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Exploring the Semantic Domain of Environmental Issues in British English Conversation: A Corpus-Assisted Ecolinguistic Perspective

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Abstract

In the age when environmental sustainability is among the chief concerns and goals of communities around the world, a number of linguistic studies have been conducted to illuminate the roles of language in protection and destruction of ecological systems. Most of the studies, however, focus on written and/ or formal discourses. The present study aims to fill the gap regarding text varieties in ecolinguistic research by exploring informal conversation, focusing on text meanings of lexical items in the semantic domain of environmental issues. The spoken component of the British National Corpus 2014 was employed as data and concordance lines for lexical items tagged as related to environmental issues were extracted and analysed. Drawing on the concept of local textual functions in corpus linguistics (Mahlberg, 2007), the given lexical items were examined in terms of their lexicogrammatical patterns and associated functions before each functional category was interpreted and discussed from an ecolinguistic perspective on the basis of the interrelatedness concept proposed by Goatly (2022). The analysis reveals 10 local textual functions of the given domain of lexical items in British English informal conversation. Through an ecolinguistic lens, these functions suggest that environmental lexis is part of the discursive construction of individuals' social identities and personal stories, reflecting an inseparable relationship between humans and the environment. It is thereby suggested that informal conversational discourse is not less important than other discursive practices in its potential for promoting environmental sustainability.

INTRODUCTION

The multifaceted threats to the world's physical environment, ranging from climate change, resource depletion, to population displacement, have driven extensive research in various fields of study into environmental issues and sustainable development. In linguistics, recent decades have seen substantial research on the intersection of language and environmental issues. A wide range of text types have been examined to illuminate how language can promote or hinder the planet's well-being. These include analyses of news reports (e.g., Chen & Liu,

2024; Potts et al., 2015), textbooks (e.g., Hamed, 2021; Ma, 2023), debates (e.g., Collins & Nerlich, 2014; Ma & He, 2023), corporate reports (e.g., Fuoli & Beelitz, 2023; Lischinsky, 2014), literature (e.g., Goatly, 2022; Ibrahim, 2021), papal encyclicals (Castello, 2019), presidential speeches (e.g., Bevitori, 2015; Tosun & Debus, 2020), advertisements (e.g., Ahmed et al., 2021) and multimodal discourse (e.g., Stibbe, 2023).

Despite significant insights and contributions from these studies, the focus of research on the interplay between language and ecological issues, or ecolinguistics, has predominantly been placed on formal, written, and ecologically related discourses even though, as Alexander and Stibbe (2014) remark, an examination of the relationship between language and the physical environment should encompass all types of discourse and those that are not directly about ecological systems. There remains a question about to what extent and in what ways this globally important matter is part of such everyday discourse as conversation. The present study seeks to fill the gap by exploring patterns and uses of words in the semantic domain of environmental issues in British English informal conversation. This is in order to investigate the ways in which environmentally related matters are represented in informal conversations, which in turn can reflect how they are perceived and perpetuated through "a central activity in social life" (Hutchby & Wooffitt, 2008, p. 1).

This paper is structured as follows. First, theoretical contextualisation of the present study is provided. Then, data and research methods are described before results are reported and discussed. The final section concludes with a summary of findings, limitations of the study and suggestions for future research.

LITERATURE REVIEW

Ecolinguistics

The term *ecolinguistics* was first coined by Haugen (1972), who applied the ecology metaphor to language, defining the ecology of language as "the study of the interactions between any given language and its environment" (Haugen 1972, p. 325). The environment of language in Haugen's definition refers to the society that uses language and focuses on the social and psychological environment of language, not the physical environment. The early stage of ecolinguistics therefore features language contact and language planning, examining how languages interact within multilingual societies and how language policies can influence linguistic diversity and vitality. Over time, the field has evolved to encompass a broader perspective, emphasizing the relationship between language and the physical environment. This shift was significantly influenced by Halliday's (1990) lecture "New Ways of Meaning: The Challenge to Applied Linguistics", which highlighted the role of language in influencing the way members of a speech community see, behave and interact with the natural world. For example, he argued that the distinction between countable and uncountable nouns promoted the idea that considers natural resources denoted by uncountable nouns, such as water or oil, as unlimited (Penz & Fill, 2022).

Modern ecolinguistics adopts a discourse-based approach to the study of language and the physical environment, known as Ecological Discourse Analysis (EDA). EDA argues that language is not merely a means of communication but also a powerful tool that reflects and shapes human interactions with the natural world; discourse that disregards natural surroundings can be harmful, at least in the long run, to the environment and that which is considerate of the natural world can bring about ecologically positive changes to the planet. By analysing discourse, it is possible to uncover underlying ecologically (un)friendly views and ideologies, and contribute to environmental sustainability or degradation.

There are several approaches to EDA, including critical discourse analysis, multimodal discourse analysis, systemic functional linguistics, cognitive linguistics and corpus linguistics. Because approaches to ecolinguistics are diverse, an attempt has been made by Stibbe (2021) to bring together a range of approaches to ecolinguistic analysis into a single framework called "stories-we-live-by" (Stibbe, 2021, p. 6). Stibbe argues that ecological and other problems in the world and societies today are based on "the fundamental stories", which are not the kind of narratives in novels and short stories but "exist behind and between the lines of the texts that surround us" (Stibbe, 2021, p. 3), such as news reports, advertisements, conversations with friends or textbooks. Underneath a news about a corporate's sales drop or increase, for example, lies a fundamental story shared by members of the community that an economic growth is a major indicator of the society's success (Stibbe, 2021). The role of ecolinguistics, as defined by Stibbe (2021, is to analyse "language patterns in texts" to expose the underlying stories-we-live-by and then consider them from an ecological perspective whether they encourage people to care for or destroy the ecosystems (p. 17).

Corpus linguistics and corpus-assisted ecolinguistics

Corpus linguistics is the study of patterns in the language that are observable in a corpus, i.e., a collection of sampled machine-readable texts considered to be an appropriate basis for investigating certain linguistic phenomena (McEnery & Hardie, 2012). Because a corpus is usually of a size "which defies analysis by hand and eye alone within any reasonable timeframe" (McEnery & Hardie, 2012, p. 1), corpus-based research involves software and computer-assisted methods to enable researchers to identify, calculate and compare language patterns, e.g., concordancers, wordlist, or keywords.

As can be seen from the above, both corpus linguistics and ecolinguistics share a common interest in the focus on patterns of language in texts and meanings associated with the patterns. A corpus linguistic approach to ecolinguistics, or corpus-assisted ecolinguistics, is described by Poole (2022, p. 27) as a study that:

- analyses a self-compiled specialised corpus or an existing publicly available corpus to answer a research question related to the aims of ecolinguistics;
- analyses a linguistic feature or features (e.g., pronouns, metaphors, modality, transitivity, etc.) and investigates its/ their functioning within the target discourse for normalising and (re)producing positive or negative ideologies, beliefs, attitudes, or practices regarding the physical world and/ or its human and non-human animal inhabitants;

- applies techniques from corpus linguistics, e.g., collocational analysis, cluster analysis, keyword analysis, semantic tag analysis, etc., and corpus assisted discourse studies to aid in the analysis of the linguistic feature(s) within the target discourse

Poole's description of corpus-assisted ecolinguistics above seems to highlight the methodological aspects of corpus linguistics and combination between corpus linguistics and critical discourse analysis for ecolinguistic purposes. The present study does not only follow the above tradition but also makes use of theoretical concepts developed in corpus linguistics. Because a corpus contains texts, linguistic patterns extracted from a corpus are among the meaning-making resources in communicative acts. As Mahlberg (2007) argues, one of the "key pillars" in corpus linguistic research is that pattern and meaning are associated (p. 193). Explaining the pattern-meaning relation, however, is a complex task. This is because meaning of a word is multidimensional, especially when it occurs in a text. As illustrated by Figure 1 below, at one end of the spectrum, a word retains a meaning "without any support from a cotext […] when cited", which Sinclair (2005) called the "residual meaning" (p. 21). This type of meaning may be approached from cognitive and psycholinguistic perspectives. At the other end, a word has "text meaning", i.e. meaning that depends on "the configurations and patterns of co-selection in a particular text" as well as non-linguistic context and the text receiver's interpretations (Mahlberg, 2007, p. 194). Between the two ends lie different categories of cotextual features that surround the core lexical item.

