

A Transitivity Analysis of Ecological Discourse -- Taking the International News Report on *Fukushima Nuclear Wastewater* by China and Japan as an Example

Kaiqi Zhang

The Hong Kong Polytechnic University, China

k22047185@163.com

Abstract. Taking the international news reports made by China and Japan in response to the Fukushima nuclear wastewater event as the corpus, this paper makes a comparative study on the use of transitivity resources in the reports of the two countries under the guidance of transitivity theory. It was found that there are opposing differences between the two countries regarding their ecosophy and the purpose of reporting. China takes the maintenance of the global ecosystem as its core point of view, emphasizing the adverse environmental impact caused by the discharge of nuclear wastewater into the sea. Japan takes its own interests as its primary concern, focusing on its own treatment of nuclear wastewater and the impact of China's seafood ban on Japan's economy, and shifting its vision to cover up the actual environmental harm of the discharge.

Keywords: ecological linguistics; transitivity analysis; ecosophy; international news reports; external dissemination.

1. Introduction

In recent years, the interaction between the ecological environment and the relationship between human life and ecological changes has increasingly become a hot topic in the international community. On August 24th, 2023, the Japanese government officially announced the start of the nuclear waste water discharge plan for more than 30 years, which involved global ecological and environmental security and attracted worldwide attention and reports. Among them, the official media of China and Japan have published several foreign reports on the nuclear wastewater discharging event. The international reports of the two countries on this environmental incident are intended to grasp the initiative of international discourse and establish an effective way to publicize the national ecological concept and create a favorable global public opinion environment.

With the development of eco-environmental awareness, the research field pays more and more attention to the theme of eco-environment. Focusing on the relationship between language and ecology, an interdisciplinary system—ecological linguistics was formed by combining the related theories of ecology and linguistics (He, 2024). The “Metaphor Model” put forward by Hogan (1972) initiated the study of eco-linguistics, and compared language with its linguistic community to the relationship between animals and plants and their living environment, focusing on the endangered extinction of language, dialects, and variants.

On this basis, Halliday (1990) went deep into the study of the internal relationship between language and ecology, criticized the anthropocentrism thought contained in language, and emphasized that language has the function of constructing reality, and linguists should use linguistic knowledge to solve ecological problems, thus constructing a “non-metaphorical model” of eco-linguistic research, focusing on micro-vocabulary and grammatical clauses, and conducting top-down research to dig out the human activities and ecological environment problems behind words, which are counterproductive.

At present, eco-discourse analysis, as one of the main approaches in the field of eco-linguistics, mostly takes critical discourse analysis (Zhao & Zhao, 2021; Zottola, 2024), and Positive Discourse Analysis (Sun, 2021; Wang, 2024) as the main research approach. Besides, Systemic Functional

Linguistics proposed by Halliday (1994), as an applied theory to study the nature, process, and common features of the language, is suitable for the study of ecological features and ecological consciousness in ecological discourse from the linguistic level. Systemic Functional Linguistics holds that language includes three metafunctions: ideational function, interpersonal function, and textual, among which the ideational function includes logical function and experience function, and the experience function is mainly embodied by the transitivity system. By analyzing the process, participants, and environment in clauses, the transitivity system discusses the expression of language to the subject’s own experiences in the objective world and the psychological world, to explore the image construction and value trend behind the text.

Based on the transitivity system, this paper makes a comparative analysis of the international news reports on the *nuclear wastewater event* between China and Japan, aiming at digging out the national ecosophy hidden behind the discourse, comparing the differences in image construction between the two countries in ecological events, digging out the influence of human environmental behavior and national policies on nature and ecosystem, strengthening the public’s understanding of ecological issues, and discussing the role of news discourse in external dissemination.

2. Literature Review

2.1. Transitivity system

2.1.1. Theoretical generalization

Transitivity analysis divides human experience in the real world into six “processes”: material process, behavioral process, mental process, verbal process, relational process, and existential process.

The process is expressed by participants. Material process includes two participants: “actor” and “goal”, which shows the material process of the subject. The mental process expresses the subject’s psychological world, which includes three types: emotion, cognition, and feeling, and consists of two participants: “sensor” and “phenomenon”. Relationship process is divided into two types: attributive whose participants are “carrier” and “attribute” and identifying whose participants are “identified” and “identifier”, which are used to express the logical relationship between things. The verbal process is the process of information expression and communication, and its participants are “sayer”, “verbiage” and “receiver”. The behavioral process expresses the subject’s psychological or physiological actions; its participant is the “behavior”. The process of existence means a specific person or thing, and its participants are “existent”.

