

# A Contrastive Ecological Discourse Analysis Based on Theme System—Take Environmental Speeches from the US and UK as an Example

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**Abstract**—With the rapid development of economy, the ecological problems are becoming more serious. Ecolinguistics emerged jointly with the “ecological turn” [1] among numerous disciplines. The present research conducts a contrastive Ecological Discourse Analysis under the framework of Thematic Theory of Halliday, aiming to examine the thematic choices made in the environmental speeches from the US and UK and shed light on the implications of their respective ecological ideologies. Findings suggest that, a major part of the US’s theme selections is animated (46.4%), express a philosophy of “America first”, and therefore indicate the notion of “anthropocentrism.” More inanimate theme selections were made in the UK than in America (39.4% vs. 28.4%), showing that the British public are more considerate of their surroundings. Both nations have shown certain responsibility as economic powers in the face of serious environmental problems.

**Index Terms**—Ecosophy and ideology, Ecological Discourse Analysis (EDA), political speeches, theme system

## I. INTRODUCTION

Global environmental problems have become increasingly serious since the 1960s and 1970s, and ecolinguistics—which is subdivided into the Haugenian and Hallidayan approaches [2]—has emerged as a popular field of research for many linguists. The ecological ideologies that people uphold are revealed through discourse and have a non-negligible impact on the ecological environment in different ways [3, 4]. Ecological Discourse Analysis focuses its research on the potential functions played by language in influencing ecosystems [5, 6] and decodes the ecological implications embedded in discourse. Although Ecological Discourse Analysis (EDA) has been used in recent years to analyze different discourses [7–9], there is still a significant gap in the political discourse which will be studied in this research.

The ecological discourse contained in political speeches is an official representation of ecological attitudes and takes on the important responsibility of conveying the ecological ideologies and behaviors of the country to the world [10, 11]. Thus, Ecological Discourse Analysis of their speeches plays an irreplaceable role in protecting the ecological environment and shaping people’s mind. From an ecological standpoint, it is possible to examine national attitudes toward global public concerns about ecological issues and to gain insight into what kind of ecological concepts permeate the ideology of each country [12].

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In view of this, this study analyzes the corpus from the perspective of ecolinguistics, using the theoretical framework of the Theme System in SFL for ecological interpretation. The current research selects five representative major conference speeches from each of the UK and the US in 2021–2022. Given that the United Kingdom and the United States represent the leading nations of the first and second industrial revolutions, respectively, there is something to study in the attitudes of the two countries toward ecology, providing experience and lessons for China to better implement ecological policies.

## II. THEORETICAL BASIS

### A. Theme and Rheme

In Systemic Functional Linguistics, Halliday [13] introduces that language can realize three meta functions simultaneously—Ideational Function, Interpersonal Function and Textual Function, among which Textual Function means that language can be used to organize information. Theme-rheme theory is one main part out of three. The theme is “the element which serves as the point of departure of the message; it is that with which the clause is concerned”, and the remainder of the message is called a rheme [13].

From different perspectives, Halliday [13] categorizes the theme into several groups, that is, “Simple Theme”, “Multiple Theme” and “Clause as Theme”. Also, Halliday suggests that there are “Marked Theme” and “Unmarked Theme” based on the mood and information structure [14].

### B. Thematic Structure from the Perspective of EDA

The current study intends to adopt Halliday’s Theme system as the main theoretical framework, combined with He’s modification based on EDA principles [15]. In Halliday’s Theme system, Theme goes up to and includes the first experiential element that is either participant, circumstance, or process. Whereas a participant in thematic structure serves as a “topic”, he refers to the experiential element in the Theme as the Topical Theme [13]. However, Ma & He suggests that the circumstances cannot be Theme on its own, for the reason that the fronted circumstance is only attendant on the process and not obligatory [16]. Therefore, in EDA, the Topical Theme here should be considered as the first participant or process combined with the circumstantial fact [15].

### C. The Ecosophy of “Diversity and Harmony, Interaction and Co-existence”

Ecosophy is an important guiding ideology of EDA [9] and an ecological evaluation standard to be upheld in the process

of Ecological Discourse Analysis. Based on Chinese traditional Confucianism and deep thinking of international relations, He & Wei proposed the ecosophy of “Diversity and Harmony, Interaction and Co-existence” to analyze international ecological discourse [17]. The 4-word ecosophy “reflects the natural ecosystem and social benign operating mechanism characteristics of the ecological system” [18]. As a guidance to conduct Ecological Discourse Analysis, “Diversity and Harmony, Interaction and Co-existence” provides a suitable ideology for the research of political speeches concerning ecology under the international circumstances.

