing countries* in terms of fisheries management and stock status, which is indicative of the UN's concerns about biologically sustainable levels in the developing world.

In Extract 5, the negative evaluative word *thorny* suggests from the journalist's perspective the great difficulty in raising a large sum of climate funding from developed countries, thereby implying the reluctance of the developed world to provide financial assistance to developing countries.

Extract 6 highlights the common interests and responsibilities of both the developing and developed world regarding climate governance. Here, the noun phrase *all people* serves as the *Patient* of the predicate *needs to involve*, and the two phrases *young and old*, *privileged and underprivileged* act as appositive phrases to emphasise that everyone should be involved in climate actions. In addition, the prepositional phrase *from developed and developing countries*, which indicates the *Source*, further emphasises the necessity for unification of the two groupings of countries in terms of climate governance.

In Extract 7, the use of the strategy of perspectivization adds objectivity to the news. In the object clause of the second sentence of the quotation from the UN chief, the noun phrase *rich countries* serves as an *Agent* that is requested to provide a large sum of money (*$100 billion a year*) to the *Goal* (*developing countries*). The employment of *commitment* and *first and foremost* respectively indicates the duty of developed countries and the vital importance of the fund for global climate governance, which echoes what is connotated in Extract 1.

After examining the *Agent*, *Patient*, *Location*, *Source* and *Goal*, Extract 8 was chosen to illustrate the last type: *developed countries* and *developing countries* functioning in relation to others.

Extract 8 The significant difference between *developing countries* and *developed countries* is that the former usually do not have enough money to turn their plans into reality, and this

is why richer countries and the private sector are being asked to step in and partner with the poorer countries ("Suriname's climate promise for a sustainable future," 31 January 2020).

Extract 8 focuses on the difference between the two categories of countries with regard to the climate fund needed to tackle climate change. It clarifies the necessity of developed countries to raise funds to support developing countries by using two predicative clauses introduced by *that*. In addition, in the second predicative clause, the sharp contrast formed by the use of *richer countries* and *poorer countries* further reveals the economic differences between developed and developing countries and legitimates developed countries' financial support to developing countries.

6. Discussion

The above analysis shows that the issue of climate change is generally portrayed in related UN news reporting as a complicated problem involving environmental, economic and socio-political elements, and as a common challenge to be combated through the joint efforts of both developed and developing countries under the Paris Agreement initiated by the UN. As shown by the 117 occurrences of the phraseology *developing countries* and its occurrence in keywords of the first two topics, the roles of developing countries regarding this issue were especially highlighted.

In this study, UN news on climate change tends to represent the relation between developed and developing countries as a dichotomy of financial supporters and fund receivers. As indicated by strong collocates such as *poverty*, *vulnerable* and *decreased*, developing countries are portrayed as economically poor, particularly vulnerable to climate change and as being expected to achieve more headway in relation to climate actions. In contrast, developed countries tend to be depicted as providers of climate funds required to take the lead in this area and to shoulder a greater burden in climate governance, as indicated by strong collocates such as *commitment*, *obligation* and *thorny*. Thus, it can safely be concluded that although the categorisation of developed and developing countries in the UN news has strayed from its original intention of purely statistical use, their connotations have been enriched through repeated intertextual occurrences.

The discursive construction of the two categories of countries is realized not only through highlighting some aspects of "social realties" in the UN climate news and through the choice of certain phraseologies, but also by the choice of semantic roles in the clauses of the social actors *developing countries* and *developed countries*. As argued by Halliday and Matthiessen (2008, 23), "A language is a resource for making meaning, and meaning resides in systematic patterns of choice." As shown by the statistical evidence in this study, apart from constructing developed or developing countries as a *Location*, journalists tend to represent the developing world as a *Patient* or a *Goal* and the developed world as an *Agent*. The relation between the two groupings can be characterised as follows: the *Agent* (*developed countries*) provided/must provide assistance (mainly, climate funds) to the *Patient* or the *Goal* (*developing countries*).

The ways in which developing and developed countries are represented in the news is a reflection of the world order that has existed after World War II, following which industrialised countries have played a dominant role in many fields. In terms of climate mitigation and adaptation, their solid economic foundations and sophisticated technologies have given them a

clear advantage over the developing world. With the worsening situation of global climate change, the UN has been taking up the new work of limiting global warming. Over the past few decades, in order to achieve a better and more sustainable future for all mankind, the UN has acted as a coordinator, an organizer and a rule-maker by urging both the developed and developing world to address and act decisively on this pressing problem. The news stories collected for this study adopt precisely this perspective.

