

An Ecological Discourse Analysis of Network News in *Xinhuanet* from the Perspective of Transitivity System

Hui Li

Huaibei Institute of Technology, Huaibei 235000, China

Abstract

In Chinese media, ecological stories told by network news focus on the achievements of ecological civilization construction in the new era, intensifying pollution control and accelerating the transition to a model of green development. Ecological discourse of network news is the network language representation of the ecological environment, which can be analyzed by applying the theory of systemic functional linguistics. Themed on “ecological construction”, “pollution prevention and control” as well as “green development” under the “Environmental Protection” column, this thesis collects thirty-five network news reports from *Xinhuanet*. Quantitative analysis is used to explore the distribution of participants, transitivity processes and circumstantial elements. Guided by the ecosophy of one basic assumption and three principles, qualitative analysis is also conducted to define the features of ecological discourse based on the characteristics of transitivity system and the analysis of the context. It aims to analyze the ecological orientation of ecological discourse of network news, and guide the ecological consciousness of harmonious coexistence between human and nature. This thesis aims to answer three questions: (1) What are the distribution patterns of the participants, transitivity processes as well as circumstantial elements in network news? (2) How are the ecological features of the participants, transitivity processes as well as circumstantial elements distributed in network news? The major findings are shown as follows: (1) Material, relational and verbal process participants account for 96.94% of all the participants; material, verbal and relational processes account for 96.75%, while mental, behavioral and existential processes occupy a small proportion; The range, location and manner circumstantial elements account for 74.89% of the total components, among which the duration and location elements account for a higher proportion. (2) Through analysis, it can be known that most of the discourses adhere to the basic assumption and three principles for ecological analysis of discourse. Human and non-human living forms account for 54.81%, which is slightly higher than the physical and social entities of participants, thus constructing the main content of participants’ ecological roles; Most of the network news processes are eco-beneficial processes, accounting for 64.43%, followed by eco-ambivalent processes and eco-destructive processes. Material, verbal and relational processes form the main framework of China’s ecological stories and construct a harmonious ecological discourse. Network news reports focus more on the objective world, and mental process as well as verbal process ensure the objectivity, authenticity, reliability of the network news; Elements such as extent, location, cause and manner in the circumstantial elements provide the major basic information of ecological stories and enhance the practical significance of ecological discourses. Moreover, the duration element forms the context of sustainable development concept, and the practical significance of ecological discourse has been sublimated.

Keywords

Transitivity system; Ecological discourse analysis; *Xinhuanet*; Network news discourse.

1. Introduction

Language evolved through the implementation of certain important functions in the interaction between human beings and the social environment, not only reflecting empirical reality, but also participating in the construction of reality (Lei & Xin, 2001). Based on this, we can “use language to identify, analyze, and solve ecological problems, assess ecological status, and promote ecologically harmonious development” (He & Wei, 2018a).

Ecological discourse of network news is the network language representation of the ecological environment, which can be analyzed by applying the theory of systemic functional linguistics (SFL). Therefore, through transitivity analysis, judging the ecological orientation of discourse is one of the effective ways to improve people’s ecological awareness.

At the present stage, the ecological crisis is still intensifying, and mankind is still facing the dilemma of unsustainable development. In the face of the ecological crisis, the cultivation of ecological awareness and the internalization of circumstantial ethics have become top priorities. In the past decades, the ecological civilization in China has never been more important. The nation has strengthened environmental protection and pursued green development.

Based on the considerations above, this study also aims to analyze the ecological orientation of network news discourse. It is hoped that this research may seek to guide people to form an ecological consciousness of harmonious coexistence with nature, with a view to actively promoting the eco-beneficial discourse and decreasing the eco-destructive discourse.

2. Literature Review

SFL has an everlasting interest in discourse analysis. As a field of investigation, EDA flourished in the 1990s partly as a field within linguistics and partly as a field interrelating different disciplines. Since the 1970s, a variety of ecological problems have emerged, and the concept of “ecology” has gradually become generalized in all areas of human life.

The term EDA firstly put forward by Alexander and Stibbe (2014) in the article From the analysis of ecological discourse to the ecological analysis of discourse. They used the term to emphasize that discourse analysis in the framework of ecological linguistics, as one of the main research paths, is different from “ecological discourse analysis” and “language ecology” in terms of the object and content of research. Consequently, EDA has become the main research path in ecolinguistics within the sociocultural perspective (Alexander & Stibbe, 2014; Lei & Miao, 2020). EDA refers to the analysis of ecological consciousness in discourse within the framework of ecolinguistics, focusing on issues such as climate change, environmental protection, and sustainable development, in order to explore the interaction between language and ecology (Stibbe, 2015; Alexander, 2018; He & Wei, 2018c).

