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Noun Phrases in ELF Authors' Academic Writing

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ABSTRACT

Studies of English academic writing have revealed a shift to a compressed style, with preferences for lexical and phrasal types of noun modifiers over clausal modifiers. However, condensed noun phrases may result in a loss of explicitness since they lack grammatical markers specifying the semantic relations between head nouns and modifiers. This study examines the types and characteristics of nominal modifiers in the academic prose of ELF, which has been found to be marked by explicitness and clarification to ensure efficiency of communication among non-native users. Data were from the introduction and method sections of 60 research manuscripts in language and linguistics submitted to a Scopus-indexed journal. The results show that ELF authors conform to the modern norm of academic prose, producing compressed noun phrases with lexical and phrasal modifiers, particularly adjectives, nouns, and prepositional phrases. However, these noun phrases are structurally explicit: many of them have only one or two modifiers, facilitating the comprehension process. Also, the most prevalent modifier is prepositional phrases, with prepositions explicitly signaling the semantic relationship between head nouns and modifiers. The results reflect the way experienced users shape ELF to achieve a balance between the contrasting goals of conciseness and explicitness, which are both vital in ELF academic prose.

Keywords: academic writing, ELF authors, noun phrases

Introduction

In the globalization era in which the intensification of interconnection among people is fostered by the internet, modern technology, and advanced media, English has acquired a new function as a lingua franca for worldwide communication. English is the dominant lingua franca in diverse international domains in today's information-based societies, which include not only those concerning principal international policies (e.g., diplomacy, politics, trade) but also ordinary aspects of life where everyone can participate (e.g., social media, entertainment). Due to the rapid spread of English in all these international communicative contexts, speakers who use English as a second or foreign language greatly outnumber those who use it as a first language. People of diverse lingua-cultural backgrounds are interconnected in ways they have never been before, and they use English to facilitate interaction and achieve communicative goals (Kaur, 2011). Compared to other languages that have served as a means of communication for people with different first languages, the scale of English use, based on its enormous scope of domains and the increasing number of users, has been described as unprecedented (Mauranen et al., 2010).

By definition, *English as a Lingua Franca* (ELF) is the form of English used as a contact language between people who do not share a mother tongue, and speakers who use English to communicate with a speaker with a different mother tongue are ELF users. Although this definition does not preclude native speakers (NS) engaging in international communication from being ELF users, most ELF interactions are conducted by non-native speakers who share neither a native language nor a culture, and for whom English is the chosen foreign language of communication (Firth, 1996; Seidlhofer, 2005).

From the ELF theoretical perspective, ELF users are language users in their own right who can bend the language to suit their needs and purposes (Mauranen, 2010b), by employing various communicative skills and strategies to negotiate meanings and reach mutual understanding. Moreover, ELF is not treated as "a kind of fossilized interlanguage" used by incompetent learners (Seidlhofer, 2011, p.24). ELF scholars analyze it as a form of English which is used and adapted in its own terms to the relevant circumstances, rather than by comparison with NS norms.

Since ELF became a well-established concept in sociolinguistics, it has attracted attention from all aspects of linguistic inquiry. Also, numerous scholars have explored ELF in specific domains of social contact, such as the media, business, and tourism (Jenkins et al., 2011). Among these domains, academic ELF is a productive area of research. There are two major reasons why English has been the dominant lingua franca in academia. First, the effects of globalization have stimulated ELF as a means of scholarly exchange

(Alhasnawi, 2021). Universities have become globally intertwined, with the rise of English Medium Instruction (EMI) programs, international students, and visiting scholars. Second, academic research is international by nature: it is written and read by scholars worldwide, and is not in itself associated with a nationally or culturally defined language community (Mauranen, 2010a). It is, therefore, lingua franca English, not NS English, which characterizes the mainstream of academic English (Jenkins et al., 2011).

Since academic English is a communicative medium of scholars with different linguistic backgrounds, it cannot be equated with NS English, and the quality of language such as clarity and effectiveness should be considered from their own perspective, not that of NSs (Mauranen et al., 2010). In this international context of education and research, ELF is adopted as a shared communicative resource, and its users have the freedom to adapt it to serve their purpose, accommodate to each other, and produce forms that differ from NS norms (Jenkins, 2011). For example, some grammatical structures have been found in ELF academic writing to enhance clarity and increase explicitness, resulting in improved communicative efficiency (Timyam, 2021; Wu et al., 2020). Thus, academic ELF is a hybridized and adaptable medium of communication, containing innovations and deviations from NS norms that arise during meaning-making and knowledge-construction practices to fulfill its users' needs in an academic community (Alhasnawi, 2021).

