

The Ecological Discourse Analysis of Jack London's *The Sea Wolf* from a Systemic Functional Perspective

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Abstract: Ecolinguistics studies the interaction between language and its environment. The ecological discourse analysis in the framework of ecolinguistics refers to the analysis of any discourse that has a potential impact on the ecosystem. The systemic functional linguistics of Halliday and the approach of ecolinguistics provide rich theoretical perspectives for ecological discourse analysis. The ecological discourse analysis based on systemic functional linguistics can help to reveal the ecological concept and ideology behind the ecological discourse, so as to improve people's awareness of ecological protection and build a harmonious relationship between man and nature. Under the analysis framework of systemic functional linguistics, this thesis will analyze the ecological discourse of Jack London's novel *The Sea Wolf* to explore the ecological orientation behind this novel.

Keywords: Systemic functional linguistics, Ecolinguistics; ecological discourse, *The Sea Wolf*.

1. Introduction

Jack London is a famous American realist and naturalist writer in the early twentieth century. His works usually expose characters to harsh natural environments, showing the struggle between man and nature. A lot of ecological discourses are involved in *The Sea Wolf*. This thesis will take quantitative and qualitative methods for analysis. First of all, the quantitative research method is used to count and classify the ecological discourses appearing in the novel, indicating the occurrence and frequency of different types of ecological discourses. Then the qualitative method is used—choosing the perspectives of transitivity analysis, ergativity analysis, agency analysis, grammatical metaphor analysis, and appraisal analysis in systemic functional linguistics to analyze the ecological discourses of Jack London's *The Sea Wolf*. The analysis of the specific ecological discourse with the analysis framework of systemic functional linguistics can reveal the author's ecological value and help us establish the correct ecological values and ideology.

2. Jack London and *The Sea Wolf*

Jack London was born in San Francisco, a harbor city with beautiful natural scenery. He has loved to drive boats in the harbor since he was a child. Jack London, who grew up in nature, has a deep affection for nature, and he can more keenly feel the damage caused by capitalist industrialization to nature. In addition, because of his poor family, Jack London had been a sailor on a cheetah ship at the age of seventeen. He witnessed the process of hunting seals which made him feel more deeply about the pain suffered by nature. In his series of works, he expresses his infinite love for nature and the expectation of a harmonious relationship between man and nature.

The Sea Wolf is a typical novel that can reflect the relationship between man and nature, embodying the idea of environmental determinism and the survival of the fittest. There is an irreconcilable conflict between civilization and brutality, human beings and animals, weak and strong. Jack London narrated the adventures of Humphrey Van Weyden, a literary critic who had not been deeply involved in the real

world. He suffered a shipwreck during a journey and was rescued by Larsen, the captain of the "Ghost" and called "sea wolf". The barbaric, bossy, and powerful Larsen forced Weyden to stay on the ship for labor. "Sea wolf" Larsen was as fierce as a wolf, and his sailors rated him as shameless and inhuman. Affected by the environment, other sailors on the "Ghost" were also full of ferocity, and their human nature gradually twisted and shrunk. On the "Ghost", fierce battles and brutal killings took place one after another. Near the Sea of Japan, the "Ghost" rescued a female writer named Maud, who had similar experiences with Weyden and they soon fell in love with each other. At this time, Weyden had grown quickly under Larsen's brutal control. In order to get rid of Larsen's control, he and Maud sneaked away to escape, but were trapped on an island because of the lost course. Later, Larsen also came to this island, but at this time he was suffering from headache and blindness and all the crew had abandoned him. Weyden eventually drove the "Ghost" back to civil society, while "sea wolf" Larsen died because of illness on the island.