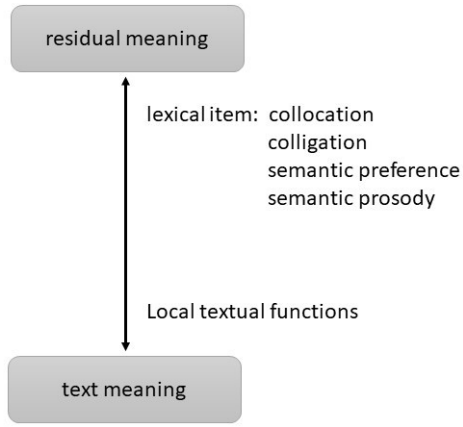

Figure 1 Levels of description for the meanings of a lexical core (Adapted from Mahlberg, 2007, p. 194)

Text meaning, however, is multidimensional. According to Systemic Functional Linguistics, language simultaneously performs three functions in constructing meaning: (1) the ideational metafunction, which constructs ideas and experiences, (2) the interpersonal metafunction, which constructs discourse participants' identities and their relationship and (3) the textual metafunction, which manages the flow of information to make discourse cohesive and coherent (Gebhard & Accurso, 2020). Text meaning of a lexical item therefore incorporates ideational, interpersonal and textual dimensions as a result of the word's relationship with other words in the text and with non-linguistic context, in which the text is produced and received.

A corpus linguistic approach to meaning is conducive to describing a lexical item's text meaning, since it allows analysis of co-textual patterns. Although texts that make up a corpus were taken out of their contexts, their contextual information was more or less stored during the corpus compilation process and, importantly, an examination of a large number and variety of textual contexts in a corpus can help identify repeated patterns that occur across multiple texts.

To describe the pattern-meaning relation in a corpus, Mahlberg (2007) proposes the concept of *local textual functions* (LTF), focusing on the textual components of meaning (i.e. text meaning) that are associated with lexical items and their repeated patterns. The word *function* is used to stress that meanings of a lexical item are described on the basis of their occurrences in textual contexts and hence simultaneously involve ideational, interpersonal and textual dimensions. The functions are *local* in that they do not claim to capture general functions, but functions that are specific to a (group of) text(s) and/ or specific to a (group of) lexical item(s). In other words, the concept "pays close attention to similarities between lexical items and/ or meanings in specific groups of texts" (Mahlberg, 2007, p. 193). In the present study, LTF is applied to explore similarities of patterns and text meanings among lexical items in the semantic domain of environmental issues that occur in British English conversations. Patterns and meanings found from the LTF analysis are then considered in light of the concept of *interrelatedness* between humans and the ecology, which I adopt as the main principle in interpreting language patterns from an ecolinguistic perspective in this study.

Interrelatedness

Identifying patterns and local textual functions of lexical items related to environmental issues is a corpus linguistic task but it does not follow automatically that the derived corpus-driven findings are related to ecolinguistic purposes. As observed by Hunston (2002), to relate patterns of language observed in a corpus to social aspects of meaning, "the researcher is encouraged to spell out the steps that lie between what is observed and the interpretation placed on those observations" (p. 123). As ecolinguistics seeks to investigate the "role of language in the life-sustaining interactions of humans, other species, and the physical environment" (International Ecolinguistics Association, 2024), the concepts of interconnectedness and interdependence between humans and nature are employed in this study as a bridging concept for an ecolinguistic interpretation of corpus-driven language patterns.

Interconnectedness and interdependence are concepts that underlie Daoism and Buddhism. According to Kohn (2001, p. 21, as cited in Goatly, 2022, p. 464), the Dao is "the ongoing flux of life in which everything is relative and related to everything else". In the universe, everything is interrelated and affecting everything else. In a similar vein, Buddhism emphasizes the interrelatedness of living and nonliving systems in Nature through the concept of *Dharma* and *dependent co-origination* (Upreti, 2023): different species are dependent upon one another and contribute to other species' existence as well as the ecosystems that sustain their existence. These philosophical concepts correlate with the positions of certain scientific theories. The quantum theory, for example, stresses that "inseparable quantum interconnectedness of the whole universe is the fundamental reality and […] relatively independently behaving parts are

merely particular and contingent forms within this whole" (Bohm & Hiley, 1975, p. 102, as cited in Goatly, 2022, p. 464). Also, the Gaia Hypothesis states that the Earth is a self-regulating organism, called Gaia, with a complex system that involves the biosphere, the atmosphere, the hydrosphere, and the pedosphere, all of which are interconnected and interdependent as an evolving system: "Life and its environment are so closely coupled that evolution concerns Gaia, not the organisms of the environment taken separately" (Lovelock, 1988, p. 19, as cited in Goatly, 2022, p. 464).

The convergence of these concepts in science and philosophy is useful in providing a foundational framework for ecolinguistics in examining and interpreting the way language and discourse constructs interrelatedness or divisiveness between humans, non-human living things, the physical environment and the ecosystems. For example, in his analysis of poems, Goatly (2022) suggests that personification and coordination can iconically articulate the principle of interconnectedness between man and other entities, both living and non-living, in the planetary ecosystem; the former blurs the distinction between the human and non-human elements of nature and the latter conjoins the natural, human and human-made. In the present study, language patterns, e.g., co-occurrences between lexical items, repeated grammatical patterns of the given lexical items and cohesion in conversations, are interpreted as linguistic realisations of the interrelatedness between humans (the speaker and interlocutors), objects, activities and the environment.

Previous studies in corpus-assisted ecolinguistics

Over the past few years, a corpus-assisted method has been extensively adopted to investigate the roles of language and discourse in environmental issues. Many of the studies focus on written discourse. For example, Fuoli and Beelitz (2023) investigated sustainability reports published between 2011 and 2020 by large greenhouse gas emitters through analysis of keyword, key lemma, and collocation analyses. They have found that although the corporates place more focus on climate issues and make net-zero pledges, the reports betray disconnection between proclaimed goals, the solutions advocated for, and the steps necessary for tackling the climate crisis. Franklin et al. (2022) examined a corpus of 5.6 million words of UK English around plastics, packaging, reuse, and recycling to examine consumer attitudes towards plastic (re)use. Combining methods and insights from ecolinguistics, corpus linguistics, and cognitive linguistics, the study has demonstrated that customers are often represented as dependent on the company to perform beneficial acts for the environment or community, rather than as capable agents of environmentally friendly actions themselves, because the company is portrayed as the provider of opportunities and means to save the planet to their customers. McClaughlin et al. (2022) compiled a corpus of English language texts about donkeys, published between 2015 and 2020, from different genres, namely print news, tweets, and informative texts produced by The Donkey Sanctuary, to examine the representation of donkeys in public discourses for The Donkey Sanctuary. The main findings reflect the anthropocentric nature of popular discourses in that they tend to present what humans think, feel, or do to donkeys, rather than about what donkeys do or feel, or how they relate to other entities. Finally, literary texts have also been approached from a corpus-assisted ecolinguistic perspective. Ibrahim (2021), for example, extracted 30 most frequent nouns from a self-compiled corpus of 47 fables

written by James Thurber and analysed them in light of Lakoff's frame theory. The analysis shows that the interactions between animals, to a large extent, resemble human social relations and manner of exploiting nature.

While the studies above illustrate that corpus-assisted ecolinguistic studies tend to follow the EDA approach, looking at how common linguistic patterns in particular written ecological texts represent relevant environmental issues, a couple of studies take departure from lexical items and examine the ways their patterns construct narratives about the environment. For instance, Liu and Huang (2022) compared the terms *climate change* and *global warming* in the representations of the crisis in *The New York Times* between 2000 and 2019. The findings show both similarities and differences between the two terms. For example, both terms are strongly associated with environmental, political and scientific themes although uses of *climate change* is more politically oriented while *global warming* tends to show preference for science. Also, Gilquin (2022) conducts a diachronic lexical analysis of the word *second-hand* in the Corpus of Historical American English (COHA) to find out how the representations of second-hand consumption in discourse have evolved over time, using frequency and collocation analysis in tandem with qualitative analysis. The study reveals that the word has decreased in frequency since the 1960s and that it is dominantly used as part of negative representations of goods, shops and some groups of people. The more recent data, however, exhibits representations of second-hand shopping as one of the different ways of consumption. Another study along the same line is Mahlberg (2007), which examines local textual functions of the phrase *sustainable development* in different sections of newspapers. The study identifies 11 local textual functions of the term, which are largely based on similarities of features on the textual surface observable from concordance analysis. These functions highlight various aspects of sustainable developments that make it newsworthy. For instance, it is relevant to specific global events, such as World Summit, reflecting its relationship with social organisations, social factors as well as sociocultural concepts.

