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Constructing Ecological Responsibility in Pakistani English Newspaper Coverage of Extreme Heat: A Corpus-Assisted Ecolinguistic Discourse Analysis

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Abstract

One of the most damaging impacts of climate change is extreme heat, although there is not much information on the construction of ecological responsibility when covering such incidents in Pakistani news media. CAEDA (Corpus-Assisted Ecolinguistic Discourse Analysis) is applied in this study to explore the representation of agency, responsibility and erasure in Dawn, Geo News and The Express Tribune. Specifically, a specialized corpus of 30 straight news articles (14,411 tokens; 11,757 running words) was constructed and analyzed using the Sketch Engine. Keyword and concordance analysis was combined with Halliday's Transitivity System and the notion of erasure put forward by Stibbe to explore the influence of grammatical choice on the ecological meaning making process. As a result, it can be observed that there are distinct patterns of ideology represented in the newspapers under discussion: Geo News highlights institutional responsibility, Dawn constructs individual responsibility through precautionary discourse, while The Express Tribune focuses on the human dimension and reduces the state agency. Mask and Trace emerged as the predominant modes of erasure, while no cases of Void could be found.

Keywords: Climate Change, Extreme Heat, Corpus-Assisted Ecolinguistic Discourse Analysis, Halliday's Transitivity System, Ecological Responsibility.

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1. Introduction

Climate change has contributed to the rise of extreme heat as one of the most critical environmental and health problems of the twenty-first century. In particular, according to the latest research done by the Intergovernmental Panel on Climate Change, climate change has increased the frequency of extreme heat. As a result, humans face several threats in terms of their health, infrastructure, and ecological sustainability. Thus, the analysis of extreme heat events in media is becoming more significant because it affects people's perception of climate risk and policy.

News media do not only inform about environmental events, but they construct the representation of ecological problem in the context of vocabulary, frames, and grammatical structures. In accordance with Entman (1993), framing is related to what is emphasized in the discourse. At the same time, according to Cox and Pezzullo (2016), environmental communication researchers claim that media discourse influences how people perceive environmental problems and potential solutions. Linguistically, these representations determine whether climate events are viewed as predetermined natural phenomena or the result of certain decisions within the larger context.

In linguistics, the discipline of ecolinguistics offers a powerful framework for studying the construction of human-environment relations in languages. Halliday's (1990) functional theory of language highlights the ways that linguistic structures affect the construction of social realities, while Stibbe's (2015, 2021) book *Stories We Live by* reveals how repetition of discourse patterns highlights or erases ecological responsibility. The methodology of ecolinguistics has been significantly enhanced by the emergence of Corpus-Assisted Ecolinguistics (CAE), whereby corpus linguistic methods are combined with ecolinguistic studies to reveal the presence of discourse patterns based on empirical data (Poole, 2022). Corpus methods have been successfully applied to such diverse areas as climate change communication, environmental conflicts, forest discourse, climate narratives, tourism, and plastic discourses.

Although CAE has become a powerful tool for analyzing environmental issues, there is very little research of corpus-assisted Pakistani climate journalism. Current research on climate discourse focuses on framing analysis or qualitative discourse analysis, while relatively little work addresses how grammar construes agency, responsibility, and ecological accountability in specific climate events.

This research attempts to fill this research gap by conducting an analysis based on the Corpus-Assisted Ecolinguistic Discourse Analysis (CAEDA) of extreme heat events in *Geo News*, *Dawn*, and *The Express Tribune*. Employing the tools of Sketch Engine, the transitivity system proposed by Halliday, and the concept of erasure put forward by Stibbe, the study examines the way in which lexical items and grammatical constructions create agency and ecological accountability. This study combines the techniques of corpus linguistics, Systemic Functional Linguistics, and ecolinguistics under one analytic paradigm.

1.1 Research Questions

1. How do Pakistani English newspapers construct agency and responsibility in reporting extreme heat?
2. How do transitivity patterns and erasure strategies reveal ideological differences in the representation of ecological accountability across *Geo News*, *Dawn*, and *The Express Tribune*?
3. What dominant ecological narratives emerge from the corpus-assisted analysis of extreme heat reporting?

1.2 Research Objectives

1. To examine how agency and responsibility are constructed through transitivity patterns in Pakistani English newspaper reports on extreme heat.
2. To identify instances of Mask and Trace within Stibbe's framework of erasure in the representation of institutional responsibility and vulnerable groups.
3. To compare the ecological narratives constructed by *Geo News*, *Dawn*, and *The Express Tribune* using a corpus-assisted ecolinguistic approach.