Firstly, Halliday (1994) reminded linguists to pay attention to what they can do and contribute to environmental protection. Alexander (2018) unveiled such strategies as euphemisms and nominalization embedded in Coca-Cola texts, and listed the most frequently used lexical items and their collocations through AntConc program. He explained how those specific linguistic features serve to argue for companies’ positions on water conservation. Incorporating corpus into empirical studies is helpful to cope with huge amounts of data and make findings more convincing.

Stibbe (2015) made it clear that his ecological philosophy comes from deep ecology and social ecology studies, sustainable development studies, the Montenegro Project, women’s ethics, Ecozoalism, etc. Stibbe advocated ecocentrism, social justice orientation, recognition of inevitable environmental change, and the utilization of animals with respect.

Doring (2017), on the other hand, proposed the ten problems for ecocritic discourse analysis based on Haugen's ten problems for language ecology, which then further proposed ten problems for specific discourse types such as catastrophic reporting discourse, which also brought some enlightenment into the theoretical construction of EDA.

Upon this ground, there are also many scholars pay attention to the study of EDA. After Alexander and Stibbe (2014) put forward the term EDA, there are different branches in domestic academic circles. One is that although the term EDA is also mentioned in the article, it mainly refers to discourse analysis in the framework of ecolinguistics in a general way, and it is not regarded as an independent discourse analysis paradigm. For example, Zhao (2016), Huang & Zhao (2017), Huang (2016, 2017, 2018).

EDA is also used to judge whether a discourse is eco-beneficial by taking researchers' values as the framework. Eco-beneficial discourse should be advocated and encouraged, while eco-destructive discourse should be criticized and resisted (Huang & Zhao, 2017). They have proposed that we should not only think from the perspective of ecolinguistics, but also act on the principle of ecolinguistics (Huang, 2016). Sun and Guo (2022) made EDA of news reports on Amazon rainforest fire from the perspective of transitivity, and proposed to actively promote the eco-beneficial discourse and reduce the eco-destructive discourse. Based on the analysis of ecological discourse examples, Huang and Chen (2018) put forward that the boundary between different discourse (text) types is often indeterminate and blurred, which leads the authors to argue that the concept of cline should be used to distinguish between the discourse types, as there is no clear boundary between one discourse type and another.

Since ecolinguistics is problem-oriented, interdisciplinary and belongs to applied linguistics in the broad sense (i.e., linguistics applied). Based on the distinction between ecolinguistics and language ecology, Huang and Li (2021) pointed out that these two fields are both linguistic research fields, covering more or less the same fields. Linguistic ecology in the eyes of linguists and linguistic ecology in the eyes of ecologists are distinctly different. It is argued that there is always one discipline that plays a key role in terms of interdisciplinary research. Through their discussion of ecolinguistics and the ecology of language, Huang and Li (2021) aimed to illustrate the need for us to think deeply about interdisciplinary issues.

3. Theoretical Foundation

Naess (1989: 36) argued that ecosophy is a value-free, contextualized and descriptive study of many fundamental issues at the intersection of ecology and philosophy, and that the ecosophy is the conceptual element that actually works in the ecological context. His ecosophy concept of Ecological wisdom created great social repercussions in Europe in the 1970s, and still guides the ecological practices of many ecocentrists today.

Domestically, many foreign ecolinguistics research paradigms have been introduced. Huang Guowen is one of the main promoters of the development of ecolinguistics in China. He attached great importance to the discipline construction and development of ecolinguistics, and proposed many discussions on ecosophy. He once pointed out that ecosophy is "influenced and determined by the analysts' worldviews, philosophical outlook, values and ethical codes" (Huang, 2017).

Huang Guowen argued that western ecosophy can not fully adapt to domestic EDA. Drawing on the philosophical concepts of Taoism and Confucianism in China, he proposed the philosophy of maintaining harmony while allowing for difference (Huang, 2018).

Huang proposed one assumption and three principles for ecological analysis of discourse and behavior. Huang (2017) argued that the people-orientedness is the basic assumption and premise for EDA, which achieves economic and social development. Three principles are the principle of conscience, the principle of proximity and the principle of regulation. The principle

of conscience refers to ecological conscience, which is mainly embodied in the protection of nature. The principle of proximity refers to the relationship between human beings and other natural forms. The principle of regulation is mainly regulated by individual conscience, customs and the legal system (Huang, 2017).