It is significant that the ways in which developing and developed countries have been represented in UN climate change news also reflect the support of humanitarianism promoted by this international organization. The informal ideologies embedded in international news are usually what are most readily adopted by the powerful and the elite (van Dijk 1988) because a country's mainstream media tend to support its national interests and to legitimise its own national claims and actions (Wang 2017; Chen and Wang 2020; Wang, 2022). This supports Nhung's (2017) findings after examining news coverage of the Conferences of the Parties to the UNFCCC that *The Independent* and *The New York Times* were clearly in favour of developed countries assuming more responsibility in climate change governance. However, as an international organization, the UN is by no means a national newspaper reporting on the views of a specific country. The UN's larger missions and its theme for UN news coverage— "Global Perspective Human Stories"—determines how UN reporters frame news stories so that humanitarianism is definitely a core value.

UN news stories also tend to emphasise the need for financial assistance from developed countries, stating that the shortage of funds for climate change projects represents a huge obstacle preventing the developing world from taking concrete climate-related actions. Statistics show that there are 136 developing countries whose implementation of the NDCs is dependent on international support (Pauw et al. 2020). The shortage of climate fund results in recipient countries refusing to make their NDCs more ambitious and increases the tension between countries attending UNFCCC negotiations. To solve this problem, provisions of concrete support should be included in the NDCs of developed countries, as suggested by Pauw, Mbeva and van Asselt (2019).

7. Conclusion

Categorisation of any social group is fundamentally ideological in nature. Although M*49 has been prepared by the Statistics Division of the United Nations Secretariat for use in its publications and databases* primarily for the categorization of developed countries and developing countries*, it is by no means an exception.* Based on this premise, this study adopts the approach of corpus-assisted CDS to examine the discursive construction of the two groupings of countries in the dissemination of UN news on climate change. Findings show that journalists highlight the UN's primary role in forming a global partnership to combat climate change and to address the arduous tasks facing the developing world. A dichotomy of developed and developing countries is represented in the news by employing a series of lexico-grammatical devices. The terms *developed countries* and *developing countries* frequently act as the *Location* to indicate the background of a given scenario. In addition, they are often represented in the following way: The *Agent* (*developed countries*) provided/must provide climate funds to the *Patient* or to the *Goal* (*developing countries*) to tackle the common problems of mankind together. These representations also reflect conditions in the existing world order after World War II and the

doctrine of humanitarianism endorsed by the international organization of the United Nations. Moreover, to solve the problem of financial support to developing countries as emphasised in the news, it is proposed that in the future, provision of support be included in the NDCs of the developed world.

The facts presented in this study are far from perfect. One limitation lies in that the extent of the corpus used for the analysis is not as large as expected in order to uncover the typical lexical patterns and grammatical structures in discourse in an effective manner. Another significant limitation to this study is the sole use of English-language sources. UN news on climate change in other languages may differ in the ways of representing topics and the two categories of countries. A third limitation is that this study focuses merely on synchronic analysis. A diachronic perspective may contribute to deeper insights into the changing connotations of the commonly used terms *developed countries* and *developing countries*.

Notes

1. Information about the Green Climate Fund can be found at its website, which is available at: https://www.greenclimate.fund/about/timeline (retrieved 16 May 2021).
2. The introduction of the Paris Agreement can be seen at the website of the UNFCCC, which is available at: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement (retrieved 16 May 2021).
3. "Standard country or area codes for statistical use (M49)" can be found at the UN's website: http://unstats.un.org/unsd/methods/m49 (retrieved 1 June 2021).
4. The software, which can be used to perform topic modelling, classification, dimensionality reduction and document extraction using machine learning algorithms, is available at https://www.mathworks.com/products/text-analytics.html. This software enables the researcher to decide on a suitable number of topics by following the instructions presented in the subsection "Choose Number of Topics for LDA Model".

Disclosure statement

Notes on contributors

Guofeng Wang (Ph.D) is Professor of Linguistics and Applied Linguistics at Foreign Languages College, Shanghai Normal University, China. Her research interests include discourse studies and media studies, specifically the interrelationship between discourse, media and society. Her recent articles have appeared in *Journal of Language and Politics*, *Social Semiotics*, *Critical Discourse Studies*, *Discourse & Communication* and *Critical Arts*.

Ming Liu is an assistant professor at the Department of Chinese and Bilingual Studies, the Hong Kong Polytechnic University. His research interests cover corpus-assisted discourse studies, critical discourse analysis, corpus linguistics, sociolinguistics and intercultural communication. His recent publications have appeared in some international journals, such as *Discourse & Communication*, *Language & Communication*, *Journal of Language and Politics*,

Text & Talk, *Lingua*, *Critical Arts* and *Discourse, Context & Media*.

Yihang Xin is an undergraduate student of the Sino-American Cooperation on Higher Education and Professional Development (CHEPD) Program at Soochow University. He majors in English and has been interested in learning English as a second language and discourse analysis.

ORCID

Ming Liu http://orcid.org/0000-0002-3815-4705

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