Table 1. The Framework of Transitivity

Type	Definition	Participants	
material process	action	actor, goal	
mental process	psychological perception, emotion, thought	sensor, phenomenon	
			emotion
			cognition
feeling			
verbal process	communication for information	sayer, verbiage, receiver	
relational process	logical relation	carrier, attribute	
		identified, identifier	
behavioral process	psychological or physiological action	behavior	
existential process	existence	existent	

2.1.2. Empirical research

Transitivity analysis is applied to various topics of discourse research, mostly focusing on politics (e.g., Wang & Liu, 2022; Liu & Liu, 2024; Xie, 2020), economy (e.g., Xia & Xu, 2020), and culture (e.g., Liu, 2024; Li & Zhang). In terms of politics, Liu (2024) explored the ecological view behind the news report of China Daily about “A community with a shared future for Mankind” based on transitivity analysis. It is found that the material process and relational process are used most

frequently in reports, and news discourses are mostly ecologically beneficial discourses, to show China's positive image of attaching importance to international social relations and its ecological view of emphasizing unity and cooperation. In terms of economy, Xia (2020), based on the corporate social responsibility reports released by *GEELY* and *Daimler* from 2013 to 2019, analyzes the ecological relationship between enterprises and the environment through the bottom-up research method and compares the ecological concept of the two enterprises. It is found that the frequent appearance of mental processes shows the ecological view of "environmental friendliness" and "harmonious symbiosis" of enterprises, while the appearance of material processes reflects the efforts made by automobile enterprises to deal with environmental protection. In terms of culture, Li & Zhang (2024) analyzed the relationship between language and action in the tea culture documentary *China in the Tea World* on the level of clause analysis with the corpus and the material system as the theoretical framework. The research expounds that the documentary shows the enthusiasm of tea farmers to take responsibility for the ecological environment through the application of transitivity system, and spreads the ecological concept of protecting the environment and respecting nature.

2.2. Empirical research on ecological linguistic

At present, the research corpus of ecological discourse analysis mostly focuses on environmental discourse. Environmental discourse takes environment and ecology as the theme, and human environmental behavior and the relationship between man and nature as the center. It analyzes how environmental problems and ecological relations are embodied through discourse construction, and excavates human activities and ecological ideas behind language (e.g., Zottola, 2019; Miao & Liu, 2023; Zhao & Song, 2023). For example, Zottola (2019) established a corpus based on news reports about nitrogen pollution in the British media and established and used the framing analysis framework to do the research. The research shows that news reports reflect the framework of radicalism, government responsibility, industry responsibility, and pollution as politics and risk, and reflect the dominant position of the government and authoritative institutions in the reports. The reports failed to accurately disseminate information about environmental pollution, resulting in people's lack of understanding of the seriousness of nitrogen pollution. A small number of corpora focus on non-environmental discourses, that is, discourses that do not focus on environment and ecology, but reveal ecological relations from the side (e.g., Zhao & Zhao, 2021; Torkington et al., 2020; Yu & Wang, 2016). For example, Yu & Wang (2016), based on the New College English textbook, combined transitivity and ergative to form an analysis framework, and established a database to statistically analyze the benefits of ecological discourse. The study found that in the textbook, human participants occupy the main position, and natural participants are the objects manipulated by human beings, so the discourse has no ecological education significance. In terms of research methods, previous studies have focused on two paradigms: critical discourse analysis and positive discourse analysis. Critical discourse analysis reveals the concealment of facts by analyzing passive structures, compound nouns, and deixis, which is critical (e.g., Torkington et al., 2020; Zhao & Zhao, 2021; Xin & Huang, 2013).