4. Research Methodology

4.1. Research Questions

According to the keywords (recycle, pollution, green development) on the official website of *Xinhuanet* (<https://www.xinhuanet.com>) from 2021 to 2022, 35 network news reports were selected through the EDA of these network news discourses. Therefore, these ecological discourses are the data for the research. And the following three research questions are considered in this study: (1) What are the distribution patterns of the participants, transitivity processes as well as circumstantial elements in network news? (2) How are the ecological features of the participants, transitivity processes as well as circumstantial elements distributed in network news?

4.2. Research Methods

In terms of the research methodology, this study intends to combine both qualitative and quantitative analysis. Quantitative analysis in this study refers to the classification and counting of the transitivity processes, participants and circumstantial elements through corpus tagging in the network news. The quantitative method contributes to the analysis of the transitivity processes and ecological discourse types in the news. It also contributes to the discussion and investigation of ecological attitudes of the network news. Qualitative analysis includes transitivity analysis at the clause level and ecological discourse analysis on the discourse level. Through EDA, the ecological attitudes of the network news can be revealed and discussed.

4.3. Instruments for Data Processing

The UAM Corpus Tool is invented by Dr. Mick O. Donnell according to the linguistic theory of SFL. The UAM embedded tagging schemes of transitivity can operate the practical and specific marking scheme. It is a very useful platform as an auxiliary tool for manual annotation. Therefore the UAM Corpus Tool 3.3x software is used for transitivity annotation of corpus, and the annotation scheme. Therefore the UAM Corpus Tool 3.3x software is used for transitivity annotation of corpus, and the annotation scheme is shown in the following Figure.

5. Results and Discussion

If you follow the “checklist” your paper will conform to the requirements of the publisher and facilitate a problem-free publication process.

Based on the theoretical framework in Chapter four, Chapter five analyzes 35 network news reports chosen from *Xinhuanet*.

5.1. The Distribution of Transitivity System in Network News

This study focuses on the language symbols of the news framework, studies the low hierarchy structure of the news framework from the perspective of the frequency of network news language use, and analyzes the ecology of the news framework according to keywords.

5.1.1. The Distribution of Participants in Network News

Using the search function of the UAM Corpus Tool 3.3x, the distribution of participants in network news is displayed in Table 5.1.

