



## Book Reviews in Sciences: Structural and Functional Differences in Lexical Bundles

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### Abstract

Lexical bundles are recurrent multi-word sequences that play a crucial role in academic discourse. This article presents an analysis of lexical bundles in book reviews across the disciplines of human and natural sciences. Drawing from a corpus of 737 book reviews, the study investigates the functional roles and structural patterns of these recurrent linguistic units. The research aims to bridge a gap in the literature by exploring how lexical bundles vary across disciplines. Employing a quantitative-qualitative approach, the study first quantitatively identifies the most common 4-word lexical bundles and compares their distribution between the two disciplines. The researchers then qualitatively analyzed the context in which these bundles are used, observing that they often serve to refer to or evaluate the structure, content, audience, or scope of the book under review. Findings reveal that while both human and natural sciences book reviews share some lexical bundles, they exhibit variations in their distribution, structures, and functions. Notably, natural sciences book reviews employ a greater frequency of lexical bundles signaling an evaluative context, particularly contexts related to the assessment of a book. The study also uncovers differences in the structural preferences of lexical bundles between the two disciplines. This research contributes to a deeper understanding of the genre-specific utilization of lexical bundles and underscores their role in conveying evaluative meaning in scholarly discourse. Furthermore, the study suggests avenues for further exploration, providing a foundation for future investigations into the intricate interplay between linguistic features and disciplinary preferences.

\* Received: 18/04/2024

Accepted: 20/10/2024

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### How to cite this article:

Jalilifar, A., & Niamadpour, V. (2024). Book Reviews in Sciences: Structural and Functional Differences in Lexical Bundles. *Teaching English as a Second Language Quarterly (Formerly Journal of Teaching Language Skills)*, 43(4), 87-116. doi: 10.22099/tesl.2024.49990.3280



**Keywords:** Lexical Bundles, Book Reviews, Evaluative Language, Natural Sciences, Human Sciences

Academic writing plays a fundamental role in conveying research findings and knowledge across various academic disciplines. It requires familiarity with specific skills and conventions due to its intricate structure (Biber & Gray, 2010, P .3), domain-specific (Swales & Feak, 2012, p. 14) and condensed style (Biber & Gray, 2010), use of meta-discourse markers (Hyland, 2000; Hyland & Tse, 2004; author, 2007), and formal (Hyland & Jiang, 2017) and evaluative language (Hunston, 1989; Yang, 2016).

Of a plethora of genres within academic discourse, the book review genre stands out with a focus on describing and evaluating a book (Authors, 2015). Academic book reviews “play an important role in supporting both the manufacture of knowledge and the social cohesiveness of disciplinary communities” (Hyland & Diani, 2009, p. 2) and are published in journals of academic disciplines. Field experts write them to evaluate a work deemed a contribution to the knowledge in a discipline. The review is assumed to be a critical reflection on the ideas an author argues in their book “as a springboard for a wider evaluation of them, comprising a discussion of the issues they raise and an appraisal of what this means for the community” (Hyland & Diani, 2009, p. 3).

Previous research on book reviews has highlighted variations in lexicogrammatical choices across different disciplines, languages, cultures, and audiences (Bondi, 2009; Hyland, 2000; Itakura & Tsui, 2011; Moreno & Suarez, 2008; Sanz, 2009). Perhaps the most comprehensive monograph on scholarly book reviews is that of Lindholm-Romantschuk (1998). Lindholm-Romantschuk (1998, p. 40) proposed five functions of book reviews. Firstly, they serve as a means of introducing a book to the discourse community. Secondly, they evaluate the content of a book, providing a critical assessment of the ideas presented. Thirdly, book reviews can affect public opinion, either positively or negatively, by shaping readers' perceptions of the book. Fourthly, book reviews provide a forum for disciplinary discourse, allowing scholars to engage in discussion and debate around the book's themes and ideas. Finally, book reviews display the reviewer's knowledge and expertise, demonstrating their ability to evaluate and engage with scholarly work in their field.

There appears to be consensus on the disciplinary variations in book reviews in terms of lexicogrammatical choices (Diani, 2009; Groom, 2009). Research has also suggested that not only disciplines but also languages and cultures differ in terms of the lexicogrammatical choices they provide for a specified audience (cf. Bondi, 2009; Itakura & Tsui, 2011; Moreno & Suarez, 2008; Sanz, 2009). However, recent works in genre analysis have shown a progression beyond the sole focus on lexicogrammatical features. These studies have capitalized on examining phrases or groups of words under various labels, such as phrase frames (Casal & Kessler, 2020), formulaic language (Wray, 2013), lexical bundles (Hyland, 2008), n-grams (Zhang & Li, 2021), or prefabricated phrases (Oakey, 2020). Such phrases, which are read and processed faster and more easily than other sequences of words in a text (Conklin & Schmitt, 2008), are “key to achieving and maintaining high levels of pragmatic competence, both in L1 and L2” (Siyanova-Chanturia & Pellicer-Sánchez, 2019, p. 5). This connection between formulaic phrases and pragmatic competence has been observed in language acquisition research. Gheitasi (2022) has demonstrated that in the process of language acquisition, learners acquire and retain numerous unanalyzed language sequences associated with pragmatic competence, enabling them to utilize these formulaic phrases in predictable social situations. For instance, learners employ phrases like “it is clear that” during greetings.

These recent approaches to genre analysis have allowed for a more nuanced understanding of the phraseological tendencies in academic writing. The recognition of the role played by phrases and patterns in shaping the discourse of academic writing in general and book reviews, in particular, can lead to a richer analysis of the genre's characteristics, shedding light on the complex interplay between language, culture, and disciplinary conventions. This shift in focus is instrumental in uncovering new dimensions of linguistic variations and offering valuable insights into the intricacies of book review writing.

According to Wang (2021, p. 114), the most common approach in formulaic language research is to take a frequency-based approach, which involves using computational tools to identify frequently occurring word sequences in large text corpora automatically. This approach is often used to identify lexical bundles, which are frequently occurring sequences of words in natural discourse (Biber et al., 1999, p. 990).

Lexical bundles have been the subject of many studies for theoretical purposes or for their pedagogical relevance (Cortes, 2006; Hyland, 2008; Chen & Baker, 2010; Durrant, 2015; Authors., 2016; Authors, 2018; Wright, 2019; Ren, 2021). These sequences of words, identified based on their high frequency, literal meaning, and context dependency (Sidtis, 2021, p. 39), are “pervasive in academic language use and a key component of fluency” (Hyland & Jiang, 2018, p. 384). Lexical bundles can be automatically identified using software, such as AntConc or Wordsmith, or a little understanding of a programming language, such as Python or R.