To contribute to the corpus-assisted approach to ecolinguistics, the present study extends the above relatively marginal line of enquiry by investigating not a lexical item or a pair of apparent synonyms but a group of words under the same semantic domain of environmental issues. Moreover, it explores uses of those lexical items in informal conversational exchanges, which has been far less studied from an ecolinguistic perspective.

A few existing studies that analyse spoken texts tend to focus on formal spoken discourse, especially political speeches. Willis (2017), for example, investigated UK politicians' discussion of the Climate Change Bill, which became an Act of Parliament in 2008. The analysis shows that in the given context the politicians represent climate change as an economic and technical issue while they rarely touch on environmental, human, non-human and social aspects of climate change. This corresponds to Cunningham et al.'s (2022) study, which examined politicians' speeches on climate change in a wider context and also compare them with activists' transcribed speeches on the topic. Their findings indicate marked differences between speeches of the two groups of stakeholders. The activist discourses tend to represent negative impacts of climate change as attributed to human beings, and are characterised by a semantic frame of immediacy and realness. By contrast, the politicians' speeches are

significantly constituted by semantic frames of industry, finance, politics and economy, and climate change is largely linked to non-human actors. Also, Bevitori (2015) studied speeches delivered by 10 U.S. presidents to examine discursive constructions of the word *environment* in American presidential speeches from a diachronic perspective. It is found that meanings of the word tend to vary across time according to several factors, including political priorities, worldviews and time frames. The study also reveals that meanings of *environment* show growing interrelatedness with *protection, energy conservation* and *cleanliness* over time in presidential speeches.

All of the above sample studies illustrate not only the value of corpus-assisted ecolinguistics research in shedding light on the way language constructs and (re)produces perceptions of the physical environment in the society but also that research in this area focuses more on written or formal discourse that address environmental issues. It cannot be denied that in order to achieve environmental sustainability, small acts and everyday discourse performed by ordinary people are not less important than media or presidential discourse. It is the aim of the present study to explore how environment-related words are used in informal conversations and how those uses, in turn, discursively reflect and construct aspects of interrelationship between humans and the environment. The research questions this study seeks to answer are:

1. What lexicogrammatical patterns are shared among lexical items in the semantic domain of environmental issues in British English information conversation? What local textual functions are associated with the given lexical items and their shared patterns in British English information conversation?
2. What do local textual functions of those lexical items suggest in terms of the relationship between humans and the environment?

The first question is the major research question in this study, seeking to explain from a corpus linguistic perspective the roles of environmental words in informal conversation. Answers to this question are given in the Results section. The second question aims to relate textual findings to ecolinguistic interests and hence will be presented in the Discussion section.

DATA AND METHODS

The data used for this study is the spoken component of the 2014 British National Corpus, which contains transcriptions of informal conversations recorded during 2012-2016. The data was retrieved from the CQPweb platform (https://cqpweb.lancs.ac.uk/) (Hardie, 2012). It was tagged for parts of speech and semantic domains through the automatic taggers CLAWS and USAS, respectively. This allows researchers to investigate grammatical and semantic categories of lexical items in the corpus. It must be noted, however, that while the grammatical tagging reaches a 96-97% accuracy, that of semantic fields a lower rate of 91% (Rayson et al., 2004). This is mainly due to the polysemous nature of lexical items. Therefore, analysts need to check meanings of the words assigned to the semantic domain under study as part of the analytical procedures.

The semantic tagset used by USAS contains 21 major semantic fields with further subdivision in certain cases, one of which is the *world and environment* field tagged as W, with *green issues* as a subset tagged as W5. By typing the tag W5 under the Spoken BNC2014 corpus query on the CQPweb, all the lexical items in the semantic domain were yielded in concordance lines, totaling 691 tokens, consisting of the following words: *conservation, deforestation, desertification, eco, ecological, ecologically, ecology, ecosystem, energy, environment, environmental, environmentally, environs, naturalist, nature, pollute, polluted, polluting, pollution, preservation, resources* and *saving*. All the concordance lines were then read manually to check whether the node word for each line denotes meanings related to the physical environment. Those that do not were excluded from further analysis. To illustrate, the statement *that's not in your sort of nature to think like that or to be like that* was removed because the word nature in this line refers to someone's character while that in the following line was selected as it points to "everything in the physical world that is not controlled by humans" (Online Longman Dictionary of Contemporary English): *they organise nature walks and hill walks and all whatever in the summer*. All irrelevant cases excluded, a total of 436 instances remain for further analysis. They were copied and saved in an MS Excel file.

All the 436 W5 concordance lines were examined in terms of the node words' co-occurrence patterns. The analysis focuses on the co-occurrence between each W5 node word and its neighbouring lexical items within the span of 5 words to the left and right of the node, not counting repeated words and spoken particles, e.g., *erm* and *huh*, which are typical of spoken English and hence retained in the transcriptions within the Spoken BNC2014 but not relevant to the purpose of the present study. To identify LTF associated with W5 words, repeated surface patterns are considered in combination with similarities in meanings. Because a certain lexicogrammatical pattern may articulate several textual meanings, only those with shared patterns and meaning associations are grouped together as a particular local textual function. In cases where the textual context provided by concordance lines was not sufficient for identification of text meanings, extended contexts of conversational exchanges were analysed. Following an inductive approach, the label for each functional group was created ad hoc to represent the local textual function that emerges from co-occurrence patterns shared by most instances in the group. Also, because text meaning is multidimensional (see the Literature Review section), the label for each functional group highlights only some aspects of text meanings shared by W5 words on the basis of their common lexicogrammatical patterns. The functional categories developed here are therefore a heuristic tool that describes discursive patterns associated with W5 words in present-day British English conversation.

It must be noted that some concordance lines can be assigned to more than one group since they can perform several functions as reflected by their co-textual features. For example, the utterance *God no, cos the pollution out there's awful* can be seen as the representation of pollution as a cause as suggested by its following *cos*, and at the same time as the point of evaluation because it is described as *awful*. In such cases, a broader context of interaction was examined to see what seems to be a more focused aspect in the interaction and the given instance would be assigned to one functional group. This procedure can be illustrated by an analysis of the extended textual context of the above sample utterance below:

S0024: do you wanna take her for a walk in a little while? shall we go for a little walk?
S0144: god no cos the pollution out there's awful
S0024: oh is it ? (.) oh
S0144: can't you smell it?
[…]
S0024: here ?
S0144: yeah

In the above excerpt, it is interpreted that the speaker wishes to stress the severity of the pollution in the area, placing *awful* at the end of the utterance and thus assigning to the word the role of new and salient information. The speaker could have simply mentioned pollution without talking about its characteristic as a reason for not going out (e.g., *cos of the pollution*). The other participant also picks up the good/ bad evaluative aspect of meanings as the most salient message, as suggested by his/ her immediate response with a question about the degree of the pollution in the next turn. For this reason, this case of *pollution* was put in the *Evaluation* functional group.

RESULTS

Based on the analysis of concordance lines for W5 words in the spoken BNC2014, a total of 10 functional categories were identified, as summarised in Table 1. As stated earlier, since a lexical item may have multiple and overlapping local textual functions, the frequency demonstrated in Table 1 may not be taken as a definitive indicator of dominant or marginal textual functions of W5 words but as a suggested tendency towards certain meaning potentials in contemporary British English conversation. The 10 local textual functions of W5 words are discussed below, starting from the most common one.