Torkington (2020) critically analyzes the deployment of the relationship between "growth" and "sustainability" in the tourism policy documents of seven European countries. The research proves the importance and strength of discourse as an ideological tool. By analyzing the metaphor and fuzziness in the discourse, it shows that economic discourse is above sustainability, the word "sustainability" is used to support "growth", and the relationship between local economic development and local and global environmental management is tense. Positive discourse analysis takes evaluation theory as the main theoretical framework, and constructs the positive image of the main actor from three angles: emotional resources, judgment resources, and appreciation resources, and constructs the ecological concept of harmony between man and nature (e.g., Sun, 2021; Wang, 2024). For example, Sun (2021) selected the speeches of China leaders on natural ecology at international conferences in 2021-2022 as the corpus and made a positive discourse analysis of the discourse under the guidance of appraisal theory. The research shows that the discourse constructs the image of China, which advocates cooperation and has a high sense of responsibility.

2.3. Research on International News Report

The related research on the direction of international reporting is mostly analyzed from the perspective of linguistics. By analyzing the use of discourse strategies and combining them with the perspective of communication, the construction of national image in the reporting is explained, which provides theoretical guidance for exerting the propaganda and influence value of international reporting discourse (e.g., Zhou, 2021; Liu & Yin, 2024; Wu & Wang, 2020). For example, Zhou (2021) made a transitivity analysis of the English report on the Belt and Road in *China Daily*. The research shows that international reporting realized the objectivity, authority, and persuasiveness of discourse through the language strategy of combining material process, verbal process, and relational process, and promoted the recognition of foreign audiences for the concept of “Belt and Road”.

To sum up, the research guided by the transitivity system mostly takes a single text as the research object, lacking comparative research between different countries. In the past, ecological discourse analysis mainly started from the perspective of critical discourse analysis or positive discourse analysis, and the research perspective was single, lacking the bottom-up research system guided by the theory of transitivity. On this basis, international news reports about *Fukushima Nuclear Wastewater* on Chinese News Media *China Daily* and Japanese News Media *Kyodo News* are selected to set up a small corpus, and based on the transitivity analysis system, the corpus is analyzed quantitatively and qualitatively, to achieve a comparative analysis of the ecological concept and image construction of the two countries.

3. Methodology

3.1. Research questions

This study mainly tries to answer the following three questions:

1. What are the distribution characteristics of the transitivity resources in the international news reports of China and Japan about the *Fukushima Nuclear Wastewater discharge*?
2. How did China and Japan use the transitivity system to construct their images in international news reports about the *Fukushima Nuclear Wastewater discharge*?
3. By analyzing the transitivity system, what kind of ecosophy differences can be revealed between China and Japan?

3.2. Data collection

The corpus of this paper comes from the international news reports made by *China Daily* and *Kyodo News* in response to the incident of Fukushima nuclear wastewater being discharged into the sea on August 24th, 2023. *China Daily* is the only national English daily newspaper in China, adhering to the concept of “Let the world know about China and let China go to the world”, and it is the only China newspaper that has effectively entered the international mainstream society and has the highest reprint rate of foreign media. *Kyodo News* is a large Japanese news agency with 50 million subscribers. It is the authoritative information media in Japan, providing news reports for Japanese newspapers, radio stations, and TV networks. Both of them play an important role in exerting their external communication ability and conveying the national concept internationally. In this study, 16 Chinese reports on Fukushima nuclear wastewater with a total of 6934 words were selected, and 11 Japanese reports on nuclear wastewater with a total of 6262 words were selected. On this basis, a small corpus was established.

3.3. Research methods

This paper uses a combination of quantitative and qualitative research methods. The quantitative analysis takes the corpus software UAM CORPUS TOOL as the retrieval tool and the transitivity system as the analysis framework and carries out clause analysis on the corpus, manually marking the material process, mental process, verbal process, relational process, behavioral process, and existential process in the sentence, and generates a vocabulary grammar frequency distribution table, which is the direct basis for analyzing the corpus, transitivity process, and participants. Qualitative analysis aims at the specific text in the corpus, analyzes the relationship between participants in various processes in the specific text and the purpose of using various language strategies, and then explores the ecological view embodied in news reports.

4. Research Results

4.1. Transitivity analysis of China Daily's international news report

On the whole, the material process accounts for the highest proportion (14.13%) in China Daily's external reports in response to the wastewater discharging, followed by verbal process (8.65%), mental process (0.57%) and relational process (0.28%), while behavioral process (0.03%) and existential process (0.07%) account for a small proportion.