Traditionally, English academic prose was viewed as more structurally elaborated than speech and other writing genres, containing longer sentences and more subordinate clauses (e.g., Brown & Yule, 1983). However, more recent studies have shown a shift to a more compressed style: present-day academic written discourse is not elaborated in sentence length or embedding (e.g., Biber & Conrad, 2009; Biber & Gray, 2016). A distinct characteristic of academic prose is nominal structures. According to Biber and Gray (2010)'s corpus study, subordinate clauses are common in speech whereas condensed types of noun modifiers, i.e., words and phrases, are major types of complex noun phrases used in academic writing. Nominal structures with lexical and phrasal modifiers in academic writing as in (1) contrast with more elaborated structures having clausal modifiers as in (2). It is noted that while Biber and Gray (2010, 2016) referred to words (e.g., nouns) and phrases (e.g., appositive phrases) collectively as phrasal modifiers, this study differentiated single-word modifiers from non-clausal modifiers consisting of more than one word and referred to them as "lexical" and "phrasal" modifiers, respectively. As shown in the following sections, such separation was made because these two types of modifiers belonged to different categories of structural compression.

(1) a. a [systems], [theoretical] *orientation*
b. *corporations* [within the petroleum industries]

(2) a. an *orientation* [which is theoretical] and [which focuses on the analysis of systems]
b. *corporations* [which are part of the industries that process petroleum] (Biber & Gray, 2010, p.9)

Based on Biber and Gray (2010, 2011), the characteristics of academic writing, which is a kind of informational prose in which writers have limited space to communicate ideas about a discipline, have led to the preference for syntactic structures of denser textual information. Writers tend to form noun phrases with extensive non-verbal lexical and phrasal modifications (e.g., adjectives, prepositional phrases), rather than elaborated clausal modification (e.g., non-finite clauses, relative clauses), to produce more economical text and facilitate faster reading. Regarding semantics, while clausal modifiers convey a fuller, explicit specification of a head noun, it is often difficult to specify the meaning relation between a head noun and its lexical or phrasal modifier. As shown in (3), the same modifier has a different semantic relation to its head noun: while the word *adjective* in (3a) is related to the head noun *phrase* in terms of structure, its use in (3b) identifies the grammatical function of the head noun *clause*. The lack of explicitness of condensed lexical and phrasal modifications does not cause problems to expert readers who have professional background knowledge; however, novice readers may lack the specialist knowledge and need to learn to infer unspecified meaning relations in a compact nominal structure (Biber & Gray, 2010).

(3) a. adjective phrase (a phrase which has an adjective as its head)
b. adjective clause (a clause which, like an individual adjective, serves to provide information about a noun)

There are numerous studies on non-native English academic writing. Many of them have worked from ESL (English as a Second Language) and EFL (English as a Foreign Language) viewpoints, which attend to learning- and teaching- related issues, such as coherence in writing, writing assessment, writing errors, developmental stages of vocabulary and grammar in writing, and writing skills related to advanced technology (e.g., Chen & Baker, 2010; Hyland, 2004; Jitpraneechai, 2019). One assumption underlying these studies is that non-native users are English learners whose language proficiency is determined by the yardstick of NS norms. In contrast, although studies on spoken ELF in academic settings are a popular topic of research, those on the written mode have received little attention (Mauranen, 2018; Wu et al., 2020).

To complement the previous literature of non-native academic prose, the present study examines academic writing from an ELF perspective, which

holds ELF speakers as active users who can adapt the language to suit their purposes. As academia is an important discourse of international interactions, it is interesting to see how ELF researchers, teachers, and students manage demanding intellectual tasks via English, which is not their native language. In other words, what linguistic features or communicative strategies do they rely on for successful academic exchanges? Given that the area where ELF has been observed to be in sharp contrast with NS English is morphosyntax (Mauranen, 2010b), this study focuses on nominal structures, which have undergone the grammatical change into lexical and phrasal modifications in general academic English, instead of clausal modification. In particular, this study investigates whether the modern style of using concise noun phrases for the purposes of economical discourse and efficient reading in academic English affects the academic written forms of ELF, which is known to be associated with enhanced clarification and increased explicitness to promote comprehensibility and successful communication among non-native users (Mauranen, 2010b).