Table 1

Functional groups of W5 words in the spoken BNC2014

No.	Functional group	Frequency	Sample utterance
1.	Evaluation	98	She was sitting there, enjoying the nature.
2.	Attributes or perspectives	94	Those energy-saving things!
3.	The Affected & Actor	79	I'll check the pollution. (Affected) The environment has a lot to do with that. (Actor)
4.	Defining – Explaining	46	What it's called that might be an ecology.
5.	Places	36	It's a nature conservation site really.
6.	Identities	34	You're a freak of nature.
7.	Cause – Effect – Contrast	18	Because nature's declining... (Cause) It's geared towards economic outcomes with the environment. (Effect) Their priority is the TV, not the life and nature. (Contrast)
8.	Education	14	I was doing ecology and statistics.
9.	Name	10	I was editor of a series called *Nature*.
10.	Discourse Topic	7	You're talking about the environment.
All		436	

1. Evaluation

It is perhaps not very surprising that the *Evaluation* group is the most dominant. As Hunston and Thompson (2001) point out, evaluation is fundamental to discourse; when people communicate, their linguistic choices tend to express, directly or indirectly, their views about the given state of affairs. However, it is interesting that this largest functional group of W5 lexis is made up of only five word forms of three lemmas: *pollution, polluted, polluting, nature* and *environment*. This in turn suggests that issues concerning *environment, nature* and *pollution*, when compared with other W5 lexis, tend to be particularly evaluated in informal conversations.

The central pattern that accounts for the identification of this functional group is co-occurrences between those W5 words within a five-word span to the left and right with evaluative expressions (see Figure 2), which suggest the speaker's positive/ negative view or intensification/ mitigation of the proposition (see Martin & White, 2005). It should be noted that uses of W5 words in other groups may also contribute to evaluative utterances but they were not put in this group because their lexicogrammatical patterns and textual context do not meet the criteria spelled out above.

1	was really nice S0018: it 's just really like a kind of sterile	environment	(.) apart from the view S0146: it 's it 's it 's warmed up
2	D just pollution S0012: >>no that is n't that 's that 's terrible	pollution	and S0013: yeah S0012: and apparently they they get lots of er
3	30013: that 's just pollution was it ? S0012: that was terrible	pollution	S0013: I thought there was a problem with all sorts of diseases
4	>>yeah yeah there 's loads of spray S0167: >>so bad for the	environment	S0104: I know and he has n't got a washing line so I
5	ıy peanut butter has palm oil which is really harmful to the	environment	S0631: >>yeah S0632: and everything 's just buggered up S0631
6	eah it 's better than the Tesco S0618: >>and I kno- fabulous	eco	range S0619: yeah really good S0618: of environmentally-frien
7	photography ? er and that is (.) if you 're interested in in	nature	(.) trying to take erm pictures of plants or animals that are any
8	I was just out meeting new people and it was a nice	environment	beautiful place they 're nice people S0453: yeah S0454: >>and I
9	eem to have nervous breakdowns that to me suggests that	nature	is quite important S0453: yeah yeah S0454: and it 's only by trac
10	ng or was she just kind of calmly sitting there enjoying the	nature	of it S0037: >>I think it was (.) no (.) no she was drunk I

Figure 2 Sample concordance lines for the Evaluation group

This functional category may be seen as relevant to one of Stibbe's (2021) proposed stories-we-live-by: *Evaluation*. However, while Stibbe suggests that evaluative discourse can reflect and influence the ways the environment is perceived, the present study, with environment-related words as a starting point, throws light on some other aspects of the relationship. First, environmental words have evaluative textual functions because the environment, nuture and pollution have a role in people's attitudes towards something. This can be illustrated in the extract below, in which pollution plays a part in the speaker's decision-making.

Extract 1

A: well I don't want to walk all the way if you think the **pollution is bad** I wouldn't want to walk all the way to the business district
B: mm
A: that's too far to walk but it's too close for a taxi
B: mm

Also, W5 words often occur in evaluative utterances because speakers discuss whether something is good or bad for the environment, illustrated by Extracts 2 and 3 below.

Extract 2

A: yes two hundred witch hats on top of each other with a little plastic cone on top to keep them in place (.) so then you take the plastic cone off and you pinch out (.) your kitchen roll
B: like a box of tissues
A: >>and then you unfold it and it's yes and it's circular (.) so
B: >>what's the ? what is the advantage of it being circular?
A: ah you can transport twenty percent more kitchen rolls in the same space on the lorry
C: oh
A: so it's […] **really good for the environment**

Extract 3

A: […] he's an obsessive cleaner, isn't he?
B: yeah yeah there's loads of spray
C: **so bad for the environment**
A: I know and he hasn't got a washing line so I can only think that summer no matter what time of year he tumble dries everything
C: >>oh that's terrible, isn't it ?

The above three examples of evaluative uses of W5 words reflect the interconnection between humans and the environment: the environment can affect people' attitudes or courses of actions and vice versa. Importantly, from Extracts 2 and 3 above, we can see that informal conversations are a discursive practice that allow people to evaluate impacts on the environment of even such small daily acts as the arrangement of stuff on a vehicle or drying clothes.

Finally, there are also cases in which speakers comment on the quality of nature, both positively and negatively.

Extract 4

A: and I don't think people realise that you have to work with the environment rather than think you can rape it for all its worth dun no
B: that's why I like it when grass grows through tarmac
A: yeah
B: that's a very good example of n- **nature being more powerful** than man
A: that's true

Extract 5

A: I saw something quite ama- I saw like a c- like a month ago or two months ago all these crows on – [a place name] attacking a kestrel or a falcon or something
B: no

[…]
A: they were making a sort of massive racket and then
C: mm
A: sort of fifty or sixty crows flying after this kestrel and like dive bombing it and pulling pecking it
B: oh how awful – [a male name]
[…]
A: I know and then like
B: **nature's hideous**
A: I know and then it was sort of flying really quite low and all the crows were just like
C: crows are horrible

The above two examples give different evaluations of the nature but they share in common the view that there is a certain distance, if not opposition, between humans and nature. In Extract 4, the evaluative phrase "more powerful than" and the association of "nature" with "grass" and "man" with "tarmac" represent human and nature as different; human beings and their creations (in this case, tarmac) are not regarded as related to nature. Extract 5 seems more obvious in pointing to the negative attitude towards nature; the crows' acts are explicitly negatively evaluated and the birds are referred to through the shell noun "nature".

2. Attributes / Perspectives

This functional group contains W5 words that are used to describe objects and activities in relation to the environment, or to indicate that an environmental perspective is taken in the discussion. In this function, W5 words are used as modifiers in different ways, e.g., as adjectives describing noun phrases, as noun modifiers in compound nouns, as part of prepositional phrases that modify noun phrases or clauses, and as adverbs that describe adjectives or verbs. These are illustrated in Figure 3 below:

1	see a face where it 's not there and it 's more	ecologically	important economically (.) sorry what am I talking about ? Evo
2	e other day there was some bloke who had started doing a	nature	diary when he was fourteen S0012: yeah S0008: and he was no
3	uff like that S0012: yeah S0008: you know he should have a	nature	blog S0012: yeah S0013: yeah S0008: >>and he says well no one
4	arty holiday S0009: I 'd say mine was Egypt (.) we went on a	conservation	expedition with the college people (.) but we did n't do much
5	ıd kill 's better what from an S0514[??]: >>yeah S0511: >>an	environmental	perspective ? S0512: >>yeah S0513[??]: >>what do they put in I
6	ook like gas masks basically S0144: okay S0024: not just any	environmental	mask S0144: >>yeah S0024: like a great big gas mask you shove
7	can rub that into your skin as well S0131: oh blimey S0018:	Eco	wax with essential oils S0131: where do you get Where do you
8	12: yeah which is S0013: it 's okay S0012: well yeah friendly	environmentally	friendly do n't make so much carbon (.) monoxide or dioxide o
9	get back to it (.) now we 're on the (.) er on the	pollution	ridden road with lovely exhaust fumes S0589: refuse S0588: an
10	ıt once or twice a week S0179: why ? S0026: Cos I just think	ecologically	it 's more of a sustainable way of eating S0179: fair enough S00

Figure 3 Sample concordance lines for the *Attributes / Perspectives* functional group

The fact that these patterns occur often in the data can be taken to reflect an increasing influence of the physical environment and ecological concerns on people's perceptions of objects and activities around them. This is illustrated by the fact that an environmentally-related aspect is assigned to objects and activities in their descriptions, such as *eco wax, environmental spot, nature walks, conservation expedition, ecologically important*, not to mention the familiar phrase *environmentally friendly*.