The "sea wolf" Larsen in this novel believes that life is like yeast—the big eats the small, the strong eats the weak in order to preserve its strength. This is the Darwin's conception of evolution that fascinated Jack London. The reason why this idea is so publicized in London's works is inseparable from his own growth experience. *The Sea Wolf* is London's narrative of his seven-month sailing at sea when he was a sailor. The "sea wolf" Larsen was born on a small seaside island. Due to poverty, he and his brother had struggled to survive like a grass growing up in a crack of a stone. He had worked on the ship before he was ten years old. The hard life and the pain he experienced led Larsen to form his creed of life: only the strong can live and can rule others. In the process, Larsen gradually turned himself into a strong one, and also became a powerful and brutal "sea wolf". On the sea, he is the "fittest", a testament to Darwinism and social Darwinism.

Jack London chooses "sea wolf" as the title, and set the scene in the vast sea, implying the his profound ecological ideas contained in this work, as well as the deep concern for building harmonious relationship between man and nature. The following will analyze the ecological discourses in this novel from the perspective of systemic functional linguistics

to reveal the ideology and ecological values behind this novel.

3. Ecological Discourse Analysis Based on Systemic Functional Linguistics

Ecolinguistics has developed into a branch of linguistics in the 1990s and is dedicated to studying the impact of language on human beings, environment, and other animals. There are two approaches of ecolinguistic research, namely the Haugenian approach and the Hallidayan approach. The Haugenian approach of ecolinguistics focuses on the ecology of language. Haugen proposed the concept of “language ecology” [1]. Its main research content is the interaction between a specific language and its environment, and Haugen believes that any language has its own living environment. A good environment is one of the prerequisites for the development of a specific language. Ecolinguistics researchers adopting the Haugenian approach often call for: ecological balance is the prerequisite for human beings to live and work in peace, and one of the elements in ecological equilibrium is the ecological balance of language. However, the Hallidayan approach of ecolinguistics focuses on the language of ecology, that is, the role of language in the ecosystem, especially the impact of language on environmental protection and deterioration. Halliday explored how the meaning construction method of language affected the human’s impact on the environment [2]. Halliday distinguished between institutional ecolinguistics and systemic ecolinguistics [3]. The former focuses on the relationship between a particular language and the ethnic group that holds it; the latter focuses on the impacts of language on human’s ecological or non-ecological behavior. The most representative research of this approach is critical ecolinguistics. Critical ecolinguistics focuses on awakening people’s awareness of ecological protection, advocating harmonious ecological discourse and behavior, and reflecting on and criticizing human’s damage to the ecological environment. The Haugenian approach and Hallidayan approach have different concerns, and there is a clear complementary relationship between them. The focus of Haugenian approach is on the language ecology itself, while the Hallidayan approach focuses on the role of language in the ecological environment and pays attention to ecological review and criticism of discourse or behavior.

Ecological discourse analysis develops on the basis of ecolinguistics. It focuses on the role of language in the ecosystem and how language can build relationships that are conducive to ecological sustainability [4]. The rise of ecological discourse analysis is actually an inevitable requirement and result of the growing ecological crisis and environmental damage worldwide. Since the 20th century, as the ecological crisis has intensified, people have begun to re-recognize human’s status in nature and reflect on how to get along with nature. Linguists have also begun to analyze discourse in terms of ecology. Ecological discourse analysis is not only limited to the interpretation of discourse, but more about researching the ideology related to environment issues in the discourse. This ideology is positive, negative or ambivalent. Therefore, environmental discourse is not the only research object of ecological discourse, and its scope can be extended to all language phenomena that are directly or potentially related to ecology. Ecological discourse analysis is intended to construct a broader vision of ecological values: a kind of overall value that focuses on nature, human beings

and the interaction between nature and human beings, and then expand the study in ecological discourse to the whole process of human’s survival and development.

Internationally, after more than 40 years of development, ecolinguistics has established specialized academic organizations and published many representative results. As an interdisciplinary subject, the theory of ecolinguistics comes from the theoretical models of different subjects, and has not yet completely formed its own subject system. But attention and research on ecological issues have become a pan-disciplinary issue. The relationship between language and ecology is very close. How to make the language system more suitable for characterizing ecosystems and ecological relationships, and how to handle the development and protection of language and the relationship between language and environment have become the common goal of all scholars who pursue a harmonious society, love nature and respect ecology. At present, the research on ecolinguistics under the Hallidayan approach is still in its infancy, mainly for introductory and evaluative work, for example, Xin Zhiying [5], Huang Guowen [6, 7], Zhang Ruijie, He Wei [8] and other researchers believe that ecological discourse analysis focuses on ecological consciousness in discourse and can evoke, guide, and change people’s understanding of the environment and nature. They also demonstrate the possibility of systemic functional linguistics as the theoretical basis of ecological discourse analysis.

