A Preliminary Study on International Ecological Discourse and Its Transitivity Analysis Model

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Abstract—International ecological discourse belongs to the cross research field, which can be understood as a study of international relations in discourse by means of ecological discourse analysis. The purpose of this paper is to reveal the discourse influence of the speaker and analyze the ecological significance of discourse transmission: to protect or destroy the international ecosystem, or to be in an ambiguous attitude. This paper firstly clarifies the related concepts of international ecological discourse and international ecosystem, and puts forward the ecological philosophy which can promote the good development of international ecosystem based on Chinese traditional culture and diplomatic ideas. On the basis of these theories and the transitivity theory in systemic functional linguistics, a transitivity analysis model reflecting the characteristics of international ecological discourse is constructed, which involves ecological extension and refinement of the role of participants and definition and interpretation of ecological benefit of process types: beneficial, neutral and destructive.

Index Terms—international ecological discourse, international ecosystem, systemic functional linguistics, transitivity theory

I. INTRODUCTION

Discourse has always been a key object in the study of international relations. The emergence of discourse in each society must go through many processes of screening, organization and classification, which constitute the main existence of society in different ways and have the characteristics of social construction. There is no denying that it has a causal impact on international relations. (Fairclough, 1992, p.36) If some words contribute to the establishment of harmonious international relations, others will lead to the destruction of international relations. There is a close relationship between discourse and international relations, and the analysis of different discourses can help us understand the different realities of the international community. This mainly stems from the task of discourse analysis, which is to explore the relationship between language use and social reality.

Moreover, in recent years, due to the strengthening of human ecological consciousness, “ecological turn” has taken place in humanities and social sciences field. (Stibbe, 2010, p.407) Huang Guowen (2016) once proposed that the emerging disciplines such as ecological aesthetics, ecological philosophy, ecological criticism, ecological translation, ecological literature, ecological lexicology, ecologiaics and some others have appeared in the field of humanities subsequently. As far as ecologiaics is concerned, subjects of the study include the social environment of language and the ecological environment of society. The main research method is ecological discourse analysis. (Alexander & Stibbe, 2014, p.104).

In a word, driven by the focus of discourse in international relations and the ecological turn of discourse research, the phenomenon of international ecological discourse needs the attention of academe. (He Wei & Wei Rong, 2017, p.19) This paper firstly clarifies the related concepts of international ecological discourse and international ecosystem, and puts forward the ecological philosophy which can promote the good development of international ecosystem based on Chinese traditional culture and diplomatic ideas. On the basis of these theories and the transitivity theory in systemic functional linguistics, a transitivity analysis model reflecting the characteristics of international ecological discourse is constructed, which involves ecological extension and refinement of the role of participants and definition and interpretation of ecological benefit of process types.

II. SOME BASIC CONCEPTS OF INTERNATIONAL ECOLOGICAL DISCOURSE

A. The Connotation of International Ecological Discourse

Alexander and Stibbe (2014) once gave a precise definition of ecologiaics and proposed that it is the study to examine the relationship between human beings, other organisms and the physical environment especially how language maintains, influences or even destroys it. (p.104) In short, Ecologiaics is a subject formed by the combination of ecology and linguistics and is an interdisciplinary field of natural science and humanities. It studies not only the social environment of language, but also the ecological environment in which society is located. (Xin Zhiying & Huang guowen, 2013, p.7) As we know, ecological discourse analysis, one of the most important approaches of ecologiaic studies, chiefly studies natural discourse (such as natural poetry) and focuses on natural ecosystems at
present. Nevertheless, we need to pay equal attention to the discourse study of the social ecosystems. For that reason, this paper does not study the influence of language on the natural environment from the perspective of natural ecology, but analyzes the role of language on international ecology and environment through international ecological discourse. Therefore, the purpose of this paper is to reveal the discourse influence of a country and to analyze the ecological significance of discourse transmission: to protect or destroy the international ecosystem, or to be in an ambiguous attitude.

In the field of ecolinguistics, environmental discourse refers to the discourse about the environment, which is the linguistic representation of the relationship between human beings and the natural environment. Similarly, international ecological discourse is a discourse about the international ecosystem, which is the linguistic representation of the relationship between countries. (He Wei & Wei Rong, 2017, p.19) As the name implies, international ecological discourse concerns about the international ecosystem. So what exactly does the international ecosystem mean?