Researchers have investigated lexical bundles in various genres and disciplines, examining their forms, structures, and functions. Some of these studies point out the variations in disciplines in terms of lexical bundle use. A highly cited work in this area is Hyland’s (2008) study of disciplinary variations in 4-word bundles across different fields. He classified them as research-oriented, text-oriented, and participant-oriented. Other researchers have widely adopted his framework. Another study was conducted by Ren (2021) on the variability and functions of lexical bundles in research articles of applied linguistics and pharmaceutical sciences. The study found that variability shows disciplinary variation, with bundles from applied linguistics articles being relatively less fixed. In an analysis of applied linguistics articles, Authors (2018) compared domain-specific and general academic lexical bundles, noting a higher occurrence of discipline-specific bundles.

While some studies have addressed disciplinary or genre-specific variations in the usage of lexical bundles, others have focused on a common list of lexical bundles in academic writing with pedagogical relevance (Simpson-Vlach & Ellis, 2010; Authors., 2016). These studies have identified and compiled frequently occurring lexical bundles across different disciplines. These compiled lists of lexical bundles can be incorporated into the teaching materials for courses on academic writing or English for specific purposes (cf., Chen, 2010, p. 108).

Another line of research has been the analysis of lexical bundles in academic discourse with a focus on the authors' native language. There seems to be a lack of consensus as to the existence of a significant difference between native English writers and nonnative English writers in their use of lexical bundles. While some argue that there

is a significant difference between native and nonnative English writers with regard to lexical bundles usage (Pan et al., 2016; Bychkovska & Lee, 2017), some believe that there is not much difference in that area (Chen & Baker, 2010; Shin, 2019).

Although lexical bundles have been widely investigated in research articles (Esfandiari & Barbary, 2017), textbooks (Shirazizadeh & Amirfazlian, 2021), dissertations (Zhang & Li, 2021), and literature reviews (Wright, 2019), they have not received due attention in the book review genre. To the best of our knowledge, Römer (2010) is the only study investigating lexical bundles as well as phrase frames (p-frames) in the book review genre. Phrase frames are “sets of n-grams which are identical except for one word in the same slot” (p. 102). She introduces the PP (Phraseological Profile) model to render a profile of common lexical bundles in a text, their distribution, and their occurrence. This analytical model involves four steps to be taken “to uncover the phraseological profile of a text or text type” (Römer, 2010, p. 115): identifying phraseological items, determining their variability, examining their functions, and analyzing their distribution across texts. The main implication of this model, she argues, is pedagogical and especially beneficial for novice researchers, but the results of the analysis are not widely discussed. As a result, the focus is on illustrating the model by applying it to only linguistics book reviews and not on the genre-specific characteristics of book reviews.

Related to the study of phrase-frames in Römer’s (2010) study is Casal and Yoon’s (2023) analysis of formulaic language in conference abstracts in *Applied Linguistics*. They examined how the identified phrase-frames are distributed across rhetorical stages in the corpus and applied the findings to a second-language English academic writing context. The results showed “limited changes in the use of phrase-frames” (p. 110) among students in the study.

Another study that drew on a modified version of Römer’s (2010) PP model was conducted by Márquez (2014). In this research, both 4-word lexical bundles and phrase-frames in a corpus of hotel websites’ textual content were analyzed. It was argued that lexical bundles “help characterize a genre or a register, where they fulfill a range of functions” (p. 88), “are central elements of a register’s phraseological profile” (p. 90), and most of them are “are instances of phrase frames” (84).

Despite the existing body of literature that explores lexical bundles in diverse academic discourses, a notable research gap exists in understanding the usage of lexical bundles within the book review genre, particularly in terms of disciplinary variations within this genre. This study aims to address this research gap by addressing three questions:

1. What are the general structural and functional patterns of 4-word lexical bundles in book reviews, irrespective of the discipline?
2. How do the usage patterns of lexical bundles in book reviews and other academic genres, such as research articles or dissertations, vary?
3. How do the usage patterns of lexical bundles in book reviews compare in the humanities and natural sciences?

The findings of this research will contribute to a better understanding of the use of 4-word lexical bundles specific to book reviews, thereby advancing our knowledge of the linguistic structure of book reviews and how the reviewers try to achieve their communicative goal of evaluating a book. This involves understanding the ways in which lexical bundles contribute to constructing arguments, expressing evaluative stances, and organizing discourse within the genre of book reviews. Such knowledge can contribute to the development of instructional materials for academic writing. Thus, the implications of this study are both pedagogical and theoretical.

Comparing the usage patterns of lexical bundles in book reviews with those in other academic genres offers insights into how lexical bundles function differently in distinct communicative contexts. This comparison helps us discern the nuances of academic writing, distinguishing book reviews from research articles, essays, or reports. It is especially valuable for novice researchers, as it provides a deeper understanding of genre-specific language features, ultimately enhancing their writing proficiency.

As previously mentioned, the exploration of genre-specific and disciplinary-specific lexical bundles in academic discourse has garnered substantial attention within the scholarly community. Each genre, defined by its distinct communicative purpose, employs specific linguistic forms tailored to fulfill those communicative objectives. This makes analyzing the usage patterns of lexical bundles in book reviews within the humanities and natural sciences of particular significance. It reveals how language differs

between these two major academic domains in a specific genre. Such insights contribute to our understanding of how scholars in these fields convey their ideas. This comparative analysis aids researchers in identifying discipline-specific language markers and enriches pedagogical practices, enabling novice researchers to communicate more effectively within their chosen academic domains.

### Method

This section provides an overview of the data collection and analysis procedures employed in the study, including corpus design, identification of lexical bundles, and subsequent analysis.

#### Corpus design

The dataset for this research comprised 737 academic book reviews, with a distribution of 321 reviews from the human sciences and 416 reviews from the natural sciences. These reviews were sourced from reputable journals accessed via ScienceDirect and Sage Journals spanning various disciplines. The distribution of book reviews by discipline and journal can be found in Table 1.

Table 1.

*Distribution of book reviews by discipline and journal*

Discipline	Subject areas	No of BRs	Word count	Average length
Human sciences	Applied linguistics, Psychology, Communications, Politics, History, Arts, Philosophy	321	681666	2123 words
Natural Sciences	Neuroscience, Computer Sciences, Radiology, Artificial Intelligence	416	382084	918 words

The reviews were selected from publications from the years 2000 to 2023, ensuring a diverse range of contemporary perspectives. Also, the paucity of book review (BR) publishing motivated the researchers to scrutinize diverse journals across more than two decades (2000-2023) so that a representative number of BRs could be accessed. The total size of the corpus amounted to 1,067,087 words.

### Lexical bundles identification

The identification of lexical bundles within the corpus involved employing computational techniques. The AntConc program (Anthony, 2023), widely recognized for its effectiveness in corpus linguistics research, was utilized for this purpose. AntConc is capable of processing various file types, including pdf, csv, xml, and text files, and provides valuable features such as concordances, word frequency, collocations, and n-gram lists.

