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**Gendered Environmental Discourse: A Corpus-Based Cognitive Investigation**



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**Abstract**

The interrelationship between academic discourse and ecolinguistics has become an arena of interest for researchers and academicians. The present study is conducted on academic discourse, which aimed to explore the idea of domination and its influence on environmental discourse. The academic discourse and the contribution of language for framing ecological identities is a particular dimension that is addressed in this study. Operation model of meaning construction in cognitive approach is the theoretical framework wherein the data of text book is analyzed by using the conceptual tool of metonymy. The metonymy of pronouns has provided significant insight about framing ecological identities in gendered perspective. The image of nature is observed significantly inclined towards feministic or neutral to some extent whereas the main actor and source availing authoritative aspects are related with masculine ideologies. These ideologies are embedded deep down in our cognition through the cultural values. The academic discourse persistently following the tradition to frame nature as a resource provider rather constructing it mutually shared entity. For raising a new generation in which individuals are sensitized enough that they consider nature as their comrade and living being. It is important to incorporate improved ecological language in the text books to make the students develop a profound acquaintance with environment to transform it from ambivalent to beneficial discourse.

**Key words:** Cognition, ecology, metonymy, academic, gendered.

**1. Introduction**

Framing the environmental discourse is the key issue for apprehending to solve the ecological crisis. There are multiple dimensions involved in shaping the discourse, including cognition, language and scientific realization of environmental issue. Several linguistic devices, interplay to construct the public perception, are vital tools in this context. At this point it is immensely important to consider the cultural and social context in which these linguistic tools are applied. Hence these devices and tools can resolve the upcoming adversity for our natural habitat by creating awareness by incorporating eco-friendly ideologies, or indulging in material progress-oriented perceptions.

Language is multifaceted reality and not confined to human brain, limited social norms, interaction, or phenomenological experiences, it cannot be reduced to single source. The concept is much more complex as it involves, brains, bodies, interactions, social values, external objects and sociocultural means and we depend on each and every function. ecological visualization is shaped by metonymic language, where meaning is conceived through associations and proximity, making conceptualization central to how humans understand nature. (Meehan, 2013) So, for Cowley (2011) we evaluate linguistically, we learn to hear articulations as wordings, we indulge in social reality. However, we are still biological beings. Though ‘words’ contribute to our environmental artifice– as physical, emotional and ethical standards but we still depend on the internal, physical dynamics that shape human mutual existence.

Larsen-Freeman and Cameron, (2008) while addressing the complexity of ecological systems, living systems as human beings and other creatures, and other systems

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developed by human e.g. social structures, economies, can be modelled by complexity theory. This describes how human behavior especially linguistic behavior engages with larger social, cultural and natural structures. As this is also the aspiration of ecolinguistics, ecological and complexity theoretical models fall naturally, and complementarily, within ecological linguistics. In this context Georgieva (2023). states that the system of pronouns is closely associated to the people or things they represent. At the center of this system is the idea of the self, which represents human awareness and identity.

Harvester and Blenkinsop (2010) explore the dynamics of feminist and ecofeminist perspectives to environmental education by critically analyzing the patriarchal and traditional scientific frameworks that marginalize women and objectify knowledge. For them the analysis of language, metaphors, and cultural descriptions, provide the insight of the underlying power relations and developed alternative discourses that substitute more impartial human–nature relationships. They believe that ecofeminism serves as a valuable framework in pedagogy to transform dominant environmental understandings and practices.

The aspect of grammatical gender is becoming prominent in present times. English has a semantic gender system in which the gender of a noun is dedicated due to its biological sex, whereas many languages have a formal system in which all nouns are assigned to a grammatical gender category devoid of biological gender. For example, the English word “bed” has no gender, and is referred to with the pronoun “it,” but in Italian (il letto) takes the masculine gender. This results in a formal grammatical gender system which reflects obligatory agreement with the syntactic rules of that class. When the relevance of grammatical entities is investigated, Samuel et al. (2019) postulate that support for an influence of grammatical gender on concepts is strongly task- and context-dependent. Support also comes for the most part from tasks that are susceptible to clear alternative explanations. Perhaps most importantly, it needs to be empirically established that grammatical gender itself is not a cultural label but a concept with psychological reality before any influence can be reasonably attributed to truly linguistic processes.