Table 2. Overall distribution of transitivity process in China Daily's report

Type	Number	Frequency
Material Process	980	14.13%
Mental Process	40	0.57%
Verbal Process	600	8.65%
Relational Process	20	0.28%
Behavioral Process	2	0.03%
Existence Process	5	0.07%

4.1.1. Analysis of material process

The material process in China Daily's international report focuses on evaluating Japan's nuclear wastewater discharge policy, discussing the protesters' opposition to Japan's behavior and the measures taken by China to deal with it.

Example (1) is a brief comment on Japan's behavior. Its material process is driven by the Japanese government. The material process emphasizes the harmfulness of Japan's behavior by describing Japan's forced implementation of the drainage plan while ignoring international ecological security.

Example (1): Editor's note: The Japanese government (*actor*), disregarding (*material process*) the safety (*goal*) of its own citizens and people in neighboring countries, has decided to begin discharging nuclear-contaminated water from the damaged Fukushima Daiichi Nuclear Power Plant into the sea from Thursday.

Example (2) describes the protesters' attitude towards Japan's behavior. People all over the world are the main body (protesters). Through the two material processes of "holding", and "chanted", the "protesters" show their strong opposition to Japan's water discharge, criticize Japan for violating the interests of other countries, and create a public opinion background of unity against nuclear wastewater discharge.

Example (2): Protesters (*Actor*), holding (*material process*) banners and placards (*goal*) with drawings of marine products and Godzilla, chanted (*material process*) slogans (*goal*) of "No ocean discharge of Fukushima nuclear-tainted water" and "Stop polluting the sea with radioactive water."

Example (3) is a description of China's behavior in the news. Through China's material process of monitoring and paying attention to the subsequent impact of discharging nuclear wastewater, it has constructed a responsible image of China, and at the same time, it reflects China's attention to the ecological environment and its ecosophy of paying attention to the overall global environment.

Example (3): China (*actor*) will closely track and assess (*material process*) the impacts (*goal*) of Japan's "extremely selfish and irresponsible" plan to discharge nuclear-contaminated water into the ocean.

4.1.2. Analysis of mental process

Compared with the material and verbal processes, the mental process in the report is less, which mainly shows the negative psychological tendency. For example, in Example (4), the range of perceivers of the mental process is wide, including China, the Philippines, South Korea, Japanese people, and residents of the Pacific islands. Their psychological behavior towards the Japanese government's resolution is "protest" and "worry", and the phenomenon that makes them have negative psychology is "the negative impact of the radioactive water on their health and livelihoods." This reflects China's concern about environmental ecology and social ecology in the reports.

Example (4): People in China, the Philippines the Republic of Korea and Japan itself (*sensor*) have all strongly protested (*phenomenon*) against the Japanese government's decision. Even in the faraway Pacific islands, people are worried (*phenomenon*) about the negative impact of the radioactive water on their health and livelihoods.

4.1.3. Analysis of verbal process

The speech process mainly includes two opposing perspectives in the report. Among them, the Japanese government, as the polluter, demonstrated the safety of nuclear wastewater after treatment with the report statement of an authoritative organization (Example 5). China and other countries, on the other hand, stand on the opposite side and are opposed to it. Example 6 is a reprimand of Japanese behavior by the spokesman of the Ministry of Foreign Affairs of China, whose speech focuses on the global ecological environment and reflects China's overall situation. Example 7 is South Korea's opposition to the discharging policy. Through fierce rhetoric, China Daily's international reports show that Japanese actions have aroused global public outrage, and at the same time, it has created public support for China's opposition.

Example (5): But Japan is using the review report of the International Atomic Energy Agency (*Sayer*) on July 4 as a "green light" to its plan to discharge the radioactive water into the sea, claiming (*verbal process*) the treated water is harmless to marine life and humans.

Example (6): Japan's actions are "in disregard of the global public interest" and "transfer the risk of nuclear pollution to the entire world, including Pacific Island countries", Geng Shuang, China's deputy permanent representative to the UN (*sayer*), told (*verbal process*) a UN General Assembly (*receiver*) on the cooperation between the UN and the Pacific Islands Forum.

Example (7): The Japanese government and the Tokyo Electric Power Company should halt the discharge of nuclear-contaminated water from the crippled Fukushima plant immediately, said (*verbal process*) protesters (*sayer*) in Japan and South Korea after Japan started the release on Thursday.