The book reviews obtained from the journals were provided in the pdf format. These files contained extraneous information, such as the journal name, author, page numbers, and web addresses, which were irrelevant to the analysis. To address this, the Python programming language was utilized to convert the pdf files into plain text files, followed by the removal of irrelevant information, extra spaces between characters, and formatting issues using Python scripts. The resulting files were then prepared for analysis using AntConc. Although Python offers several text analysis libraries, such as Spacy and NLTK, the researchers opted for AntConc due to its widespread use for corpus analysis, offering a range of functions, including concordancing, word frequency lists, keyword analysis, and collocation analysis. Subsequently, the data was input into AntConc, with the N-Gram feature selected for analysis. An N-gram has been defined as a sequence of neighboring words (bigram for two adjacent words, trigram for three, etc) (Stubbs, 2002, p. 230). Thus, to add this term to Biber's definition of lexical bundles (Biber et al. 1999, p. 990), a lexical bundle is an N-gram (sequences of words) that occurs frequently in natural discourse.

In this study, the focus was on 4-grams, as they have been widely adopted for lexical bundle analysis in previous research (Biber, Conrad, & Cortes 2004; Biber & Barbieri, 2007; Hyland, 2008; Authors, 2016). However, not all sequences of 4 words were considered as lexical bundles. Following Conrad and Biber's frequency criteria (2005, p. 60), an n-gram needs to occur at least 10 times per million words to be considered a lexical bundle. Another criterion is that "the sequence must also be used by multiple speakers or authors, and not simply be a matter of individual style" (Conrad & Biber, 2005, p. 60). The cut-off occurrence for this criterion suggested by Conrad and Biber (2005, p. 60) is five, that is, the sequence must occur in at least five texts in the corpus. The corpus under

examination encompasses over a million words; nonetheless, AntConc applies normalization procedures to calculate frequencies based on the standard of one million words. Additionally, AntConc furnishes information on the number of reviews in which a particular n-gram has been utilized.

To illustrate, a screenshot of the analysis of 4-grams in the corpus is provided below.

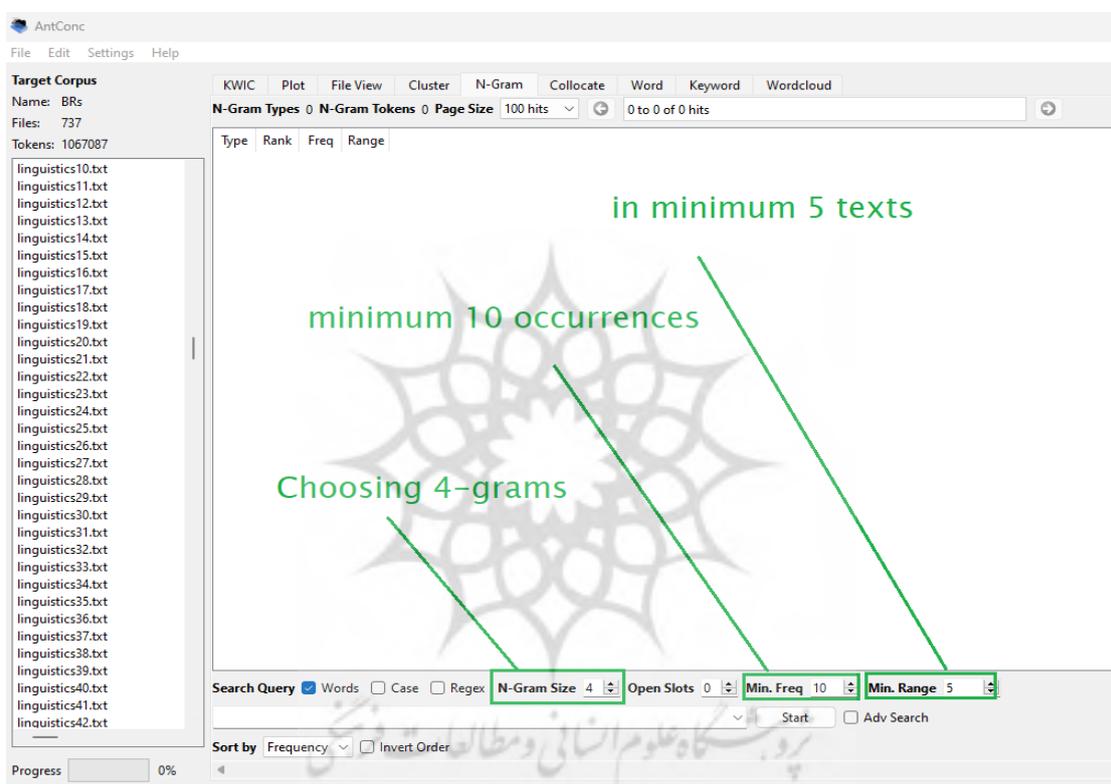


Figure 1. A Screenshot of the AntConc software interface

### Analysis of the function of lexical bundles

The analysis of lexical bundles involved a series of steps. Initially, the 4-grams were collected using AntConc and exported to a CSV file for further analysis. The next step was to categorize the identified bundles according to their functions and structures. To ensure objectivity in the identification and categorization of lexical bundles, a second

rater independently categorized the bundles in terms of function and structure. The interrater reliability was calculated using percentage agreement, yielding a value of 94%, which indicates a high level of agreement. Any discrepancies were resolved through discussion.

Römer (2010) identifies several functions for the common phrases she found in the book reviews: evaluation, content, structure, and discourse organization. According to Römer (2010, p. 109), *evaluation phrases* express judgments or opinions about the book; *Content phrases* summarize or describe the book's content; *Structure phrases* help outline the organization of the book; *Discourse organization phrases* manage the flow of the review itself. Due to its relevance to our book review data, this categorization was adopted initially and further modified according to our findings. The functional categorization of lexical bundles was conducted manually by closely examining each lexical bundle within its contextual surroundings using AntConc's concordance tool. Both researchers engaged in discussions regarding the analyses and reached a consensus on the categorizations. By employing this approach, the study aimed to capture the nuanced functions associated with each lexical bundle. Subsequently, to analyze the structure of the bundles, we used Biber et al.'s (1999) structural classification. Biber et al. (1999) offer a very detailed classification of lexical bundles in terms of structure (see Table 2); however, for the purposes of this study and to provide a general overview of the similarities and differences between the book review genre and other academic genres as well as the disciplinary variation within the book reviews, the details were avoided. As a result, the lexical bundles were categorized based on their main dependence on noun phrases, verb phrases, prepositional phrases, anticipatory it, and wh-fragments. This analysis aimed to uncover any potential disciplinary or genre-specific structural variations in the utilization of lexical bundles.