Data were from non-native scholars' research manuscripts related to language and linguistics submitted to a journal in Thailand. The study focused on language and linguistics because many scholars in these fields are English teachers who have proficiency in academic writing. Many of them represent ELF users in Expanding Circle Asian countries. In recent years, the use of English in Expanding Circle countries in Asia has noticeably increased, as a result of economic and technological advancements and the role of English as the sole working language of ASEAN. English, thus, has developed wide-ranging roles in the Asian region which are far from being simply a classroom-based foreign language (Kirkpatrick, 2020). In sum, the study aims to explore the way this group of experienced ELF authors forms ideas into nominal structures in a journal in which two contrasting factors of conciseness and explicitness come into play. To this end, the study deals with the following research questions:

1. What types of noun modifiers are mostly preferred by ELF authors in an academic journal?
2. What are the distinct characteristics of their patterns of noun phrases (e.g., the types of multiple modifiers that occur in layered structures, the semantic relations between head nouns and modifiers)?

Literature Review

The literature review consists of two parts: academic ELF and noun phrases in English academic writing.

Academic ELF

Academia is deeply and inherently international, with many kinds of activities and cooperation spanning the globe (Mauranen, 2010b). English has been the main lingua franca in academia; the adoption of English in various academic settings – for the exchange of information and mutual creation of knowledge – has been rapid since Second World War (Mauranen, 2018). The use of English has become "standard practice" in higher education (HE) across the world, particularly in the territories of heterogeneity and diversity (Ball & Lindsay, 2013, p.59). It is the language for instructional purposes in EMI programs, exchange programs, and international degree programs in many non-English environments. It is used in education-related activities, such as thesis defenses and examinations. Besides classroom settings, English plays a role in the research context. A great number of large research projects, especially in science, require international cooperation and negotiations which are dependent on English (Mauranen, 2010b). Moreover, English serves as a vehicle for knowledge transmission: it has grown to be the foremost language for academic conferences, seminars, and publication of research studies in academic journals. According to data by Thomson Reuters (2008, cited in Lillis & Curry, 2010), more than 95% of indexed natural science journals and 90% of indexed social science journals print some or all research papers in English. A large portion of these papers is submitted by non-native scholars. Due to the use of English in all these academic settings of language contact environments, academia is a great source of ELF study.

ELF speakers have various lingua-cultural backgrounds and divergent levels of English proficiency. In some academic settings, such as international journals, members do not know or meet each other personally (Mauranen, 2010b). In such contexts of inherent diversity in which different groups of people – many of whom are not in direct contact – participate, the forms of English are unpredictable and diverse. Accordingly, communicative processes which facilitate interactions naturally occur. One process that has been found to be a salient characteristic in ELF academic discourse is explicitness, which is a natural response in individuals taking part in a language contact situation (Mauranen, 2010b). It is a natural tendency for speakers with different lingua-cultural backgrounds to try to enhance salience for effective communication. Research has identified many forms of explicitness in ELF academic settings, particularly in spoken discourse, which improve clarity of proposition and ensure comprehensibility, such as rephrasing (e.g., *will bring us new insight will will will enable us to understand the developments*…), self-repair (e.g., *the way he speak er the way he pronounce*…*I think it's hard for me to understand*), topicalization (e.g., *one of my friends she tried to enter to the university*), and metadiscourse for signaling the direction and purpose of a text (e.g., *to begin with, consequently*) (Kaur, 2011;

Mauranen, 2010b). Such emphatically explicit features and strategies serve to overcome potential problems which arise in contexts of inherent diversity. They also reveal ELF users' communicative goal, i.e., mutual intelligibility, which is considered as more important than individuals' proficiency and NS-based accuracy.

Noun Phrases in English Academic Writing

All categories of phrases are built around a head. The head of a phrase serves as the nucleus or the essential part of the phrase while other words that occur before or after it are dependents on this head. One common type of phrase is a noun phrase, which is built around a head noun. A head noun may occur with various dependents to form simple or complex nominal structures. According to Biber and Gray (2016), a simple noun phrase contains a head noun, optionally accompanied by a determiner, and additions to this simple structure produce complex noun phrases.