B. International Ecosystem

From the ecological point of view, the international ecosystem should not only refer to natural ecology, but also include social ecology. The former mainly refers to natural resources and includes ecosystems that are less affected by human beings, such as forest ecosystems. However, social ecology is concerning the political, military, cultural, economic, educational and other artificial aspects of various countries and includes human activity-centric ecosystems such as urban ecosystems. Therefore, the international ecosystem includes natural and social ecosystem. Looking back on the previous literature, it can be seen that most of the studies on international ecosystems at home and abroad are about natural ecology, but there are few studies on the ecology of the international community. (Wang Jiping, Gao Feng, Zhang Zhiqiang & Tang Tianbo, 2010, p.1101; Fu Bojie & Liu Yu, 2014, p.893) Based on the fact, this paper focuses on the social ecosystem. Accordingly, the international ecosystem and international ecological discourse mentioned in this paper chiefly refer to the international social ecosystem and the international social ecological discourse, respectively.

All countries and their components in the world are ecological factors of the international ecosystem and can be divided into “life factors” and “non-living factor”, corresponding to the living part and inanimate part of the ecosystem. Take an example, through an experiment, Zhang Hongzhong and Yu Xin (2013) once found that Chinese people have different attitudes towards the United States and the people of the USA. The Americans are more popular than the United States. (p. 40) Otherwise, the clauses “Chinese people are particularly friendly” and “China is particularly friendly” both describe China, but they evaluate different ecological factors and leave different impressions to readers. The former emphasizes the friendly image of the life factor “Chinese people” while the latter one focuses on the nation “China” and its government.

And then, the “life factor” in the international ecosystem can be subdivided into “human life factor” (mainly refers to nationals) and “non-human life factor” (such as animals and plants). Secondly, “Life factor” also includes “individual factor” and “group factor”. (He Wei & Wei Rong, 2017, p.19) For example, “the Pakistanis are particularly friendly” and “the Pakistani president is particularly friendly” are both descriptions of “life factor”, but the former evaluates the group factor “Pakistan people”, while the latter evaluates the individual factor “Pakistani President”. Moreover, as a non-living body, the international community has the characteristics of “place”, because its important ingredient “country” is a regional concept. Leila Scanell and Robert Gifford (2010) has expressed that the place dimension has been examined at various geographic scales and has typically been divided into two levels: social and physical place attachment. (p.3) By this way, We may draw conclusion that the international community also has physical and social characteristics, and then divides the “non-living factor” into “physical factor” (which refers to the physical parts of ecological factors, such as geographical location, climatic conditions, mountains and rivers, etc.) and “social factor” (which means the social parts of ecological factors, such as politics, economy, education, military, culture, diplomacy and so on.).

From another angle, the international ecological environment involves natural environment and social environment, in which the former mainly refers to the international natural conditions (such as forests, minerals, climate, and water) and the latter mainly refers to the political, military, cultural, economic, educational and other artificial conditions of the international community. (He Wei & Wei Rong, 2017, p.20) To sum up, based on the fact that the international ecosystem is composed of international ecological factors and the international ecological environment, drawing on Ye Jun’s (2006, p.54) interpretation of social ecosystems and the overall framework of social ecosystem analysis of Elinor Ostrom (2009, p.419), we give a preliminary explanation of the international ecosystem: All the ecological factors and environmental factors in the ecosystem interact with each other, that is, to achieve the dynamic balance of the whole international ecosystem by exchanging, cooperating, complementing and sharing resources in all fields of the system.

C. International Ecological Philosophy

According to Halliday, human beings recognize the world and obtain the experience through language, and at the same time use language to create meaning and build the world. The words and deeds produced by people are influenced by (and also reflect) their own relationship with other people, species and nature in the ecosystem. (Huang Guowen & Zhao Ruihua, 2017, p.586) Therefore, the analysis and classification of international ecological discourse can not be separated from the thought of speaker, that is, the international ecological philosophy.

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As far as the international ecosystem is concerned, analysts have a variety of ecological philosophy. For instance, Li Zhaoxing (2010, p.6777) emphasized that "harmony" is an extremely important concept among all the central elements in the Chinese civilization; Rebecca Katz et al. (2011, p.503) found that the inseparable connection between health and foreign policy require both the diplomatic and global health communities to reexamine the skills, comprehension, and resources necessary to achieve their mutual objectives; Ana Cristina (2013, p.207) discussed a lot about win-win economic cooperation tool used in Africa. This paper adopts the ecological philosophy constructed from Chinese long traditional culture and diplomatic concept, that is, "harmony in diversity, reciprocity and mutual benefit" (He Wei & Wei Rong, 2017, p.21), in order to promote the healthy development of the international ecosystem.