The theoretical basis of the Hallidayan approach of ecolinguistics is the social semiotics, ideology, and discourse construction of systemic functional linguistics. Firstly, the concept of social semiotics in systemic functional linguistics emphasizes the sociality of language and treats language as a social symbol. From the perspective of syntagmatic relation of language structure, choosing one component means influencing the choice of the following component. From the perspective of paradigmatic relation, once a clause selects a certain process type, it cannot choose another process type; if a particular component is selected as the actor or subject, there cannot be a second component as the subject. The choice of actor or subject is based on the communicative intention and purpose of the narrator, and is to express a specific meaning. To some extent, the ecological and social environment in which we live determines the division of personal pronouns and impersonal pronouns and the exclusiveness of lexical collocation, for example: natural resources like water, sunshine, air are reflected in the language as uncountable nouns to imply that they are inexhaustible; words like think, believe, know are generally not paired with animals other than human. Secondly, language expression has the function of ideology. The choices made by language users in the language system according to the ecological and social environment are affected by a certain ideology. That is because grammar is not neutral. In the process of understanding the experience and constructing the relationship between human and ecosystem, we have produced ideologies such as growthism, speciesism, and anthropocentrism. If killing animals and destroying ecosystem are taken for granted and widely accepted by people, that will become a code of conduct for everyone. Finally, Halliday believes that language is not a passive reflection of reality, but an initiative to create reality. Reality must be actively constructed. Language acts as an intermediary for construction and evolves during the process of construction. Therefore, from the perspective of

ecolinguistics, when language does not recognize the agent status of non-human species and distinguishes human from other species by means such as pronouns, it is constructing the relationships between human beings and non-human species and between human beings and nature. This construction method will construct a certain reality, guide our actions, and directly or indirectly affect the relationship between human beings and ecosystem.

The theory of social semiotics, ideology, and discourse construction of systemic functional linguistics provide a theoretical perspective and analysis framework for ecological discourse analysis [9]. This thesis will select transitivity analysis, ergativity analysis, agency analysis, grammatical metaphor analysis and appraisal analysis in systemic functional linguistics to conduct ecological discourse analysis on *The Sea Wolf*.

4. Ecological Discourse Analysis of *The Sea Wolf* from Perspectives of Systemic Functional Linguistics

4.1. Ecological Discourses in *The Sea Wolf*

Stibbe divided the discourse into three categories from an

ecological perspective: destructive discourse, counter discourse, and alternative discourse [10]. Then, based on the “Living” ecological philosophy, Stibbe re-classified ecological discourse into three categories: beneficial discourse, destructive discourse, and ambivalent discourse [11]. Huang Guowen and Zhao Ruihua [12, 13] define beneficial discourse as those that can give people a harmonious ecological spirit. Beneficial discourse follows the international philosophy of ecology and encourages people to protect the ecosystem. Destructive discourse refers to discourse that violates the international ecological philosophy and causes damage to natural and social ecology. Ambivalent discourse is between the beneficial and destructive discourse, and has dual nature. Its usefulness is trying its best for a positive goal, but the result is beyond the control of the individual; its destructiveness is that if this goal violates the laws of natural and social development, it will bring destructive effect.

In *The Sea Wolf*, the above three types of discourse all exist, and the distribution is shown in the table 1.