1.3 Significance of the Study

The present study makes theoretical contributions through the inclusion of corpus linguistics, Systemic Functional Linguistics, and ecolinguistics in an analysis framework that unites all these theories together. In terms of methodology, it shows the potential of Corpus-Assisted Ecolinguistic Discourse Analysis through the combination of quantitative data and qualitative discourse analysis. With regard to practical applications, it sheds light on how Pakistani English newspapers represent ecological responsibility, accountability, and vulnerability.

1.4 Limitations of the Study

These thirty straight news articles that have appeared in *Geo News*, *Dawn*, and *The Express Tribune* from April to June 2026 will be used for the research. Opinion pieces, editorials, feature articles, television broadcast, and social media will not be considered for the study. In addition, the current study is restricted to the linguistic representation of heat extremes without looking into the audience or policy implications.

1.5 Research Gap

While there is an increase in climate communication and environmental discourse research in Pakistan, certain deficiencies still persist. Prior studies have used mainly Critical Discourse Analysis, Framing Theory, or qualitative ecolinguistic methodology to explore general climate discourses or environment issues, with much less emphasis on extreme heat as one type of climate issue. Recent corpus-assisted studies have shown that the combination of corpus linguistics and ecolinguistics can be fruitful, but previous research has been mostly concerned with lexical analysis, metaphors, collocations, framing, and themes but not with the grammatical construction of agency and responsibility.

In addition, in spite of the growing use of Stibbe's concept of erasure in the field of ecolinguistics, no empirical study has ever been undertaken to investigate linguistic foregrounding, backgrounding, or erasure of institutional agents, causative structures, and marginalized groups in reports on extreme heat in Pakistani English newspapers. Moreover, no previous studies have examined Sketch Engine, the Transitivity System proposed by Halliday, and the Erasure Framework developed by Stibbe simultaneously. This research endeavors to fill these gaps through the application of Corpus-Assisted Ecolinguistic Discourse Analysis (CAEDA).

2. Literature Review

Climate change has become one of the major environmental problems of the current era, where human-generated emissions have increased the intensity, duration, and number of extreme weather events such as heat waves (IPCC, 2023). Heat has become an issue of high complexity, which not only has physical ramifications but also impacts other facets of society such as governance, public health, infrastructure, and social disparities. Disadvantaged groups, including older people,

children, people working outdoors, and economically disadvantaged communities, are disproportionately affected by the threat posed by these factors.

News media do not just report environmental realities; they construct them in various ways through framing, lexicology, and discursive structure. News media shape interpretation, assign blame, and legitimate specific policy solutions regarding climate change issues (Entman, 1993; Cox & Pezzullo, 2016). Existing literature shows that climate change news reports often emphasize the views of government and scientists at the expense of the structural and local causes of climate change problems (Grundmann & Krishnamurthy, 2010; Boykoff, 2011). With regard to linguistics, Halliday (1990) stated that language itself could propagate destructive environment ideologies, which became the starting point for ecolinguistics. Following this approach, Stibbe (2015, 2021) defined discourse as "the stories we live by" where linguistic choices affect our ecology, while Poole (2022) develops Corpus-Assisted Ecolinguistics by combining corpus linguistics and ecolinguistic discourse analysis.

However, despite all these developments in theories and methodology, there is still little literature that focuses on how Pakistani English newspapers linguistically construct responsibility in extreme heat events. Most of the previous researches focus more on climate discourse or environment discourse, whereas there is a lack of studies in the area of linguistic agency and agency erasure. In order to fill this gap in literature, the present research will use the approach of Corpus Assisted Ecolinguistic Discourse Analysis (CAEDA).

As a result of the increasing complexity of environmental issues, researchers in the field of discourse analysis have been inclined towards adopting corpus linguistic approaches that are able to trace recurring language patterns in large corpora of authentic texts. Different from traditional discourse analysis that has been widely criticized for making use of small-scale data and selective textual analysis, corpus linguistics offers systematic and clear analyses through computational methods such as frequency, keyword, and concordance analyses (Baker, 2006; Baker et al., 2008; McEnery & Hardie, 2012). The combination of quantitative methods with qualitative analyses has paved the way to CADS, helping researchers to identify recurring ideology in media and public discourses (Partington et al., 2013; Baker et al., 2013).