Arran Stibbe (2015) divided discourse into three categories: beneficial discourse, ambivalent discourse and destructive discourse. From the perspective of international ecology, based on the ecological philosophy of "harmony in diversity, reciprocity and mutual benefit", we can also divide international ecological discourse into three categories: destructive international ecological discourse (which may hinder people to protect the international ecosystem), neutral international ecological discourse (which neither hinder nor promote the protection of the international ecosystem) and beneficial international ecological discourse (which can promote people to protect the international ecosystem).

### III. International Ecological Discourse Analysis

Ecological discourse analysis is considered "a central approach" in the subject of ecolinguistics. Above all, according to Halliday, language creates meaning and is the medium of constructing reality. At the same time, people’s words usually reflect what they think and do. Accordingly, the analysis of discourse from an ecological perspective can reveal problems that we did not pay attention to before. (Huang Guowen & Zhao Ruihua, 2017, p.591) Thus, discourse analysis needs linguistic theoretical basis, while systemic functional linguistics is a relatively suitable theory because it not only has a strict theoretical framework, but also has strong maneuverability and practicability. It is also suitable for ecological discourse analysis. The reason is that discourse analysts generally have their own ecological philosophy which is closely related to our environment (such as geographical, historical and living environment, etc.). This is consistent with the linguistic ideas of M.A.K. Halliday, founder of systemic functional linguistics. Generally speaking, international ecological discourse studies on international relations through discourse analysis for which systemic functional linguistics usually provides a powerful analytical tool. (Xin Zhiying & Huang Guowen, 2013, p.10)

#### A. Systemic Functional Linguistics and Transitivity Analysis Model

Systemic functional Linguistics argues that the main purpose of discourse analysis is to reveal the meaning and communicative role expressed by discourse in practical language use, with emphasis on explaining the experiential meaning, logical meaning, interpersonal meaning and textual meaning expressed in discourse from the perspective of meta-function, and finally evaluate the validity and appropriateness of the discourse. (Huang Guowen, 2017, p.3)

This paper focuses on the experiential meaning, that is, the transitivity system, which is a semantic system to express the ideational function and a system network about the clause expression of process types, participants and environmental components involved. (He Wei & Wei Rong, 2016, p.1) As we know, systemic functional grammar regards a sentence with subject-predicate components as a clause. A clause is a process, which is composed of process verbs, participants and environment, and the participants complete the process in a certain environment. The process verb is the center, the participant is the core component of the realization center, and the environment enrich the meaning of the process verb in the aspects of time and space, causality, condition, way and so on.

That is to say, this system construes the world of experience into a manageable set of process types, namely material process, mental process, relational process, behavioral process, verbal process and existential process. Each process has its own participant role. (Halliday, 2014) In view of this, based on systemic functional linguistics and transitivity system, this paper reconstructs the participant role system from the ecological perspective and gives ecological significance to the main process system.

#### B. Participant Role System

Halliday distinguishes the corresponding participant roles for the six process categories: Actor and Goal in the material process; Senser and Phenomenon in the mental process; Carrier and Attribute or Identifier and Identified in the relational process; Behaver in the behavioral process; Sayer, Verbiage, Receiver and the target in the verbal process; Existent in existential process. (He Wei & Wei Rong, 2016, p.4) The roles of these participants are relatively general and can not reflect the characteristics of international ecological discourse. We need to redefine and refine the role of these participants.

First of all, according to life factors and non-living factors in the international ecosystem, we divide the participants into “life” participants and “non-living” participants in order to show the significance of the participant’s role in this specific ecosystem and to intuitively reflect the ecological value of clauses. Then, we can further divide “life” participants into human life participants and nonhuman life participants (just like “Chinese” in sentence A and “The giant panda” in sentence B) or into individual life participants and group life participants (just like “the general” in sentence C and “The army” in sentence D). It is important to note that although the C and D clauses have the same
semantic configuration, that is, Carrier and Process, they leave different impressions to the reader, because the former describes the great image of individual “general”, while the latter describes the great image of the inanimate “army”. Furthermore, as a non-living body, regional places include physical and social places, according to which we believe that the international community has physical and social characteristics hence the non-living participants can be divided into physical participants and social participants.

A. Chinese are hospitable and kind-hearted.
B. The giant panda is one of the surviving ancient animals.
C. The general is in good spirits.
D. The army is in good spirits.