Table 1. Classification of Ecological Discourses in *The Sea Wolf*

Discourse	Ambivalent Discourse	Destructive Discourse	Beneficial Discourse
Chapter 1	2	2	0
Chapter 2	2	1	0
Chapter 3	3	4	0
Chapter 4	1	1	0
Chapter 5	1	2	0
Chapter 6	1	2	1
Chapter 7	0	1	1
Chapter 8	1	0	0
Chapter 9	0	2	0
Chapter 10	0	1	0
Chapter 11	0	1	0
Chapter 12	0	1	0
Chapter 13	0	0	0
Chapter 14	0	0	0
Chapter 15	0	0	0
Chapter 16	0	1	0
Chapter 17	3	2	0
Chapter 18	0	3	0
Chapter 19	0	0	0
Chapter 20	0	0	0
Chapter 21	0	1	0
Chapter 22	0	0	0
Chapter 23	0	0	0
Chapter 24	0	2	0
Chapter 25	1	1	0
Chapter 26	0	1	0
Chapter 27	0	0	0
Chapter 28	4	0	1
Chapter 29	1	1	0
Chapter 30	1	7	0
Chapter 31	0	1	0
Chapter 32	0	0	0
Chapter 33	0	0	0
Chapter 34	0	0	0
Chapter 35	1	0	0
Chapter 36	0	0	0
Chapter 37	0	0	0
Chapter 38	0	0	0
Chapter 39	1	0	0

4.1.1. Destructive Discourse

The expression of destructive information in the novel is mainly reflected in the relationship between human beings and animals. The characters in the novel slaughter animals and do not place animals on the equal status as human. For example:

(1) The shark, a sixteen-footer, was hoisted up against the main-rigging. Its jaws were pried apart to their greatest extension, and a stout stake, sharpened at both ends, was so inserted that when the pries were removed the spread jaws were fixed upon it.

(2) The boom, boom of guns, and pitiful slaughter through the long day.

(3) We traveled with it, ravaging and destroying, flinging the naked carcasses to the shark, and salting down the skins.

Sentence (1) depicts Larsen and the sailors fighting a shark. Larsen's strength made him wantonly kill the weak "yeast". He violated the laws of nature, constantly grabbing natural resources to satisfy his material desires, and tried to conquer nature with violence. Larsen strengthened his sovereign authority by punishing the shark, though the shark is innocent. Actually, it is Larsen's attempt to overcome nature that allows human to compete with the natural world represented by the shark. This is a distorted view of ecology. Additionally, because the "Ghost" is a cheetah ship, there are many details about killing seals in *The Sea Wolf*. As described in sentence (2) (3), to many people, especially to the hunters, beautiful marine life is just a tool for them to make money. Intellectuals such as Van Weyden and Maud also chose to mutilate seals in order to survive and live in the face of survival or death. Hunting seals is a kind of ecological destruction, so the description of killing seals is destructive information.

In addition, when referring to animals or using animals as analogies, people often depreciate animals consciously or unconsciously. If human beings' cruelty to animals is physical violence, the derogation of animals that we take for granted is verbal violence. Human beings consciously consider themselves as superior creatures compared with other animals, because they are thoughtful and creative. The nature of other animals is severely suppressed. The materialization and demonization of them not only help to alleviate the guilt of human beings killing animals, but also provide legal support for killing them. In *The Sea Wolf*, Jack London always depreciates animals unconsciously. When comparing human beings to animals, animals always carry a derogatory symbolic meaning. For example:

(4) I was drunk as a pig when I put my name down.

(5) Like a dog flung overside, the dead man slid feet first into the sea.

(6) Have you ever seen the London dockers fighting like wild beasts for a chance to work?

In sentence (4) (5) (6), the author compares humans to "pig", "dog" and "beast". According to the original context, it can be known that the author has ironic meanings. These ironic meanings are expressed by animals and reflect the stereotype that animals are inferior. This is the violence of language imposed on animals.

4.1.2. Ambivalent Discourse

The expression of ambivalent information in the novel is mainly reflected in the London's objective and neutral description of the natural environment and animals, which does not involve ecological ideology. For example:

(7) There is only so much water, so much earth, so much

air; but the life that is demanding to be born is limitless.

