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## Constructing Nature through Artificial Intelligence: An Eco-Semantic Discourse Study of Gemini and DeepSeek

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### Abstract

As artificial intelligence (AI) became increasingly integrated into environmental discourse, its role in shaping public perceptions of nature and human-environment relationships warranted closer examination (Stibbe, 2015). This research explored how AI systems, specifically Gemini and DeepSeek, generated environmental texts and whether they reflected anthropocentric or ecocentric ideologies. Using the Eco-Semantic Discourse Analysis (ESDA) approach, grounded in Stibbe's (2015) Environmental Discourse Analysis (ECDA) framework, this study examined the lexical choices, metaphors, agency assignments, and ideological positioning employed by both AI models. By analysing their first responses to environmental prompts, the study identified how these systems construct the concept of "nature". The findings revealed that DeepSeek fluctuates between anthropocentric and ecocentric orientations, while Gemini consistently maintained an ecocentric stance, framing nature as an active participant in ecological processes. This study contributes to the growing field of ecolinguistics and AI discourse analysis by highlighting how AI-generated content can reinforce or challenge environmental ideologies, thereby shaping public understanding of ecological issues. However, ecological biases in AI systems raise ethical concerns about the fairness and accuracy of such narratives, necessitating further scrutiny and improvement in AI design for more balanced environmental communication.

**Keywords:** Anthropocentrism, ecocentrism, AI-generated discourse, environmental discourse, ecolinguistics,

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## Introduction

The influence of artificial intelligence (AI) on the development of environmental discourse is gaining more importance as the field of its application pervades different spheres of our lives (Bhatnagar & Sharma, 2021). The language that is produced by the AI, in particular, regarding environmental concerns, can cause people to have a different perception and understanding of nature (Binns & McKinnon, 2020). This study examines how AI systems (Gemini and DeepSeek) create and provide environmental narratives, centring on the human-nature relationship. Studying with an eco-linguistic prism, this paper will examine how AI-generated texts on the environment either reinforce or challenge anthropocentrism, the belief that humans are the primary agents in ecological systems, or further ecocentrism, which looks at nature as an active, intrinsic entity that requires ethical treatment (Stibbe, 2015).

## Research objectives and questions

The main aims of the study are to discuss how these AI systems represent nature and human-nature relationships by analysing their lexical choices, metaphors, agency assignments and ideological positioning. By comparing the linguistic strategies used by Gemini and DeepSeek, the study aims to uncover underlying ecological ideologies and explore the extent to which each system aligns with either anthropocentrism or ecocentrism.

The research questions guiding this inquiry are: To what extent do AI-generated environmental texts employ anthropocentric versus ecocentric discursive strategies (lexical choices, metaphors, agency assignments and ideological positioning), and how do these vary across the two AI systems?

## Significance of the study

This study is important as it contributes to both ecolinguistics and AI discourse analysis. Whereas past research has explored the bias in AI as a phenomenon of gender, race, and social concerns, the bias of AI-generated materials concerning environmental concerns is under-researched (Anderson & Levis, 2021). The

proposed study will address this gap by applying the Environmental Discourse Analysis (ECDA) by Stibbe (2015) and the Eco-Semantic Discourse Analysis approach to understand how AI systems produce environmental discourse in the first responses, which represent human-centred or nature-centred worldviews. By solving this problem, it will be possible to demonstrate in the context of the study how the use of AI-based environmental texts can influence the perception of the public and provide some understanding of how such systems can be improved in developing to promote a more ecologically aware discourse (Van der Merwe & Richter, 2019).

## Literature Review

Language is not simply a means of describing ecological reality; it makes it. Stibbe (2015) grounds the rationale in the fact that environmental discourse holds the stories we live by that ultimately influence the dynamics of the human-nature relationship. To support it further, Fill and Muhler (2001) emphasise that the use of ecological language is inherently ideological and tends to show prejudice against human beings and non-human beings. Taken collectively, these research findings indicate that the linguistic framing, including metaphors, agency circulation, and evaluative stance, not only reflect ecological beliefs; on the contrary, they proactively shape them.

Essentially, ecolinguistic research has demonstrated that eco-discursive practices endorse anthropocentric tendencies. Nevertheless, Halliday (1990) observes that the existence of lexical condensation and conceptual abstraction masks the responsibility of humans, thus portraying ecological destruction as natural and imminent events. Goatly (2002) goes on further to describe this by showing how metaphors like capitals, administration, or utility, these linguistic patterns define nature as a passive agent and serviceable. Similarly, Muhler (2003) also notes that ecological systems tend to be placed as an object of human control in environmental terms. Combined, these studies show that anthropocentrism acts by repetitive

linguistic and representational decisions.