C. Process System

1. Material Process

The material process refers to “action” and is regarded as a “do-and-happen” process, which is used to understand the material world experience of human beings. All things in nature have a cycle of birth, growth and death. In the process of development, human beings engage in activities of discovery, invention, production and creation. All of this can be explained by the material processes in systemic functional grammar. (Wang Zhenhua, 2018, p.60) In the international ecological discourse, the action process also describes the dynamic activities of the relevant participants, and the three kinds of international ecological discourse also correspond to three kinds of action processes: beneficial, neutral and destructive.

For example, sentence E and F are action clauses describing the relationship between China and the United States. There are two action processes in sentence E: “try” and “incite”. Firstly, the semantic configuration of “try” is “agent (Some American politicians) - human life group participant + action process (try)”. We need to notice that the word “politician” is derogatory in American English and especially refer to political liars who play tricks and fight for self-interest. So this process may mean that those people are plotting something immorally and belongs to destructive action process because it is contrary to the ecological philosophy of “harmony in diversity, reciprocity and mutual benefit”. Then, the semantic configuration of “incite” is “agent(Some American politicians) - human life group participant + action process + affected - non-living social participant (antagonism between China and the United States)”, which describes the fact that these American politicians are doing something harmful to the international order and international ecosystem, so it’s also a destructive action process. As for sentence F, the semantic configuration of “expand” is “agent-human life group participant (China and the United State) + action process (expand) + affected - non-living social participant (mutually beneficial Cooperation between the two countries)” It highlights the speaker’s attitude of supporting mutually beneficial cooperation between China and the United States, which is in line with the ecological philosophy of this paper and belongs to the process of beneficial action.

E. Some American politicians try to incite antagonism between China and the United States.
F. China and the United States should actively expand mutually beneficial Cooperation between the two countries.

2. Mental Process

Mental Process is a process of “perception”, which is used to understand the experience of people’s conscious world, including perception, cognition, desire and emotion and involving two participants: senser and phenomenon. (Wang Zhenhua, 2018, p.60) Meanwhile, the three kinds of international ecological discourse also correspond to beneficial mental process, neutral mental process and destructive mental process.

Take an example, sentence G and H are both mental clauses concerning war and peace. The mental process “believe” in G reflects the speakers understanding and cognition of the certain phenomenon, and its semantic configuration is “senser - individual human participant (I) + mental process (believe) + phenomenon (our cause is reasonable)”. It shows that the speaker firmly believes in the justice of the war in Libya and tries to legitimize illegal wars. This mental process runs counter to the purport of international ecological philosophy and is a destructive mental process definitely. On the contrary, the verb “hope” in the clause H is a beneficial mental process. The semantic configuration of this clause is “senser - individual human participant (I) + mental process (hope) + phenomenon (the international community will be more peaceful and prosperous)”. It highlights the speaker’s hope to create a more harmonious and flourishing planet.

G. I believe that our cause (war against Libya) is reasonable.
H. I sincerely hope that the international community will be more peaceful and prosperous.

3. Relational Process

This type can be classified into two types: attributive relational process and identifying relational process. Attribution is about what attributes a certain object has, or what type it belongs to. The participants in the attributive process clause “We are young” are the carrier “we” and the attribute “young”. For another one, the participants in identifying relational process clause are token and value. For instance, if the sentence “Maria is the slim one” is used to answer “Who is Maria?”, and “Maria” is token, “the slim one” is value. (Wang Zhenhua, 2018, p.60) In international ecological discourse, the relational process establishes political, economic, military, cultural, diplomatic and other relations between participants by describing who the relevant participants are, where they are, and what they have.

Sentence I concerns about an identifying relational process, its semantic configuration is “token - non-living social participant(Japanese fascism) + relational process (is) + value( the greatest spirit on earth)” and expresses the speake’s
pursuit of Japanese fascism. Nevertheless, historical facts warn us that Japanese fascism is an ideology that has brought great disaster to the people all of the world. Therefore, it is obviously a destructive relational process. While clause J belongs to an attributive relational process, the semantic configuration is “carrier- non-living social participant (The CPC) + relationship process (is) + attribute (the core of leadership for the cause of socialism with Chinese characteristics), which objectively describes the nature of the Chinese national government and has little to do with the view of ecological philosophy. It is a neutral relational process.