(8) Came days of storm, days and nights of storm, when the ocean menaced us with its roaring whiteness and the wind smote our struggling boat with a Titan's buffets.

(9) It disclosed a cove within the cove, a little landlocked harbor, the water as level as a pond, broken only by tiny ripples, where vagrant breaths and wisps of the storm hurtled down from over the frowning wall of rock that backed the beach a hundred feet inshore.

Sentence (7) is an objective description of the current ecological situation. The resources in the ecological environment are limited, but the reproduction of life is unlimited. If people can realize that they should save resources and protect the environment through the information, then this sentence is beneficial; but if people use this as an excuse to indiscriminately kill animals to reduce reproduction, then this sentence is destructive. Sentences (8) and (9) are objective descriptions of natural weather and natural environment, and do not involve ecological concepts, so they belong to ambivalent information.

4.1.3. Beneficial Discourse

The expression of beneficial information is reflected in two aspects. Firstly, London's positive description of the natural scenery reflects his love for nature. Secondly, London implies that human beings cannot brutally catch and kill animals. Both of these aspects help London to form an assimilated cognitive experience of nature and animals, thereby producing intentional behavior. For example:

(10) Above, the sky was stainless blue—blue as the sea itself, which, under the forefoot, was of the color and sheen of azure satin. All around the horizon were pale, fleecy clouds, never changing, never moving, like a silver setting for the flawless turquoise sky.

(11) It sounded like the gurgling of a brook over mossy stones in some quiet dell, and the crooning song of it lured me away.

(12) Human life is in no wise different, though you feel it is and think that you reason why it is.

Sentences (10) and (11) describe the natural beauty of the sky, the sea, and the brook, reflecting that the protagonist was fascinated by the beauty of nature. They also imply that people should protect nature and preserve these natural beauties. Sentence (12) points out the equal status of human beings and animals. Human should not pretend to be the supreme animal and slaughter or abuse other animals arbitrarily.

Based on these ecological discourses in the novel, the following will use the analysis framework of systemic functional linguistics for detailed analysis.

4.2. Analyze Ecological Discourses from Five Perspectives

It can be seen from the statistics of ecological discourses that most are clauses expressing ambivalent and destructive ecological information, and the clauses expressing destructive ecological information account for the largest proportion. Hereafter, five aspects, including transitivity analysis, ergativity analysis, agency analysis, grammatical metaphor analysis, and appraisal analysis, will be selected for in-depth discussion.

4.2.1. Transitivity Analysis

The school of systemic functional linguistics believes that

language is a tool of human communication and a product of human's social activities. Halliday's systemic functional linguistics states that language is a resource for expressing meaning and has three metafunctions at the same time: ideational function, interpersonal function, textual function. Ideational function refers to the function of expressing people's various experiences in the real world and the inner world with language. It reflects what happen in the subjective and objective world and involves people and things, as well as time, place, environment and other related factors. Ideational function include experiential function and logical function. The experiential function is mainly reflected by transitivity and voice. Transitivity, as a semantic system, divides people's speech and behavior in the real world into different "processes", that is, to categorize experiences through grammar, and to indicate the "participant" and "environmental elements" related to various processes [14]. Transitivity system is divided into six process types: material process, mental process, relational process, verbal process, behavioral process and existential process. The material process, focusing on "doing", is the process with the most changes in quantity and form in the transitivity system. A body of making movement is called "actor", and its behavior is called "goal". The other components describing the time, place, and method are environmental components. Mental process refers to the thought processes related to perception, cognition, and response, and its participants are "sensor" and "phenomenon". Relational process refers to the process of reflecting the relationship between different things, and is divided into modified type and identified type. Modified type refers to the attribute or belonging relationship of an entity, and its participants are "carrier" and "attribute"; while the function of the identified relational process is to identify one entity and another entity, and its participants are "identifier" and "identified". Verbal process refers to the process of communicating information through speaking. The participants of this process are "speaker", "receiver", and the content of the speech. Behavioral process is mainly identified semantically, distinguishing pure mental process from the external markers of this process. Usually there is only one participant, the "actor". The existential process indicates the existence of an entity. Generally speaking, "there" is the subject. There is only one participant in the existential process, that is, the being.