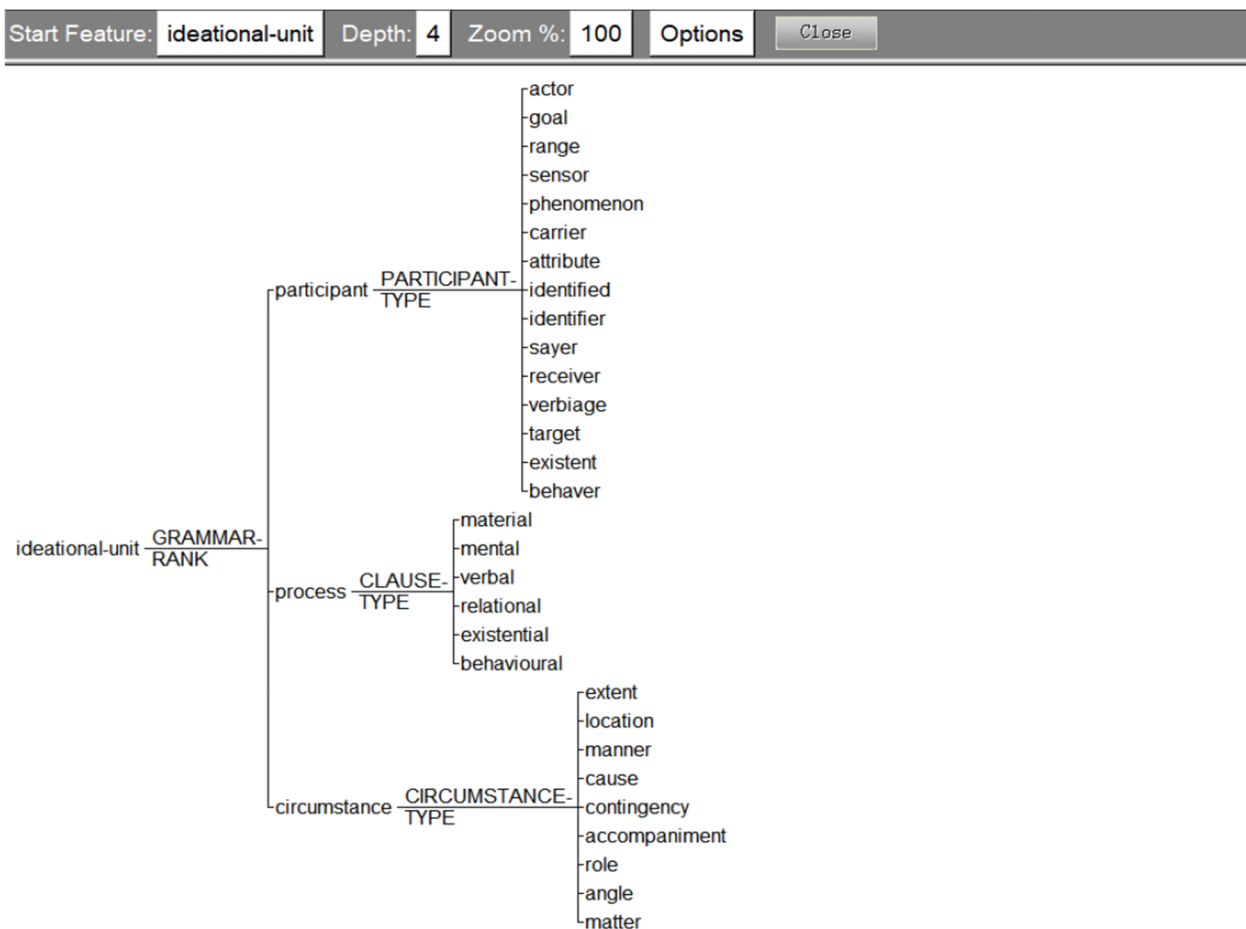


Figure 1. Transitivity Scheme Window

Table 5.1 Distribution of Participants in Network News

Participant Type	Frequency	Percentage (%)
Material Participant	1855	70.43%
Mental Participant	54	2.05%
Relational Participant	343	13.02%
Verbal Participant	356	13.51%
Existential Participant	12	0.46%
Behavioral Participant	14	0.53%
Total	2634	100%

Table 5.1 reflects the distribution of participants in ecological discourse of network news. The first one among all transitivity participants is material participant, accounting for 70.43%. Verbal participant is the second one among all transitivity participants, accounting for 13.51%, followed by relational process which takes up 13.02%. Specifically, mental participants account for 2.05%, and behavioral participants account for 0.53% among all participants. Similarly, existential participants takes up 0.45%.

As for the detailed distribution of participants in ecological discourse of network news, the distribution information is summarized below in Table 5.2.

Table 5.2 Distribution of Participant Roles in Network News

Participant Role	Frequency	Percentage (%)
Actor	747	28.36%
Goal	1051	39.90%
Range	57	2.16%
Sensor	29	1.10%
Phenomenon	25	0.95%
Carrier	123	4.67%
Attribute	124	4.71%
Identified	46	1.75%
Identifier	50	1.90%
Sayer	164	6.23%
Receiver	1	0.04%
Verbiage	188	7.14%
Target	3	0.11%
Existent	12	0.46%
Behaver	14	0.53%
Total	2634	100%

As for material process, Goal ranks the first one among all individual transitivity participants with the proportion of 39.90% and Actor as the second one with the proportion of 28.36%; the proportions of other material participants is Range with the proportion of 2.16%, etc.

In terms of verbal process, Verbiage has a relatively larger proportion of 7.14%, followed by Sayer (6.23%), Target (0.11%) and Receiver (0.04%). Next one is mental process of which Sensor accounts for the large proportion (1.10%), followed by Phenomenon (accounting for 0.95%).

In terms of relational participants in network news, attributive relational participants account for a considerable large proportion, with the percentage of 4.67% for Carrier and 4.71% for Attribute; while identifying relational participants account for a relatively small proportion, of which Identified accounts for 1.75% and Identifier accounts for 1.90%. There is only 12 participants namely Existent in existential process, which accounts for 0.46% among all transitivity participants.

5.1.2. The Distribution of Transitivity Processes in Network News

The different types of transitivity process reflect the different experiences of each subject to the real world (i.e., the external world) and the spiritual world (i.e., the internal world), and have different functions. According to the annotation of the corpus, the distribution of six processes is illustrated in Table 5.3.

Table 5.3 Distribution of Transitivity Processes in Network News

Transitivity-type	Frequency	Percentage (%)
Material process	1224	76.12%
Mental process	31	1.93%
Verbal process	182	11.32%
Relational process	150	9.33%
Existential process	10	0.62%
Behavioral process	11	0.68%
Total	1608	100%

Table 5.3 shows the descriptive statistics of transitivity system in the selected network news. There are a total of 1608 transitivity processes in the chosen network news. Among all the clauses, the material process takes up the largest proportion, with a total of 1224, accounting for 76.12%. The next is verbal process, there are 182 clauses, taking up 11.32%. The relational process ranks the third largest proportion, and the number is 150, accounting for 9.33%. Followed by the mental process, the number is 31, occupying 1.93%. The behavioral process accounts for 0.68%. The last type is the existential process, accounting for 0.62 % with 10 clauses.

