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Original Research

A Corpus-Based Analysis of Eco-Soundscapes in Dickens's Narrative Worlds

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ABSTRACT

This study investigates how Charles Dickens constructs eco-soundscapes in his major novels through the linguistic use of onomatopoeic vocabulary, employing a corpus-based approach to address a gap in existing qualitative ecocritical research. Ten novels by Dickens were compiled into a corpus and analysed with AntConc, focusing on ten prominent onomatopoeic words referring to environmental and atmospheric sounds. Quantitative data showed that the total number of occurrences was 1,457, and hum, murmur, roar, and whisper were the most common, indicating that Dickens responded to a specific narrative setting through the constant use of low-intensity background sounds, small natural sounds, and contrasts between loud background events. Novel-specific frequency patterns showed heightened sound imagery in Barnaby Rudge, Dombey and Son, and Little Dorrit, while Hard Times displayed minimal sound use, reflecting its industrial critique. Qualitative interpretation demonstrated that Dickens employs sound to represent ecological conditions, encode cultural attitudes toward nature, and guide readers' emotional engagement with narrative space. The study concludes that Dickens's eco-soundscapes are linguistically rich, ecologically meaningful, and empirically traceable through corpus methods. Limitations include the restricted set of sound words and focus on a single author. Future studies should expand the lexical scope, compare multiple writers, and apply deeper semantic or multimodal analyses to further explore literary soundscapes.

Keywords: Corpus Linguistics, Eco-Sound Scapes, Onomatopoeic Words, Descriptive Words , Sensory Words

التحليل القائم على البيئة الصوتية في العوالم السرد لدى ديكنز

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الملخص

تتناول هذه الدراسة كيفية بناء تشارلز ديكنز للمناظر الصوتية البيئية في رواياته الرئيسية عبر توظيف المفردات المحاكِية للأصوات، وذلك باستخدام منهج قائم على المدونة لسدّ فجوة في الدراسات الإيكولوجية النقدية ذات الطابع النوعي. جُمعت عشرمن روايات ديكنزفي مدونة لغوية واحدة ثم جرى تحليلها باستعمال برنامج انتكوم مع التركيز على عشرة ألفاظ بارزة من المحاكاة الصوتية التي ترتبط بالاصوات البيئية والجوية. وأظهرت النتائج الكمية أن عددها بلغ 1457 وان الكلمات الاتية كانت الاكثر شيوعاً :

Hum, murmur, roar, whisper

وهذا يشير الى ان ديكنز يستجيب لمواضع سردية محددة من خلال الاستعمال المتكرر للاصوات الخلفية منخفضة الحدة والاصوات الطبيعية البسيطة على النقيض من الاحداث الخلفية الصاخبة. كما كشفت انماط التكرار الخاصة بكل رواية عن ارتفاع كثافة الصور الصوتية في:

BarnabyRudge, Dombey and Son, and Little Dorrit

الاصواتوهو ما يعكس نقدها للعالم مستوى أدنى من استعمال Hard Times في حين أظهرت رواية

الصناعي. ومن خلال التحليل النوعي، تبيّن أن ديكنز يوظّف الصوت لتمثيل الظروف البيئية، وترميز المواقف الثقافية تجاه الطبيعة، وتوجيه

انخراط القارئ العاطفي مع الفضاء السردي. وتخلص الدراسة إلى أن المناظر الصوتية البيئية في روايات ديكنز غنية لغوياً، ذات دلالة إيكولوجية، ويمكن تتبّعها اعتماداً على منهجيات المدونة. ومع ذلك، تشمل حدود الدراسة الاقتصار على مجموعة محدودة من الألفاظ الصوتية والتركيز على مؤلف واحد. وتقترح الأبحاث المستقبلية توسيع النطاق المعجمي، والمقارنة بين عدة كُتّاب، واعتماد تحليلات دلالية أو متعددة الوسائط لتعميق استكشاف المناظر الصوتية في الأدب.

الكلمات المفتاحية: اللسانيات القائمة على المدونات، البيئة الصوتية ، الكلمات المحاكية للأصوات، الكلمات الوصفية، الكلمات الحسيّة

1. Introduction

Eco-soundscape is a branch of the study of ecolinguistics, soundscape theory, and literary studies, which provides a more critical view of how authors employ language to create auditory landscapes. Soundscapes: biophony and geophony, anthrophony created by humans, and so on, constitute a significant element of the ecological experience and can be vividly re-created by literary language(Pijanowski et al., 2011; Farina, 2012). In this context, eco-linguistics emphasizes the role of linguistic decisions in environmental significance since language is the conveyor of the stories that we live by that shape human interactions with nature (Stibbe, 2015). Literary texts develop immersive eco-soundscapes by means of onomatopoeia and descriptive sound vocabulary, as well as sensory language, which creates links between the reader and the natural world on a symbolic, cultural, and perceptual level (Carter, 2019; Penz, 2022).