In the novel *The Sea Wolf*, because the "sea wolf" Larsen is driving a seal-hunting ship, there are many plots depicting people fighting with the seals. When the animal is in the position of object, most of them appear at the target position of the material process with human as the actor, and the material process often contains the meaning of abuse, for example:

(1) We traveled with it, ravaging and destroying, flinging the naked carcasses to the shark, and salting down the skins.

(2) The men, like butchers plying their trade, naked and red of arm and hand, hard at work with ripping- and flensing-knives, removing the skins from the pretty sea-creatures they had killed.

In the sentence (1) (2), the subjects or the agents are human. The animals are in the position of the object, and they are the recipients. In these language expressions, animals are characterized as non-behavioral creatures, just receivers of human's action.

If the animal appears in the subject's position, the transitivity process is often a relational process, a mental

process, or a behavioral process. In the relational process clause, animals and their rights are just ownership relation that should exist, but these rights are not actually enjoyed by animals. Most of the mental processes embody the sensory experience of human inflicting suffering on them. The behavioral process simply describes the behavior of animals. For example:

(3) They suffer less from being clubbed than from being all shot up.

(4) He ran awkwardly, but he ran well.....he had dived under the boat, seized the keel in his mouth, and was shaking the boat violently.

In sentence (3), it describes the psychological state of the seal when it was shot and clubbed. In the sentence (4), a series of actions of the seal are described. It can be seen that even if the animal is the subject, it does not occupy a dominant position. Through the analysis of transitivity process, we can conclude that animals are always exploited or conquered, and the ideology of anthropocentrism is still dominant.

4.2.2. Ergativity Analysis

Halliday points out that ergativity analysis is complementary to transitivity analysis [15]. Transitivity analysis and ergativity analysis have different semantic characteristics, different perspectives on the experience of construal, and different focuses [16]. Transitivity analysis focuses on the continuity and the actor of the process, while ergativity analysis focuses on causality and mediation. In the ergative system, the object of a transitive verb can serve as the subject of an intransitive verb. Ergative verbs are latent transitive verbs. They are non-objective verbs that are transformed from native causative verbs through non-causativization. Its agent is either invisible or serving as prepositional complement. The ergative system provides language users with another option. When describing the event, the language user can not only characterize the event from the agent's perspective, but also from the perspective of the patient, characterizing event as a spontaneous process. In the novel *The Sea Wolf*, some sentences use ergative structure to hide the agent, for example:

(5) Our seal-meat, cut in thin strips and hung in the smoke, cured excellently.

In this sentence, "cure" is used as an intransitive verb, and "seal-meat" is used as the subject of the sentence, which hides the true agent—human beings, emphasizing spontaneity in order to downplay the evil that human beings do to animals. It can be seen that ergativity analysis can reveal the ideology behind the ecological discourse.

4.2.3. Agency Analysis

Agency can be understood as the ability of people to act, but this ability to act is constrained by social structures, and in turn has an emphasis or reshape on social structures. Agency emphasizes the function and influence of actions or processes on things. The narrator generally constructs the basic plot through action descriptions. The narrator can describe himself as either an agent or a patient. The former takes responsibility for actions from the perspective of "what did I do", while the latter passively experiences what happens from the perspective of "what happened to me". Environmental discourse usually uses passive voice and ergative structure to hide the actor so as to avoid responsibility. The use of passive voice is the most common one, because in English, the essence of the grammatical meaning of the passive voice is agency. There are many typical sentences in *The Sea Wolf*, for example:

(6) The shark, a sixteen-footer, was hoisted up against the main-rigging.

(7) Its jaws were pried apart to their greatest extension, and a stout stake, sharpened at both ends, was so inserted that when the pries were removed the spread jaws were fixed upon it.

(8) They suffer less from being clubbed than from being all shot up.