In discourse, different choice of Theme can show varying starting points for a message and the ecological ideologies inside. Arran Stubbe classifies discourse into three categories based on the meaning and its correspondence with the ecosophy—beneficial, ambivalent, and destructive [19]. If the message that the thematic choice corresponds to the ecology, it is beneficial. If the meaning of the topical theme counters the ecosophy, it is destructive. If the choice neither corresponds to nor oppose the ecosophy, then it is ambivalent. Since the goal of EDA is to examine the extent to which different topical themes can impact on the ecosystem and how the implications under the message can influence the interrelationships between nations from a social ecological perspective, the practical procedures should take Rheme and other context into consideration for the analysis of its ecological characteristics and implications.

### III. RESEARCH DESIGN AND METHODOLOGY

#### A. Research Questions

Guided by the ecosophy [17], based on the Theme System proposed by Halliday with the modification of qualitative analysis in thematic framework [13], the present research intends to answer the following two questions:

(1) What are the similarities and differences of the ecological characteristics of the thematic choices in the US’s and UK’s environmental speeches?

(2) What implications can the two countries’ thematic choices have on the natural environment and international relations?

#### B. Data Collection

In this paper, two developed countries, the United Kingdom and the United States, are selected to study the use of thematic system in the speeches of these two countries and make a comparative ecological analysis. They were the leading countries in the first and second industrial revolutions respectively. While developing the economy, they also had a considerable impact on the global ecological environment. In the context of the global trend to pay more attention to the environment, it is helpful to study the relevant speeches of the speakers of the two countries to update people’s stereotypes and better understand the attitudes of the developed countries in the field of ecology.

In terms of specific corpus, the current study selected five environment-related speeches delivered by representatives of the UK and the US at major events in 2021–2022 respectively, with a total of 10 pieces of discourse. The speech materials of the American representative come from the official website

<https://china.usembassy-china.org.cn>, whereas those of the British representative come from the official website of the British government [www.gov.uk/government](http://www.gov.uk/government). For the convenience of the following analysis, I use “the AES dataset” and “the BES dataset” to refer to the two groups of corpus.

#### C. Research Methods

The current study combines quantitative and qualitative approaches to conduct a contrastive Ecological Discourse Analysis.

In the quantitative research, the overall Topical Theme of each clause is automatically selected and identified by the basic three categories—participant Theme, process Theme, and circumstantial Theme based on Halliday’s Thematic System. Since most message comes from the topical Theme, and most selected speeches are composed of declarative and interrogative clauses, more than 99% of the Topical Themes contain a participant Theme [15], the focus of the quantitative analysis is on the distribution and ecological interpretation of the selected participant Themes.

In the qualitative approach, these participant Themes are classified into different types according to the intrinsic differentiation behind them. Based on the ecological judgement of the ecosophy mentioned above, each participant Theme is examined as either delivering a beneficial, ambivalent or destructive meaning in the clause. Since the full meaning of a clause is conveyed by Theme - Rheme and the surrounding contexts together, the qualitative analysis need to take all the factors into consideration.

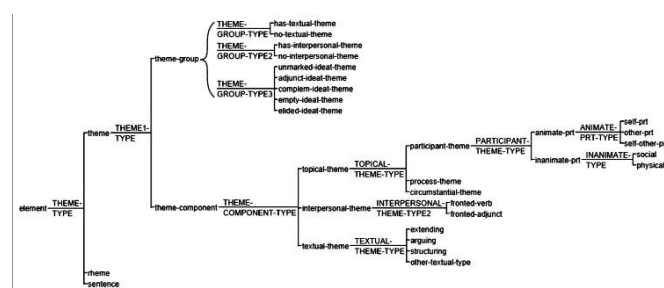


Fig. 1. Thematic framework in ecological linguistics.

### IV. RESULTS AND DISCUSSION

This section mainly contains two parts: the first one is the overall results of the quantitative analysis of four types of Participant Themes in a broad way, and the second one shows the results of the separate parts and illustrative examples of the particular qualitative analysis of several distinct thematic choices and their ecological implications by contrasting with each other.

Since there are some distinction between theme-group and theme-component, and our focus is on theme that contains only single element, here we select theme-component as the main object in this research. For the sub-category of theme-component, the frequencies of each dataset is 487 (AES) and 610 (BES), with the proportion of 56.4% and 54.3% separately. Table I illustrates the distribution of each category in the Topical Theme type, which is the focus of the current research.