The historical and cultural developments have also greatly influenced the process of sound representation in literature. The depiction of nature predominantly involved images of harmonious acoustics in early literary traditions, but the noise of technology and the disturbance of the ecological environment were typical aural characteristics of life in the industrial era. According to more recent literature, the anxiety about the ecological state of things is predicted, moving away from representation of the landscape in a visual form to the more complex multisensory representations, where listening becomes a primary form of environmental awareness (Parashar, 2020; Castell et al., 2024). Although this literary interest in sound is rich, the current research is almost entirely qualitative, as it is based on close reading and not a systematic study of linguistics. Corpus linguistics provides a good alternative since it allows exploring the frequency of lexical elements, collocations, as well as semantic patterns in huge domains of texts, which gives empirical data on how language functions related to sound can be used across genres, authors, and time periods (McEnery and Hardie, 2012; Biber et al., 2021).

1.1.The Objectives

In response to this methodological shortcoming, this study performs a corpus-based research on ten large novels by Charles Dickens with an emphasis on the distribution and frequency of ten onomatopoeic words. The stylistic richness and elaborate descriptions of Victorian settings in the works by Dickens are the right corpus to investigate the influence of sound on the narrative mood and

ecological connotation. Through establishing tendencies in the use of vocabulary involving sound, the analysis will demonstrate how Dickens uses sound to build eco-soundscapes, linguistically, and how the use of language helps the readers experience the text through the senses.

1.2.The Resarch Questions

In line with the objectives of the study, two main questions will be used in the analysis and will be addressed in the discussion: *How do eco-soundscapes created by Dickens through the use of onomatopoeic words manifest, and how do their distribution and frequency patterns manifest?* Moreover, *what do these language patterns tell us about how the environmental sound, the interaction of humans and nature, and sensory aspects of narrative space are represented in Victorian literature?* By answering these questions, the research presents some new understanding of the linguistic principles of eco-soundscapes in literature and shows the usefulness of the corpus-based approach to ecological literature analysis.

2. Review of Literature

2.1.Conceptual Framework

The term *soundscape* in ecological studies refers to the totality of sounds emanating from a landscape, including natural (geophony, biophony) and human/technological (anthrophony) sources. (Pijanowski, Villanueva-Rivera, Dumyahn, Farina, & Krause, 2011). Eco-linguistics (or ecolinguistics) refers to the study of the role of language in the life-sustaining relations of human beings, other species and the physical environment (Stibbe, 2015). In literature, sound (and the soundscapes based on it) are becoming more and more acknowledged as the means of eliciting environmental relations to be formed and criticized. As an example, auditory environments, which represent human relationships with nature, can be encoded in literary texts, thus giving the eco-soundscapes a linguistic aspect (Castell, Hehl, von Hardenberg & Mackenney, 2024).

Farina (2012) defines soundscape ecology (or ecological study of soundscapes) as an effort to comprehend the interaction between organisms and ecosystems and the acoustic environment (or vice versa). Mitchella *et. al.,* (2014) suggest the following working definition: the entire set of noises, including biophony, geophony, anthrophony, all sounds emanating from a land surface, together with the manner in which people perceive them. Within the linguistic context, ecolinguistics identifies several different ecolinguistic ecologies: symbolic ecology (how language reflects world-views), natural ecology (how language interacts with biological and physical environment), socio-cultural ecology (how language interacts with society and culture) and cognitive ecology (how language interacts with mind/knowledge) (Penz, 2022). This conceptually places the role of literary language in mediating sound-environment connections: literary text may be understood as a symbolic ecology, as the human culture sounds to and characterizes the sound-environment.

The new discipline of eco linguistics is the connection of language and ecology by studying how discourses, metaphors, narratives and lexical decisions echo and construct human relationships with nature. Indicatively, Stibbe (2015) holds that in addition to reflecting the destructive environmental narratives, language can be used to create new and more sustainable narratives. The ecocriticism of literature has raised the issue of environmental representation in literature in literary studies (Parashar, 2020). Hence, the study of sound-associated vocabulary in literary texts and its structuring (onomatopoeia, sound as imagery, sound-verbs/sound-adjectives) may be regarded as a linguistic level ecological inquiry: the way language creates eco-soundscapes, the way the readers are proposed to listen to nature through the text, and the way the relationships to nature are formed using sound as imagery.