It is suggested by de Wit (2021) Climate change findings often represent women as the sufferers in scenario of environmental change. Feminist scholars criticize this approach because of the way it overlooks the complex gender and the social factors. They reason that the effective responses to climate change demand a broader understanding of both social diversity and historical change.

## **2. Literature Review**

There are four approaches in in ecology of language. Symbolic ecology aims to explore the language of a specific area. Second approach attempts to establish the mutual relationship between different factors, such as biological system, natural ecology, flora, fauna and language. The socio-cultural approach studies the influence of natural environment on the speaker and the whole community. The last approach focuses on the evolution of language from interplay of biological organisms and their environment. This is known as cognitive ecological approach. (Steffensen and Fill, 2014)

As with ecological models, its tools enable us to deal with such wholes in a controlled and explicit way. Through the application of ecological models, the complexity theory permits a holistic science rather indulging in excessive mysticism. In applied linguistics, complexity theory is mainly used metaphorically. Hence Larsen-Freeman and Cameron (2008) argue that there is a need to understand complexity, and thus complex systems,

as the source domain of our metaphor or analogy in order to create significant and effective mappings on to the concerned are in applied linguistics. Language is considered as a vital component of the chain connection between man, society and nature. Many investigations focused on the consideration of cognitive and linguistic aspects of phenomena of environment. Prihodko, G. I. (2021) argue that in recent years, categorization and conceptualization appeared as basic cognitive processes in environmental discourse. The subject can be understood and elucidated only by concentrating on the cognitive system.

The term language is used both for exchange of articulation and the construal that engages these articulations. It is inevitably linked with dynamical variables that contribute in interaction. Hence the better term used for it is *linguaging* as it involves multilayered dynamical variables engaging on multiple levels and several time spans. (Raczaszek-Leonardi, 2009). They postulate that language is both symbolic and dynamic. Symbols are inseparable in living organisms and the repetitive nature of sound patterns emerge from external observable patterns but also the biodynamic factors.

Cognition is a system, life-sustaining process that connects bodies, brains and outer environment, it is a whole, systematic function. Meaning that humans construct in this system of life is a mesh of sensible and biotic, physical and environmental, natural and artificial factors. (Steffensen & Fill 2014, Cowley & Gahrn-Andersen 2022)

Cognitive linguistics, suggests that meaning is a function of both the content and the construal. It is proficient in utilizing cognitive tools to infer mental processes of construal for meaning construction. Langacker (2007) postulates that basic cognitive abilities of human include simple sensory, comparison, abstraction, analogy, metaphor and mental scanning. All ecological concepts perceived by an individual have a definite value in our minds, that is, they can be assessed. Prihodko (2021) argues that Evaluation is a primary constituent of cognition which is based on a value approach to the facts of nature and society. So, person's activity and life as a human being having different requirements, interests and objectives is impossible without estimation.

Jones and Avery (2019) argued that initially, semantic memory was seen as a miscellaneous area of study for anything in declarative memory except episodic memory, and for this reason models of meaning in memory did not develop as the models of episodic memory. However, recently the advances in neural networks and corpus-based tools for modeling text have significantly improved the research of semantic memory. Now there are several computational modals to explain how humans perceive, store and retrieve and use in meaning-based behavior tasks.

George Lakoff (2010) suggests that human thought is organized through unconscious mental structures called frames (or schemas). The brain stores these frames in neural networks. Every word activates particular frames, and due to interconnectivity of these frames, a single word triggers a wider system of related concepts and emotions. Hence, conception and communication are always influenced by framing. It is important to understand that words themselves are not frames; rather, through words they activate frames in the mind. Druzhinin (2025) claims in this context that human cognition renews its old assets by making them work in a 'tricky way.' It relies on simple mechanisms to handle complex processes. The ideological language works by repeatedly activating specific systems of frames. In this way, the corresponding neural connections are strengthened to reflect particular ideologies as natural or normal. But, on the other hand, negating a frame still activates it. While introducing new frames

must connect with existing knowledge to resonate emotionally with the authentic source. In this regard, the Environment Frame, represents humans as detached from the environment. Although human is part of nature but the detachment is deeply embedded in human cognition and is therefore difficult to cope with. (Lakof, 2010)