5.1.3. The Distribution of Circumstantial Elements in Network News

Circumstance elements can encode the background against which the process takes place. There are nine types of circumstantial elements, and the distribution of environment types is not random and will be constrained by the process type, as shown in Table 5.4.

Table 5.4 Distribution of the Main Circumstantial Elements in Network News

Circumstantial Elements	Frequency	Percentage (%)
Extent	162	22.10%
Location	290	39.56%
Manner	97	13.23%
Cause	85	11.60%
Contingency	32	4.37%
Accompaniment	18	2.46%
Role	6	0.82%
Angle	38	5.18%
Matter	5	0.68%
Total	733	100%

Table 5.4 reflects that the circumstantial elements of the transitivity system occur 733 times in total. The extent, location and manner circumstantial elements account for 74.89% of the total circumstantial components. The location circumstantial component accounts for 39.56% of the total environment component. The most frequent expressions of location environment components are “in/ on+Time” and “N+region”, which account for 25.84% of location environment components in total.

5.2. Ecological Features Represented by Transitivity System in Network News

This section conducts an EDA of *Xinhuanet's* news reports on several ecological themes, aiming to reveal the ecological features represented by the participants, processes and circumstantial elements.

5.2.1. Ecological Features Represented by Participants in Network News

Compared with the process layout, it can be found that the distribution of participants is generally consistent with the distribution of process, which indicates that the structure of network news is formal and conforms to the transitive resource allocation. The participants in the corpus take up 2634 times, but only 728 of them belongs to the category of living and non-living organisms.

Table 5.5 Ecological Distribution of Participants in Network News

Eco-participants		Frequency	Percentage (%)
Living	Human	Individual	176
		Collective	100
	Non-human	Animal	86
		Plant	37
Non-living	Physical Entity	109	45.19%
	Social Entity	220	

In comparison, living organisms account for 399 and non-living organisms account for 329, which is not a big difference, while the difference between subcategories is more obvious. Among the living organisms, there are 276 human living organisms and 123 non-human living organisms. Among the non-living participants, there are only 109 physical participants. The participants of material process and relational process account for 83.54% of the total participants.

Some frequently appeared participants are listed in Table 5.5.

Table 5.6 High-frequency Words in the Realization of Participants

Participants	High-frequency Words/ Phrases
Actor	China (47), we (34), government (20), country (16), they (15), province (11), company (10), researcher (7), chief (5); species (6), sample(1); public (4), area (15), village (1)
Goal	industry (14), the committee (4); green development (15), environmental protection (11); plants (12), seedlings (4), elephants (4); pollution (56), climate (28), garbage (15), carbon dioxide emissions (8), energy consumption (8); guidance (2), mechanisms (1)
Range	among... (8), in nearly every elephant herd (1)
Carrier	New/ rare species (4), a term (1), the green practice (1)
Attribute	not uncommon (2), one of the 20 endangered species (1), a conceptual model (1)
Identifier	a home for/ be home to... (10), one of the most...(5), the highest standard (3), the first such case of ... (2), another state-level new area (1)
Identified	This case... in Yunnan (1), the green peafowl (1), Xiongan (1), this new area, the standard (1)
Sensor	Guttres (2), Zuo (1)
Phenomenon	improvements to the environment (1), Chinese delegation will continue... (1)
Sayor	director (13), researcher (7), an official (6), secretary (4), ambassador (3), China (2), Spokesperson (2)

From Table 5.6 it is found that the high-frequency words in the realization of participants are China, climate and so on.

In terms of the principle of restraint, the collective is the bearer of ecological responsibility. The social participants refer to the social factors of a country, such as politics, economy, culture, etc. According to statistics, physical participants (14.97%) and social participants (30.22%) appear

most frequently, and the most frequent physical participants include river, county, carbon emission, soil, air, water and some other words.

(1) Thanks to the years of unwavering efforts, the Meishe River has come to life again. (from Sample 5)

Ecocentrism means that people should put themselves into their own ecosystem to keep it harmonious and stable, which reflects that we should care for ourselves as well as social facilities, nature, animals and plants. In this example, the Meishe River is target. It indicates the new birth of Hainan’s mother river.

(2) The black soil, or chernozem soil produces about a quarter of the country’s total grain output, making it crucial to China’s food supply. (from Sample 9)

In the ecological discourse of network news, the technology are considering its role in monitoring, preserving and restoring ecosystems and species. For example, to emphasize the importance of black soil in northeast China, in the hope of better protection. He and Geng (2018) argued that non-human organisms or physical factors serving as participant role convey a stronger ecological sense than human beings or social factors.