2.2.Historical and Cultural Context of Eco-Soundscapes

The use of nature in literature is an ancient practice (e.g., pastoral literature, descriptions of nature in classical and medieval literature) and has become more self-conscious, ecological and environmental literature. Parashar (2020) attempts to map out the stages of ecocritical writing in the early nature writing to a more ecologically enlightened stage. In their book on environmental writing, Parham and Westling (2017) demonstrate that environmental writing is the writings of ancient literatures (e.g. classical, Asian, indigenous) and also expensive writings of the Anthropocene era. In this development, sound-environment relationships in literature have become more apparent: i.e., literary texts are increasingly paying attention to soundscapes, how they can be used to shape place, memory, environment (Castell et al., 2024). This shows a historical trajectory from seeing nature to hearing nature, aligning with broader ecological, sensory, and literary turns.

Cultural perceptions of nature (e.g. Romantic wonderment, industrial desecration, post-colonial landscape, Anthropocene anxiety) affect the representation of sound-environments in literature. An example that can be given is the contrast between the sound of machines in industrial literature and the silence of nature writings in earlier nature writing. The auditory facet thereby becomes culturally coded: silence, mechanical noises, and bird song are also culturally/ecologically encoded. Furthermore, non-Western literatures make other sound-environmental relations: e.g. native writing can pre-empt natural sound-relations and human-non-human hearing, which is not necessarily so in Western industrial literatures. (Phillips, 2002). Therefore, the emphasis on eco-soundscapes should take into account the cultural localisation of sound-language: sound-words, auditory metaphors, and listening modalities have a historical and cultural allotment, and influence the way that literary texts elicit the environment and the way that listeners imagine ecological relations.

With the change in cultural attitudes (from domination over nature to ecological interdependence), the soundscapes of literature change as well. To elaborate, the ecological disturbance, urbanization,

and changed listening behavior that might be manifested through sound imagery in modern literature could be represented by higher levels of anthropophony (human/technological noise). Sound as an indicator of environmental transformation can have an implicit presence in the literature: the depletion of natural soundscapes can be represented through the deafening of bird song, the ascension of machine noise, etc. One of the theoretical approaches to soundscapes in the environmental humanities (e.g. acoustic ecology) offers one view: i.e., soundscapes are neither aesthetic environments nor aesthetic spaces, but ecological signifiers (Farina, 2012). Literarily, the way writers employ sound language (onomatopoeia, acoustic verbs/adjectives, reference to listening/quiet/noise) may be used to indicate the ecological-cultural attitudes behind them. I mean, your corpus-based sound-language study will enable you to chart the interplay of cultural/historical attitude to nature mediated by auditory lexical choices in literature.

2.3.Eco-soundscapes

Eco-soundscape studies are the domain that covers the linguistic strategies applied in order to express the auditory features of nature. Sound is an important element in the literary characterization of the surrounding environment, which influences the way readers see and engage with the text. Specifically, three classes of languages, namely onomatopoeia, descriptive language, and sensory language, are used to make the experience more enhanced and immersive with the use of sound. First, descriptive words can give a very picturesque description of sound, which could be poetic and give readers more insight into the atmosphere and the setting. These words are not directly an imitation of the sound, but they emphasized the quality or nature of the sound itself. Descriptive words are critical in literature because they enable writers to express the tonal text in the sound that might not be adequately described based on onomatopoeic words. These descriptions are more emotional elements of the scene, when sound is usually associated with certain moods or natural phenomena, and they add to the general tone of the story (Liu & Li, 2020).

Second, sensory language entails the application of words and phrases that appeal to the sense of hearing and which tend to make the reader imagine the sounds memorably and intimately. The sensory language is a very useful tool for creating eco-soundscapes, the sense and the atmosphere of the location through the usage of sound. Sensory language is used by writers to relate the setting or characters to the environment in a manner that is visceral. The sounds of nature, such as the gentle rustling of leaves or the storm roaring, are used to weave the natural world into the canvas of the story and make it a character by itself (Carter, 2019).