The exploitation of resources resulting in climate change and other problems, have a gender specific or intersectional impact. The fact is investigated by Frank et al. (2024) and they claim that though the unequal impacts of climate change in terms of gender have been researched empirically in many areas such as agriculture, migration and natural disasters, but there has been no systematic recording of the research field of gender in the sustainability sciences. While talking about rewilding the environment Bartolini et al. (2025) advocate the reasons for women's knowledge being marginalized in rewilding discourse and practice, as the gendered stereotypes, whereas men are associated with land and rural environments and women with home and domestic domain. Hence, the uprising depreciation of the unpaid social reproduction work of women is to ensure the family livelihoods. This results in gender inequality by associating masculine identity with power and expertise by subordinating feminine ideology confining to reproduction and sentiments.

Barca (2020) underlines their common position of natural objects by calling them 'the forces of reproduction' on which the rest of life depends. These reproductive powers are controlled and subordinated by dominant systems of capitalism, colonialism and heteropatriarchy.

*master depends on them for its survival and wealth, but this dependency is constantly denied 'From different positions and in different forms', she writes, 'women, slaves, proletarians, animals and non-human nature are all made to work for the master ... The and the forces of reproduction are represented as lingering in the background of historical agency' (p. 6)*

Ecofeminist critics assess through analysis that gender issue into the paradox by associating it to a prominent masculinist plane to dominate over a feminized nature and portray feminine as is being portrayed for centuries in European history. MacGregor (2025) argues that 'rewilding is a transformed shape of traditional idea that persists historically as a plane to create a consent in reproductive forces to follow the will of those who have power and control.

### **3. Theoretical Framework**

The study is conducted in the framework of cognitive approach of environmental discourse and Operational model of meaning construction is applied to analyze the data of the textbook.

#### **3.1 Operation Model of Meaning Construction of Environmental Discourse**

Grounded in the theory of Idealized Cognitive Model (ICM) proposed by George Lakoff, (1987) the source of meaning is schematized as "human-natural environment" meta-interaction ICM. Zheng, H.L. (2022) proposes two models to infer cognitive strategies and cognitive mechanisms of environmental discourse, from cognitive linguistics aspect. The aim of hypothesizing these interrelating models is to perceive the ecological cognition and meaning formation process in environmental discourse. The first model, Cognitive model of meaning formation of environmental discourse, discovers the cognitive origin, basis and process of meaning formation of ecological discourse from the embodied perspective of meaning.

Operation model of meaning construction is the application of cognitive model of meaning formation at the discourse operation level. It reflects the communication

among environmental discursive mode, conversational strategy and construal mechanisms. It postulates the basic mental operation mechanisms and fundamental linguistic forms responsible for language used. As language in use, discourse involves the intersubjective coordination of cognitive systems construal.

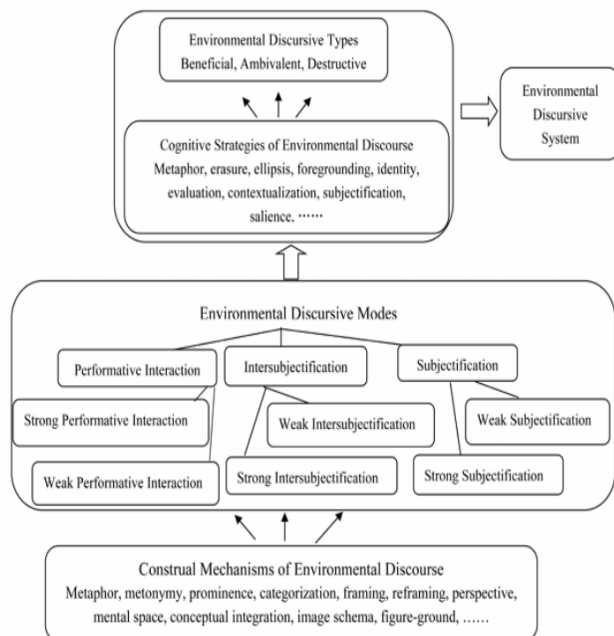


Fig 1 Operation model of meaning construction of environmental discourse. (Zheng, 2022)

Discursive mode is one of the main sources to achieve language function at the linguistic level, which establishes the meaning level of text structure, three cognitive functions realized through the three basic interaction ICMs (idealized cognitive models) are implemented at the linguistic level. Three basic types of discursive modes are performative interaction, intersubjectification and subjectification. However, based on interaction intensity of the communicating experience functions, each discursive mode can be subcategorized into a strong one and a weak one.