These tendencies are followed in contemporary environmental communication. Building on it, [Alexander \(2020\)](#) notes that even educational curriculum school textbooks constantly predetermine humans and place human beings in the role of actors and push the ecosystems to the sidelines, which facilitates the anthropocentric worldview. [Fownes \(2018\)](#) supports this perception by demonstrating that governmental institutions and businesses are centred in the coverage of climate change, and ecological agency is entirely eliminated. Moreover, Nerlich and [Koteyko \(2010\)](#) remark that the discussion of climate relies on the use of administrative metaphors that depict nature as something that can be controlled. Collectively, these discussions demonstrate that even the texts that seem to be environmentally friendly nothing but replicate the ideologies of man to man.

Systemic functional linguistics and ecolinguistics provide powerful analytical instruments in order to study such tendencies in a systematic way. The Environmental Discourse Analysis by [Stibbe \(2015\)](#) evaluates the presence of ecological participants who are either taken out or placed in the centre of the texts. In contrast, the model of transitivity of Halliday and [Matthiessen \(2014\)](#) demonstrates who is depicted as the actor and who is the object of action. Even though they are usually applicable in the analysis of mass communication, regulations, and pedagogical discourse, none of the models has been systematically applied to machine-generated ecological discourse.

The importance of filling this gap is highlighted in related research on AI bias. Word embeddings tend to exhibit anthropomorphic patterns following this, and these patterns exist in the training corpora ([Caliskan et al, 2017](#)). Nevertheless, [Bender et al. \(2021\)](#) also prove that NLP models definitely circulate assertive beliefs like social, cultural, and epistemological, which are already inculcated in the data from which they learn. In the same way, [Blodgett et al. \(2020\)](#) also demonstrate that language models

reinforce the opinion and ignore the counter-narratives. These researchers pay much attention to the categories of society (gender category, racial group, and politics) and totally neglect environmental bias, which demonstrates the use of language by AI to depict nature, and it is still not investigated.

Studies are still insufficient as few researchers are heedful of AI in ecological communication. Current research is on fabrication, risk framing, or the ecological footprint of AI inventions ([Leung et al., 2020](#)), rather than the linguistic structures that artificial intelligence uses when discussing environmental risks. Meanwhile, AI efforts on interaction shapes show that the initial reaction of the model discloses its genuine ideological incompetencies before the direction of any user interaction ([West et al., 2019](#); [Santurkar et al., 2023](#)). This is a very dangerous vision since, when the AI models internalise an anthropocentric perspective, then such a disposition will primarily be found in their immediate, uncoded ecological explanations.

Collectively, all these extant literature points to a succinct yet significant gap in that ecolinguistics has long been concerned with anthropocentric biases behind human generated discourse, and AI study confirms that such AI language models mirror ingrained ideologies, no as such published work has examined whether AI discourse exhibits anthropocentric trends in its initial, spontaneous ecological reactions with the aid of ecolinguistics and SFL-based software. In order to fill these gaps, the study in question uses [Stibbe's \(2015\)](#) ecolinguistics model as its theoretical framework and operationalises it through an Eco-Semantic Discourse Analytical approach. It is used to study how AI systems linguistically represent environmental issues. ESDA makes it possible to trace lexically, agency, metaphor, and ideology systematically, and through the analysis, one can learn whether, first, unprompted responses provided by AI models entail ecocentric or anthropocentric stories we live by. Such a theoretical-analytical stance places the study in a position to offer a

new understanding of the role that AI systems play in the ecological meaning-making process.

### Methodology

This paper will take a qualitative, comparative discourse analysis design based on ecolinguistics and guided by the ecolinguistics model proposed by Stibbe. The main concern is to understand the way that AI systems linguistically create environmental meaning, and how their initial answers can re-tell anthropocentric or ecocentric stories that we live by (Stibbe, 2015) in two systems, such as DeepSeek and Gemini. The comparison will highlight anthropocentric versus ecocentric discursive practices based on lexical decisions, metaphors, and agency attributions to determine how such AI systems interact with environmental discourse. This method is interpretive in nature, and it seeks to reveal the hidden environmental ideologies within the texts it generates as opposed to making statistical generalisations.

### Analytical Framework

This analysis is based on the Ecolinguistic Framework of Stibbe, *Stories We Live By* (2015), which analyses how language shapes and influences ecological cognition of nature and human-environment interactions. The study adopts an eco-semantic discourse-analytical orientation, which is not used as a pre-existing conventional model, but rather as an analytic procedure developed for this research and grounded in Stibbe's (2015) ecolinguistics and ecological semantic studies (Goatly, 2002; Fill & Mühlhäusler, 2001; Nerlich & Koteyko, 2010). This analytical approach reveals patterns of anthropocentrism and ecocentrism by observing lexical choices, metaphors, and agency assignments in environmental language. This hybrid methodology enables one to understand the narrative of AI-generated discourse and how it creates the human-nature relationship in detail, exposing implicit environmental ideologies.