This functional category can be seen as relevant to the *Framing* story-we-live-by proposed by Stibbe (2021), in which a packet of knowledge about an area of life, called a frame, structures another area of life. Given the patterns of W5 words in this group, it can be said that the ENVIRONMENT frame, activated by W5 modifiers, is drawn upon in association with other frames related to objects and activities, creating a connection between the environment and other things in the mind of conversational participants. Interestingly, a number of objects or activities that may not be intuitively associated with ecological issues are found to be represented in connection with environmental matters in the given data. For example, in Extract 6 below, Speaker A connects the WEDDING frame with the ENVIRONMENT frame, resulting in the phrase *eco wedding* in her utterance.

Extract 6

A: well I've got a board on Pinterest [1]
B: for weddings [2]
A: for weddings I suppose loads of women must do, mustn't they ? I've never done that before […] but now for some reason I think I just did it out of like curiosity one day. [3]
B: yeah I love looking at wedding venues I do it all the time [4]
A: I know. Me too. I love it and dresses [5]
B: I was looking at the other day like how to have an **eco wedding** and I was like I' m going to buy my wedding dress from a charity shop and I'm going to do this like **eco venue** [6]
A: oh are you? [7]
B: And the card's going to be an eco like card with seeds in that you can plant and like we're going to have like recycled chairs. [8]
A: that's so nice [9]

In the above conversation, Speaker B brings up the idea about weddings as a topic of the conversation in [2]. This in turn activates other frames in the mind of Speaker A too, e.g., WOMAN and DRESS, which seem to be more conventionally associated with weddings, as suggested by the response in [3], "I suppose loads of women must do, mustn't they?", and the immediate connective "I love it and dresses". The WEDDING frame, however, is then connected with the ENVIRONMENT frame by Speaker B, when she uses the word *eco* to describe *wedding* and leads the conversation through the ENVIRONMENT frame, bringing in ideas related to the environment, including *a wedding dress from a charity shop, eco venue*, and *recycled chairs*. Note that Speaker A seems surprised at the connection between the WEDDING frame and the ENVIRONMENT frame when he/ she hears the idea, suggested by the response "Oh, are you?" in [7] before showing approval of the concept in [9]. The conversation here illustrates growing awareness and recognition of the physical environment as an integral part of human life.

At the same time, a case is also found when a link between the ENVIRONMENT frame and another frame is set up but then dismissed as irrelevant. In Extract 7 below, the ENVIRONMENT frame is selected to describe the Gaza Strip, well known as a site of political conflicts:

Extract 7

A: and what erm which parts of the world?
B: er I was in Gaza for about six years because it's an **environmentally extremely sensitive area** it's also politically sensitive but it was then but then they were
A: >>yeah do you think they could be linked? I don't know
B: no I don't think so
A: don't think so
B: and then I worked in Southern Africa for twenty-five years er the the same latitude south

Given the above extract, the ENVIRONMENT frame is activated by Speaker B through the adverb *environmentally* and made salient through its co-occurrence with the maximiser *extremely*. The POLITICS frame is also drawn upon to describe Gaza by the same speaker through the phrase *politically sensitive*. The repetition of the word *sensitive* and the adverb *also* can induce an inference of possible relations between the POLITICS and ENVIRONMENT frames with regards to the Gaza Strip, as suggested by Speaker A's question: "do you think they could be linked?". Speaker B, however, rejects the possibility and shifts to a topic on where he later worked. Although it is not clear whether Speaker B's denial of the possible link between the environmental and political problems at Gaza was driven by his genuine perception or other factors, it creates an environmentally-unfriendly discourse that rejects the idea of interrelatedness, specifically that of the relationship between politics and the environment, which goes against a number of ecolinguistic findings that point to the inseparability between the two, e.g., Bevitori (2015) and Cunningham et al. (2022) (see the Literature Review section).

3. The Affected and Actor

In this group, the following W5 words: *nature, environment, energy, ecology, eco-system, desertification* and *pollution*, with the first two as the most common, are often represented as being affected by or doers of actions upon human beings, as illustrated by concordance lines in Figure 4 below:

1	er yeah I mean that 's that 's S0493: >>well we 're forcing	nature	in every single thing we do but why ? S0604: >>and that 's
2	S0619: >>yeah S0618: I du n no it 's just like how man fucks	nature	basically you know building this well building buildings in the
3	S0013: yeah S0008: well S0013: well I just want to keep our	environment	because we had we had a five first S0012: we did S0013: and th
4	t people I just do n't understand how people ca n't respect	nature	and like how S0428: >>and we and it 's it 's getting worse
5	d pale S0368: >>yes (.) yeah S0369: >>so is that altering the	ecology	of of like the bees ? S0368: >>so which is the best the
6	d --ANONnameF ? S0558: yeah no I would never mess with	nature	S0517: >>no that was my friend 's my friend --ANONnameF tha
7	it 's actually he said well part why do you think that	nature	has kept this on ? S0417: yeah S0475: and it 's because they 're
8	at the end of our trip that in Beijing that the the	pollution	had closed in and er the index we were told was over
9	ıier I think (.) fi- although again fish (.) our seas are getting	polluted	our oceans S0229: >>yeah S0198: you do n't know how radioact
10	nore S0227: yeah S0192: got it done and S0227: I in the end	nature	took care of itself for me erm S0192: yeah S0227: so erm sh- if

Figure 4 Sample concordance lines for the *Affected and Actor* functional group

As the affected, a total of 62 instances displays W5 words as Goals or part of Circumstances associated with material processes in clauses[1] (Halliday & Matthiessen, 2014), where people nouns or pronouns are often Actors, as illustrated below.

[1] In systemic functional grammar, material processes are verb phrases of doing.

- it didn't matter what **energy** resources you used (Goal)
- they could actually take people out of the **environment** of Southampton (part of Circumstance)

This pattern points to the fact that informal conversations, like other discursive practices, also serve to reproduce the idea of what humans (can) do to the physical world.

The other 17 instances represent the environment, nature and pollution as doers of actions, suggested by uses of the given W5 words as Actors of material processes, illustrated by concordance lines 7, 8 and 10 in Figure 4. It must be noted, however, that this function occurs with only four W5 word forms in this group, namely *nature, environment, pollution* and *polluted*, suggesting that only the three W5 word types *nature, environment* and *pollute* are seen as capable of having agency power to act upon human beings. Given that some actions are generally more associated with human Actors, e.g., *take care* and *keep*, these cases can be taken as those of personification. While personification can be seen as a linguistic technique to celebrate the interrelatedness between human and the environment (Goatly, 2022), some instances of personification in the data here point to its potential to background human agency, which is actually involved greatly in the given process. For example, in Extract 8 below, the clause *pollution comes into it* represents pollution as a factor for damages to fish, excluding humans from the responsibility for pollution (and even flooding).

Extract 8

A: yeah so it floods quick but it goes quick
B: yeah
A: whereas (.) it used to stop up a l- (.) twice as long (.) when I was younger
B: yeah
[…]
A: […] I suppose in some respects it's been a good thing as regards properties flooding but it's a bad thing when you're talking about getting fish into the rivers
A: yes. It 's done a lot of damage, hasn't it. It's done a lot of damage as well
B: you can't take an actual three foot out of a river and expect it to maintain fish cos
A: no
B: also **pollution comes into it** cos you know you drop an egg cup of water into as against a bucket. There's a big difference, isn't there?
A: mm

4. Defining and explaining

In this group, W5 words are used to define, explain, clarify or elaborate environment-related matters in conversational exchanges. This function is found with these words: *pollution, nature, environment, conservation, eco, ecology, environs, environmental* and *deforestation*. They share in common the following lexicogrammatical patterns: W5 words are preceded by the phrases *it's (not), it is, it was, they are, that's*, [modal auxiliary verb + be], or occur in questions that ask about environmental issues. These are exemplified in Figure 5 below:

1	ɐople doing pedalling and stuff like that S0202: okay so it 's	nature	S0211: >>I have to say I overheard you S0208: shit is that like ar
2	ıh --UNCLEARWORD S0192: really nice you ca n't like it 's all	conservation	and listed you ca n't like build anything on it or anything
3	ıplace (.) erm (.) and er (.) they are the Malaysian big cat er	conservation	(.) group basically S0262: mm S0335: charity (.) and erm it was e
4	er no that 's geography again it 's more like erm (.) humans	deforestation	and food production things S0390: >>right yes S0392: so it 's qu
5	; S0144: >>oh (.) well the Darjeeling one is n't (.) that 's just	nature	S0024: well nature and man-made stuff in you know well (.) w
6	WORD really S0613: >>somebody er it 's just an accident of	nature	I suppose S0588: >>or god S0613: yeah but but you know S0588
7	ardens S0589: >>find out what it 's called that might be the	ecology	S0588: it could be er there 's some green signposts that would
8	sun (.) praised love (.) --UNCLEARWORD S0144: well it was	nature	was n't it ? S0024: nature yeah (.) so they did n't need building
9	trade the antique trade as far as dust is concerned (.) it 's	nature	's face powder S0018: uh huh S0006: dust S0018: oh I heard at t
10	ɔllution S0245: mm S0244: mm S0246: and what does aliens	pollution	look like ? S0244: it 'd probably the same as our pollution S024

Figure 5 Sample concordance lines for the *Defining & Explaining* functional group

The proportionate emergence of this use of W5 words reflects an informative side of informal conversation, in which participants discuss concepts related to nature and the environment. The following extract illustrates how one of the speakers uses a W5 word to explain the value of dust in antique business.

Extract 9

A: there was at one time I remember one firm who worked (.) they were a large firm of manufacturing jewelers […] the workers on the benches […] had to change their clothing and their shoes
B: mm hm
A: when they were working and then when they finished work they changed into their outdoor so that their clothes the dust the gold dust and filings were not accumulated on their clothes
B: ah (.) what? So they could steal it that way?
A: yes (.) oh yes, you can imagine if you think about it. […] the term in the trade the antique trade as far as dust is concerned, **it's nature's face powder**

In the above excerpt, Speaker A's reference to *nature*, which is personified here, creates an association between dust and nature in the discourse. This reduces the negative connotation of *dust*, which in turn helps explain why it can be of value in the given business context.

5. Places

In this group, W5 words, namely *environment, nature, ecology, polluted* and *conservation*, are used as part of references to places, e.g., *When you're out in nature* and *They wouldn't live in polluted water*. This is suggested by their occurrences after locative prepositions or before such place nouns as *site* and *area* (see Figure 6). The use of these W5 words as place references is an important indication of different ways the natural world is integrated into human society, for example, through the designation of land use or conservation. As Carbaugh and Rudnick (2006, as cited in Poole, 2022, p. 49) suggest, "to name a place, or to refer to a place, is to make a move in a cultural political game".

1	n't there ? S0443: it 's huge it 's like it 's a	nature	conservation site really S0320: I hope the kids section is going
2	and locks and I think it might be a reserve area a	nature	reserve area S0146: I think so it 's from all accounts it sounds
3	ıntre d- oh there 's the peninsula S0588: >>oh sweet S0589:	ecology	park S0588: yes there it is look S0589: nice S0588: yes S0589: >>
4	(.) honestly it 's like aliens to me (.) like they live in an	environment	that ca n't really readily or easily for the for the vast
5	cos the red squiggly worms would n't live would n't live in	polluted	water S0013: >>oh really ? oh right S0012: --UNCLEARWORD S0(
6	when you 're out in nature S0353: mm S0262: particularly in	nature	where people feel more relaxed S0353: yeah S0262: >>and the
7	ated the problems of of fighting in that tribal mountainous	environment	like uh S0037: >>yeah S0115: you you really do n't have the pop
8	NONplace so S0393: >>yeah S0390: what was it called ? that	nature	reserve ? S0393: --ANONplace S0390: --ANONplace we 'd been
9	hat with boots S0213: >>all --UNCLEARWORD pissing in the	nature	S0212: I do n't I peed in front of --ANONnameF 's car S0202: >>v
10	ı we were going through the woods through farms through	nature	reserves S0492: but three like miles is n't really a lot but it

Figure 6 Sample concordance lines for the *Places* functional group

Analysis of the concordance lines in this group points to linguistic patterns that reflect the integration. W5 words in conversational exchanges are often referred to as destinations for people to relax, enjoy, spend their own time, and do hobbies. This is especially the case with place references that are natural or protected areas, e.g., *a nature conservation site, a nature reserve area* and *an ecology park*. Moreover, protected areas and activities done in natural places are often accompanied by positive evaluation, showing the speaker's approval of the place or activity. For example:

Extract 10

A: aw that's lovely (.) all you'll see around Hatton is beautiful (.) they've got all the canals and locks and I think it might be a reserve area, a **nature reserve area**
B: I think so it's from all accounts […]

Also, there are references to nature as a place for living. The extract below provides an interesting example of an anthropocentric attitude towards a living place in the ecosystem:

Extract 11

A: mm (.) well my parents had a well that was a s- quite a deep one (.) I forget how deep it was but it was a long way down you know? [1]
B: >>yeah [2]
A: and er a lot of rope and a bucket [3]
B: yeah [4]
A: and that'd come up and every now and again you'd get little red squiggly worms in it [5]
B: that's it yeah [6]
A: and they said oh that's really good water cos [7]
B: the red squiggly worms are in it [8]
A: cos the red squiggly worms wouldn't live in **polluted water** [9]
B: >>oh really? oh right [10]

In the above extract, in turn [8] Speaker B for the first time contributes to the conversation in a full clause, after having been giving Speaker A a series of backchannels. The utterance is a repetition of Speaker A's words "red squiggly worms … in it" in turn [5]. We can thus infer that Speaker B is in doubt of Speaker A's statement that the water is "really good" and wants to signal his/ her suspicion that there is a problem with Speaker A's previous turn. Speaker B's

disbelief implies his/ her attitude that the water with worms should not be good, which prompts Speaker A to clarify in turn [9], before Speaker B accepts that in the next turn. The belief that the water in Speaker A's well is not good because there are worms in it can be seen as a reflection of an anthropocentric attitude: because water with worms is not good for humans, it is not good water. However, if we do not take an anthropocentric perspective, it is simply natural that, as Speaker A explains, humans and animals, as creatures of the world, would similarly not live or survive in polluted water.

6. Identities

In this functional group, W5 words are used to describe or refer to human beings in various aspects, ranging from their personalities, hobbies, qualifications to occupations, as suggested by repeated occurrences of W5 words as adjectives, adverbs, or as people nouns that denote expertise (e.g., *naturalist, conservationist,* or *environmentalist*) and by co-occurrences between W5 words and people nouns or pronouns (e.g., *eco adventurer, eco warrior,* or *a freak of nature*) as illustrated by Figure 7 below.

1	;ton Rolls Royce or daredevils ? S0594: daredevils S0592: er	eco	adventurer David D Rothschild ? (.) erm built a sixty foot catam
2	but we 're now getting the point where we 've got	environmental	refugees like S0466: >>what 's that ? S0454: er where S0466: >>
3	ds of stuff for lion conservation at and quite famous in the	naturalist	world and then like both just got basically fucking killed by the
4	tudied people out of their own interest or they 're they 're	environmentalists	and but S0274: >>yeah S0253: they have n't ev- they 've never s
5	's a D or E or something ? S0265: mm if they 're	environmentally	conscious (.) cons- conscientious then yes I quite agree [Text S
6	-ANONplace S0417: but that 's still their environmen- he 's	environmental	they 're environmental the Dutch ? S0475: >>yes S0476: yeah y
7	die out he said they should 've S0180: a naturalist he 's a	conservationist	S0070: >>a nat- (.) like a like a language death sort of thing ?
8	no I 'll try I 'll try try and be recycling and	environmentally	friendly although erm this bin will probably need emptying at
9	ł idea S0167: >>I was looking up ideas S0378: are you every	eco	now ? S0167: I try and be (.) S0378: is this still recording ? S0167
10	ndividuals S0262: >>mm S0335: but they just become what	conservationists	call non viable S0262: right (.) it 's not it 's not gon na

Figure 7 Sample concordance lines for the *Identities* functional group

To some extent, this functional group of W5 words is relevant to another form of stories-we-live-by suggested by Stibbe (2021), i.e., *Identities*: a story about what it means to be a particular of person, which can be ecologically destructive or beneficial. This form of 'story' is also found in the spoken BNC2014. Extract 12 below illustrates how the phrase "every eco" is coined creatively through an environmental word to describe someone's habits that are ecologically beneficial:

Extract 12

A: it's like and we're going to try and make it like a eco wedding
B: that's a good idea
A: >>I was looking up ideas
B: are you **every eco** now?
A: I try and be

Apart from an aspect of identities that is ecologically helpful or harmful, it is also found that W5 words in the data here are used to create new identities of people as a consequence of environmental situations. Extract 13 is a case in point:

Extract 13

A: they need to move, those people need to go somewhere […] but the problem is where do they go?
B: yeah
A: but it will happen naturally like migration
B: yeah and it does happen
A: and it is happening
B: yeah
A: the migrant crisis
B: mm
[…]
A: and that will be interesting to see how we cope because refugee has a very narrow definition in law like what makes a refugee? but we're now getting the point where we've got **environmental refugees** like
B: what's that ?
A: for example your
B: the conditions
A: yeah like low lying islands in the Pacific are actually being flooded
B: oh yeah
A: because of local climate change but they don't actually fit our definition of a refugee
B: no […] but I suppose they are though
A: […] of course they are
B: they need --UNCLEARWORD
A: but the law needs to change to support that because then they could claim asylum
B: yeah
A: I mean their homeland has actually been destroyed
B: yeah

The example above illustrates how the environment can affect individuals' identities to the extent that a new term is created to refer to a group of people and an already existing definition has to be modified to cater for their well-being.

7. Causes, effects and contrasts

This group is closely related to the *Affect-and-Actor* group in that it also features how humans and the environment affect each other. However, while this relationship is achieved through material processes in Group 3, in the present group it is realised through co-occurrences between W5 words and connectives, especially those in the causal type. W5 words that occur in this pattern are *conservation, nature, pollution, environment* and *ecology*. In many cases, these words co-occur with those related to causes and effects, e.g., *because, cos, due to, cause, effects* and *outcomes* (see concordance lines 1-8 in Figure 8).

1	h S0262: resources towards the ? S0335: >>yeah (.) because	conservation	is erm has got limited resources S0262: mm (.) mm S0335: erm
2	e cavemen too S0084: mm S0041: and it 's just because our	environment	is habitable that we 've been able to evolve and learn these
3	ignposts that would say but S0589: >>no it ca n't be cos the	ecology	is er sort of off the river S0588: --ANONplace here we are darli
4	of er respiratory trouble S0013: mm S0012: because of the	pollution	you heard what --ANONnameF said about it did n't you ? S0013
5	ar we discover there 's this extra global warming cos of the	pollution	in the atmosphere UNKFEMALE[??]: yeah S0561: that 'll be me
6	thought to myself oh my goodness me I hope due to the	nature	of what they 're doing they do n't say oh he ca
7	ealth and the second one was looking at the effects on the	environment	S0242: uhu (.) ah mm S0238: and to me it was very impressive t
8	egime that 's geared towards economic outcomes with the	environment	and society being sacrificed and that seems to be the theme o
9	do about it it 's not a police matter it 's an	environmental	issue so S0655: why is it an environmental issue ? S0653: well g
10	ow bizarre S0084: so their priority is the TV not the life and	nature	outside S0083: and their and their charming urgh S0084: it 's dis

Figure 8 Sample concordance lines for the *Causes, Effects & Contrasts* functional group

This pattern represents W5 words as causes, effects of or reasons for something. In Extract 14 below, for example, the speakers were talking about funerals and one of them would like to have fireworks at his/ her funeral. The activity is then linked by another participant to global warming.

Extract 14

A: you're gonna do a reading I'd like a nice poem please [1]
B: a nice poem [2]
A: about how wonderful I was [3]
C: Justin Bieber song [4]
A: and – [a male name]'s going to sing and everybody's gonna wear bright colours and then you're all going to go out and watch the firework go up. Sorted. [5]
B: yep [6]
A: in fact you could send the firework in the forest (.) double whammy [7]
B: yeah [8]
A: that's me happy [9]
B: and [10]
A: and start a forest fire yeah [11]
D: yeah [12]
E: the next year we discover there's this extra global warming **cos of the pollution** in the atmosphere [13]
D: yeah [14]
A: that'll be me [15]
F: exactly [16]

Although the conversation above may be a banter among friends, within the joke and socialisation lies the fact that all the speakers are aware of the link between fireworks and global warming. Each takes turn to develop the idea to advance the conversation coherently, starting from Speaker A, who introduces the word "fireworks" in turn [5], which is then furthered to "fireworks in the forest" in turn [7] before it is expanded to "forest fire" in turn [11]. Speaker E then links it to pollution and global warming, which is then agreed by all the other conversation participants.

Finally, there are five cases in which the environment and nature are used as a contrast to technology and sociocultural practice, e.g., law and policing. Although the connection is of different kind from the more dominant cause-effect pattern, those five cases are included

within this functional group because they are also realised through connectives. The representation is made through the phraseological pattern: [NP + not + W5 word], e.g., *their priority is the TV, not the life and nature outside*, or [not + NP + but + W5 word], e.g., *loud noises are not a police matter but an environmental issue*. In Extract 15 below, Speaker A comments on a somebody's choice to have a sofa placed to face the wall, rather than the windows to enjoy nature outside.

Extract 15

A: would you have your sofa there looking at the wall?
B: no (.) it is
A: that's what they've done
[…]
B: it's very strange (.) you'd certainly be looking out of the window, wouldn't you?
A: of course you would (.) how bizarre
B: so their priority is **the TV not the life and nature outside**

While it seems that both speakers particularly value nature, the utterances, especially the phrasal construction *the TV, not the life and nature outside*, may be seen as echoing an unhealthy view that nature and technological inventions are opposites.

8. Education

In this group, conversational data reveals another way in which environmental matters are integrated into human society; they are institutionalized in the educational domain. In this group, W5 lexis is used to describe words related to education, including *course, class, subject*, and *department*, all of which point to academic disciplines concerning the physical environment. Words that occur in this group are *nature, ecology, environment, environmental* and *environs*, as illustrated by Figure 9.

1	mm S0443: and they ran out of money of course she did an	ecology	course and she became qualified so she could go round and erm
2	)2: things I 've already done unit unit one is human biology	environment	and evolution (.) unit two is cells organs populations enzymes and genet
3	50179: no to fit in S0058: oh right yeah S0179: with the class	environs	(.) environs S0058: environs yes (.) ah love it S0179: mm S0058: are you g
4	nineteen eighty-two or nineteen eighty-three I was doing	ecology	and statistics and ecology and you had to use a mainframe linked
5	fit in S0058: oh right yeah S0179: with the class environs (.)	environs	S0058: environs yes (.) ah love it S0179: mm S0058: are you going to get y
6	ca n't remember that S0476: environmental science S0475:	environmental	--UNCLEARWORD S0476: >>no no not no s- I 'm sorry I 'm wrong
7	em (.) but then that 's that 's due to like the subject	nature	you know that I do n't think that someone would study the
8	mention should I say could you also put me through to the	environment	department ? S0179: yeah (.) that would do S0058: I 'd like to talk about

Figure 9 Sample concordance lines for the *Education* functional group

The use of W5 words to specify a study subject or an educational organisation reflects the man-environment interconnection in that the environment is recognised as important to human beings, so it is institutionalized in the society as part of the educational domain. In turn, environmental education can become an individual's qualification that has an impact on his/her life. The extract below illustrates this point:

Extract 16

A: apparently – [a female name] did a course on erm ecology course when she came back from going round Latin America as the motorbike kept breaking down
B: mm
A: and they ran out of money of course she did an **ecology course** and she became qualified so she could go round and erm identify where there're bats in buildings
B: oh wow

9. Names

In this group, four W5 words, namely *nature, environment, environmental* and *conservation*, are used as titles of books, series, TV shows and organisations (see Figure 10). This suggests how green issues are highlighted in the media, entertainment industry and socio-cultural/ -political/ -economic agencies.