Table 2.

*Structural Classification of Lexical Bundles by Biber et al. (1999)*

Structure	Example
1. Noun phrase with of-phrase fragment	the content of the
2. Noun phrase with other post-modifier fragments	the way in which
3. Prepositional phrase with embedded of-phrase fragment	as a consequence of

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Structure	Example
4. Other prepositional phrase	on the other hand
5. Anticipatory it + verb or adjective phrase	it is important to
6. Passive verb+prepositional phrase	is shown in table
7. Copula be + noun / adjective phrase	is due to the
8. (Verb phrase+) that- clause	that it is a
9. (Verb/ adjective +) to- clause	to be interested in
10. Adverbial clause	as can be seen
11. Pronoun/ noun phrase + be +...	this is not the
12. Other phrases	as well as the

Furthermore, a comparative analysis was performed across the disciplines of human and natural sciences to identify commonalities and divergences in the utilization of lexical bundles.

### Results and Discussion

This section reports the main findings of the analysis of lexical bundles in book reviews. The study aimed to fill the gap in the literature by examining the structures and functions of lexical bundles in book reviews published in journals of human and natural sciences. Firstly, to answer the first research question, the results of our analysis of the lexical bundles in all the book reviews, irrespective of the discipline, are discussed. To find an answer to the second research question, our findings will be compared to the findings from the three datasets mentioned in the next section. Then, to address the next research questions, this study explores how the functions and structures of the lexical bundles in the book reviews are similar or different across the two disciplines.

#### 4-word Lexical bundles in the book reviews

This section presents the results of the analysis of 737 book reviews from journals in natural and human sciences. Moreover, our findings in the book reviews dataset will be compared with the 4-word lexical bundles in Hyland's academic corpus of research articles and dissertations (2008), the British Academic Written English Corpus of 6,833,559 words (Nesi et al., 2004), and Römer's (2010) corpus of book reviews. The selected studies and corpora were chosen primarily because of their relevance and significance in the study of academic writing. The BAWE Corpus represents a wide range

of academic disciplines in British higher education, while Hyland's corpus includes research articles and dissertations, both of which provide valuable benchmarks for understanding the use of lexical bundles across different academic genres. Moreover, Römer's (2010) study is the closest in terms of genre to our research.

Overall, 661 4-word lexical bundles were identified in the corpus. These bundles were employed 11706 times, accounting for over 4% of the total words in the dataset, which is more than double the number of lexical bundles found in Conrad and Biber's (2005, p.61) academic corpus (5000 times per million words). The higher frequency of lexical bundles in our dataset may be attributed to the nature of book reviews as a genre. Book reviews are generally more condensed and focused than other academic genres, such as research articles or dissertations, resulting in a greater density of lexical bundles within a smaller textual space. Additionally, the discrepancy could be influenced by the higher number of book reviews included in our dataset compared to the fewer distinct texts analyzed in Conrad and Biber's study. A larger number of book reviews, each with its own evaluative focus, might lead to a wider variety of lexical bundles and a higher overall frequency within the corpus.

The following 75 lexical bundles, occurring with a frequency surpassing 24 instances and appearing in more than 20 distinct reviews, provide a glimpse into the recurrent linguistic patterns prevalent in the critical evaluation of scholarly works.

Table 3.

*75 most frequent 4-word lexical bundles in the book reviews*

Lexical Bundle	Frequency	Lexical Bundle	Frequency	Lexical Bundle	Frequency
of the book is	156	in the case of	47	on the role of	30
in the field of	153	the book is a	46	in relation to the	29
at the end of	144	in addition to the	44	the book does not	29
as well as the	133	the ways in which	44	a summary of the	28
a wide range of	97	of the book the	42	can be used to	28
on the other hand	91	is followed by a	41	it is important to	28
in the context of	83	it would have		the way in which	28
at the same time	80	been	41	with a focus on	28
		this is followed by	41		

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Lexical Bundle	Frequency	Lexical Bundle	Frequency	Lexical Bundle	Frequency
part of the book	80	end of the book	40	a better understanding of	27
one of the most	79	on the one hand	39	in a variety of	27
the end of the	78	as a result of	38	the content of the	27
state of the art	71	on the basis of	38	this book is an	27
of this book is	69	and the use of	37	a step by step	26
an overview of the	67	in terms of the chapters of the book	37	in this chapter is	26
the book is divided	65	the extent to which	35	many of the chapters	26
book is divided into	63	the state of the	34	rest of the book	26
the rest of the	62	the role of the	34	the use of the	26
this book is a	60	a wide variety of	33	who are interested in	26
the end of each	57	from the perspective of	32	and the role of	25
as well as a	54	on the use of	32	as well as to	25
in the form of	54	at the beginning of	32	of some of the	25
is one of the	54	the current state of	31	of this volume is	25
be of interest to	53	with regard to the	31	the analysis of the	25
section of the book	51	of the book and	31	will be of interest	25
end of each chapter	49		30	it is clear that	24

Comparing our findings with the results of 4-gram occurrences in Hyland's academic corpus of research articles and dissertations (2008) shows that only seven lexical bundles were shared between Hyland's list of 25 most common lexical bundles and the 25 most common lexical bundles in our book reviews corpus. This limited overlap between the most common 4-word lexical bundles used in book reviews and those used in other academic genres like research articles and dissertations suggests that book reviews utilize a distinct set of lexical bundles that are more specific to their evaluative and communicative functions, reflecting the unique rhetorical purposes and conventions of the book review genre. It highlights that while some linguistic expressions are common across different types of academic writing, book reviews have their own lexical bundle patterns that differ from those in other academic texts.

The communicative goals of research articles or dissertations and book reviews differ according to their respective genres. Academic book reviews aim to evaluate a book critically, which explains the frequent use of words related to the book under review and its structure, such as *reader, book, volume, edition, chapter/s, section, and author/s*. These words appear in almost 30% of the lexical bundles (213) in our book reviews dataset. Moreover, academic book reviews employ a significant amount of evaluative language to express the reviewer's assessment of the book. For instance, among the 158 adjectives used in the 661 lexical bundles, 42 are highly positive references to the book under review (e.g., *is an excellent book, an important contribution to, in great detail and a valuable resource for*), while only one (*it is unfortunate*) is clearly a negative evaluation of the book. Although 43 instances may seem limited in number, their significance lies in the overwhelmingly positive nature of the language used, suggesting that the book reviews in our dataset tend to favor positive appraisals over negative ones. This pattern aligns with the genre's typical purpose of highlighting the value and contributions of scholarly works. However, it is important to note that this study only quantifies the occurrences of evaluative language in book reviews; a more in-depth analysis of the nuances and functions of evaluative language falls outside the scope of this research.