### Data Collection

The corpus will be based on DeepSeek-generated AI responses of environmental texts,

as well as Gemini, where a particular focus will be put on 5 specially designed environmental prompts. The AI systems were identified on the basis of their popularity and application in creating content in a variety of subjects, such as environmental discourse. To best describe the default ideology of the models, the first answer to each prompt, without any form of further instruction or restatement, was captured. These reactions are examined in terms of the way they create the nature and human-nature relationship. These hints were aimed at getting environmental explanations without making the model ideologically oriented.

### Prompts

All 5 prompts are well structured to elicit answers that capture the various facets of environmental discourse, including human influence, nature preservation, and the interdependence of ecology. Sample prompts include coding:

- P1. Describe the role of forests in mitigating climate change.
- P2. What are the ethical implications of deforestation?
- P3. Explain the concept of biodiversity and its importance to ecosystems.
- P4. How can humans live in harmony with nature?
- P5. What is the relationship between human activity and the destruction of coral reefs?

Coherence, accuracy, and compliance with ecolinguistics principles will be evaluated in the quality of the AI responses we received, in terms of consistency, nuance, and ideological changes in the depiction of nature.

### Procedure

The responses produced by AI in DeepSeek and Gemini will be analysed in a stratified way. First, the lexical decisions based on verbs, nouns, and adjectives will be coded to define their ideological orientation, i.e., whether nature is depicted as an active subject or a resource in accordance with human priorities. Then, metaphors will be identified and sorted out to distinguish dominant framings, e.g., nature-as-agent, nature-as-system, or nature-as-resource.

Agency patterns will also be studied to see the role of human and non-human actors, goals, and any erased actors to determine the distribution of responsibility and ecological power linguistically. Lastly, the ideological positioning will be examined to understand how each AI system positions itself on the issue of environmental issues, to check whether its responses are more ecocentric or anthropocentric.

The comparative tables of such analytical decisions of each AI system will be recorded, allowing systematic cross-model interpretation. This process will be kept within the context of how linguistic patterns are either brought to the foreground or background of ecological agency, and whether the answers strengthen ecocentric or anthropocentric accounts. This will give a clue of how the various AI systems build human-nature relations and whether it is a more anthropocentric or ecocentric ideology.

### Trustworthiness and Rigour

To establish rigour, the analysis will be conducted through triangulation by comparing the results of analysing five responses produced by each of the two AI systems. All the cases of lexical decisions, metaphors, agency and ideology will be coded and divided into categories according to transparent coding methods, and representative cases will be extracted and put in tables. Also, a second coder will check the categorisations and linguistic analysis in order to increase reliability and make the process of analysis consistent and correct. The researcher admits that their personal attitudes to nature and environmental problems can affect the interpretation of the AI-generated texts, yet this will be eliminated by attempting to reduce the effect of bias using systematic coding.

### Analysis

In this section, Eco-Semantic Discourse Analysis (ESDA) of environmental discourse produced by DeepSeek and Gemini is done to identify the ideological patterns inherent in their initial responses. The analysis is a systematic exploration of how each system defines the human-nature relationship using lexical

decisions, metaphorical constructions, agency assignments, and ideology placement, as presented by [Stibbe \(2015\)](#) in his Ecolinguistics Framework. Since the first outputs represent the least-mediated worldview of the models, these patterns provide a direct view of the ecological stories that each system recreates. As analysed below, nature is either presented as an inert object in the human systems or presented as active, as a part of ecological processes.

### 1. Lexicalisation Patterns

Lexical decisions, verbs, nouns, adjectives, etc., play a critical role in depicting nature as an active participant (ecocentric) or a passive resource (anthropocentric) in the ecological process. The breakdown below examines the lexical patterns that are present in DeepSeek and Gemini responses to different prompts.

#### DeepSeek Responses: Table ([Annexure B](#))

DeepSeek has a conflicted ecological position between ecocentric verbs (act, restore, respect) and anthropocentric frames (causes, destroys, resources). Its nouns swing between an ecological perspective (biodiversity, resilience) and humanistic terminology (capital, rights). Terms like resilient and sustainable are used to indicate ecocentrism; however, degraded and fatal are used to support vulnerability based on human influence. On the whole, the lexicalisation of DeepSeek is ideologically disjointed, alternating between nature-as-agent and nature-as-object.

#### Gemini Responses

Prompt	Verbs	Nouns	Adjectives
P1	Absorb, sequester, regulate (ecocentric)	Carbon sink, biodiversity, sequestration (ecocentric)	Critical, vital, irreplaceable (ecocentric)
P2	Violates, robs, destroys (anthropocentric)	Land rights, social justice, biocentrism (human & nature moral focus)	Intrinsically valuable, social, unjust (ecocentric)
P3	Ensure, support, sustain (ecocentric)	Ecosystem services, resilience, sustainability (ecocentric)	Resilient, vibrant, critical (ecocentric)
P4	Minimise, respect, conserve	Sustainability, conservation,	Harmonious, sustainable,



	(ecocentric)	regenerative practices (ecocentric)	ecologically balanced (ecocentric)
P5	Causes, accelerates, damages (anthropocentric)	Coral bleaching, pollution, ecosystem destruction (anthropocentric)	Irreversible, severe, unavoidable (ecocentric)

Gemini exhibits ecocentric orientation invariably, and verbs such as absorb, sustain, and conserve emphasise ecological agency. Its nouns (carbon sink, ecosystem services, resilience, regeneration) preempt systemic environmental processes, instead of human utility. Such adjectives as irreplaceable, harmonious, and ecologically balanced promote an inherent ecological value. Gemini has an ecological worldview that is unperturbed by anthropocentric intrusion across all prompts.