1. Japanese fascism is the greatest spirit on earth.
2. The CPC (the Communist Party of China) is the core of leadership for the cause of socialism with Chinese characteristics.
3. Behavioral Process
   Behavioral Process refers to physical and psychological behavior, such as breathing, coughing, smiling, dreaming, scanning, etc. There is usually only one participant in the behavior process, that is, the behaver, such as the action “laugh” in the clause “She’s laughing”. But in the clause “She takes her medicine on time every day”, there are two participants, “medicine” is scope, (Wang Zhenhua, 2018, p.61) In international ecological discourse, the purpose of behavioral process is to describe the physiological activities such as exhalation and smile, which are unconsciously shown by the participants concerned, and are also divided into three categories: beneficial, neutral and destructive behavioral processes. For example, the semantic configuration of “breathe” in the sentence K is “behaver - human life group participant + behavioral process (cannot breath) + location”, which shows that the speaker conveys the prejudice against China. Moreover, the behavioral process “breathe” clause is followed by the mental clause “although I believe China will become stronger and stronger”, which is more illustrative of the fact that the speaker lashed out at China because he regarded China as its strong competitor, which is a destructive behavior process.
3. Verbal Process
   The verbal process is involved in exchanging information through speech, and the participants are the speaker, the receiver and the content of the speech. (Wang Zhenhua, 2018, p.61) In the clause “My watch says it is half past ten”, the participants are sayer (may watch) and verbiage “it is half past ten”. In the international ecological discourse, the verbal process describes the process through which the relevant participants exchange information via language, which includes the beneficial process of transmitting positive information, the destructive process of transmitting negative information and the neutral process of transmitting neutral information. The semantic configuration of verbal process “praise” is “sayer - non-living social participant (China) + communication process (praise) + communication content” expresses the recognition of US side communication content by Chinese side, which is beneficial to the harmony between China and the United States. It is a beneficial verbal process. The semantic configuration of verbal process “reaffirming” is “say - non-living social participant (US side) + the communication process (reaffirming) + the communication content (repeatedly reaffirming its adherence to the one-China policy)”, it also belongs to the process of beneficial communication.
4. Existential Process
   The existential process means the existence of things, and there is only one participant, that is, existent, such as “many flowers in the garden” in the clause “There are many flowers in the garden”. (Wang Zhenhua, 2018, p.61) This kind of process in the study of international ecological discourse is often used to describe the existence state of the participants in the international ecosystem, including the beneficial process of describing the positive existence state, the destructive process of negative existence state and the neutral process of neutral existence state.

   The semantic configuration of clause M is “place + existential process + existence - non-living social participant”, which objectively describes the number of population in the world, which is not related to ecological philosophy and is a neutral existential process. The semantic configuration of clause N is “there+existential process (is) +existence - group life participants”. Although holding guns in the United States as a right is provided for in the Constitution of the United States, shooting innocent people is opposed to international ecological philosophy. It can be regarded as a destructive existential process.
5. At present, there are 7.7 billion people in the world.
6. According to statistics, there are nearly 100,000 innocent people in the United States to be shot every year.

IV. CONCLUSION

This paper holds that, as a component of the international ecosystem, each country shapes the relationship between the ecological factors in the international ecosystem through discourse, in order to have a causal impact on the relationship between countries. The beneficial international ecological discourse helps to build friendly relations between countries while destructive international ecological discourse may bring crisis to the international community.

In the face of the international ecological discourse research task, we first combine linguistic theory and ecological philosophy, that is, to follow the “meaning-centered” language description principle and “harmony but diversity, reciprocity and mutual benefit” to construct an ecological discourse analytical model which is based on the theory of systemic functional linguistics and to reconstruct the participant system and redefine the process system. As mentioned
above, ecosystems are combination of living and non-living organisms. Therefore, among them, international ecosystem participants also can be divided into “living participants” and “non-living participants”, the former including “human life participants” and “non-human life participants” and the latter includes physical participants and social participants. Compared with the participant system based on language ontology, this classification can better reflect the ecological attributes of the participants, and thus more obviously reflect the ecological value of clauses. Moreover, the process can be refined into beneficial process, neutral process and destructive process. For example, the action clauses “It can promote international cooperation” and “It can hinder international cooperation” both express the effect on “international cooperation” identified by the speaker, but contain different ecological meanings, the former conforms to the ecological philosophy which we proposed in this paper, while the latter violates that ideology and is a destructive process. It can be seen that there are two steps to judge the process nature of international ecological clauses; in the first step, the clauses are classified according to the six action processes of the transitivity system; then, by analyzing whether the semantic meanings of clauses conform to the ecological philosophy of “harmony in diversity, reciprocity and mutual benefit”, we can classify three types of ecological processes, including beneficial, neutral and destructive processes. In a word, it is hoped that this paper will provide a reference for guiding people to reduce the use of destructive discourse of international ecosystem, improve the use of ambiguous or neutral discourse, and produce more protective discourse of international ecosystem.

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