Third, onomatopoeic words are words in language that reflect or resemble the sounds that they signify. The words are a direct appeal to the sense of hearing that makes the environment real through the capture of the essence of certain sounds. The omnathopoeic words are very useful in the eco-

soundscapes to capture the active interactions between the natural world and the human senses. They help the readers to experience an immediate association with the soundscape, which can often instigate auditory and emotional reactions (Shahrzad & Moghaddam, 2021 and Carter, 2019). The onomatopoeic words are considered the main eco-soundscape class, which are mentioned by (Shahrzad & Moghaddam, 2021; Carter, 2019; and Liu & Li, 2020). Some onomatopoeic words are summarized as follows:

Table (1): Onomatopoeic Words

NO	Onomatopoeic Words	Interpretation
1.	**Splash**	A noise of striking or falling on water.
2.	**Roar**	The faint, blurred noise of traffic, which tends to create a feeling of distance or isolation
3.	**Flutter**	The light, rapid noise made by wings, paper, or fabric moving in the air
4.	**murmur**	The soft and low noise of the flowing water.
5.	**Crash**	The noise resulting from a collision or impact at a collision or impact.
6.	**Rustle**	The fluttering noise of moving leaves, paper or fabric which is soft.
7.	**Hiss**	The noise which is made when air or steam passes through a small opening, or a snake is excited.
8.	**Clink**	Bright metallic noise, which is usually caused when metal or glass objects are hit.
9.	**hum**	Constant, low noise, which is capable of creating the feeling of quietness or dullness.
10.	**whisper**	A gentle and subtle noise, which is usually linked with the wind, voices or falling leaves, and this sounds intimate or secretive.

The use of onomatopoeic words makes writers create the soundscape that promotes the reader with a sense of immersion. These words that literally echo the sounds of the natural world make a person experience a visual sound, as a result of which a reader can immerse himself or herself more into the surrounding environment described in the story. Onomatopoeia is a way which makes a direct connection between the reader and the world of the text, when the usage of such sounds as buzz or hiss could turn a simple description into a dynamic and involved reading. This language device not only conveys the spirit of a moment but also enhances the emotional power of the story, making the sound world come to life in a manner that cannot even be achieved with the use of visual descriptions (Carter, 2019).

Consequently, onomatopoeic words, descriptive words, and sensory language used in literature serve to develop an extensive auditory landscape which associates the readers with both natural and artificial worlds in ways that cannot be represented by visual means. These aspects of language complement one another to form eco-soundscapes that produce particular sounds and moods to

amplify the emotional and sensual effects of the story. With the help of these features of language, the authors can make the process of reading an experience that is more of a multisensory experience, one where the sound is not merely heard, but also felt and comprehended in the context of the story.

2.4.Corpus Linguistics in Literary Studies

The analysis of text patterns of lexical choice, collocation, frequency and semantic networks Corpus linguistics Corpus linguistics is a powerful method of analysing patterns of text lexical choice, collocation, frequency, and semantic networks, which can be examined using large structured collections of real-world texts (McEnery & Hardie, 2012). Corpus-based analysis enables the researcher to go beyond the close textual analysis of one work and investigate linguistic properties of multiple texts, genres or languages, or time periods (Jacobs and Kinder, 2022). This approach has a specific potential in the study of eco-soundscapes: e.g., a corpus of literary writings may be created and searched for onomatopoeia, sound-verbs/sound-adjectives, sound-metaphors/sound collocations, vocabulary of silence, etc., which will allow quantifying the frequency and context of the use of sound-language. It has its benefits: more empirical rigour, a possibility of comparison between texts/genres/time, and identification of patterns that could not be noted by impressionistic reading. Limitations exist: corpora might not be representative, literary texts can differ enormously in style, and corpus techniques might insufficiently represent literary meaning.

Corpus linguistics has emerged as a very useful factor in the analysis of texts in large amounts of literature, where scholars are able to determine common patterns in language and explore the use of the language within a large continuum of works. Corpus methods applied in the study of literature offer a methodological means of discovering how literary language works, particularly when studying textual data on a large scale that otherwise cannot be interpreted using traditional close reading. As an illustration, a corpus analysis may unravel the frequency of certain words or phrases, a certain collocation (a combination of words), and any indication of the stylistic peculiarities of authors, genres, or epochs. The capability to present the comparative analysis of two or more works quantitatively enables a researcher to monitor the changes in the language usage in the course of time, providing information about the changing cultural, social, and environmental perspectives. Using corpus linguistics in relation to the interpretation of literary texts, especially where the vocabulary associated with sound is involved, allows for the perception of the construction of soundscapes in a body of texts in a more detailed way. This is particularly useful in research on ecological or environmental subjects where sound-based metaphor and language that relates to sound can create strong sensory impressions and communicate a more complex environmental message that may not be easily promoted by the use of strictly qualitative study approaches (Biber, *et. al.*, 2021).