#### Comparative Analysis of Lexical Choices: Table (Annexure C)

DeepSeek has a mixed lexical orientation across the five prompts: the verbs move between ecocentric (act, restore, enhance) and anthropocentric markers of harm (causes, destroys), whereas the nouns move between ecological values (biodiversity, resilience) and human-centred terms of resource (capital, rights). This leads to an ideologically non-coherent depiction of the nature, alternation of agentic and passive roles. By comparison, Gemini demonstrates a steady ecocentric lexical profile with the use of absorb, sustain, and conserve as verbs, carbon sink and ecosystem services as ecological nouns, and irreplaceable and ecologically balanced as adjectives. On the whole, Gemini has a stable ecological worldview, whereas DeepSeek is in between ecocentric and anthropocentric framings.

## 2. Metaphoric and Conceptual Framing

Metaphors play an important role in shaping the role of nature in the discourse on the environment. With references to such metaphors as nature as a resource, nature as a victim, and nature as a partner, these AI systems influence the image of nature and its worth.

#### DeepSeek Responses

Prompt	Metaphor	Framing of Nature
P1	"Forests as carbon"	Nature is framed as a tool

	sinks"	for human benefit, emphasising forests' role in climate change mitigation.
P2	"Nature's failure"	Nature is framed as passive, harmed by human actions.
P3	"Biodiversity as the foundation of ecosystem health"	Biodiversity is seen as essential for maintaining ecosystem function.
P4	"Stewardship" and "balance"	The relationship is portrayed as one of mutual respect and cooperation.
P5	"Nature as a victim"	Coral reefs are seen as suffering due to human activities like pollution.

DeepSeek uses metaphors that put nature into the humanistic position. Indicatively, the term forests as carbon sinks denotes the anthropocentric perspective of forests as a means of reducing the adverse effects of climate change. Conversely, the metaphors such as nature failure and species extinction make nature a victim of human exploitation with emphasis on the devastating effects of human activities. The term stewardship, as the metaphor of living in harmony with nature, implies a respectful relationship between human beings and nature.

#### Gemini Responses:

The metaphors in the Gemini, such as nature as a partner and nature as a victim, underline the symbiotic and collaborative relationship between human beings and nature. Gemini is closer to ecocentrism, in which nature is conceived as an active system in the control of climate, especially through metaphors such as forests as global carbon sinks and biodiversity as the backbone of environmental systems. These metaphors showcase the beauty of nature, which is inherent to nature, and put humans and nature as equals in terms of environmental care.

#### Comparative Analysis of Metaphors & Conceptual Framing

System	Common Metaphors	Framing of Nature	Anthropocentric vs. Ecocentric
DeepSeek	"Carbon sinks", "Nature's failure",	Nature is a resource (carbon sinks), a victim	Predominantly anthropocentric but leans toward ecocentric

	"Biodiversity as foundation"	(deforestation), and a partner (stewardship)	through stewardship and balance
Gemini	"Global Carbon Sink", "Nature as a violated entity", "Foundation of ecosystem health"	Nature is a resource (carbon sink), a victim (violated entity), and a partner (sustainability)	Primarily anthropocentric, but uses ecocentric metaphors in the context of conservation

The two AI systems employ comparable metaphors, such as carbon sinks and biodiversity, as building blocks to present nature as an asset that is required to benefit the human being. Nevertheless, both of them also construct nature as a victim when it comes to the discourses of deforestation and the destruction of coral reefs. Although DeepSeek focuses on the importance of nature as a means of mitigating climate change, at times it can be viewed as ecocentric, as the author uses such metaphors as stewardship. However, Gemini employs a more moderate approach to framing anthropocentric and ecocentric views, especially in their demands for sustainability and nature protection.

### 3. Agency Assignments:

Agency analysis shows the agent or agentless in the discourse, which gives an understanding of the role of humans and nature in the environmental processes. The analysis of all 5 responses of both AI systems, DeepSeek and Gemini, is provided below.

#### DeepSeek Responses:

Prompt	Human Agency	Nature's Agency
P1	"Restoring degraded forests, humans restore forest ecosystems."	"Forests act as carbon sinks" Forests actively mitigate climate change.
P2	"Deforestation causes mass extinction" Humans cause deforestation.	"Species suffering" nature suffers due to human-induced changes.
P3	-	"Biodiversity ensures resilience" Nature ensures ecosystem balance.
P4	"Humans adopt a stewardship mindset"	"Nature benefits from regenerative

	Humans are the primary agents of environmental change.	practices" Nature's health depends on human actions.
P5	"Human activity is the primary driver" Humans are responsible for coral reef destruction.	"Coral reefs suffer" Coral reefs are passive victims of human actions.