Environmental discursive modes function through cognitive strategies of environmental discourse to generate and construct beneficial, ambivalent and destructive discourses. Hence, the construal operation model demonstrates that environmental discursive modes play a critical role in the formation of environmental discursive categories by means of cognitive strategies.

Cognitive structures, employed by discursive modes, exist at the bottom of environmental discursive system. These possess multiple mental models and conceptualization tools. The important conceptualizing tools include, metaphor, prominence, metonymy, categorization, framework, perspective, conceptual blending mental space.

The aim of meaning construction of environmental discourse from cognitive linguistic view is to interpret cognitive mechanisms and strategies of environmental discourse in order to reveal ecological cognition and attitudes behind the meaning formation of environmental discourse and ultimately to construct beneficial discourse improved environment.

#### **4. Data Collection**

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Data for this study is derived from a specialized pedagogic corpus based on an English Model textbook prescribed for Class 7 based on the National Curriculum 2022 and National Curriculum Council by Ministry of Federal Education and Professional Education. The book is being used as a compulsory component of English language pedagogy by public and private sectors Pakistani school. This book is approved by the National Curriculum Council (NCC), Ministry of Federal Education and Professional Training, Islamabad vide letter No. F.No.1(2)/2022/NCP-NOC/English-NCC, in January 16, 2023. Model Textbook of English for Grade 7 based on National Curriculum of Pakistan (NCP) 2022. Dr. Dania Qazi, Ms. Rabia Sajjad have authored the book voluntarily. is Haroon Rashid is its Language Editor. Its first edition is published by National Book Foundation (NOF) and its Tenth Impression on April, 2025. It has 168 pages. With ISBN: 978-969-37-1372-1.

The textbook is created and designed, by Government of Pakistan, to ensure single national curriculum in the country. This book integrates multiple topics including nature sustainability and recycling. Human development diverse landforms are striking contents of the book, which offer an insight of ecological stance of the nation on official level. The secondary level education is important in this regard that it is the vital moment for construction of future individuals. They reflect a particular behavior towards nature and natural resources due to this very perception of eco-literacy.

All the units from the book are selected for the research. These include the following units:

Unit 1: The Last Sermon

Unit 2: Nature

Unit 3: Travel and Transport

Unit 5: Environmental Education

Unit 6: Literature and Poetry

Unit 7: Literature around the World

## 5. Research Questions

This research study has the following queries:

1. How the language of text book is dealing with gendered ecological theme?
2. How Metonymy of pronouns is contributing to ecological sensitive discourse?

## 6. Results and Discussion

The study aims to investigate how pronouns are associated with environmental metonymy. It closely investigates subjectification and intersubjectification through conceptual tool i.e. metonymy. The data demonstrate that the text of book is dominated by non-gender specific pronouns however the second most frequent category is of masculine items. The third most frequent category is of neutral pronouns i.e. *it*, *its*, and *itself* meanwhile the data show that the category of feminine has the least occurring category; it includes the items *she*, *her*, and *herself*.

Table 1. Pronouns in the textbook and their collective frequency

Category	Pronouns	Total Frequency
Masculine	he, him, his, himself	193
Feminine	she, her, herself	26
Neutral	it, its, itself	190

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Common / Non-gender-specific	I, me, my, you, your, yours, we, us, our, they, them, their, themselves, myself, ourselves, yourselves, one, oneself	874
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The data depict that personal pronoun *it* has shown significant frequency as metonymy for animals such as eagle, *dolphin*, *Markhor*, *bear*, and *turtle* however for plant such *Plants*, *Trees*, *Roots* and for other natural entities like, *Water* and *river*. *Soil*, *moisture* and *habitat* have emerged in this category expressed by pronoun metonym *its*.

Table 2. Concordance frequency of *it*, *its* and *itself* in text book.