(3) Various levels of government are adopting low-carbon policies tailored to local conditions. (from Sample 4)

(4)... head of the wetland management office under the provincial forestry and grassland department. (from Sample 24)

Among the social participants, the most frequently used words are government, department, campus and other institutional words, which consciously emphasize the role of authoritative institutions, departments or influential groups in monitoring and guiding people’s ecological awareness.

5.2.2. Ecological Discourse Types and Features Represented by Transitivity Processes

Transitivity process is the central element of transitivity system. Halliday (2014) divided the empirical world into six types: material processes, mental processes, relational processes, behavioral processes, verbal processes and existential processes, among which the first three types are primary processes, and the last three types are minor processes.

Table 5.7 High-frequency Words in the Realization of Transitivity Processes

Transitivity Process	High-frequency Words/ Phrases
Material Process	protect (39), build (26), achieve (20), develop (19), establish (15), reduce (15), help (13), show (11), generate (10), provide (8), promote (7), strengthen (7), found (6), carry out (6), address(6), set up (5), demonstrate (4), close (4), discover (3), require (3), formulate (2), go extinct (2), put forward (2)
Verbal Process	say/ says/ said (130), adding that (21), note (5), call for (3) announce (3)
Relational Process	is/ was (52), has/ have (43), become/ became (24), as (7)
Mental Process	hope (7), want (3), be willing (3), believe (2), doubt (1), be surprised (1)
Existential Process	There will be/ is /was /were...(10)
Behavioral Process	has seen/ saw (11)

Table 5.7 illustrates the high-frequency words in the realization of transitivity processes. The corpus of this thesis is composed of network news, and the topic is environmental protection,

etc. In the dataset, material process and verbal process occupy a higher position, while other four processes occupy a lower position in terms of quantity and percentage.

Table 5.8 Descriptive Statistics of the Ecological Features in Network News

Types	Frequency	Percentage (%)
Eco-beneficial processes	1036	64.43%
Eco-ambivalent processes	433	26.93%
Eco-destructive processes	139	8.64%
Total	1608	100%

As demonstrated in Table 5.8, there are 1036 eco-beneficial processes, accounting for 64.43%. Eco-ambivalent process is the second largest in number, accounting for 26.93%. And eco-destructive processes takes up a small percentage with 139 clauses, accounting for about 8.64%.

(i) Material Process

Material process is used to embody the process of doing and happening. As shown in Table 5.9, material processes account for the highest proportion, which means that the selected news focuses on the initiatives and activities carried out by the nation, government and people for green development and low-carbon life.

Table 5.9 Ecological Features of Material Process in Network News

Types	Frequency	Percentage (%)
Eco-beneficial processes	793	64.79 %
Eco-ambivalent processes	332	27.12%
Eco-destructive processes	99	8.09%
Total	1224	100%

Table 5.9 indicates that in the material process, eco-beneficial processes take up the highest percentage, with a total of 793, accounting for 64.79%, followed by eco-ambivalent processes, with 332, occupying 27.12% of the total. The least one is eco-destructive processes, taking up only 8.09 %.

(5) Dakao, a local herder, took the opportunity to open a homestay and reduced the number of yaks from over 200 to about 80. (from Sample 25)

Based on the semantic configuration of transitivity, Example (5) is a sentence depicting the action of making life changes. There are two processes of “take opportunity” and “reduce”, both of which show an “action+ action” process. Therefore, this material process is beneficial to sustainable development of ecosystem.

(6) Under the principles of openness and transparency, broad participation, consensus and party-driven, China will work with all parties to promote the success of COP27 and contribute China’s wisdom and strength to building a fair, reasonable and win-win global climate governance system (from Sample 22)

In Example (6), there are two processes of “work with” and “contribute to”. Hence, Example (26) is obviously an action beneficial to sustainable development of ecosystem.

(7) Prior to the 1990s, the river was clean and beautiful, but with economic development and population growth, it became severely polluted. (from Sample 5)

In Example (7), it includes an material process “been polluted”, thus violating the principle of conscience. This action embodies that people want to satisfy their profits with ignoring the risk of pollution. Hence, this material process is destructive to the ecosystem.