In DeepSeek, the human agency is typically cast as the most important agent of destruction (e.g., deforestation is the cause of mass extinction). Nature, in its turn, is often portrayed as an inactive victim of human activity, e.g., in the article on species suffering and in the article on coral reefs suffering. Nevertheless, the active role of nature in the alleviation of climate change is also acknowledged, with the phrase forests act as carbon sinks drawing the image of nature as an important ecological actor.

#### Gemini Responses: Table (Annexure D)

In Gemini, the humans are shown as the main culprits of environmental degradation (e.g., deforestation is a crime against rights, and human activity is increasing the rate of coral reef destruction). Nevertheless, it puts more stress on the active role of nature, especially with the usage of metaphors such as forests as carbon sinks and biodiversity as a guarantee of resiliency. This is more ecocentric, in which nature is not just passive, but it plays an active role in ensuring the ecological balance.

#### Comparative Analysis of Agency Assignments: Table (Annexure E)

DeepSeek tends to attribute agency to humans, where the latter is often portrayed as the cause of environmental degradation (e.g., deforestation causes extinction), and nature is much more often portrayed as a passive victim (e.g., coral reefs suffer), whereas ecological agency is rarely given (e.g., forests act as carbon sinks). Gemini, in its turn, is much fairer in its allocation of the agency: humans are recognised as the cause of degradation, but nature is always depicted as an active ecological agent (e.g., biodiversity guarantees resilience, forests control climate). Comprehensively, Gemini is more inclined to an ecocentric agency framing, as DeepSeek prefers to adopt an anthropocentric causality with occasional ecocentric ones.

#### 4. Ideological Positioning:

The ideological positioning can determine whether the discourse is more Anthropocentric (human-centered) or Ecocentric (nature-centered), in that way exposing the value of nature and how a relationship between man and nature is made. This part shows the way each AI system defines the interaction between humans and nature.

##### DeepSeek Responses:

Prompt	Anthropocentric	Ecocentric
P1	Focuses on forests' role in human benefit, like reducing CO <sub>2</sub> levels.	Forests are essential to climate mitigation, a core ecological function.
P2	Focuses on human justice, land rights, and intergenerational responsibility.	Nature's intrinsic value is acknowledged, especially regarding biodiversity loss.
P3	-	Focuses on the importance of biodiversity to ecosystem health.
P4	Recognises human needs but framed within ecological sustainability.	Stresses human responsibility for preserving nature.
P5	Human activity is the primary cause of coral reef destruction.	Coral reefs are victims of human actions, highlighting ecological harm.

In DeepSeek, anthropocentric and ecocentric values are in a blend in discourse. An anthropocentric approach is created by the stress on human good, like the lowering of CO<sub>2</sub> levels. Nonetheless, the innate value of nature is realised in the principle of biodiversity and extinction of species, which also indicates ecocentric ideologies. The compromise between the two perspectives indicates the more subtle attitude of DeepSeek towards the human nature relation.

##### Gemini Responses:

Prompt	Anthropocentric	Ecocentric
P1	Acknowledges the benefits to humans from forests' ecological functions.	Forests are vital for climate regulation, emphasising their intrinsic value.
P2	Focuses on human justice issues, such	Emphasises the moral wrong of

	as land rights.	deforestation, highlighting nature's intrinsic value.
P3	-	Focuses on biodiversity's role in ecosystem health.
P4	Acknowledges human needs but framed within an ecological context.	Stresses the need for humans to act in cooperation with nature.
P5	Human activity is seen as the primary cause of coral reef destruction.	Coral reefs are victims of human exploitation, highlighting ecological loss.

In DeepSeek, the human agency is generally made out to be the most significant source of destruction (e.g., deforestation is the source of mass extinction). In its turn, nature is frequently depicted as a passive victim of human action, e.g., in the article about the suffering of species and in the article about the suffering of the coral reefs. However, the active role played by nature in countering climate change is also recognised, and the term forests act as carbon sinks is used to paint the picture of nature as a key ecological agent.

##### Comparative Analysis of ideological positioning: Table (Annexure F)

Comparison of DeepSeek and Gemini indicates that the two systems use a combination of ecocentric and anthropocentric ideologies, with DeepSeek tending to concentrate on the benefits of human beings, especially in climate change mitigation. Gemini, on the other hand, is more ecocentric; it has a deeper emphasis on the intrinsic worth of nature and the moral obligation of man to protect the environment. It is a victim of nature that both systems emphasise, although Gemini also acknowledges the participation of nature in the ecological processes.