Below are the shared lexical bundles with Hyland's (2008), which can suggest the existence of common patterns across different academic genres. Highlighting these similarities helps to identify core expressions that are not limited to specific genres but are characteristic of academic writing as a whole.

Table 4.

*The lexical bundles common in Hyland's corpus (2008) and in the current study*

Lexical Bundles	Ranking in Hyland's corpus (2008)	Ranking in the current study
On the other hand	1	6
At the same time	2	8
The end of the	4	11
As well as the	5	4
Is one of the	10	22
In the form of	11	21
In the context of	21	7

Our top results are more in line with those of Römer's (2010, p.111) analysis of 4-grams in linguistics book reviews. All the 17 lexical bundles mentioned as top results in Römer's analysis are present in our first 100 most frequent lexical bundles; however, 10 of them fall within the first 18 lexical bundles we have collected. This similarity can point to the shared communicative goal in the book review genre.

Table 5 lists the lexical bundles that are common to both Römer's analysis and our corpus.

Table 5.

*The top lexical bundles shared in Römer's and our corpus*

<i>Shared lexical bundles</i>		
the book is divided	as well as the	the fact that the
book is divided into	on the basis of	the end of the
an overview of the	at the same time	with respect to the
at the end of	the rest of the	it would have been
of the book is	in terms of the	in the case of
on the other hand	in the context of	

The last comparison was made between the first 100 lexical bundles in our dataset and the first 100 lexical bundles in the BAWE corpus. These lexical bundles constituted equally 0.5% of all the words in their respective corpus. The shared lexical bundles and their frequency are provided in the table below.

Table 6.

*The shared lexical bundles in the first 100 lexical bundles*

<b>Lexical Bundle</b>	<b>Frequency in BRs</b>	<b>Frequency in BAWE</b>	<b>Rank in BRs</b>	<b>Rank in BAWE</b>
at the end of	144	419	3	9
as well as the	133	504	4	7
a wide range of	97	184	5	47
on the other hand	91	840	6	1
in the context of	83	197	7	40
at the same time	80	505	8	6
one of the most	79	369	10	13
the end of the	78	581	11	4
the rest of the	62	300	17	23
in the form of	54	479	21	8

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Lexical Bundle	Frequency in BRs	Frequency in BAWE	Rank in BRs	Rank in BAWE
is one of the	54	328	22	16
in the case of	47	613	26	3
on the basis of	38	205	37	36
as a result of	38	732	36	2
in terms of the	37	285	39	24
the extent to which	34	254	41	27
the role of the	33	215	43	31
at the beginning of	31	195	47	41
in relation to the	29	199	52	38
can be used to	28	385	55	12
it is important to	28	577	56	5
the way in which	28	305	57	22
the use of the	26	235	67	29
it is clear that	24	315	78	18
that there is a	23	312	86	20

As can be seen in the table, 25 lexical bundles in the first 100 lexical bundles in both corpora were similar. However, only 9 of these shared bundles appear in the top 25 most frequent bundles in either dataset. This suggests that while there is some overlap in the use of common lexical bundles between the two corpora, the prominence and rank of these bundles differ, reflecting variations in their usage across different types of academic writing. As stated earlier, the communicative goal of book reviews is evaluating a book, so it is expected to see references to the book, author, reader, organization of the book, and assessment of the book in such reviews. These genre-specific formulations, which were not found in the lexical bundles in the BAWE help understand the communicative intent of the book review genre.

Table 7.

*Lexical bundles present in the top 100 bundles in the BR corpus but absent in the BAWE*

Lexical Bundles		
of the book is	on the use of	chapter of the book
part of the book	the current state of	for the most part
state of the art	with regard to the	provides an overview of
of this book is	of the book and	an introduction to the
an overview of the	on the role of	is devoted to the
the book is divided	the book does not	our understanding of the
book is divided into	a summary of the	recommend this book to

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<b>Lexical Bundles</b>		
this book is a	with a focus on	the book is that
the end of each	a better understanding of	the book is the
be of interest to	the content of the	the book is well
section of the book	this book is an	the book will be
end of each chapter	a step by step	the discussion of the
the book is a	in this chapter is	this book provides a
of the book the	many of the chapters	to the field of
is followed by a	rest of the book	chapter concludes with a
this is followed by	who are interested in	chapters 4 and 5
end of the book	and the role of	is divided into three
chapters of the book	as well as to	of the importance of
the state of the	of this volume is	
a wide variety of	this book is the	
from the perspective of	will be of interest	

This study adopted Römer's (2010) approach to categorizing the functions of the lexical bundles found in the book reviews. Römer (2010, p.109) observed that the lexical bundles found in his book reviews mainly referred to the book structure, content, evaluation, and discourse organization. For this categorization, we modified the categorization based on our findings and focused on the lexical bundles within the first 100 bundles that occurred only in the book reviews dataset (out of 513 bundles) and not in the BAWE.

While initial categorization attempts sought to separate evaluative language into its own category, further analysis revealed that evaluation permeates all aspects of book reviews. Lexical bundles often serve multiple functions simultaneously, with evaluative undertones present in descriptions of structure, content, scope, and audience. This multifunctionality reflects the complex nature of academic discourse in book reviews, where objective description and subjective evaluation are often intertwined.

The categorization of lexical bundles into Structure, Content, Audience, and Scope provides a framework for understanding their primary functions while acknowledging their potential evaluative roles. This approach allows for a more nuanced analysis of how language is used in academic book reviews to both describe and assess the work in question. The findings are presented below:

Table 8.

*The categorization of lexical bundles*

Category	Lexical Bundles
<i>Structure</i>	the book is divided, book is divided into, chapter of the book, part of the book, section of the book, chapters of the book, is divided into three, chapters 4 and 5, rest of the book, end of each chapter, end of the book, this is followed by, is followed by a, in this chapter is, chapter concludes with a, the book is well, of the book is
<i>Content</i>	the content of the, the discussion of the, a step by step, with regard to the, on the use of, on the role of, is devoted to the, and the role of, of the importance of, this book provides a, provides an overview of, an overview of the, of the book is
<i>Audience</i>	be of interest to, will be of interest, who are interested in, recommend this book to, to the field of
<i>Scope and Identity</i>	from the perspective of, a wide variety of, to the field of, the state of the, the book does not, of the book is, a better understanding of, our understanding of the, the book is well

To provide the context in which these bundles are instrumental, we looked at the concordances of all the occurrences of the bundles, the function of the contexts (structure, content, audience, scope), and decided if the majority of the occurrences of a bundle serve a specific function:

**Structure:** These bundles primarily describe how the book is organized. They refer to parts, chapters, sections, and divisions within the book. This category is crucial as it helps readers understand the book's layout and organization. While primarily descriptive, these bundles can also carry evaluative meaning. For example, "the book is well-structured" positively evaluates the structure of the book.