In the realm of environmental communication, corpus-assisted research techniques have illustrated that ecological meanings are not formed explicitly but rather are constructed using subtle lexical and grammatical decisions. This has been illustrated in Grundmann and Krishnamurthy's (2010) and Lischinsky's (2015) research that used the corpus approach to uncover systematic representations of climate change, sustainability, and institutions' role in news discourse. Following the tradition, Poole (2022) coined the term of Corpus-Assisted Ecolinguistics (CAE) that involves the use of corpus techniques for the assessment of discourse based on ecological values and principles. Flexibility of this approach was proven in relation to many environmental contexts, such as mining conflict, climate stories, representation of forests, ecological restoration, plastic discourses (Poole, 2016; Norton & Hulme, 2019; Poole & Micalay-Hurtado, 2022; Ponton, 2022; Franklin, Gavins, & Mehl, 2022). Such corpora as Sketch Engine increase methodological transparency of the corpus approach by means of keyword extraction, concordance analysis, and corpus comparison (Kilgariff et al., 2014).

Interpreting such corpus-based patterns, the current research adopts Systemic Functional Linguistics by Halliday & Matthiessen (2014), specifically Transitivity system that helps to understand distribution of agency through participants, processes and circumstances in clauses. The combination of corpus-based approach and transitivity analysis along with erasure theory by

Stibbe (2021) will be helpful in the study of linguistic construction of agency, responsibility and ecological accountability in the context of extreme heat in Pakistani English newspapers.

Whereas the Transitivity System by Halliday shows how discourse makes agents through its grammar, it does not fully explain the phenomenon of agents that are left out of discourse. In order to resolve this problem, Stibbe (2015, 2021) proposed the theory of erasure, describing it as the act of discursively constructing an entity, relation, or experience as absent, unimportant, or undeserving of attention. While ecolinguistic research looks into what is being constructed in a discourse explicitly, it also pays attention to what is left out, as these exclusions contribute to shaping the way people perceive environmental issues. There are three types of erasure according to Stibbe (2021), namely Void, Trace, and Mask, that are often performed using passive voice, nominalizations, transitivity patterns, metaphors, and other linguistic means.

There is ample evidence in empirical studies about the significance of this framework. According to Farooq & Umar (2021), in the case of environmental science textbooks, there is frequent use of passive structures along with nominalization in order to obscure the role played by humans in environmental degradation. There is a tendency in climate journalism to use terms such as temperature is expected to increase or warning was issued, which obscure the institutional actors involved in the process of forecasting, decision-making, and protecting people. Along with Stibbe's framework, the Social Actor Theory of Van Leeuwen (2008) explains discourse participants through various methods of representation.

Recent ecolinguistic research makes the complementary role of erasure and salience in language even more apparent by demonstrating how discourse constructs some social agents as dominant while others are marginalized (Ma & Stibbe, 2022). The issue of marginalization is especially pertinent to discourse on climate change because of the under-representation of vulnerable social agents who face higher levels of exposure to heat. Thus, the current study incorporates such concepts as Halliday's Transitivity System, Stibbe's notion of erasure, and van Leeuwen's Social Actor Theory to analyze the linguistic construction of agency and vulnerability in discourse on heat in Pakistan.

Climate change communication research in Pakistan has been developed as a result of increased threat of floods, droughts, smog, and high temperatures in the country. Studies conducted so far have focused mainly on environment journalism through the use of Critical Discourse Analysis (CDA), framing theory, and qualitative discourses, where it is evident that climate change in Pakistani English newspapers is portrayed through discourses of crisis, vulnerability, government action, and international collaboration, although little focus is laid on the issue of structures.

More recent works have used corpus-assisted and ecolinguistic approaches. Saleem & Khan (2025) have used Stibbe's framework and applied corpus tools to prove that the language of climate journalism is characterized by the prominence of national resilience and demotion of ecological relations. In addition, Sadiq, Alam, and Rehman (2025) have found dominant themes such as pollution, water shortage, deforestation, and climate change, though their study was mostly devoted to the analysis of thematic representation. More sophisticated corpus-assisted ecolinguistic studies conducted by Mumtaz et al. (2026), Haider (2026), Saleem, Gul, and Khan (2025), and Nawaz (2026) illustrate the above trend even better.

However, there are still some gaps which need to be filled in this respect. First of all, the current research has mostly dealt with climate change generally and has not paid much attention to heat waves specifically. Secondly, there has been no focus on such elements as grammatical agency,

participation, transitivity, and erasure by Stibbe (2015, 2021). Thirdly, the analysis of corpora has rarely been combined with Systemic Functional Linguistics and ecolinguistic analysis by Halliday.