##### Discussion & Findings

By analysing how each AI model constructs ecological meaning by default linguistic selection, it provides a perspective on the ideological stories we live by that are inherent in the first response of the model. Since initial responses are the most mediated view of the



system, the trends identified here will give a transparent insight into the ways AI systems can influence users to have a biased perception of environmental problems. Through the analysis of lexicalisation, metaphor, and agency based on the paradigm of ecolinguistics as described by Stibbe, the analysis shows that these language patterns are not accidental and are not neutral but are indicative of the ecological ideologies that the models have inherited from their training corpora.

In all the data, lexicalisation was the initial significant area of difference between the two systems. Ecocentric verbs like absorb, regulate, restore, and sustain were always chosen by Gemini, which conceptualises nature as an ecological actor. Biodiversity as a noun, ecosystem services, resilience, and adjectives vital, interconnected, only etched the value of nature in itself and its power. DeepSeek, on the other hand, showed an oscillating orientation. Some verbs echoed the participation in ecology (act, heal, regenerate), but they were used with anthropocentric nouns like resources and capital, which define nature as a property or usefulness of people. These ambivalent lexical patterns reveal that Gemini has a stable ecological position, whereas DeepSeek switches between ecocentric perspectives and managerial, human-centred ones.

An even more obvious divide was shown in agency patterns. DeepSeek has often put humans in the forefront as the central agents of action (human activities cause, people drive changes, etc.), and ecosystems are presented as the primary victims of harm or beneficiaries of human intervention (species suffer, coral reefs are threatened). Nature seldom took its own way. However, Gemini dispersed agency more evenly and ecocentrically and frequently portrayed ecosystems as dynamic agents (forests regulate climate, biodiversity ensures stability, reefs support marine life). This distinction represents two opposite worldviews. DeepSeek views nature as affected and governed, whereas Gemini views nature as contributing and interacting as an ecological agent.

Metaphorical decisions also enhanced this trend. The shared conceptual metaphors in both systems included forest as a carbon sink or reef as a protector; however, the framing in one system is different. DeepSeek is inclined towards disastrous metaphors of destruction, ruin, and irreparable damage, which makes nature the predominant target, a passive subject in need of human salvation. Gemini preferred metaphors for describing vitality and systemic balance of ecosystems as networks, biodiversity as the basis of the planet, which makes nature a living and moving, and self-organising system. These metaphorical framings demonstrate the differing conceptualisations of the two models of ecological roles and responsibilities.

Collectively, the results demonstrate a consistent and meaningful trend: Gemini creates an ecocentric discourse with its heavy accents on the role of nature and an intrinsic value and systemic interdependence, whereas DeepSeek replicates a more anthropocentric orientation where humans have the main roles and ecosystems are created as objects of impact or governance. This finding resonates with broader concerns raised in environmental humanities, particularly in Global South contexts, where climate change is experienced as an immediate lived reality rather than an abstract future risk. As [Ghosh \(2016\)](#) argues, dominant modes of representation often fail to capture the scale and urgency of ecological crises, a tendency that may be reproduced and amplified by AI-generated environmental discourse. This opposition is not only stylistic, but it is also a completely different ecological ideology that is programmed in the linguistic behaviour of the models. Gemini replicates a relational ecological, and DeepSeek replicates a managerial, human-centred story in the terminology of Stibbe.

To sum up this study, consequently, is that AI environmental discourse is politicised and not objective. Gemini develops an ecological worldview where nature is seen as an active constituent of the planetary systems, whereas DeepSeek develops environmental problems through a human-dominated script that focuses

on human action, intervention, and responsibility. These distinctions are important since users who interact with such models experience these ecological world views in the initial response that they experience with or without improving or refuting the model frame. Consequently, the two systems play an active role in defining the way environmental issues are conceptualised, perceived, and given priority by society.

The present research, therefore, adds a valuable piece to the ecolinguistics research and AI discourse research in general, in that large language models not only reproduce social biases as has been widely reported, but also reproduce ecological biases, i.e., biased preference towards ecocentric or anthropocentric narration. The presence of these underlying ideological tendencies is important to know how AI systems alter the environmental communication in such a way that it will either promote or obstruct ecological awareness.

## Conclusion

The paper has explored the construction of the environment in the first responses of Gemini and DeepSeek through language. Using Stibbe's (2015) ecolinguistics framework and Eco-Semantic Discourse Analysis (ESDA), the findings show that AI-generated environmental discourse is ideologically patterned. Gemini consistently produces ecocentric framings, presenting nature as an active participant within ecological systems, whereas DeepSeek alternates between ecocentric sensitivity and anthropocentric narratives that foreground human action and responsibility.