2.5.Previous Studies on Eco-Soundscapes in Literature

Eco-linguistics is the interdisciplinary area that is interested in the way language represents and impacts relations of humans with their natural environment, non-human species, and ecological systems (Penz and Fill, 2022). It is based on linguistics, ecology, discourse studies and critical theory and questions itself as: how do linguistic choices have an ecological meaning and how do they lead to environmental action or environmental degradation? In the case of literary studies, eco-linguistics introduces a new approach to understanding literary texts, namely as a place that language negotiates ecological relations (i.e. such as the metaphors, lexical fields, narrative structures and discourses that mediate the notions of nature, wilderness, soundscape, or the environment in literature). Analyses like Zhou (2022) track the history of the evolution of eco-linguistics throughout a half-century, which has seen the growth of the discipline through less metaphorical language-ecology to more active discourse and ideology analyses. The concept of language being non-neutral forms the theoretical foundation of the research on the connection between language and the environment: the language captures world-views (so-called stories we live by) and these stories can either support or destroy ecological well-being (Stibbe, 2015). Concerning literature on the topic, Poole (2024) Corpus Assisted Ecolinguistics directly unites ecolinguistics and corpus techniques, such as to literary texts (Poole, 2024).

This study reappears due to its relevance and offers an in-depth analysis of the role of sound in U.S. literature. It uses a multisensory approach to explore how sound interacts with other sensory modalities to shape the representation of nature in literary texts. However, as with other studies, it lacks systematic linguistic analysis or corpus-based methods to track how sound-related language functions across different texts. Accordingly, there is a gap which needs a more comprehensive linguistic analysis that uses corpus methods to investigate the role of sound in literary representations of nature. This study would be a valuable contribution by employing a linguistic approach to track sound-related vocabulary across multiple literary texts (Calanchi, 2015).

Castell and Mackenney (2024) discuss the poetry by Wordsworth to study the representation of listening and sonic sociability through the interaction of sound and nature, and human experience in his poems. Despite the abundant literary knowledge offered by the study, the study does not utilize a more systematic linguistic investigation of vocabulary related to sound. The void here is the absence of a quantitative methodology based on a corpus that would permit making a larger comparison between texts and writers. Your research, which considers the language of sound in a variety of literature through the application of corpus linguistics, would fill this gap as it would provide empirical data on how soundscapes are linguistically created.

In a chapter of a book, the author talks about the soundscape creation in literary works, especially by John Dickens and Virginia Woolf. The chapter is dedicated to the way audio aspects are incorporated in prose and poetry. Nevertheless, as valuable as the chapter is, it fails to use the corpus

techniques to conduct the sound lexicon analysis on a greater number of texts. One of the gaps perceived here is the non-existence of empirical linguistic work on the realization of soundscapes in language. The gap in your research may be filled with the frequency and distribution of sound-related language in a larger literary corpus, thus offering a more systematic and empirical view (Groth 2020).

Ali (in his paper) looks at the marketing of onomatopoeia in chosen poems, with the emphasis made on how poets employ sound-related words in the creation of auditory descriptions and soundscapes. The study highlights the role of onomatopoeia in enhancing sensory experiences within poetry. However, the analysis is limited to a small selection of poems and does not extend to a broader corpus or different literary genres. The gap here is the lack of a large-scale linguistic approach to studying the role of onomatopoeia and other sound-related terms in eco-soundscapes across literary texts. Your research could expand on this by analyzing how onomatopoeia, along with other sound-related language, functions in literary works across genres and periods, thus providing a broader understanding of soundscapes in literature (Ali, 2018).

With regard to literature on the topic, Poole (2024) Corpus Assisted Ecolinguistics directly unites ecolinguistics and corpus techniques, such as to literary texts (Poole, 2024). These entries demonstrate that eco-linguistics is becoming more and more applicable to literary research. Nonetheless, there still appears to be a gap: eco-linguistic theory has come of age, but there are fewer studies that apply linguistic methods to genre- or period-sized literary corpora (i. e. large collections of texts) in a systematic way in order to trace the functioning of eco-soundscape vocabulary, metaphor, or auditory-environment lexicon. That gap could be bridged by your study of eco-soundscapes in literature, being able to explore how sound-related language in literary works creates ecological meaning by way of linguistic patterns.