TABLE I: THE DISTRIBUTION OF TOPICAL THEME TYPE

Topical-Theme Type	Texts/AES.txt		Texts/BES.txt	
	N	%	N	%
participant-theme	309	76.3	383	74.4
process-theme	20	4.9	21	4.1
Circumstantial-theme	73	18.0	104	20.2
TOTAL	402	99.3%	508	98.6%

A. The Overall Results of the Distribution of Thematic Choices

The present study examined and classified the contents of the participant Themes into two main sub-types—the Animate Theme and the Inanimate Theme. The frequencies proportions of each Theme types in the AES dataset and the BES dataset are presented in Table II.

TABLE II: OVERALL DISTRIBUTION OF PARTICIPANT THEME

Participant Theme Type	AES.txt		BES.txt		Comparison		
	N	%	N	%	ChiSqu	P	Signif
Animate-prt	188	48.4	174	33.8	15.16	0.0001	+++
Inanimate-prt	115	28.4	203	39.4	12.18	0.0005	+++
TOTAL	303	74.8	377	73.3			

As can be seen in Table II, through horizontal comparison, we find that the number of animate-PRT in AES database is more, 188 times, accounting for 46.4% of the total number. However, animate-PRT in the BES database accounted for a relatively small number of animate Themes, appearing 174 times, accounting for 33.8% of all topical themes. In the category of inanimate-PRT, the proportion of inanimate-PRT in the BES database is more than 10% higher than that in AES. By vertical observation, in AES dataset, the proportion of animate-PRT (46.4%) was nearly twice that of inanimate-part (28.4%), but the distribution in BES dataset was different: the proportion of animate-PRT (33.8%) was lower than that of inanimate-PRT (39.4%), showing a similar proportion on the whole.

Through close reading and analysis of the ecological text of political speech content, it is found that the choice of the Participant Role Theme in speech discourse reflects the speaker’s discernment of the interaction of various ecological factors in a specific ecosystem, which has a certain ecological orientation [15]. In the BES database, the spokesman takes inanimate-PRT as the starting point of discourse more, indicating that the speaker pays more attention to ecological elements other than human beings and the discourse embodied stronger ecology implications, either beneficial or destructive. In the AES database, the proportion of animate ecological factors is larger, which indicates that the speaker in AES discourse focuses more on human beings, reflecting a certain tendency of “anthropocentrism” ideology to some extent.

B. The Implication of Animate Thematic Choices

In the sub-category of animate-PRT, three different types are further identified and classified according to the particular side these Themes refer to, that is, the self-PRT (namely

America or the UK, depending on which side the spokesman is representing), the other-PRT (namely the participants who are seen as “the other side” or countries other than their own), and the self-other-PRT (namely the whole participants including the self side and the other side as a unity). The detailed distribution is as follows in Table III.

TABLE III: DISTRIBUTION OF ANIMATE THEME TYPE

Animate-PRT Type	AES.txt		BES.txt		Comparison		
	N	%	N	%	ChiSqu	P	Signif
self-prt	102	25.2	94	18.3	6.50	0.0108	+++
other-prt	30	7.4	30	5.8	0.93	0.3346	
Self-other-prt	56	13.8	50	9.7	3.77	0.0521	+
Total	188	46.4	33.8				

The AES and BES dataset share some similarities in the overall proportion of the animate-PRT. Firstly, the majority of participants took their own side (self-PRT) as the Theme, accounting for 25.2% and 18.3% of the total respectively. Secondly, the occurrence frequency of other-PRT and self-other-PRT is similar in the two databases. The occurrence frequency of self-other-PRT was higher, both of which are 50 times or more, accounting for 13.8% and 9.7% respectively, while the occurrence frequency of other-PRT is the same, both of which are 30 times. However, according to the chart presented on the right side, the self-PRT in both datasets have significant difference.

1) Thematic representation of the self-PRT theme

Here, we mainly focus on the thematic representation of the Self-PRT, so as to see the salient distinction between the two databases. In our daily impression, international speech should be neutral, without any prejudice. As spokesmen, using the self-Themes is not only to organize the clause to continue talking about the speaker’s own side of opinions concerning how their party or countries think and act, without delivering any hidden ideology corresponding to or against the ecosophy [11], but also to objectively describe the work done in the past, the projects being carried out and the ecological goals to be achieved in the future by the country they represent.