These disparities also demonstrate that AI models do not simply produce neutral information; they recreate the ecological ideologies which are instilled in their training data and influence how users perceive environmental problems at the initial point of interaction. This expands the research on ecolinguistics by showing that AI can act as a new ecological storyteller, and this storyteller can support or confront the mainstream

environmental worldview. The research is limited to two AI systems, and English-only outputs are used; the number of environmental prompts is also restricted. Nevertheless, even with these limitations, it provides a definite framework for further studies of ecological bias in AI, emphasising cross-linguistic studies, larger model comparisons, and ecologically conscious AI design. In general, the study demonstrates that AI systems are creatively involved in the process of environmental cognition by means of stories that they replicate. It is necessary to acknowledge that there are embedded ecological biases to create AI technologies that can help, but not harm, ecological awareness. Beyond its linguistic contribution, this study highlights the ethical implications of AI-generated environmental discourse, particularly for regions in the Global South where ecological degradation intersects with social vulnerability. By revealing how AI systems encode anthropocentric or ecocentric framings at the point of first response, the study underscores the need for more ecologically responsible AI design that accounts for diverse environmental realities rather than universalised Western narratives.

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## Appendix:

### Data:

#### Response Questions

1. Describe the role of forests in mitigating climate change.

2. What are the ethical implications of deforestation?

3. Explain the concept of biodiversity and its importance to ecosystems.

4. How can humans live in harmony with nature?

#### Deep Seek Responses

Forests are a powerful natural climate solution. They act as carbon sinks, absorbing CO<sub>2</sub> from the atmosphere through photosynthesis. They also serve as massive carbon stores, locking carbon away in trees, roots, and soil for long periods. Protecting existing forests prevents the release of this stored carbon. Restoring degraded forests and planting new ones (in the right places) enhances this global carbon drawdown. Simply put, intact forests remove and store carbon; deforestation releases it. Keeping forests standing is essential for climate mitigation.

Deforestation's ethical implications are profound:

- **Intergenerational Injustice:** It irreversibly depletes natural capital (biodiversity, carbon sinks) that future generations depend on for survival and well-being.
- **Rights Violations:** It often displaces Indigenous and local communities, violating their land rights, livelihoods, and cultural heritage tied to the forest.
- **Distributive Injustice:** The profits from deforestation are typically privatised, while the costs—climate change, pollution, loss of ecosystem services—are borne globally and by the most vulnerable.
- **Species Ethics:** It causes mass extinction and immense suffering, raising questions about our moral duty to non-human life. Ultimately, it represents a failure of stewardship, prioritising short-term gain over the health of the planet and justice for its inhabitants.

Biodiversity is the variety of all life—genes, species, and ecosystems. It is crucial because it provides resilience, stability, and function to ecosystems. High biodiversity ensures ecosystems can withstand stress (like disease or climate change), enhances productivity, and supplies essential services like pollination, water purification, and nutrient cycling. It is the foundation of ecosystem health and human well-being.

Humans can live in harmony with nature by adopting a stewardship mindset, recognising that we are part of—not separate from—the natural world. Key actions include:

- **Sustainable Consumption:** Using resources at a rate that allows ecosystems to regenerate.
- **Circular Economies:** Minimising waste by reusing, recycling, and regenerating

#### Gemini Responses

Forests act as a critical Global Carbon Sink by absorbing massive amounts of atmospheric carbon dioxide (CO<sub>2</sub>) through photosynthesis (sequestration) and storing it in their biomass and soils. This significantly reduces the concentration of greenhouse gases, while also regulating local and global temperatures.

The main ethical implications involve social justice (violating indigenous land rights and livelihoods) and intergenerational justice (robbing future generations of resources and a stable climate). It also raises questions about biocentrism, viewing the destruction of intrinsically valuable ecosystems and biodiversity as a moral wrong.

Biodiversity is the variety of life at all levels, from genes and species to entire ecosystems. It is important because it ensures ecosystem resilience (the ability to recover from disturbance) and provides essential ecosystem services like clean water, pollination, and soil fertility, which are vital for human survival.

Humans can live in harmony with nature by adopting a principle of sustainability, meaning using resources without compromising the ability of nature or future generations to meet their needs. This involves respecting ecological limits, minimising waste, and shifting from consumption to conservation and

## Response Questions

## Deep Seek Responses

## Gemini Responses

5. What is the relationship between human activity and the destruction of coral reefs?

materials. • Protecting Habitats: Actively conserving wild spaces and biodiversity. • Indigenous Leadership: Respecting and integrating traditional ecological knowledge. Ultimately, it requires balancing human needs with the planet's long-term health, ensuring our systems work with, not against, natural processes.

Human activity is the primary driver of coral reef destruction. Key direct links are: 1. Climate Change: Ocean warming from greenhouse gas emissions causes fatal coral bleaching. Ocean acidification weakens coral skeletons. 2. Pollution: Runoff from agriculture and development introduces nutrients and chemicals, leading to algal blooms and disease. 3. Direct Damage: Destructive fishing (e.g., dynamite), physical damage from anchors, and coastal construction directly degrade reefs. In short, human-caused climate change and localised pressures are pushing these vital ecosystems toward collapse.

regenerative practices.

Human activity, primarily through fossil fuel use, causes rising ocean temperatures and ocean acidification (absorbing excess  $\text{CO}_2$ ), which leads to coral bleaching and prevents corals from building skeletons. Coastal development and pollution (runoff) also directly smother and poison the reefs.