Sentences (6) and (7) use passive voices to describe scenes where a shark is abused by sailors. The revenge of the sailors on the shark was cruel. However, the agent is not reflected in the sentence, and a series of action descriptions are used to divert the reader's attention and get rid of the human's responsibility. In sentence(8), "they" refers to the seals and no people is mentioned in the sentence. In the novel, seals can't escape the fate of being hunted by human beings, and they may die by beating or shooting. Human beings as the true agents are hidden in the sentence.

It is human's cruel behavior such as indiscriminate hunting that has led to the extinction of species and ecological damage. The fact that the agent is not reflected in the discourse allows people to achieve the purpose of getting rid of responsibility. Combined with examples, it can be seen that, in ecological discourse, agency can reveal the causal relationship between the potential agent and ecological destruction.

4.2.4. Grammatical Metaphor Analysis

The Systemic Functional Linguistic School, represented by Halliday, refers to sentences that are directly described in the natural order of the development of event as "congruent form". Sentences that metaphorize "congruent form" through grammatical transformation are called "non-congruent form". Grammatical metaphor in systemic functional linguistics refers to a metaphorical expression of meaning through non-congruent grammatical or lexical forms, involving different manifestations of the same meaning [17]. According to Halliday's systemic functional grammar, grammatical metaphor is mainly divided into two categories: ideational metaphors and interpersonal metaphors, while nominalization is an important manifestation of grammatical metaphor at the lexical and grammatical levels [18]. Ideational metaphor is to nominalize the processes and features that are originally expressed in verbs or adjectives in congruent grammar. Interpersonal metaphor is to nominalize modal verbs that are originally used in congruent grammar to express the speaker's mood and attitude. In the ecological discourses of *The Sea Wolf*, interpersonal metaphors are rarely used, and most are ideational metaphors. Ideational metaphor can also be divided into process nominalization (that is, nominalizing the process originally expressed by verbs) and feature nominalization (that is, nominalizing the features originally expressed by adjectives).

As far as nominalization is concerned, it can metaphorize a material process into a noun component, so as to hide the agent's crimes and achieve the purpose of evading responsibility. Such examples are common in this novel, for example:

(9) The boom, boom of guns, and pitiful slaughter through the long day.

The nominalized material process clause(9) can be reduced to "the hunter use the guns slaughter the seals through the long day". In the process of reduction, in order to meet the requirements of English grammar for qualifying clause, it is necessary to supplement the clause with actor or logical subject to complete the sentence. This can be seen as another

manifestation of the author's help to shirk human's responsibility.

In addition, nominalization creates a static world by turning verbs that represent processes into nouns, for example:

(10) Now and again we saw a sail lower, heard the reports of the shotguns.

The compound noun "shotguns" is used in the sentence (10). Accompanying the nominalization of material process at the lexical and grammatical level is a transition from dynamic to static at the semantic level. The original bloody scene of the brutal shooting of the seals is statically processed and only reflects through sound effects, which alleviates the human's responsibilities to some extent.

In ecological discourse, nominalization can also be used to hide the patient or victim, for example:

(11) After a good day's killing I have seen our decks covered with hides and bodies.

In the sentence (11), the use of the term "killing" hides the patient—seal, in order to reduce the direct description of human beings' cruel behavior.

4.2.5. Appraisal Analysis

Appraisal system is a sub-function of interpersonal function among the three metafunctions of language proposed by Halliday. It explores language expressions that are closely related to values. Appraisal systems provide lexical and grammatical resources for language users to express the meaning of evaluation. Stibbe believes that the significance of appraisal patterns in ecolinguistics is that it can influence people to make positive or negative evaluations of the environment [19]. Analyzing ecological discourse with appraisal analysis can reveal the ideology hidden in the context, showing the author's ecological consciousness and its manifestations.