4.1.4. Analysis of relational process

The use of the relational process emphasizes the ecological harm caused by drainage. In Example (8), "the treated water still contains radioactive elements" is recognized as a "terrible fact" to explain the potential harm of Japan's behavior, break the harmless remarks of Japan's nuclear wastewater, and make readers recognize China's view of opposing wastewater discharge through international reporting, thus enhancing the national credibility.

Example (8): The scary fact (*identifier*) is (*relational process*) that the treated water still contains tritium and other radioactive isotopes (*identified*) such as cesium and strontium that could cause cancer if ingested.

4.1.5. Analysis of behavioral process

The behavioral process takes people as the main body and describes people’s behavior. Example (9) shows people’s opposition to Japanese policies by describing people’s assembly behavior, to express China’s views on the discharge of nuclear wastewater and make news reports more mass-based and persuasive.

Example (9): People (*behave*) gather (*behavioral process*) to protest the Japanese government and Tokyo Electric Power Company’s (TEPCO) decision on releasing nuclear-contaminated wastewater in front of the headquarters of the TEPCO in Tokyo, Japan.

4.1.6. Analysis of existence process

In news reports, the existence process is mainly divided into two types: negative expression and positive expression. Through the use of negative sentences, it is emphasized that Japan’s sea exclusion will bring irreversible harm to the ecological environment. The use of affirmative sentences focuses on describing the social impact caused by the discharge of nuclear wastewater and guiding the public opinion orientation against Japanese behavior. The application of the two reflects the concern of China Daily for ecology and society and constructs China’s ecological view of global integration of responsibility and interests.

Example (10): On July 5, Richmond told the BBC’s Newsday program: “We’ve seen an inadequate radiological, ecological impact assessment that makes us very concerned that Japan would not only be unable to detect what’s getting into the water, sediment, and organisms; but if it does, there is (*existence process*) no recourse to remove it ... There’s (*existence process*) no way to get the genie back in the bottle.”

Example (11): David Krofcheck, a senior lecturer in physics at the University of Auckland, told China Daily that no matter how well the water is treated, there is (*existence process*) going to be a public perception problem.

4.2. Transitivity Analysis of Kyodo News’ International News Report

In the international reports of Kyodo News, the frequency of the material process is the highest (14.37%), and the frequency of the verbal process is higher than in China Daily’s report (8.46%), which is reflected in the fact that Japanese media often quote authoritative organizations or people’s speeches to prove the rationality of their behavior. The mental process (4.63%) also appears many times in Japanese international reports, aiming at establishing public opinion support to support the discharge of nuclear waste water by comparing the psychological behavior of different groups. The frequency of the relational process (0.80%) and behavioral process (0.05%) is less than others.

Table 3. Overall distribution of transitivity process in Kyodo News’s report

Type	Number	Frequency
Material Process	900	14.37%
Mental Process	290	4.63%
Verbal Process	530	8.46%
Relational Process	50	0.80%
Behavioral Process	3	0.05%

4.2.1. Analysis of material process

In the news reports of Japanese media, the participants in the material process mainly include the Japanese government, institutions and people, the Chinese government and people, and authoritative institutions and spokespersons of the international community. The main purpose of the material process in the corpus is to demonstrate the rationality and legality of Japan’s nuclear wastewater

discharge, emphasize the Japanese government's positive actions, and criticize the opposition of China and other countries to the discharge policy.

Example (12): U.S. Ambassador to Japan Rahm Emanuel (*Actor*) will visit (*material process*) a city in Japan's northeastern prefecture of Fukushima (*goal*) on Aug. 31, and plans (*material process*) to eat fish from the area (*goal*) to show support for Tokyo's decision to release treated radioactive water from a crippled nuclear plant there into the sea.

There are two material processes in Example (12), in which the "American ambassador", as the initiator of the action, made two actions of "visiting Japan" and "eating fish from Fukushima" to show the support of the United States for Japan's policy, to emphasize the rationality of the Japanese government's drainage policy and show the powerful international allies behind the decision.

Example (13): Economy, Trade and Industry Minister Yasutoshi Nishimura (*actor*), who oversees the utility industry, pledged to ensure transparency in presenting environmental monitoring (*material process*) data (*goal*) when he met reporters after the start of the discharge. TEPCO (*actor*) dispatched (*material process*) a ship (*goal*) to take samples of seawater at 10 spots in waters off the power plant to monitor the level of tritium.