Example 1- **The book is divided** into 4 sections and 10 chapters.

Example 2- The first **chapter of the book** describes...

Example 4- Otherwise, **the book is well** organized.

**Content:** These bundles describe what the book contains. They often introduce overviews, summaries, and specific chapter content. This category is essential for giving readers a sense of the book's subject matter and how it's presented. Evaluative undertones can be present in content descriptions, such as highlighting the importance or relevance of certain topics.

Example 4- One limitation of **the content of the** book is clear.

Example 5- It raises awareness **of the importance of** keywords.

Example 6- The remainder of the book **is devoted to the** use of...

**Audience:** These bundles indicate who might benefit from or be interested in the book. They help potential readers determine if the book is relevant to their needs or interests. The evaluative aspect in this category often relates to the book's perceived value or usefulness to specific groups of readers.

Example 7- The book will certainly **be of interest to** those people...

Example 8- I highly **recommend this book to** instructors of...

Example 9- ...a concise book for the beginners **to the field of** EEG reading.

**Scope and Identity:** These bundles refer to a general impression of the book, define the focus and perspective covered in the book, and situate the book or its authors in its field of study. They help readers understand the book's breadth or specificity and its standing in the field, as well as the authors' expertise and performance. Evaluative elements in this category can be seen in bundles that position the book within current research or highlight its contribution to the field.

Example 10- Overall, the strength **of the book is** that the contributors are recognized experts.

Example 11- Overall, **the book is well** printed.

Example 12- It provides practical guidance for improving writing skills **from the perspective of** a medical practitioner.

It's important to note that the boundaries between these categories can be fluid, and some lexical bundles may fit into multiple categories depending on their context. For instance, "the book is well,," could relate to structure, content, or scope/identity. This overlap underscores the complex and multifaceted nature of language use in academic book reviews.

According to Biber et al. (1999), most of the lexical bundles in the academic corpus are incomplete structural units and "are building blocks for extended noun phrases or prepositional phrases" (p. 992). Biber et al. (1999) offer a structural classification of lexical bundles in the academic and spoken corpus, mainly based on the first words of the bundle. Figure 2 shows the frequency of the structures in our data:

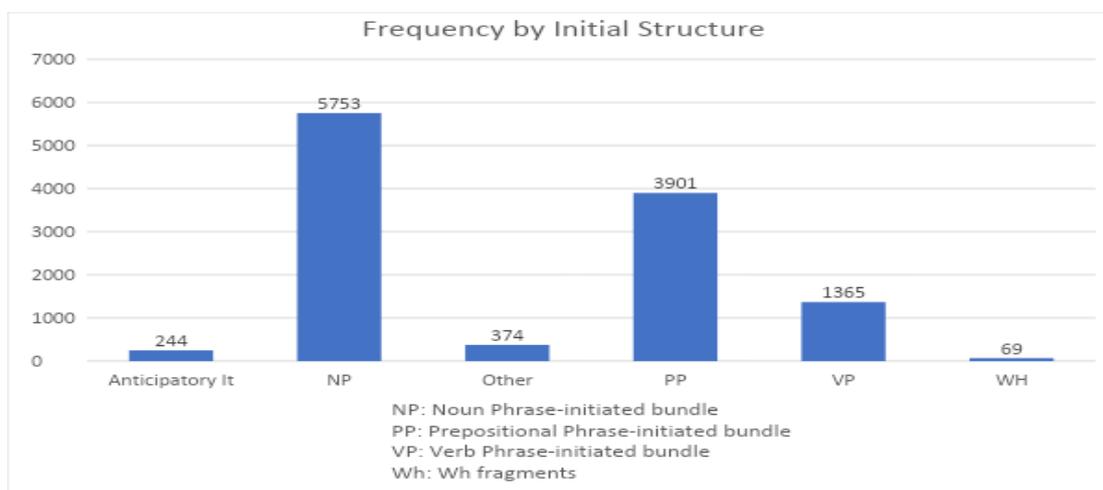


Figure 2. Frequency of the lexical bundles' structures

As can be seen in Figure 2, the analysis of lexical bundles in our corpus revealed that the most frequent structure in lexical bundles was the noun phrase-initiated structure (e.g., *the end of the*) with 5753 occurrences, followed by the prepositional phrase-initiated structure (e.g., *on the other hand*) with 3901 occurrences. These two structures accounted for more than 80% of the total lexical bundles identified in the corpus. The next most frequent structure was verb phrase-initiated structure (e.g., *will be of interest*), with 1365 occurrences, which represented about 11% of the total lexical bundles. The other structures, such as *anticipatory it* (e.g., *it is important to*), *wh*-clauses (e.g., *who are interested in*), and other expressions (e.g., *as well as the*), were much less frequent, with less than 6% of the total lexical bundles each. The results suggest that academic book reviews rely heavily on noun phrases and prepositional phrases as lexical bundles.

In the next section, the lexical bundles found in each discipline will be analyzed, and their similarities and differences will be discussed.

### Lexical bundles across human and natural sciences

In this section, to answer research questions 2 and 3, a comparison between the functions and structures of lexical bundles in the book reviews of natural and human sciences will be made.

### Functional categorization of lexical bundles

Our analysis of lexical bundles across the book reviews in human and natural sciences showed that there are 277 4-word lexical bundles in human sciences book reviews and 143 in the natural sciences book reviews. Both disciplines share 61 lexical bundles, which are illustrated below in 2 separate diagrams for more visibility.

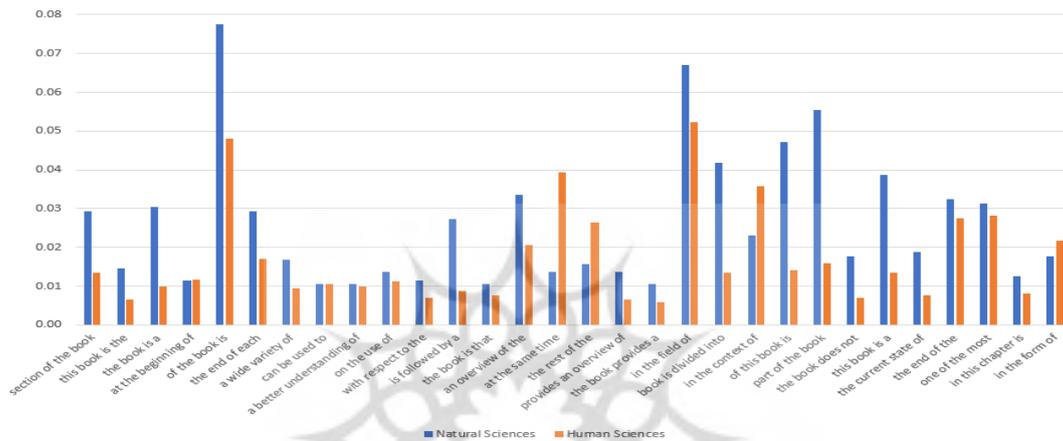


Figure 3. The first list of the shared lexical bundles in Human and Natural Sciences