Most of the self-PRT in both AES and BES dataset show an ambivalent implication according to the ecosophy. However, in term of the differences, I discovered that apart from the two functions that this type of themes can realize, there is one more implication that shown in the AES dataset. Here is an example selected from the AES database to illustrate the destructive use of the self-PRT type of Theme:

Example (1):

So I urge these countries ... to strengthen their targets for COP27. (The AES dataset)

In Example (1), the speaker uses the conjunctive word “So” as the starting point as the link to the above text, and then he uses the first person singular “I” (which refers to his one and only identity as the president of the United States) as the participant Theme to be the Subject of the clause. Here the implication of the whole clause seems to be that “as the American leader, also the global leader in important affairs, I

urge all other countries to follow the guidance of the US and then protect our environment”. Such use of Theme is against the ecosophy and is examined as destructive to international relations.

Example (2):

In 2019 the UK became the first major economy in the world to legislate to reach net zero emissions by 2050. (the BES dataset)

Example (2) presents how the British spokesman, on the contrary, make use of the self-PRT Theme. It is clearly that the Participant Theme “the UK” functions as the Subject of the clause, and the idea being delivered is about what the UK has done before to make the commitment of realizing the emission goal, which is an international environmental project beneficial to the ecosystem. Although the spokesman objectively states the action that they have done before, it has a good influence to lead the way for the rest of the world. Hence, here the self-PRT Theme can be identified as a beneficial Thematic choice.

### 2) Thematic representation of the other-PRT theme

Both of this type used for referring to the other side except their own countries ranked third among all the animate-PRT type. From the detailed identifications of the content of the two databases, most show an ambivalent ecological implication whereas some of them convey destructive meaning towards other countries, only several expressions convey beneficial meaning towards the others. Since the selected two countries are both developed countries, how they construe other poorer nations and people is partly influenced by their character of their states.

Example (3):

**Russia’s brutal and unprovoked assault** on its neighbor, Ukraine, has fueled a global energy crisis... (the AES dataset)

Example (4):

So poorer urban communities aren’t just disadvantaged economically: they are also disadvantaged environmentally. (the BES dataset)

In Example (3), the participant Theme “Russia’s brutal and unprovoked assault” functions as the Actor of “has fueled a global energy crisis...”, which implies the spokesman’s blame on Russia’s assault on Ukraine for polluting the environment of the whole world, regardless of other potential and essential factors that may be the larger reason of the pollution. In Example (4), the speaker points out the present state of the poorer urban communities and objectively, if taking the following text into account, the representative of the UK shows a friendly and enthusiastic attitude towards poorer communities, which to some extent is beneficial to international relations.

### 3) Thematic representation of the self-other-PRT theme

The Self-Other-PRT type is used to represent the community of the speaker’s own side and other groups of people and communities [11]. In these two datasets, the most frequent use under this category are “we”, “Folks”, “everyone”, “the world” and “our nations”. Through making use of this kind of expressions in the speeches, the speakers convey a beneficial intention of “being a unity as a group of members” and try to narrow the psychological distance between the speaker and the listener, raising emotional

resonance on common affairs.

In the speeches of both databases, the frequencies of the “we” type are similar, which suggests that in both countries, the spokesmen have the tendency to connect with audiences emotionally and attempt to call for the whole world to pay attention to the environmental issue with the intention of raising their international influence.

Example (5):

And if we all commit to doing our part, we’ll get it done. (the AES dataset)

Example (6):

**“We** are on the highway to climate hell with our foot still on the accelerator”. (the BES dataset)

In Example (5) “we” is taken as the participant Theme to refer to all nations around the world. It implies the spokesman’s vision for the future that everyone in the globe try their best to do their part, and the environment and the ecosystem in the future will be much better. Example (6) is a quote from the UN Secretary General in the British spokesman’s speech. It points out that everyone on this planet is suffer from the consequence of the rapid climate change, which is urgent and we have to do something to prevent it, indirectly calling for others to take actions. Both of the expressions are beneficial for the cooperation in the international ecological affairs.

### C. The Implication of Inanimate Thematic Choices

In the sub-category of inanimate-PRT, two different types are further classified according to the particular side these Themes refer to, that is, the social-PRT (namely organizations, policies and other social factors related to environmental issues), the physical-PRT (namely environmental problems, climate problems and natural disasters which are derived from nature and cannot be interfered by man). The detailed distribution is in Table IV.