In order to bridge this gap, the current study undertakes a CAEDA approach of 30 straight news stories on extreme heat conditions reported in three major English-language dailies of Pakistan including Geo News, Dawn, and The Express Tribune. Through the application of Sketch Engine, Halliday's Transitivity System, and the Erasure framework proposed by Stibbe, this paper explores the construction of agency, responsibility, and ecology accountability in Pakistani climate media literature.

3. Research Methodology

3.1 Research Design

The present research uses Corpus-Assisted Ecolinguistic Discourse Analysis (CAEDA) for analyzing the construction of the concepts of responsibility, agency, and ecological accountability in Pakistani English newspaper coverage of extremely hot weather. The methodology of CAEDA combines the tools of quantitative corpus linguistics with those of qualitative ecolinguistic discourse analysis, whereby statistical features of the linguistic structures observed in the corpus can inform qualitative analysis (Baker, 2006; Baker et al., 2008). The application of corpus-assisted methodologies improves the transparency of the analysis by uncovering recurring linguistic patterns by means of frequency lists, keyword analysis, and concordance before qualitative analysis takes place (Baker, 2006; McEnery & Hardie, 2012).

The research adopted a sequential method of analysis. To begin with, a corpus consisting of news stories written in Pakistani English newspapers was created and analyzed via Sketch Engine to extract word lists, keywords, and concordance lines. The information obtained from the corpus served as the empirical foundation for carrying out the qualitative analysis. This involved analyzing the concordance data employing the transitivity system formulated by Halliday to explore the distribution of agency (Halliday & Matthiessen, 2014), and interpreting the results via the framework of erasure proposed by Stibbe (2021).

3.2 Corpus Construction and Data Collection

The dataset consisted of a special-purpose corpus of 30 English language straight news stories on issues related to extreme heat and heat waves in Pakistan. Purposive sampling technique was adopted and the selection was restricted only to articles that discussed extreme heat, heat wave alerts, temperature increase, and impact of heat on health, and response of the government on these issues.

The articles in the corpus were selected from three major English newspapers in Pakistan i.e. Dawn, The Express Tribune, and Geo News, 10 articles each from these sources. The sampling time frame was between 1 April and 30 June 2026, the peak heat wave period in Pakistan.

Cleaning was done manually before analyzing any article to remove non-linguistic aspects such as advertisements, hyperlinks, images, and other web content that is not relevant to the texts. The cleaned texts were then saved in the form of plain text (.txt) in UTF-8 format and loaded onto Sketch Engine for the purposes of corpus construction and analysis. Information regarding the source of the newspaper, the date of publication of the article, title of the article, and its web address were kept for corpus organization and the creation of newspaper subcorpora.

3.3 Corpus Compilation and Reference Corpus

After processing the data, the articles were arranged into a corpus using Sketch Engine, which is a software used for corpus analysis. It allows users to create their corpora, extract keywords, and analyze concordance and lexical profiles (Kilgarriff et al., 2014). The data set included one main corpus including all 30 articles and three corpora for each of the newspapers namely Dawn, The Express Tribune, and Geo News. Through sub-corpus analysis, we were able to perform an extensive analysis of the whole data set as well as compare the three newspapers without creating another corpus. Sketch Engine provides sub-corpora through metadata.

The reason for this was that the study involved a relatively small corpus that had been specially constructed for the purposes of this research. For those keywords that occurred just once in each newspaper subcorpus, the entire concordance line was subjected to qualitative analysis based on the Transitivity System of Halliday and ecolinguistics by Stibbe. The aim was not to measure the repetition of lexis but rather to look at how the statistically salient lexis operated in its immediate discursive context.

Unlike previous studies where the corpus is contrasted with the general English reference corpus, this study adopted an internal reference corpus approach. In the process of keyword extraction, every newspaper was compared with the corpus of the other two newspapers. This was methodologically correct since all texts shared common characteristics: they dealt with the same environmental issue; were written in the same timeframe; had the same news genre; and the same national context. Through the use of the internal reference corpus, variation due to different topic, genre, and period of writing was controlled, which allowed highlighting ideological differences among the newspapers' lexicons.

3.4 Corpus Composition

Table 3.1: *Composition of the Specialized Corpus*

Newspaper	Number of Reports	Tokens	Running Words
Dawn	10	4,913	3,996
Geo News	10	4,570	3,730
The Express Tribune	10	4,928	4,031
Total	30	14,411	11,757

The domain-specific corpus consisted of 30 straight news articles on the topic of extreme heat collected from Dawn, Geo News, and The Express Tribune. As indicated in Table 3.1, the corpus consisted of 14,411 tokens and 11,757 running words. The three sub-corpora were fairly similar in their sizes, as the sub-corpus from Dawn had 4,913 tokens (3,996 running words), the sub-corpus from Geo News had 4,570 tokens (3,730 running words), while The Express Tribune had 4,928 tokens (4,031 running words). It is important to know the size of reporting corpus.