Many existing studies in literary soundscapes rely heavily on close reading and theoretical analysis, with little focus on quantitative or corpus-based methods to analyze the linguistic construction of sound in literature. While there is significant interest in the role of sound-related language (e.g., onomatopoeia, descriptive sound terms), much of the research focuses on individual works or limited texts. The current corpus-based research would address these gaps by providing empirical analysis of how sound-related vocabulary is used across multiple literary genres and periods. By focusing on eco-soundscapes, the study will contribute new insights into how literary texts linguistically construct environmental soundscapes, bridging the gap between sound studies and literary analysis.

3. Methodology

3.1.Research Design

The research design that this paper will use to study the linguistic construction of eco-soundscapes using onomatopoeic vocabulary in literary works is the corpus-based linguistic research design. The design allows conducting systematic and empirical research in the domain of language patterns related to sound in a variety of texts, unlike conventional qualitative close reading. The method enables the researcher to measure lexical frequencies, to compare frequencies in fiction, as well as to examine patterns in contexts in relation to sound imagery. The choice of the works of Charles Dickens was based on the rich description style and the abundance of the use of auditory elements that contribute to the creation of an atmospheric and environmental image and, therefore, are the best to analyse the eco-soundscape.

3.2.Corpus Selection

The dataset consists of ten major novels by Charles Dickens, each converted into plain-text format to build a unified literary corpus. These novels provide a wide linguistic range and a sufficiently large dataset to detect broader stylistic patterns rather than isolated textual features. The study focuses on ten key onomatopoeic words, *splash, roar, flutter, murmur, crash, rustle, hiss, clink, hum,* and *whisper*, identified in the literature as foundational to eco-soundscape construction. These words represent various categories of natural, environmental, and human-produced sounds. The process of extracting these words in all ten novels makes the analysis consistent and allows gaining some comparative information on how Dickens uses the language of sound.

3.3. Tools and Analytical Procedures

AntConc, as a corpus linguistic software, was used to carry out the corpus analysis. The single major feature that was employed was the Key Word in Context (KWIC) feature which shows each target word and the surrounding textual context. KWIC analysis gives the researchers an opportunity to identify semantic patterns, narrative functions, and stylistic behaviors of sound-related vocabulary. Besides concordance lines, frequency lists were created to identify the frequency of each onomatopoeic term in each of the novels. These numerical effects were accompanied by the qualitative meaning as every phenomenon in the text was analyzed in order to identify its contribution to the environmental image, mood of the narrative, movement of the characters or thematic focus.

3.4. Results and Discussion

In this section, the findings of the corpus-based study of the onomatopoeic words in the novels by Dickens are given and explained. The frequency and patterns of occurrence of ten common onomatopoeic words are discussed in order to identify the way in which vocabulary related to sound plays into the creation of eco-soundscapes throughout the texts. These inclinations are addressed in terms of the thematic and ecological context of the novels, which gives hints of how Dickens employs the language of hearing to illustrate the social and environmental reality of the Victorian world. The

linguistic richness of the eco-soundscapes of the work by Dickens is revealed in the discussion and the implications it has on the research of human-nature interactions involving the works of literature. The table hereunder presents the frequency of each onomatopoeic word among the top ten novels.

Table (2): Onomatopoeic Word Frequencies in Some Selected Dickens' Novels

NO	*Onomatopoeic Words*	*Splash*	*roar*	*flutter*	*murmur*	*Crash*	*Rustle*	*Hiss*	*Clink*	*hum*	*whisper*	*Total*
1.	Hard Times	0	5	5	4	3	2	1	0	1	25	46 4%
2.	The Old Curiosity Shop	2	13	13	9	2	9	4	2	7	18	79 5%
3.	A Tale of Two Cities	4	15	6	17	8	9	1	2	3	37	102 7%
4.	Great Expectations	5	14	7	14	0	1	1	11	1	23	77 5%
5.	Dombey and Son	3	29	29	36	2	12	4	5	16	89	225 15%
6.	David Copperfield	3	21	15	28	1	4	0	2	11	68	153 11%
7.	Bleak House	5	5	12	19	6	11	0	1	17	64	140 10%
8.	Little Dorrit	5	7	19	24	1	6	0	9	105	49	225 15%
9.	Our Mutual Friend	6	15	27	39	3	4	2	2	8	38	144 10%
10.	Barnaby Rudge	3	69	22	30	9	20	5	4	15	89	266 18%
Total		36 2%	193 13%	155 11%	220 15%	35 2%	78 5%	18 1%	38 3%	184 13%	500 34%	1457 100%