TABLE IV: THE DISTRIBUTION OF INANIMATE THEME TYPE

Inanimate-PRT Type	AES.txt		BES.txt		Comparison		
	N	%	N	%	ChiSqu	P	Signif
social-prt	80	19.8	146	28.3	9.04	0.0028	+++
physical-prt	35	8.6	57	11.1	1.48	0.2234	
TOTAL	115	28.4	203	39.4			

From the perspective of individual distribution, both databases pay more attention to the construction of the social-PRT Themes, whereas the emphasis on the physical-PRT Themes needs to be strengthened. From what we have defined earlier in the above text, the social factors mainly refers to the policies, regulations and organizations concerning ecological issues, whereas the physical elements refers to the natural disasters and environmental changes that cannot be manually influenced. It can be seen clearly that both the US and the UK attach great importance to ecological policy construction, with time spanning from the past to the future.

However, according to He and Ma, when creating natural ecological discourse, people should consciously improve their attention to and perception of organic living entities

other than human beings and inorganic natural environment, and try to choose non-human living entities and participants of physical elements as Topical Themes [15]. The more thematic subjects of such topical Themes, the stronger the ecology of discourse will be. In terms of the total number of inanimate Themes, the number of inanimate ones in the

BES dataset is significantly higher than that in AES, nearly two times (203 vs. 115). From this set of data comparison, we can see that the ecology of the BES speech texts is stronger. Here are some examples to illustrate to what extent the ecological implication of inanimate -PRT Themes can convey to us.

Example (7):

**The project** we are facilitating is built on transparency, partnership, the protections for workers and the environment. (the AES dataset, social-PRT)

Example (8):

**And the best interventions** for climate change do both mitigate its future extent and adapt to its impacts. (the BES dataset, social-PRT)

Example (9):

**Record heat and drought** are fueling more widespread and more intense wildfires... (the AES dataset, physical-PRT)

Example (10):

**Climate-related disasters** have nearly doubled compared to the preceding 20 years. (the BES dataset, physical-PRT)

In Examples (7) and (8), both of the social-PRT themes “The project” and “the best interventions” refer to solutions and measures proposed according to the ecological environment, which indicates that in the face of the current severe environmental situation, representatives of the two countries are willing to cooperate with the international community and jointly safeguard the homeland of mankind, thus delivering a kind of beneficial ecological implication. Examples (9) and (10), using “Record heat and drought” and “Climate-related disasters” as Topical Themes to describe the serious impact of a series of climate disasters, such as rising temperature, flood, drought that human beings are experiencing at present from the perspective of non-living physical elements, successfully raising people’s ardent concern for protecting the environment.

## V. CONCLUSIONS

This study mainly focuses on the ecological features of the thematic choices in the US and the UK’s relevant ecological speeches from 2021 to 2022, with the goal of examining the similarities and differences between these two countries’ thematic choices and the ecological implications conveyed by the deep meaning inside the speech discourse. Under the guidance of the ecosophy, distinct features of different thematic choices are therefore presented clearly.

With the combination of both quantitative and qualitative approaches, the overall result shows that in the BES dataset, the spokesman takes inanimate Themes as the starting point of discourse more, indicating that the speaker pays more attention to ecological factors other than human beings and the discourse embodied stronger ecology implications. In the

AES database, the proportion of animate ecological factors is larger, suggesting that the US speaker focuses more on human beings, reflecting a tendency of “anthropocentrism” ideology. Both Britain and America use self-Theme to state opinions and orient the following speeches, however, there is one salient distinction between the two countries, that is, the US shows an ideology that “America first” and a tendency to be the global leader, which is destructive to the international relationships. The result in Self-other type of Themes turns out to be unsurprisingly similar. Both countries use this kind of Themes to deliver an opinion that “we are one” in the whole world, which encourages the common effort to protect the ecosystem. From the adoption of the inanimate type of Themes, we can clearly see that Britain conveys more beneficial ecological views compared with the US, for the reason that the British side uses more inhuman and natural Themes, which suggests that they focus more on the surrounding environment.

The current research has some limitations. First, the corpora are too small for conducting an empirical research. Second, in the quantitative step, due to the lack of practical experience, there was data missing or omission in the process of corpus processing. Third, the analysis of the ecological orientation of each clause is subjective. In future research, the opinions of others should be referred to, so as to avoid too many subjective opinions. Besides, this study only focuses on the ecological implications of Participant Theme, other types of Themes should also be taken into consideration.

This research enriches the empirical study of EDA and thematic research in discourse analysis in the international context. The representatives of every nation has the power of shaping people’s mind and ideology in a broad way, and their choices of words can have much impact on the international relationships and the natural environment. Therefore, it is of key significance to deliver a beneficial form of language and against the use of destructive ones.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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