3.5 Analytical Procedure and Software Application

The process of analysis involved a step-by-step approach, where the quantitative data from the corpus analysis informed the further qualitative discourse analysis. To begin with, corpus statistics and frequency wordlists were produced in order to get an overview of the lexical profile of the dataset. After that, the keyword analysis was done through a comparison of each newspaper-

specific subcorpus with its corresponding internal reference corpus, which helped identify lexical items that had statistical prominence in one newspaper compared to the other two.

To start with, corpus statistics and frequency wordlists were produced in order to have a look at the lexical profile of the dataset. After that, the keyword analysis was done via comparison of each newspaper-specific subcorpus with its corresponding internal reference corpus, helping identify lexical items that had statistical prominence in one newspaper compared to the other two.

Keywords from the resultant list of keywords were chosen for each newspaper in the following ways: 15 keywords per newspaper were chosen based on statistical salience, frequency of occurrence, pertinence to discourse about extreme heat, and analytically significant for the examination of agency and erasure. Statistical salience was gauged by the use of Simple Maths keyness score in Sketch Engine to determine the normalized frequency of a lexical item in the focus corpus compared with the reference corpus. This identified those words that are statistically very characteristic of a particular newspaper.

The keywords were then subjected to Concordance analysis through the display of every usage of a lexical item in their original context. Complete sentences rather than keyword-in-context (KWIC) were used in order to have all the clauses needed for transitivity analysis. No collocation analysis was conducted in this study since there was no need for that since the study was focused on the grammatical concept of agency in clauses and not on the lexical items. The concordance lines served as the qualitative data set for the transitivity and ecolinguistic analysis.

3.6 Analytical Framework: Halliday's Transitivity System

For the purpose of analyzing the extracted concordance lines qualitatively, the study utilized the Transitivity System proposed by Halliday, which is one of the central frameworks of the Systemic Functional Linguistics (Halliday & Matthiessen, 2014). The transitivity analysis deals with the representation of experience in language, and specifically, it involves the examination of the connection between the process, participant, and circumstance within each clause.

In this research, all concordance lines have been extended into full sentences and then coded. The main emphasis of the analysis was on the material process because it is the one that most closely corresponds to activities and events connected to extremely hot weather conditions. For every clause, the following components have been determined: Actor (a participant who executes an action), Process (verb), and Goal (a participant affected by the action). Other kinds of processes, such as relational, verbal, mental, behavioural, and existential, have also been investigated when necessary.

Passive voice and constructions where the Actor was either suppressed or marginalized received special focus. The purpose of analyzing these types of grammatical structures was to see if blame for the events associated with climate change was put on institutional actors, nature, or human actions, or if the actantiality was hidden through the use of language. This is where the transitivity analysis served as an empirical basis for studying how the Pakistani English press constructs responsibility, portrays vulnerable groups, and distributes ecological accountability.

3.7 Theoretical Framework: Stibbe's Ecolinguistics and Erasure

The results of the transitivity analysis were analyzed based on the ecolinguistic approach suggested by Stibbe (2021), especially focusing on erasure. Ecolinguistics studies the way in which linguistic choices affect people's interaction with nature and helps to reveal the stories and ideologies hidden in discourse (Stibbe, 2021). Erasure within the framework of ecolinguistics denotes the

suppression, marginalization, and distortion of participants, processes, and relations that play an ecological role using language.

Based on Stibbe's framework, each concordance line was analyzed to see whether ecological participants or sources of responsibility are included and revealed or not. Erasure is distinguished in three types: Void – the absence of ecological actors and causes; Trace – the brief mentioning of actors and causes; and Mask – replacement and distortion of responsibility.

This study was based on how Pakistani English-language newspapers reported the ideas of institutional responsibility, climate change, natural causes, and vulnerable communities in connection with extreme heat episodes. The combination of Halliday's transitivity analysis and Stibbe's idea of erasure allowed the study to go beyond mere identification of grammar into explanation of how discourses create, alter, or disguise ecological responsibility. This combination creates a systematic way of investigating the ideological aspects of environment-related news coverage.