1	ıry erm Beauty Of Nature and Hope (.) I 've done Beauty Of	Nature	(.) I 've just started writing Hope S0018: right S0146: but I know
2	I do ? er then I was editor of a series called	Nature	which was live television er with with filmed recorded inserts
3	he used to do a number of radio programmes as well er	Nature	Parliament and Country Questions answering questions S0486
4	couple of years that they needed to do something and the	Environment	Agency and other places have just not got S0013: yeah S0012: >
5	ut for the wind turbines we had S0268: >>the --ANONplace	Conservation	Board S0266: >>all the same plus more S0309: >>Conserv- yeah
6	red one why have you taken no notice of the --ANONplace	Conservation	Board and the Council for S0268: mm S0269: the Protection of F
7	and they 'll have to pay S0268: mm S0269: erm S0266: EIA is	Environmental	S0269: Impact Assessment S0266: >>yeah assessment is n't it y

Figure 10 Sample concordance lines for the *Names* functional group

It must be noted that the use of W5 words as names is often associated with people involved in those media and organisations, and hence may arguably be seen as related to the *Identities* group discussed above. However, they are treated as a different group because W5 words in this case are used as names related to individuals' work, not as expressions to describe someone. As proper nouns, W5 words put in this group serve to define work outputs or organisations in terms of their focus on the environment. In turn, they are referred to by speakers to highlight their involvement in environmentally-related work, as reflected by the excerpt below.

Extract 17

A: […] er then I was editor of **a series called Nature** which was live television er with filmed recorded inserts er stories in that er then I was **editor of er The Natural World**, very ironic because I wasn't accepted to be a producer on erm that series […] but they changed it to The Natural World but then I was made editor of the entire series
B: oh my goodness
A: erm but in a funny way er then you're you're still not writing er fifty minute scripts
B: >>no no

10. Discourse topic

In this final group, two W5 words, namely *environment* and *nature*, are found to serve the metalinguistic purpose in designating discourse topics, preceded by *about* or *on* (see Figure 11).

This group can be seen as related to the *Defining and Explaining* functional group, where environmental lexis is found to be used for conceptual discussion and explanation.

1	mm yeah sure S0454: the the thing you were saying about	nature	not being very important erm it was kind of peripheral to his
2	world I 'll kee- I 'll take that S0666: okay we are on	nature	S0604: and they could er we could finish now S0666: we could do we
3	stomach shrinks to the size of a pea (.) what am I on	nature	? S0211: yeah S0220: erm (.) right okay go er nature erm right do you
4	how much CO2 is --UNCLEARWORD by doing that S0202: >>	nature	S0211: mm S0202: that was my idea I said I said that a year
5	that 's it 's starting point on every single story about the	environment	of course climate change is nonsense erm S0649: I have to say the
6	ey 're looking out the window and you 're talking about the	environment	and you know just having a conversation with your children instead of
7	0654: learning about how they grow S0653: about and their	environment	you said ? S0654: yeah and how they grow S0653: mm S0654: look an L

Figure 11 Concordance lines for the *Discourse Topic* functional group

In this group, speakers either talk about the environment or refer to environment-related discourses outside the given conversations as part of the participants' discussion. In Extract 18 below, the two speakers discuss the way a newspaper represents climate change:

Extract 18

A: yeah I don't mind a paper being right wing, what's different about the Torygraph is that it's not news, it's not facts, it's opinion based around
B: […] they're supposed to tell us the facts
A: yeah
B: well and but then their stances you see like climate change the The Telegraph believe there is no such thing as climate change so that's it's starting point on every single story **about the environment** of course climate change is nonsense erm
A: I have to say the Telegraph just dropped off my consciousness I think with the the demise of [a female name] who was a Telegraph reader

The metalinguistic use of W5 words in this group illustrates intertexuality in conversation, in which environmental discourse in other texts prompts individuals to discuss and critically assess the issue in informal conversational exchanges.

DISCUSSION

While the above section presents local textual functions of environmental words in British English informal conversation from a corpus linguistic perspective (Research question 1), this section offers a synthesis of those functions from an ecolinguistic lens, discussing the roles of environmental words in British English informal conversation in the interactions between humans and the physical environment (Research question 2). Given the above local textual functions of W5 words, it can be argued that they reflect four aspects of the relationship between humans and the physical environment. First and foremost, the above local textual functions of W5 lexis suggest that nature and the environment are part of human social identities. This is mainly reflected by the functional groups of *Evaluation, Identities, Names* and *Attributes/ Perspectives*, in which W5 words serve in expressions of one's attitudes, which are not necessarily towards nature and the environment, and descriptions of people, their occupations, activities, and, in the case of *Attributes/ Perspectives*, objects or areas associated

with particular individuals. Secondly, related to the previous aspect, the functional groups *Places* and *Education* point to the ways nature and the environment are integrated with human society through conservational, legal and educational systems, which in turn contribute to individuals' identities in terms of, for example, places they live or knowledge about the natural world. These two aspects may seem in contrast with an observation made by Wild et al. (2013), which examine over 100 environmental terms from a web corpus and specialised corpora of British academic texts, newspapers and government documents and have found dominant lexical patterns that reflect nature as distinct and separate from humans. The difference may be attributed to the distinct genres of texts under study. As informal conversation is a highly personal discourse, it exhibits a different side of environmental lexis usage that reveals a greater association between the physical environment and individuals' lives.

Thirdly, the *Defining/ Explaining* and *Discourse Topic* groups point to the ways in which nature and the environment are part of human socialization through conversational exchanges. While written or formal environmental communication tends to predominate in ecolinguistic research, findings from the present study suggest that informal conversation is also a discursive site, though apparently not a canonical one, for environmentally-related discussion. Last but not least, aligned with many previous studies (e.g., Franklin et al., 2022; McClaughlin et al., 2022), informal conversations also exhibit lexical patterns and functions that represent humans as affecting nature and the environment. This is illustrated particularly by the *Affected-and-Actor* and *Cause-Effect-Contrast* functional groups, where patterns and functions of some W5 words point to the tendency in which humans are represented as agents of actions, positive and negative, upon the environment.

CONCLUSION

The present study sets out to explore patterns and local textual functions of lexical items in the semantic domain of environmental issues in informal conversation, the genre that has rarely been the focus of research on discourse and the environment. Major findings of the study reveal that different words in the given semantic field share a range of textual functions that reflect the relationship between humans and the physical environment in several ways. On the one hand, informal conversation is similar to written and/ or formal discourse types in (re)producing causal links between humans and the environment, in which the former tend to impact the other. On the other hand, while insights from previous studies tend to feature the human-environment relationship through such domains as economy, science and politics, local textual functions of environmental lexis in British English informal conversation point to the interconnection at the personal level. To borrow Stibbe's (2021) emphasis on stories-we-live-by, environmental lexis in British English informal conversation contributes to individuals' personal stories; they are used in discussions of individuals' character, qualifications, lifestyles, habits, interests, expertise, work, education, occupations, places to go, activities, belongings, or experiences, not to mention that they are predominantly part of one's expression of personal opinions and attitudes about something, which may not be directly about the environment. These personal stories, as illustrated by sample conversations about somebody's work experience in Gaza, ideal wedding plans, or fireworks at someone's funeral, can reflect and

reproduce worldviews that are meaningful or harmful to the physical environment. As changes in narratives can lead to changes in the ways humans interact with the natural world (Franklin, 2022; Stibbe, 2021), seeing informal conversations as exchanges of personal stories involving the physical environment can lead to changes in perceptions and practices pertaining to the natural world of those with whom we share our stories, e.g. family members, relatives, friends and colleagues. World-saving or world-threatening acts can thus begin from ourselves and those within our circles.

Although the present study helps shed light on environmental aspects of informal conversation, it focuses on only one of the semantic domains of *World and the Environment*. Future research may explore other related semantic fields in the spoken BNC2014, including *the Universe*, *Geographical terms* and *the Weather*. Insights from various semantic domains combined can give a comprehensive view of how the environment and ecological systems are perceived and talked of in everyday informal discourse. Also, since this study utilizes only the British National Corpus 2014, it would be useful to examine to what extent text meanings of lexis in the same semantic domain emerge in other varieties of English or languages. Finally, because the present study approaches the relationship between environmental issues and informal conversation from a lexical point of view, future research may adopt discourse-oriented frameworks, such as Conversation Analysis and pragmatics, to enhance our understanding of the ways 'personal stories' can articulate, reinforce or challenge beliefs and practices concerning environmental issues.

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