In Example (13), the actor is the authority of Japan. Whether it is data monitoring or field testing, it shows Japan's attention to the follow-up environmental situation of nuclear wastewater discharge, which reflects Japan's efforts to protect the environment and conceals the real damage caused by nuclear wastewater to the ecological environment with the help of the government's attention to the environment.

Example (14): Beijing (*actor*) on Thursday suspended (*material process*) imports of all seafood products from Japan (*goal*) after the release of the treated water, a blow to Tokyo as China was Japan's biggest destination for food, agriculture, forestry, and fisheries exports in 2022, accounting for 20.8 percent of such exports.

Example (14) describes China's resistance to the discharge of nuclear wastewater into the sea and its actions towards it. In the example, the participant "Beijing" took action to restrict the import of Japanese seafood on behalf of the Chinese authorities. The function of this material process in news reporting is intended to divert readers' attention from ecological destruction to trade sanctions and guide readers to form a negative impression of the actor.

4.2.2. Analysis of mental process

The mental process in the report established two opposing groups: the country that opposes the discharge of nuclear wastewater into the sea, represented by China, and other countries that support Japan's actions. By showing the opposing views of the two groups as sensors, the contradictions are intensified, thus emphasizing the justice of Japan's actions.

The main body of Example (15) is the psychological activity of the representative of China who protested the drainage and thought that the act of discharging the sea would cause serious damage to the environment. Example (16) is the mental process of the opposing groups and their supporters, describing South Korea's support and understanding of Japanese policies. The collision of views of different groups in the report is the behavior of Japanese media looking for public opinion allies, which is intended to emphasize the rationality of their behavior.

Example (15): Chan Kok-caiu, who took part in the rally, told Kyodo News he (*sensor*) is worried (*mental process*) about the impact of the water release on the human body (*phenomenon*), comparing it to the 1986 Chernobyl nuclear disaster.

Example (16): Among Japan's neighboring countries, South Korea (*sensor*) "respects" (*mental process*) and "trusts" (*mental process*) the IAEA's assessment (*phenomenon*), according to President Yoon Suk Yeol, who has played an active role in improving bilateral ties.

At the same time, the sensor of the mental process also includes Japanese fishermen affected by the nuclear wastewater policy. In Example (17), the dissatisfaction with China's seafood import policy was expressed by showing fishermen's worries about their livelihood, and the economic and social problems caused by nuclear wastewater were emphasized, while the environmental problems caused by nuclear wastewater were ignored.

Example (17): Yoshida said he (sensor) was worried (mental process) as the price of fish shipped from Fukushima prefecture and nearby areas had already started to drop. Other prefectures, possibly due to reputational damage.

In addition, the mental process is used in international news reports as a means to divert the public's attention. Example (18) describes the mental process of the interviewee, indicating that what they are worried about is that "the Japanese government does not publicize the safety of nuclear waste water sufficiently", and the default is that nuclear wastewater treatment in Japan is safe, ignoring the ecological impact of sea discharge.

Example (18): But the latest Kyodo News survey on Sunday found 81.9 percent of liabilities (*sensor*) think (*mental process*) the government's efforts to win over the public's understanding are insufficient (*phenomenon*) and 88.1 percent are worried about (*mental process*) the economic damage from the water discharge (*phenomenon*).

4.2.3. Analysis of verbal process

The verbal process in the report aims at spreading one's views and controlling public opinion, which is intended to refute the concerns of opponents of overseas sea discharge on environmental issues, and at the same time shows that nuclear wastewater has no harmful impact on the environment, emphasizing the authority of the Japanese government.

Example (19): The International Atomic Energy Agency (*sayer*) said (*verbal process*) last month in its final review report that the planned discharge of the water used to cool melted nuclear fuel at the plant site, mixed with rain and groundwater, complies with global safety standards.

Example (20): No detectable amount of tritium was found in seawater samples taken from off the site of the wrecked Fukushima nuclear power plant, where Japan began disposing of treated radioactive water into the nearby sea, the plant's operator (*sayer*) said (*verbal process*) Friday.