3.8 Reliability and Trustworthiness

Whereas the quantitative results from the corpora were produced automatically through Sketch Engine software, the classification of transitivity patterns as well as erasure categories had to be done manually and qualitatively. In order to guarantee analytical consistency, the coding procedures were systematized in accordance with the Transitivity System proposed by Halliday and Matthiessen (2014) and the ecolinguistic approach suggested by Stibbe (2021). The coding of all concordance lines followed the same set of rules that allowed identifying the process type, the role played by participants and any case of Void, Trace or Mask erasure. The ambiguous cases were solved iteratively by analysing similar language structures until a conclusive classification was made. By doing so, one could avoid subjective bias and increase the level of consistency of the analysis. Furthermore, all interpretations were based only on real concordance lines taken directly from the corpora instead of textual examples. This is an important feature of the study because it guarantees the empirical grounding of the findings in real linguistic data.

3.9 Ethical Considerations

In this study, the ethical standards relating to corpus linguistics and discourse analysis were strictly adhered to. The corpus comprised only the publicly accessible articles from the official web pages of the chosen media outlets. Since there were no human subjects, personal information, interviews, or questionnaires involved in the research, no ethical approval and consent were needed. All news texts were gathered and analyzed purely for scientific purposes, and all sources were cited in accordance with the standard citation and copyright guidelines. During the analysis, interpretations were based on the evidence obtained via Sketch Engine, which included concordance lines directly from the corpus. Python

4. Analysis and Discussion

The results generated in this section are obtained through CAEDA on the basis of three corpora consisting of 30 news articles each from the newspapers Geo News, Dawn, and The Express Tribune. The analysis begins by providing a quantitative base in which the top 15 syntactically analyzed keywords for each corpus are provided. Then, in the next stage, full sentence concordance lines are analyzed in terms of grammatical agency through the application of Halliday's Transitivity System, and then interpreted from the perspective of the erasure principle of ecolinguistics proposed by Stibbe. Below are provided the examples that show the most frequent transitivity structures found in the course of concordance analysis.

4.1. Keyword Distribution and Syntactic Categorization

In order to make sure that the qualitative analysis would be based on statistically salient words, 15 words were purposefully chosen from the top 50 outputs for each newspaper on the basis of the keyness of these words calculated through an internal reference comparison. While fifteen statistically salient words have been found for each newspaper, in the current discussion only two such words would be considered which best represent the discourse patterns of agency and ecology-related responsibility.

Table 1: *Syntactic Categorization of Selected Keywords by Newspaper*

Corpus	Keyword	Freq	Keyness	POS	Keyword	Freq	Keyness	POS	Keyword	Freq	Keyness	POS
Geo	inquiry	3	656.45	N	mitigate	2	437.63	V	serious	3	656.45	M
	grower	2	437.63	N	hover	1	218.81	V	inactive	2	437.63	M
	minister	2	437.63	N	remove	1	218.81	V	high-level	2	437.63	M
	healthcare	1	218.81	N	spare	1	218.81	V	pre-monsoon	1	218.81	M
	encroachment	1	218.81	N	strain	1	218.81	V	emergency	1	218.81	M
Dawn	community	3	610.62	N	work	4	814.16	V	protective	4	814.16	M
	symptom	3	610.62	N	require	3	610.62	V	excessive	2	407.08	M
	commissioner	2	407.08	N	follow	3	610.62	V	harsh	2	407.08	M
	environment	2	407.08	N	surpass	2	407.08	V	equatorial	2	407.08	M
	prevention	2	407.08	N	recognise	2	407.08	V	northeastern	2	407.08	M
Tribune	waterway	3	608.7662	N	maintain	4	811.6883	V	timely	6	1217.532	M
	foundation	2	405.8442	N	recover	2	405.8442	V	critical	3	608.7662	M
	chhipa	2	406.844	N	brace	1	202.9221	V	mountainous	2	405.8442	M
	dissemination	2	405.8442	N	die	2	405.8442	V	adverse	2	405.8442	M
	readiness	1	202.9221	N	blow	2	405.8442	V	worst-affected	2	405.8442	M

From Table 1, one can notice different lexical characteristics in each of the three sources. For all three subcorpora, nouns and material verbs were dominant, thus suggesting that the construction of extreme heat in the newspapers was mainly carried out through actors, events, and actions rather than evaluations. The geo news was inclined to use nouns and modifiers that had to do with policy and evaluations (such as “inquiry”, “high-level” and “serious”). The dawn used more verbs and

modifiers in relation to public health compliance (such as “protective”, “follow”, and “require”). The express tribune used many lexemes related to disasters and human casualties.

Even though some keywords appeared seldom, their selection was not dependent upon their frequency but on statistical keyness. Keyword identification refers to the detection of those words which are more prominent compared to the reference corpus. Consequently, even though some keywords were not common, their analysis was still justified.