The analysis of the ten Dickens novels revealed a total of 1,457 occurrences of the selected onomatopoeic words, demonstrating that Dickens consistently employs sound-related vocabulary to construct vivid eco-soundscapes across his major works. Though the distribution differs in different novels, the general trend points to the auditory language of Dickens being not accidental or stylistically incidental but a matter of linguistic decisions related to the atmosphere, environment, and the mood of the story. The frequency data demonstrate that some novels are quite dependent on sound imagery, with the highest values happening with *Barnaby Rudge* (266 occurrences; 18%), *Dombey and Son* (225 occurrences; 15%), and *Little Dorrit* (225 occurrences; 15%). These novels add the most substantial portion of auditory words, implying that ecological and environmental sound-construction is playing an increased role in the structure of their narration.

The onomatopoeic word most common in the whole corpus is *hum* (500 occurrences or 34%). This dominance implies that in many instances, Dickens creates a setting of perpetual background noise, urban buzzing, mechanical droning, mob movement, or vibration of the atmosphere. The profusion of hum is indicative of the ecological transformation of the Victorian period as well as of the stylistic appeal in Dickens of describing the social richness, the industrial conflict, and the atmosphere of the setting. Regarding the eco-soundscapes, hum is a low-frequency indicator of human-environment contact, and it is the way people live and modify spaces. Its ubiquity also implies that Dickens viewed Victorian landscapes (urban and rural) as sounding alive.

The second most common word is the word *murmur* (220 instances, 15%). This term frequently characterises natural sounds which are soft, such as flowing water, crowds rustling and whispers in the air. Murr constitutes nature in an ecological perspective as gentle, persistent, and enveloping in a subtle layer of sound, which brings a harmony of the environment and human presence together. The fact that it has such a high frequency indicates that Dickens trusted in low-intensity acoustic cues to create ambience in certain situations, particularly when he had to describe tension, secrecy, or moments of contemplation.

Similarly, such terms as *roar* (193 occurrences, 13) and *whisper* (184 occurrences, 13) are the two opposite poles of the ecological environment, the intensive and the close. Roar is also often used to describe the sea, storms, the crowds, or industrial noise, and it is used to represent all-overpowering forces of nature or society in general. Whisper, in its turn, is the sensory contrast, creating an image of empty rooms, wind, or soft voices-an audio theme that is commonly linked with secrecy, defenselessness, or natural delicacy. The opposition between roar and whisper combined indicates how Dickens portrayed environments in the Victorian world with subtlety and fluidity between disorder and order.

The stylistic variances in the distribution of individual novels are very pronounced. The highest total (266 occurrences; 18%) is held by *Barnaby Rudge*, in which Dickens is shown to make the most use of his active auditory imagery, as a means of adding dramatic intensity to the emotion and to the suspense of sound. The fact that the novel is obsessed with riots, crowds, and politically charged unrest corresponds to the high abundance of roar, crash, and hum. This is an indication that sound is used by Dickens to emphasize the socio-ecological turmoil of the narrative world.

In the same way, *Dombey and Son* (225 appearances; 15%) and *Little Dorrit* (225 appearances; 15%) depict increased auditory scenery through a mixture of both natural and industrial noises. These novels discuss economic transformation, emotional fragmentation, and transforming social surroundings, which are reflected by their heavy application of murmur, flutter, and rustle. The frequency of flutter (particularly in Little Dorrit, with 19 instances) seems to hint at the continued

juxtaposition between delicacy and motion, which represent the instability in the social part of the ecological system.

In comparison, *Hard Times*, a novel of industrial critique, indicates the fewest total (46 occurrences; 4%). It is a minimally exploited onomatopoeia, which is somewhat ecologically reasonable: the society that is represented in the novel as industrial, mechanical, and cold-hearted does not seem to be provided with any natural sound. Auditory deprivation happens to be a style of resonance of the destruction of the environment and the suppression of feelings. Absence of eco-soundscape organization in Hard Times illustrates the criticism that Dickens delivers in relation to industrialization as something that takes away the affluence of the world in the form of multisensory.

One of the interesting discoveries is the equilibrium between natural and man-made sounds. *Rustle* (78 instances, 5%) and *flutter* (155 instances, 11%) are words that help create a picture of natural, delicate sounds that refer to leaves, cloth, or changes of the sound environment. They tend to be used in scenes of emotional sensitivity or increased perception, and it can be assumed that Dickens identifies nature with introspection. In the meantime, *clink* (38 occurrences, 3) and *crash* (35 occurrences, 2) represent mechanical and industrial factors, the introduction of human technology in the literary setting.