Metonymy	Animals	Vegetation	Natural objects /ecosystem	total
<b>It</b>	1	2	1	5
<b>Its</b>	5	1	3	9
<b>Itself</b>	--	--	--	--

Moreover, bear and moon are also represented with it. The agricultural crops also concord with this possessive pronoun. The use of this pronoun reveals that these natural bodies are being reduced to neutral existence which ultimately confined their idealization to a shadowed realm. Hence, they are framed as resource or commodity but not an active living life around us.

However, reflexive pronoun *itself* concord with buildings, city, country Pakistan as, “Pakistan prepares itself...”, postulates more autonomous as compared to natural being in the text. The infrastructure either it is political, institutional, or of material is subjectified as living body, as compared to ecological life. These aspects of social and material life are more autonomous and reflexive in responding the challenges e.g. *The building itself* and *airport on water in itself*.

Table 2a. concordance of *she* with natural beings in the text

No.	Left Context	KWIC ( <i>its</i> )	Right Context
1	No matter how tall it grows...	its	roots are firmly buried...
2	No matter what may come in	its	way, a river will continue to flow
3	When an eagle’s spirit awakens... It sees	its	destination beyond the starry heavens
4	The Indus River Dolphin... adapt to	its	only remaining habitat
5	Markhor holds great skill... protect	its	Harem
6	Turtle... with	its	elongated snorkel-like nostrils

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7	Moon Bear... defending	its	Territory
8	climate... heating soil rather than evaporating	its	Moisture

The pronoun *she* has multiple implication in the text on the one hand it is explicitly used for maritime references, e.g. for boat and ship and on the other hand for nature. But interestingly, it concords with nature only one time where nature is personified as mother i.e. *Nature is our mother... and ... she teaches us*. Here the metonym of pronoun is overtly used for creating a bondage with nature as female who in performing as a teacher. Hence, the role of teacher is also associated with nature which sentimentally arose the feeling of respect and love for nature. Here data provide an unexpected direction to results where the pronoun of *she* is used as metonymy, of manmade objects such as boat and ship, more frequently in contrast with nature. It is used for human female equally with as it is for inanimate useful objects. Thus, the main intention, the concordance of data reflects, is to consider nature, female, is to highlight their significance and usefulness. Here, an important insight comes to the surface that nature is not an autonomous living being as the reflexive pronoun *herself* has zero frequency in the data. This gives rise to the fact that nature and woman both are part of background in the text. The extent and the form of visibility in the text data confirms that they are portrayed as commodities.

Table 3a. pronouns she, her, herself and their frequency

Metonym/ pronoun	Human	Inanimate	Nature	Total
She	5	5	1	11
Her	3	12	0	15
Herself	0	0	0	0

The personal pronoun of *her* is used for inanimate objects such as boat and ship and the frequency of this is significantly high as compared to frequency used for human beings which is far less. It concords with female three times and twelve times for inanimate bodies. This presents the shift of a concrete body from non-living to an animate entity which sentimentally correlates readers to the worth of ships and boats in lives of human. So, metonymy pronoun she and her significantly create an association with existing natural bodies around us.

Table 3a. concordance of she with right & left context

No.	Left Context	KWIC	Right Context
1	Read the poem by Elizabeth Brewster.	she	talks about nature and comparison between city and country life
2	Nature is our mother, our first teacher.	she	teaches us to maintain an equilibrium in life
3	ship was lifted off in the night from the sand where	she	lay, by the swelling of the tide
4	difficulty was still greater to know how to get on board; for as	she	lay aground, and high out of the water
5	ship was bulged... but that	she	lay so on the side of a bank of

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			hard sand
6	ship lifted off in the night from the sand where	she	lay, by the swelling of the tide
7	difficulty was still greater to know how to get on board; for as	She	lay aground
8	elderly woman took part in an experiment...	She	really enjoyed the experience
9	she commented that	She	did not feel tired at all
10	with robot assistance... shopping bag	She	did not feel tired
11	she really enjoyed the experience...	She	commented about shopping

The next important category is of masculine pronouns which has the frequency 193. This is much higher as compared to collective frequency of masculine and neutral pronouns. It appeared three times with Allah and one time with Satan meanwhile it concords six times with historical figures like, Allama Iqbal, the national poet, Daniel Defoe and piolet one time with each figure respectively. However, the frequency is much higher with common nouns, like kings, emperors, hermits, wounded man, and other male characters in short stories of text book. The most interesting fact that data brought to surface that animal character *black beauty* concords with pronoun he one time. It can vividly assume that the text data is reflecting that metonymy of pronouns is strictly confined to male figures. All figures are strong as Allah Almighty has absolute authority; the rest are important historical personalities. At the end, the horse is denoted *this* pronoun which is a symbol of strength and vigor. Thus, the subjectification of male is dominant as independent and autonomous figure of society is reflected in data.