4.2. Structural Causation and Systemic Accountability in *Geo News*

Based on the analysis of concordances, the patterns that can be found in *Geo News* seem to suggest that the connection between the phenomenon of extreme heat and governance, environmental management, and institutional actions is being highlighted. The newspaper uses lexical items like encroachment and mitigate to describe the ecological issue as something that is exacerbated by the structural problems rather than nature itself.

For example, one concordance line from the article states that "illegal encroachments along river routes and flood channels had contributed significantly to damages". Here, "illegal encroachments" can be seen as an Actor in the material process "had contributed", influencing the Goal of the clause which is "damages". Moreover, "along river routes and flood channels" in this case operates as a Circumstance of Location. Thus, it can be seen as a partial example of Masking within Stibbe's (2021) framework. While this discourse makes it clear that illegal encroachments were a contributing factor in the environment destruction, the discourse leaves those institutional actors who made decisions on regulating this development hidden.

However, when it comes to offering solutions, concrete institutional actors are clearly made visible. According to *Geo News*, the NDMA "advocated for the activation of emergency plans by the authorities and for citizens to take precautions to reduce health and environmental risks," while the Prime Minister "called for emergency level action to reduce the risk." In these clauses, governmental institutions act as the Sayers in verbal processes (advocated/called) and as the Actors in the following material processes (activation/reduction of the risk). The state is thus clearly identified as the institution responsible for climate preparation and risk reduction.

Table 2: *Summary of Transitivity and Erasure Patterns in Geo News*

Keyword	Primary Participant	Process Type	Circumstance	Erasure Category
encroachment	encroachments	Material	Location (river routes)	Mask (abstracted blame)
mitigate	authorities / PM	Material / Verbal	Reason (associated risks)	None

4.3. Institutional Bureaucracy and Individual Burden in *Dawn*

The patterns of transitivity in *Dawn* reflect a heavy dependence upon bureaucratic discourses, which consistently construct the state as an active communicator and transfer the physical burden of climate adaptation onto individual citizens through language.

This can be observed in the employment of commissioner in the text, which says, "The PDMA directed all divisional commissioners and deputy commissioners to activate emergency preparedness measures." In this case, the PDMA (Actor) performs a linguistic action ("directed"), which acts on the commissioners (Goal/Receiver) to undertake material action ("activate").

However, on analyzing the use of the modifier 'protective,' which occurs in four examples in the corpus, there is a noticeable shift in terms of responsibility. Overall, the context in which the concordance lines occur can be grouped into four distinct discourses: government advice, scientific data, occupational safety, and the protection of vulnerable groups. In all cases, the concrete actions of survival—such as avoiding sun rays, changing clothes, or using air conditioning—fall on citizens/workers as the Actors. For instance, "Citizens should not expose themselves to the sun rays directly" has the citizen as the Actor in the material process "avoid," where "during peak hours" is the Circumstance of Time. From the ecologically oriented perspective, such a combination constitutes a Trace. While the state is presented as a consultant here, the concrete institutional actors who would carry out the measures on the urban scale are absent.

Table 3: *Summary of Transitivity and Erasure Patterns in Dawn*

Keyword	Primary Participant	Process Type	Circumstance	Erasure Category
commissioner	PDMA	Verbal	-	None
protective	citizens / workers	Material	Time (peak hours)	Trace (marginalized state support)

4.4. Human Vulnerability and State Erasure in *The Express Tribune*

The concordance lines extracted from *The Express Tribune* focus less on institutional management but use expressions like "worst affected" and "chhipa" in order to stress the vulnerability of humans and dependence on humanitarian NGOs.

The severity in both geographic and demographic aspects is created by means of relational processes. According to *The Express Tribune*, "the southern Punjab, Sindh, and parts of Balochistan were expected to remain among the worst-affected areas." In this sentence, the geographic areas play the role of Carrier, being related to the Attribute (worst affected) through an intensive relational process (were expected to remain). While referring to casualties, the newspaper uses passive structures: "at least ten bodies were recovered from different parts of the city." In this case, the bodies serve as the Goal of a material process (were recovered) and from different parts of the city is a Circumstance of Place. The exclusion of the Actor behind the process of recovery foregrounds the institutions of emergency response systems and aids in creating the illusion of non-governmental responsibility. The exclusion foregrounds the institutions of emergency response, thus naturalizing death as a result of severe weather conditions, not as a result of failures of disaster relief management.