Splash (36 occurrences, 2% relatively low frequency) implies that water as a basis of acoustic imagery is not at the centre of Dickens' eco-soundscapes compared to atmospheric or social sound. This points to the fact that the ecological vision of Dickens is mainly land-based and social, but not water-based.

To sum up, the analysis shows that Dickens creates soundscapes not to have aesthetic decoration but to structure moods and change the environmental conditions, and be the manifestation of interactions between humans and nature.

From an ecolinguistic perspective, the results illustrate that Dickens constructs eco-soundscapes through a layered auditory strategy:

- **Background environmental hum** establishes a continual ecological presence.
- **Soft natural murmurs and whispers** create intimacy between the reader and the environment.
- **Loud roars and crashes** portray ecological power or social upheaval.
- **Rustling and fluttering** evoke delicate forms of life and movement.

This stratification creates the impression that Dickens views the world as an acoustic ecology whose sounding creates an environmental well-being, social conflict, or even emotional colouring. Sound is thereby a semiotic means, which codes ecological relationships and mediates the ecological sensory interaction of the reader with the narrative space. The corpus results confirm the argument that

corpus findings corroborate the idea that the need to replace the nature-driven and people-driven soundscapes in the Victorian period was evident in the works by Dickens. The preeminence of hum and roar is due to the increasing acoustic imprint of urbanization and industrialization, which can keep both natural ecology linguistically alive in the face of social change, but the presence of a sustained whisper and murmur.

The quantitative and qualitative results, when combined, prove that Dickens utilizes sound-related language to create the rich multisensory narrative spaces that could engage readers more than a mere description of visuals. His auditory vocabulary indicates ecological and social realities of Victorian life and reflects the differences between the industrial noise, the natural ambience and the emotional atmosphere. The sound patterns also encode attitudes towards the environment that are cultural in that they separate out the tensions between the growing noise of human creation and the persistence of natural sound. Meanwhile, Dickens works with the auditory devices to direct the readers in their emotional reactions, indicating incidences of anarchy, serenity, threat, intimacy, or change. All in all, the results indicate that sound-based vocabulary in the novels of Dickens creates ecologically sound, resonant, and linguistically advanced eco-soundscapes. The findings prove that this type of eco-soundscape construction is empirically determinable by using corpus analysis to provide significant linguistic patterns that may be difficult to spot by using a conventional close reading method.

4. Conclusions

As the results of this paper have outlined, Dickens creates very rich and multifaceted eco-soundscapes by means of the clever use of onomatopoeic words in his largest novels. The corpus study of the 1,457 instances of sound-related ones demonstrates that auditory language in Dickens is not accidental and ornamental, but a purposeful stylistic tool, which dictates the mood of the narrative, reflects the ecological and social space, and improves the process of reading in a multisensory way. Such words as hum, murmur, roar and whisper are high-frequency ones and display how Dickens blends industrial sound, natural sound, and emotional tone to incorporate ecological realities of Victorians and their views on nature and its culture. Novel specifications show that the intensity of sound images is highest in the literature about social turbulence, industrial stress or psychological strain, whereas more sound dead texts emphasize the objections to mechanization and environmental degradation. These results support the thesis that sound-based language is one of the key elements of the world-building of the narrative in the novel by Dickens, and the corpus-based linguistic approaches allow tracing the process of the eco-soundscape construction systematically.

The research has several limitations, though it contains very valuable insights. These ten onomatopoeic words were the ones that were analyzed, and other sound-related linguistic phenomena such as sound verbs, sound metaphors, descriptive auditory adjectives and sensory narrative

configurations that can further enrich the analysis of the eco-soundscape were omitted. The corpus was also narrowed down to Dickens, which avoided making comparisons with other Victorian writers or the period of literature. Further, the analysis was based on frequency and KWIC analysis and did not use more profound semantic network mapping and multimodal stylistic devices that can display more levels of ecological meaning. Further studies may increase the scope of the data set to cover a wider set of vocabulary connected with sound, multiple authors or literary genres, or research variations in the literary construction of sound over time. It would be interesting to incorporate the computational semantic analysis, sentiment analysis, or eco-narratological models to gain a more detailed understanding of how the environmental experience and human-nature interactions are embedded in literature.

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