For example, in Example (19), the view of the International Atomic Energy Agency is packaged as an authoritative view, which is intended to prove that the treated nuclear wastewater will not have an impact on the environment and show the responsible image of the Japanese government. Example (20) is a direct quotation from disaster experts, blaming the public for exaggerating the harm of nuclear wastewater. Secondly, through the use of language strategies, the serious environmental impact brought by nuclear wastewater has been weakened.

4.2.4. Analysis of relational process

The use of the relational process in the report reflects the Japanese government's ecological concept: paying attention to its own and local ecological tolerance, ignoring the overall situation and the global environment. Since the explosion of the Fukushima nuclear power plant, the polluted water source has been treated and stored in the Fukushima nuclear power plant, and its capacity has reached the limit. Discharging wastewater into the sea is an effective measure to liberate the Fukushima nuclear power plant. Example (21) describes the relationship between "discharging nuclear wastewater into the sea" and the "decommissioning of the Fukushima nuclear power plant", focusing on Japan's internal environment and ecological endurance, and taking actions to maintain domestic ecological security, but taking an indifferent attitude towards the international ecological environment.

Example (21): Shinsuke Yamanaka, chairman of Japan's Nuclear Regulation Authority, said at a press conference on Wednesday that the discharge (*identified*) is (*relational process*) a "significant step forward" (*identifier*) toward the decommissioning of the Fukushima Daiichi power plant.

4.3.2. Analysis of Distribution Difference of Transitivity Resources

In the international reports of China and Japan, the use of material processes accounts for a relatively high proportion. Both sides reported on each other's material processes to criticize each other's views and actions. At the same time, they both reported on the actions of other countries on this event to find allies, enhance news credibility, and create an international public opinion environment conducive to themselves. In terms of the use of mental process, the mental process used by Japan is higher than that used by China. Kyodo New's report has established two opposing groups with opposite psychological states. One side, represented by China, expressed opposition and concern about nuclear wastewater discharge, while the other side, represented by Japan and other countries, shifted the focus of the incident from ecological impact to fishermen's lives, covering up the serious impact of sea discharge, and attributed the restrictions on seafood trade to China's overreaction. The verbal process accounts for a large number of both countries' reports. China intends to emphasize the serious impact of wastewater discharging on neighboring countries, while Japan demonstrates the safety of wastewater from an opposing perspective with reports and statements from various institutions. In terms of the relational process, the difference in the use of the relational process reflects the difference in vision between the two countries. China has a global ecological consciousness, and it is an indisputable fact that Japan's sea discharge has a bad impact on the global environment, while Japan is limited to personal interests and thinks that sea discharge is a relief and release of its environmental pressure. Compared with Japanese reports, Chinese reports have a higher frequency of behavioral process and existential processes, focusing on the impact of nuclear wastewater discharge itself on the environment and health, describing people's opposition and protest actions, and using linguistic strategies to render the significance and seriousness of the incident, which has played a positive role in spreading the national ecological concept and enhancing the right to speak internationally.

Overall, the application of transitivity structure embodies China's overall situation view and harmonious development ecological view. In contrast, Japan puts economic benefits first place, pays little attention to ecology, ignores the problems of the global ecosystem, and lacks knowledge of global ecological civilization construction.

5. Conclusion

As an important means of communication, news has important social value, and the news media's international reporting is an effective tool to spread the views of various countries and create a good international public opinion atmosphere. From the perspective of eco-linguistics, this paper analyzes the international reports of China and Japan on the nuclear wastewater event and compares the distribution of keywords and transitivity resources in the reports of the two countries with the theoretical framework of the physical property system. It is found that the two countries have expressed opposing views on this incident by using different transitivity systems, and the frequent use of material processes and verbal processes in China's international reports is intended to express opposing views on Japanese policies and behaviors. To promote global ecological awareness, in addition to material processes and verbal processes, mental processes are also widely used to divert the focus, confuse the audience, and cover up the ecological impact of the wastewater discharge policy in Japan's international reports.

Based on the previous research experience, this paper expands the scope of the corpus, analyzes the differences between the two countries' ecosophy and image construction by comparative research, and provides linguistic guidance for the external communication function of news reports, promoting the media to play their communication value, creating a public opinion environment that is beneficial to them, improving the credibility of the country and safeguarding the country's international discourse power.

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