Table 4a. Masculine pronouns frequency

Pronouns	Human	Inanimate	Nature	Total
He	94	0	1	95
Him	31	0	0	31
Himself	4	0	0	4

The pronoun *he* has no concordance with any of inhuman, technological, or any such entity which is beneficial resource provider to human race. It is possessor utilizer or controlling authority in context of use of this pronoun. Even the use of pronoun *himself* reflects masculine as a self-directed creature dominating over nature.

Table 4b. Concordance of pronoun *he* in the textbook.

Right context	KWIC	Left context
The story covers Black Beauty's life from the time	<u>he</u>	is born until his old age.

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In non-gender category only one pronoun i.e. *I*, has the frequency of 268. In the text, the speaker introduces itself as nature and out of 874 non-gender pronouns frequency. This has reflected 63 frequent occurrences in the text. It is a personified voice of nature in which it introduces itself as *mother Nature*. It is not its own chosen identity but it evokes the sentimental and correlative human perception that prevails in sociocultural fabric. Others call me *mother* this identity is manmade and is evolved from primitive mutual interdependence of millions of generations of human race. The concordance results expose the assertive stance of nature portrayed in the text book. The description lacks empathy and there exists psychological detachment in the relationship.

Table 5. Pronoun I and its concordance

Right context	<u>KWIC</u>	Left context
<b>been here for over four and a half billion</b>	<u>I</u>	Others call me Mother Nature.
<b>a half billion years, 22500 times longer than you.</b>	<u>I</u>	don't really need people, but people need me
<b>Yes, your future depends on me. When</b>	<u>I</u>	thrive you thrive, when I falter you falter, or worse
<b>determine your fate, not mine.</b>	<u>I</u>	am nature. I will go on.
<b>blanket wrapped around everyone on Earth.</b>	<u>I</u>	can bring clouds, rain and the wind
<b>Without me, you'd fry. Every day</b>	<u>I</u>	am the breath you take in.

## 7. Key findings

The analysis of the pronouns related with environmental content of the English textbook of grade seven SNC of Pakistan, by applying the lens of Operational model of Meaning Construction of Environmental Discourse proposed by Zheng (2022) has reached the following findings. The study has revealed an important insight of meaning construction process. The pronouns related to environmental entities are proved key conceptualization tools, moreover further categorization into masculine and feminine, neutral and non-gender specific categories. There is a significant number of frequency of pronouns concord with non-environmental subject in the text which posits that the overall data are inclined to non-nature issues, rather social issues.

While the content dealing with environmental themes, on the one hand this discourse claims that mutual relation between human and nature is of a mother but on the other hand it is assertive and emerges as if it is distancing itself as the resource provider and dependent. The concordance results reflect that discourse is devoid of any sentimental and compassionate bondage between human race and nature. There is use of metonym *I* in place of noun nature, on the performative function index. This seems unfulfilling its function. However, neutral pronoun *it* posits a strong bondage with natural wildlife. Its significant use as metonym pronoun for wildlife encourages the idea that text is that natural life is dealt as not a living body having a value to construct any sentimental/emotional relations. Hence, nature is framed as a resource.

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There is a divergence in data where *she* is used for nature for one time but later it is frequently replaced with *it* which is an inorganic utilization of metonymic tools. There is another contrasting realization exists while using pronouns itself and herself as both do not exist in the text which dually neglect the existence of nature and feminine vigor as self-existing entities. The mutual attribute of reproduction nature and woman is overshadowing the fabric of text. Similarly, the idea of intersubjectification of male dominance carries its roots deep into the social and cultural environment. The masculine identity is associated with the utilizer and holding the control over the natural resources.

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