The only institution whose agency is foregrounded in the immediate reaction to the deaths is a private NGO. It is stated that: "Shahid Chaudhry, spokesperson for Chhipa Foundation, said that four of the deceased were found in critical condition and died during treatment". By using verbal agency ("said") of a spokesperson of a private NGO, but not naming those who actually performed the rescue operations, the discourse creates an image of civil society being the main respondent. It is a Trace of governmental intervention; the state is very much excluded in favor of humanitarian organizations.

Table 4: *Summary of Transitivity and Erasure Patterns in The Express Tribune*

Keyword	Actor / Carrier	Process Type	Circumstance	Erasure Category
worst-affected regions		Relational	Time (daytime hours)	Mask (omission of causes)
chhipa	NGO spokesperson	Verbal	Location (homes, mosques)	Trace (state backgrounded)

4.5. Discussion: Ideological Variations in Climate Discourse

When the transitivity analysis of Halliday is coupled with Stibbe's framework of erasure, it is evident that there is no homogeneous story of the extreme heat created by Pakistani English newspapers. Rather, it seems from the data that there are separate ideological positions that form the basis of the discourse.

Table 5: *Synthesis of Dominant Ideological Frames*

Newspaper	Dominant Process Type	Dominant Actor	Constructed Responsibility	Primary Erasure Mechanism
Geo News	Material + Verbal	Government institutions / Infrastructure	Structural / Systemic	Mask (abstracting blame)
Dawn	Verbal + Material	Government (Communicative) / Citizens (Material)	Shared / Individualized	Trace (marginalizing state action)
The Express Tribune	Relational + Verbal	NGOs / Victims	Humanitarian / Reactive	Mask (omitting state emergency services)

According to Table 5, Geo News seems to give emphasis to structural accountability in its discussion of the climate situation, linking the severity of the climate with governance and infrastructural policies. While Geo News may try to mask the individuals behind abstract nouns sometimes, it seems to give emphasis to systemic accountability more often. Dawn, on the other hand, seems to create a collective but highly personalized notion of responsibility. Although there are government organizations in the discourse who actively communicate their stance, the discourse seems to slowly transfer the responsibility for dealing with the climate change from government to individuals through behavioral instructions and precautionary measures. Finally, The Express Tribune does not seem to give any importance to the state at all. Through using passive constructions to hide the official emergency service agencies and emphasizing the deadly impact alongside NGOs, The Express Tribune creates a humanitarian discourse where the public is seen as highly vulnerable.

These distinctions are extremely important for climate communication in Pakistan. Media discourse that individualizes risk (Dawn) or downplays the state's emergency preparedness capacity (Tribune) might end up unintentionally masking the need for collective, state-based adaptation policies in response to climate change. On the contrary, media discourse that frames the crisis within the context of structural accountability (Geo News) may create the public's need for infrastructural resilience. In sum, the corpus-assisted analysis clearly shows that reporting on extreme heat is not a simple translation of meteorological information but an ideologically-driven practice of constructing public ecological accountability.

From the three selected newspapers, two categories of erasure by Stibbe (2021): Mask and Trace, were found in the corpus. There were no signs of the category Void. The category Mask could be found when institutional actors were being omitted using passive voice and nominalization; the category Trace was present when the role of the government was marginalized in terms of the advisory functions.

Conclusion

The present study investigated how the phenomenon of extreme heat was constructed linguistically in Pakistani English newspapers using Corpus-Assisted Ecolinguistic Discourse Analysis (CAEDA). Through the use of corpus linguistic methods and Halliday's (2014) Transitivity System and Stibbe's (2021) concept of erasure, it was shown that media coverage is not only about reporting events but also about creating certain discourses on agency, accountability, and ecological responsibility. In line with corpus-assisted discourse studies, the methodology involved both quantitative analysis of keywords and qualitative analysis of concordances.

There was an observable ideological distinction between the three newspapers based on the findings. In the case of Geo News, institutional responsibility and structural causality was predominant in terms of depicting governmental actors as significant in climate readiness and risk management. On the other hand, Dawn combined the use of bureaucracy with behaviour guidance in order to slowly transfer the blame of climate change and global warming onto individuals through the use of precautionary language. Finally, The Express Tribune depicted human vulnerability and humanitarianism, often using governmental participation passively, but emphasizing the work of NGOs instead.

Overall, the study illustrates how linguistic choices in climate journalism affect people's perceptions of ecological responsibility. The use of corpus linguistics and ecolinguistic discourse analysis has allowed for contributing to the field of environmental communication studies in Pakistan.

Conflict of Interest

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