Table (Annexure A)

Prompt	Verbs	Nouns	Adjectives
P1	Act, store, prevent, restore (ecocentric)	Capital, resources, rights (anthropocentric)	Intact, degraded, vital (human-centred)
P2	Depletes, violates, causes (anthropocentric)	Species ethics, extinction, suffering (ecocentric)	Irreversible, profound, massive (ecocentric)
P3	Provide, ensure, enhance (ecocentric)	Biodiversity, resilience, health (ecocentric)	Resilient, stable, essential (ecocentric)
P4	Adopt, protect, respect (ecocentric)	Stewardship, sustainability, balance (ecocentric)	Sustainable, long-term, indigenous (ecocentric)
P5	Causes, destroys, contributes (anthropocentric)	Pollution, climate change, habitat loss (anthropocentric)	Fatal, devastating, irreversible (ecocentric)

Table (Annexure B)

System	Lexical Orientation	Verb Patterns	Noun Patterns	Adjective Patterns	Overall Ecological Stance
DeepSeek	Mixed (ecocentric + anthropocentric)	Alternates between ecological agency (act, restore) and anthropocentric harm (causes, destroys)	Shifts from ecocentric terms (biodiversity, resilience) to human-centred terms (capital, resources)	Mix of ecocentric (essential, resilient) and human-centred or crisis-heavy terms (fatal, degraded)	Fluctuating worldview nature appears both active and passive; lexical choices are inconsistent.
Gemini	Predominantly ecocentric	Emphasises ecological processes (absorb, sustain, conserve) rather than human control	Consistently ecological nouns (carbon sink, regeneration, ecosystem services)	Strong ecocentric emphasis (irreplaceable, harmonious, balanced)	Consistent ecocentric stance nature represented as agentic, intrinsic, and ecologically valuable.

Table (Annexure C)

Prompt	Metaphor	Framing of Nature
P1	"Forests as global carbon sinks"	Forests are positioned as active agents in regulating the



		global climate.
P2	"Nature as a victim"	Nature is framed as harmed by human activity, underscoring the moral wrong of deforestation.
P3	"Biodiversity as the backbone of ecosystems"	Biodiversity is essential to ecosystem health and resilience.
P4	"Nature as a partner"	Humans and nature are presented as collaborators working together.
P5	"Nature as a victim"	Coral reefs are framed as passive victims of human actions, such as pollution.

Table (Annexure D)

Prompt	Human Agency	Nature's Agency
P1	"Human interests" hum. We benefit from the ecological functions of forests.	"Forests act as carbon sinks" Forests actively regulate the climate.
P2	"Deforestation violates rights" Humans violate land rights and social justice.	"Biocentrism" highlights nature's intrinsic value, with nature as a victim of human actions.
P3	-	"Biodiversity ensures resilience" Nature plays an active role in maintaining ecological stability.
P4	"Humans adopt sustainable practices" Humans must take action to preserve nature.	"Nature benefits" Nature's health is influenced by human actions.
P5	"Human activity accelerates coral reef destruction" Humans are responsible for accelerating reef degradation.	"Coral reefs suffer" Coral reefs are passive victims of human exploitation.

Table (Annexure E)

System	Lexical Orientation	Verb Patterns	Noun Patterns	Adjective Patterns	Overall Ecological Stance
DeepSeek	Mixed (ecocentric + anthropocentric)	Alternates between ecological agency (act, restore) and anthropocentric harm (causes, destroys)	Shifts from ecocentric terms (biodiversity, resilience) to human-centred terms (capital, resources)	Mix of ecocentric (essential, resilient) and human-centred or crisis-heavy terms (fatal, degraded)	<b>Fluctuating worldview</b> —nature appears both active and passive; lexical choices are inconsistent.
Gemini	Primarily ecocentric	Emphasises ecological processes (absorb, sustain, conserve) rather than human control	Consistently ecological nouns (carbon sink, regeneration, ecosystem services)	Strong ecocentric emphasis (irreplaceable, harmonious, balanced)	<b>Consistent ecocentric stance</b> —nature represented as agentive, intrinsic, and ecologically valuable.

Table (Annexure F)

System	Lexical Choices	Metaphors	Agency Patterns	Ideological Orientation	Eco-Notes
DeepSeek	Carbon sinks, biodiversity, species, capital, resources	Nature as resource, victim, partner	Human → Nature (destruction), Nature → Human (sustenance)	Mixed Primarily Ecocentric	Focus on nature's role in climate mitigation, but some anthropocentric views on conservation.
Gemini	Global carbon sink, biodiversity, resilience, rights, resources	Nature as resource, victim, partner	Human → Nature (destruction), Nature → Human (sustenance)	Mixed Primarily Ecocentric	Stronger emphasis on social justice and biocentrism, yet still rooted in anthropocentric framing for human-centred benefits.