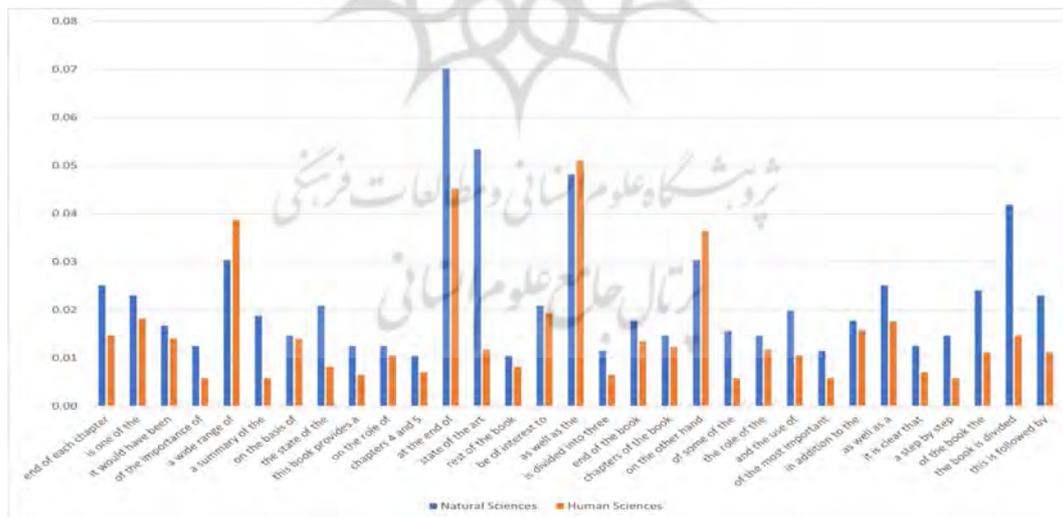


Figure 4. The second list of the shared lexical bundles in Human and Natural Sciences

The functional categorization of shared lexical bundles is consistent with those presented in Table 5. However, a closer examination of distinct bundles, particularly those in natural sciences book reviews, reveals significant variations. Of the 216 lexical bundles unique to human sciences, only 24 were used in a context where the book was explicitly evaluated, while 47 of the 82 lexical bundles in natural sciences book reviews were used for this purpose. These findings corroborate previous research by Authors (2017), indicating a stronger presence of evaluative language in natural sciences book reviews.

Liu and Zhang (2023) observed significantly higher use of positive language and evaluation in hard disciplines compared to soft disciplines. They analyzed linguistic positivity in an academic corpus of 111 million words and found that hard disciplines experienced a more dramatic increase in the degree of linguistic positivity compared with soft disciplines. They argued that one factor that may affect this trend is commercialization, as researchers in hard disciplines need to attract the attention of industrial partners and may overemphasize the positivity of their findings using evaluative language (p. 3120).

Interestingly, the evaluations in the book reviews in our corpus have been largely positive. Some examples of the bundles unique to the natural sciences are provided below:

Example 13- *In summary, the book* succeeds very well

Example 14- *This is a book* that should be in everyone's library

Example 15- *overall, the book is* very well-written

Example 16- The text *is well written and*

Example 17- *this book will be* very useful to many research groups.

Example 18- After reading *this book, it is* clear that the

Example 19- Although *this book is not* a comprehensive review

Example 20- *The book is well* supported with case studies

Example 21- *It is also a* good reference book for engineers

Example 22- *There is also an* excellent chapter on quantitative

Example 23- *Each chapter is a* good combination of theory and

Example 24- The main *strength of the book* lies in the

Example 25-...provides *an excellent overview of* the history and...

Example 26- I highly *recommend this book to* instructors of

Example 27- Overall this book compiles *a wealth of information*

Example 28- *the chapters are well-*organized and fairly uniform

Example 29- This book provides *a detailed description of* PCR techniques

Example 30- *Overall this is a* thorough review

### The structure of Lexical bundles in human and natural sciences book reviews

This section provides an analysis of the structure of lexical bundles in the book reviews by discipline. Figure 5 and Figure 6 illustrate the distribution of different lexical bundle structures in natural and human sciences book reviews, respectively. Noun phrase-initiated structures (NP) are the most common, making up over half of all bundles in natural sciences, whereas noun phrase structures and prepositional phrase-initiated bundles have been used almost equally by book reviewers in human sciences. These NP-initiated bundles usually begin with a noun phrase, followed by a preposition or a verb. This finding is in line with Esfandiari and Ahmadi (2022), who found more noun phrase modifiers in their corpus of clinical medicine research articles than in the applied linguistics corpus. This can point to the use of noun phrases as being discipline-specific rather than genre-specific. Authors (2017) also found that academic writers in Physics, a branch of natural sciences, used more compound nominal phrases than writers in Applied Linguistics.