(ii) Mental Process

Table 5.10 Ecological Features of Mental Process in Network News

Types	Frequency	Percentage (%)
Eco-beneficial processes	20	64.52 %
Eco-ambivalent processes	8	25.81%
Eco-destructive processes	3	9.67%
Total	31	100%

In the mental process, the number of eco-beneficial processes is the largest, followed by the eco-ambivalent processes, and eco-destructive processes account for the smallest proportion. To be specific, cognitive clauses account for the largest proportion of mental processes, and the typical verbs in this configuration include believe, know, think, wonder, fear, etc. There are four examples concerning with the relationship between human beings and natural environment.

(8) Yet we believe that when the interests of the entire humanity are at stake, China must step forward, take action, and get the job done. (from Sample 7)

(9) China is willing to share the experience with other WTO members and work together to actively deal with plastic pollution from the trade side, he added. (from Sample 8)

As is shown in the above examples, Example (8) belongs to the cognition mental process, which reflects the speaker’s cognition of things. It contains a mental process “believe” that indicates the people’s beliefs and is accordance with the principle of proximity. Thus it is an eco-beneficial one.

The verbs in Example (9) are also positive verbs which are used to prescribe our nation’s positive feeling for the cooperation with other WTO members to deal with plastic pollution. Combined with the context, it can be seen that this sentence is also an eco-beneficial one.

(10) Although I can no longer fish, I am happy to see such changes. (from Sample 31)

Example (10) illustrates a typical way to construe mental meanings. It is an emotive process, which denotes feeling and gives a prescription of how someone feels about something. In this clause, the phenomenon is reasonable since it presents happiness because of the changes.

(iii) Verbal Process

Table 5.11 Ecological Features of Verbal Process in Network News

Types	Frequency	Percentage (%)
Eco-beneficial processes	141	77.47%
Eco-ambivalent processes	26	14.29%
Eco-destructive processes	15	8.24%
Total	182	100%

Verbal process is the process of transferring information through communication. The ecological features of verbal process are shown as follows, the number of eco-beneficial processes takes up the highest percentage of the distribution, a total of 141, accounting for 77.47%. In comparison, there are only 26 occurrences of eco-ambivalent clauses and 15 eco-

destructive processes, occupying 14.29% and 8.24% respectively. Some typical examples will be analyzed below.

(11) Announced in April 2017, Xiongan's primary goal is to take over Beijing's functions. (from Sample 33)

In Example (11), there is a verbal process announced, and the semantic configuration is “sayer+ verbal process (announced)+ verbiage”, which indicates that China is pressing ahead on a green development path and has made every effort to live up to its promises.

(12) Over a year ago, China declared to the world that it would strive to peak its carbon dioxide emissions before 2030 and achieve carbon neutrality before 2060. (from Sample 4)

Example (12) indicates China will work actively and prudently toward the goals of reaching peak carbon emissions and carbon neutrality, which belongs to an eco-beneficial phenomenon.

(iV) Relational Process

The relational process is mostly reflected in the introduction of background knowledge related to green development, etc.. It also reflects China is committed to sustainable development as well as the principles of prioritizing resource conservation and environmental protection.

Table 5.12 Ecological Features of Relational Process in Network News

Types	Frequency	Percentage (%)
Eco-beneficial processes	73	48.67%
Eco-ambivalent processes	60	40.00%
Eco-destructive processes	17	11.33%
Total	150	100%

In the relational process, eco-beneficial processes take up the largest proportion, a total of 73, accounting for 48.67%. The number of eco-ambivalent processes in the relational process is 60, ranking second with 40.00%. Eco-destructive processes ranks last, with 17, taking up 11.33%. The following elaborates the distribution features through some examples specifically.

(13) Miles of salt marshes dominated by saline seepweed forming a red beach in the northeastern Chinese city of Panjin have become a popular tourist destination as well as an important wetland ecosystem. (from Sample 27)

Example (13) indicates that Panjin strives to maintain harmony between humanity and nature. The Carrier is filled by a red beach, and the Attribute explains the attracting quality of it. Respecting and protecting nature is essential for building China into a modern socialist country in all respects. This clause is eco-beneficial since it presents the advantage of protecting nature.

(V) Existential Process

The existential process refers to the process of existing (Halliday, 2014), which takes up a small proportion in the data. In ecological discourse, the existential process used to describe the existence of participants in the ecosystem.

Table 5.13 Ecological Features of Existential Process in Network News

Types	Frequency	Percentage (%)
Eco-beneficial processes	5	50%
Eco-ambivalent processes	2	20%
Eco-destructive processes	3	30%
Total	10	100%

This table shows that eco-beneficial and eco-ambivalent processes account for a large proportion in the network news, while there are still some eco-destructive discourses that can prevent the positive development of social and natural ecology.