In ecological discourse, people's evaluation of other species will show a certain pattern. Human beings hunting animals or treating animals unfairly under various excuses or reasons reflects the unequal status of human beings and animals, as well as the anthropocentrism: human beings have always been in the dominance and regard themselves as the highest-level animal, while other animals are being oppressed and dominated. In terms of language, animals are also characterized as being different from human beings and are inferior. In *The Sea Wolf*, there are many sentences derogating from animals, showing the opposite and unequal relationship between human beings and other animals, for example:

(12) I failed to mark anything preeminently pretty about those foamy-mouthed beasts that raced me.

(13) The sailors were singing and heaving in the offending monster.

(14) Through the dim smoke-haze the bunks looked like the sleeping-dens of animals in a menagerie.

(15) The group of hunters gave mouth to a laughter that sounded to me like a chorus of wolves.

(16) Thomas Muiridge is cur-like in his subjection to me.

In the clauses (12) and (13), "seals" is replaced by "beasts", and "shark" is replaced by "monster". London describes the seals as inferior beasts, which is a negative appraisal pattern. Since the protagonist of the novel was being chased by the seals at that time, this hurt his self-esteem, so he naturally chose negative words. The "sea wolf" Larsen and sailors also regard the shark as human's opponent and enemy, and try their best to deal with it, hoping to defeat and control it. In the clause (14), the different choices of the words "bunks" used by people to sleep and "dens" used by animals also reflect the

unequal treatment of people and animals. Comparing human's "bunks" to animals "dens" is ironic in the discourse. Animals and animal related items are naturally regarded as inferior things. In clauses (15) and (16), both "wolves" and "cur" are ironic in the sentence and refer to people scornfully as wolves and dogs. These metaphorical expressions reflect human negative evaluations of animals.

In addition, when language is used to characterize people and animals, the same vocabulary will have different appraisal meanings when used for people and animals. If the words describing abuse or hunting are applied to animals, they will at most only make people feel compassion for these animals, but if these words are applied to human, they will have cruel meaning, for example:

(17) The boom, boom of guns, and pitiful slaughter through the long day.

(18) They were capable of snapping a man off like a fly from a whiplash.

In the sentence (17), the word "slaughter" is generally used for animals, and will not have obvious appraisal meaning. Imagine that it would have "cruel" appraisal meaning if it is used for human beings. In the sentence (18), "snap" would be cruel if it is used for people, but people can accept it when it used for flies.

The Sea Wolf has made profound philosophical thoughts on human nature and the relationship between human beings and the ecological environment, but after careful analysis, we can find that anthropocentrism is still implicit in this novel. Anthropocentrism has always been promoted by Western Christian culture, regarding nature as the opposite of human beings and encouraging people conquer and transform nature. London often reflects the unequal status of human beings and animals in language, and we can see between the lines that the author downplays human's crimes against animals and reduces human's guilt.

5. Conclusion

Based on the analysis of transitive structure, ergative structure, agency analysis, grammatical metaphor and appraisal analysis under the theory of systemic functional linguistics, it can be seen that when Jack London is constructing the discourse of *The Sea Wolf*, on the one hand, he criticizes the anthropocentrism and ecological destruction, on the other hand, he also subconsciously weakens people's actions in destroying the ecological environment to extenuate the "crime" of people. Jack London has a certain ecological consciousness. In his works, he calls on people to return to nature and conform to the law of nature. But even so, he has not been able to break through the shackles of anthropocentrism. When choosing words for meaning, he is inevitably affected by the imperceptible influence of anthropocentrism, and he evades responsibility while criticizing humans for destroying the ecological environment. Although such lexical and grammatical choices are likely to be made by London unconsciously or subconsciously, this is indeed contrary to the author's original intention to call for humans to protect animals and the environment. Today, human beings are facing severe ecological contradictions and crises. It is of extraordinary significance to analyze the ecological discourse in *The Sea Wolf* with the help of the analysis framework of systemic functional linguistics. This

suggests that mankind should conform to the laws of nature, have awe for nature, and live in harmony with nature. The analysis of ecological discourse will help to change the irrational way of thinking and dealing with nature, and call for the goal of easing the ecological crisis and building an eco-friendly society by awakening human's ecological awareness.

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