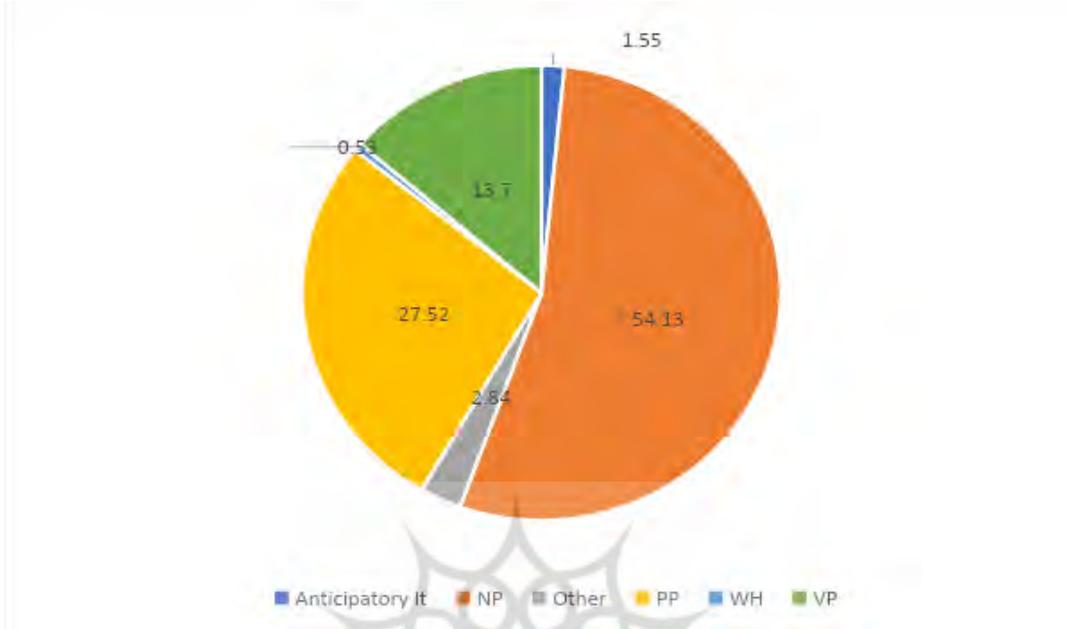


Figure 5. Percentages of the lexical bundles' structures in Natural Sciences

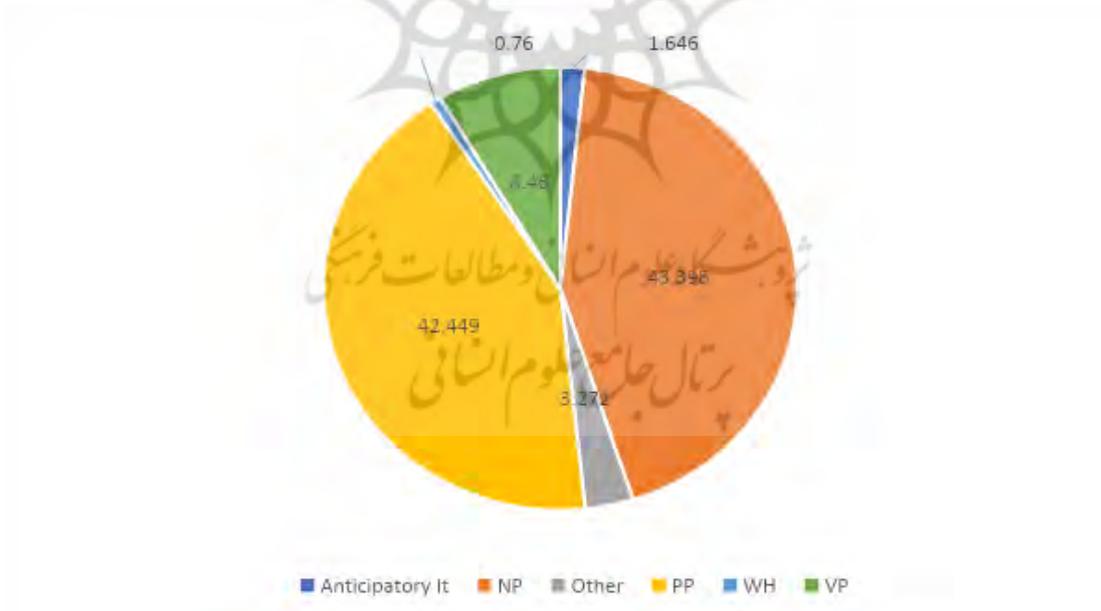


Figure 6. Percentages of the lexical bundles' structures in Human Sciences

A noteworthy difference between natural sciences and human sciences book reviews is the use of verb phrase-initiated structures (VP). In natural sciences book reviews of our dataset, VP ranks second at 13.7%, compared to 8.46% in human sciences (see Figure 5 and Figure 6). Hyland and Jiang (2018, p. 391) suggest that hard science fields are experiencing a shift away from verb-phrase bundles towards noun/prepositional types. While our results cannot confirm or deny this trend over time, our corpus of book reviews published after 2000 shows that natural sciences still use more verb-phrase bundles than their human sciences counterparts.

### Conclusion

This study investigated the use of lexical bundles within book reviews across human and natural sciences. It aimed to bridge a gap in the existing literature by exploring the structures and functions of these linguistic elements. The analysis initially encompassed the entire corpus of book reviews, irrespective of their disciplinary origins, revealing intriguing patterns and shared linguistic features with other academic genres. This initial exploration then paved the way for a more detailed investigation into the divergent patterns within the two disciplines. By categorizing lexical bundles based on their functions, the study provided a deeper insight into their roles within the book review genre. This approach highlighted that these bundles act as signals, often extending beyond their structural confines to convey evaluative, content-related, and structural nuances.

From a pedagogical standpoint, our comparison of lexical bundles across disciplines can provide essential input for the development of teaching materials for specific academic fields and genres. Hyland and Tse (2007, p. 251) encourage the use of corpus-driven lists and concordances for courses in *English for Academic Purposes*. They argue that such lists should be “derived from the genres students will need to write and the texts they will need to read” (p. 251). Awareness of common lexical bundles within a given discipline or genre, as this study has aimed to raise, can help both instructors and students strengthen their understanding of the target language within that field. By examining lexical bundles in book reviews, teachers can develop teaching materials that encourage the natural usage of these bundles.

Moreover, acknowledging the systematic variation within these disciplines (Biber, 2006, p. 25) and the awareness of disciplinary differences in lexical bundle use can support students in developing their academic literacy skills (Hyland & Tse, 2007, p. 248). Hyland and Tse (2007, p. 249) further argue that since “literacy is a practice integral to particular social and institutional contexts, we are forced to acknowledge that lists which claim to represent an academic vocabulary are likely to have a limited usefulness.” Therefore, as students progress from general academic discourse to more specialized disciplinary discourses, knowledge of lexical bundles in their respective disciplines will enable them to communicate more confidently and competently within their fields. The analysis of lexical bundles in book reviews and other genres enables students to draw connections between different types of academic writing and recognize variations in language use across disciplines.

This research did not examine the language of evaluation in the book reviews thoroughly, and neither did it investigate the detailed structure of phrases found in the book reviews in natural and human sciences disciplines. To advance our understanding of the use of lexical bundles in book reviews, future investigations could consider conducting a more detailed analysis of the evaluative language and the structure of lexical bundles in the book reviews. Another possible research trajectory that can give insight into the current status of book reviews is a diachronic analysis of book reviews in terms of the use of lexical bundles.

To conclude, this study has shed light on the relationship between language and academic discourse, revealing the dynamic role of lexical bundles in shaping the structure and content of book reviews. By uncovering shared practices, disciplinary differentiations, and the contextual intricacies embedded in these bundles, this research contributes to our understanding of linguistic patterns within academic writing while emphasizing the interconnected nature of language, genre, and subject expertise.

### ***Acknowledgments***

We would like to thank the editorial team of TESL Quarterly for granting us the opportunity to submit and publish the current synthesis. We would also like to express

our appreciation to the anonymous reviewers for their careful, detailed reading of our manuscript and their many insightful comments and suggestions.

### ***Declaration of conflicting interests***

The authors declare no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

### ***Funding***

Funding: This research was funded by the research department of Shahid Chamran University of Ahvaz. We hereby thank them for supporting this study.

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