(14) A survey conducted last year by the biodiversity protection and research center of Beijing found that there were 43 species of birds inhabiting a section of Liangshui, including 23 species of waterfowl. (from Sample 28)

(15) After a new-energy vehicle battery is decommissioned, there is generally 70 percent to 80 percent of the capacity remaining. (from Sample 3)

Existential clause (14) is typical English existential semantic configuration, “there + existential process (is) + existent + circumstantial element”, which describes the species of birds as well as waterfowl. And this process only describes objective fact, thus belonging to be eco-ambivalent process. This type of discourse usually shares a common goal with a certain ecosophy.

Example (15) illustrates a typical way to construe existential meaning. This sentence presents that battery recycling will greatly reduce the negative impact on the environment, while saving a lot of resources. Therefore, this sentence is an eco-beneficial one.

(Vi) Behavioral Process

The behavioral process mainly involves the physical activities of the behavioral. Since there are only 11 behavioral processes in the selected corpus.

(16) Zhang Zhiping, 59, has finally seen clear water and jumping fish in the river again, a scene that had been common in his childhood but disappeared in the 1980s. (from Sample 31)

The semantic configuration of the above clause is Behr + Pro + Ra. The Range element prescribes a scene of clear river that was initially been polluted, which represents the Behaver’s excitement for the improved environment and ecology. This clause highlights the human concerns, thus is eco-beneficial and facilitates reflection on ecological behaviour and urges ecological conservation actions.

5.2.3. Ecological Features Represented by Circumstantial Elements in Network News

Circumstantial elements are of vital importance to ideational function.

Table 5.14 High-frequency Words in the Realization of Circumstantial Elements

Circumstantial Elements		High-frequency Words/ Phrases
Location	Time	on/ in (101), before... (11), by the end of... (6), in the future (1), at that time (1)
	Place	at the ...(32), in China (26), in Kuwait (5), in countries (1)
Extent	Distance	For... (14), throughout (3)
	Duration	during... (19), for... years (18), since... (17), in recent years (16), in the past... years (8), so far (1), over the years (1)
	Frequency	every day/ year (20), frequently (5), annually (4), year on year (1)
Manner	Means	by... (20), with... (5), through... (2)
	Quality	in a ... way/ manner (6)
	Comparison	like (10), unlike (1)
	Degree	by /about/ nearly... percent (7)
Cause	Reason	thanks to... (15), because of (12), as a result of (10), due to... (9), owing to... (4) for posing possible threats (2), given that... (2)
	Purpose	for (12), for the purpose of (4)
	Behalf	against (7), on behalf of (6)

Table 5.14 shows the high-frequency words in the realization of circumstantial elements. The location circumstantial components are shown in Examples (17).

(17) The green buildings in Xiongan are connected to the raw material. (from Sample 33)

The extent circumstantial component accounts for 22.10% of the total component, which can be divided into two types: distance and duration. The manner circumstantial element accounts for 13.23% of the total circumstantial components, including means, quality and comparison, among which the means accounts for the highest proportion of the modal circumstantial components. The preposition with the highest frequency is by, accounting for 64.51% of the circumstantial component of manner. The concept of sustainable development is embodied in linguistic symbols. According to statistics, diachronic circumstantial components with a time span of more than five years appear more frequently, accounting for 24.08% of the total location circumstantial components.

6. Conclusion

In conclusion, this discursive study is devoted to disclosing the ecological attributes and values by an EDA of exploring the conceptual functions of network news. The quantitative and qualitative analysis demonstrates that the transitivity system in SFL is an effective method for analyzing network news discourse.

Firstly, the quantitative analysis of the corpus has shown that participants account for the largest proportion, with a total of 2634 times. This indicates that participants express richer information than processes, thus participants will be more deeply analyzed for the underlying ecological consciousness.

In the distribution of participants in network news discourse, participants of material process and verbal process account for the largest proportion, among which actors, goals, sayers and verbiages are the most frequently used participants roles; In the distribution of transitivity processes, it focuses on the attribution of material process and verbal process, followed by relational process, mental process, existential process and behavioral process. Human action verbs that have a positive impact on the environment appear more frequently in the ecological discourse of network news; Extent, location and manner are the main resources of circumstantial elements.

Secondly, the ecological discourse of network news present an eco-beneficial value yet with occasional presence of eco-ambivalent and eco-destructive property. In addition, there are significant differences among circumstantial elements in the use of discourse in network news. In terms of the embodiment of circumstantial elements, the ecological discourse of network news embodies the method of green development. The ecological discourse of network news pays more attention to the use of diachronic circumstantial resources, indicating that the *Xinhuanet* is guiding people to focus on the long-term orientation of ecological utilization and to form the ecological concept of sustainable development.

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