There are various modifiers of head nouns. According to Downing and Locke (2006), adjectives, present and past participles, and nouns occur before head nouns whereas a variety of phrases and clauses, e.g., prepositional phrases, appositive phrases, present and past participial non-finite clauses, *to*-infinitive non-finite clauses, and finite relative clauses, occur after head nouns. Note that determiners are not modifiers that provide additional information about a noun: they are a kind of dependent which functions to particularize a noun referent in different ways, mainly in terms of definiteness or quantity (e.g., *this cat, some books*) (Downing & Locke, 2006). Noun phrases containing various kinds of pre- and post- modifiers are given in (4).

(4) a. the [$_{\text{Pres part}}$ crying] *baby* [$_{\text{PP}}$ on the bed]
b. that [$_{\text{Adj}}$ red] *boat* [$_{\text{Non-finite Cl}}$ rented for the trip]
c. the *woman* [$_{\text{RC}}$ who lives next door]

Moreover, noun modifiers can be classified by their internal structures (Biber & Gray, 2016). Adjectives, participles, nouns, prepositional phrases, and appositive phrases are lexical and phrasal kinds of modifiers, so they are called "modifiers of structural compression". In contrast, present and past participial clauses, *to*-infinitive clauses, and relative clauses, which are in the form of non-finite or finite clauses, are "modifiers of structural elaboration". The arrangement of modifiers on a cline of compression, adapted from Biber and Gray (2016, p.207), is presented below. As Biber and Gray noted, this arrangement is based on the principle of economy of expression, with the most compressed modifier conveying the maximum amount of information in the fewest words.

Most compressed *Least compressed*

adjectives, participles, and nouns > prepositional and appositive phrases > non-finite clauses > relative clauses

A stereotypical view is that academic prose is grammatically complex, full of elaborated structures, particularly long sentences with many embedded clauses. However, more recent studies have shown a distinct perspective (e.g., Biber & Conrad, 2009; Biber & Gray, 2016). Present-day academic writing is more nominal than verbal, with preferences for condensed lexical and phrasal modifiers of head nouns over clausal modifiers. Compared to the traditional view, modern-day academic writing remains grammatically complex, but it is complex in terms of compressed structures having various lexical and phrasal modifiers, not elaborated structures with embedded clauses. In other words, present-day academic prose is marked by the "compressed" discourse style, meaning that it is full of non-clausal modifiers, particularly those embedded in noun phrases; this is in contrast to the "elaborated" discourse style, which is associated with the use of clausal subordination, especially finite dependent clauses (Biber & Gray, 2010, 2016). The shift from the elaborated style to the compressed style is a 20th century phenomenon and is found in all kinds of academic prose, such as textbooks, departmental web pages, course syllabi, and research papers (Biber & Gray, 2010). The sentence given in (5) has one clause, yet it is structurally complex containing condensed noun phrases. The head nouns (italicized) of all noun phrases (underlined) take several lexical and phrasal modifiers (in brackets).

(5) Each [new] *level* [of system differentiation] opens up *space* [for further increases in complexity], that is, for [additional] [functional] *specifications* and a [correspondingly more abstract] *integration* [of the ensuing subsystems].
(Biber & Gray, 2010, p.9)

According to Biber and Gray (2011), the preference for condensed nominal structures is caused by a communicative characteristic of academic writing, which is informational prose printed in a limited space. To present a large amount of information in an efficient and concise way, there is a drive toward economy of expression, resulting in the grammatical change of noun phrase structures. Nominal structures having extensive lexical and phrasal modifiers are advantageous to both writers and readers. In the production circumstances of writing in which time for planning and revision is available (as opposed to the real-time production circumstances of speech which are spontaneous and unedited), writers can carefully plan and revise their writing

to convey much information through condensed noun phrases with extreme lexical or phrasal modifications (Biber & Gray, 2011). This writing style also allows professional readers with background knowledge in a discipline to scan through a paper and extract information from condensed texts within a short time (Biber & Gray, 2010). However, compressed noun phrases may result in a loss of explicit meaning because they lack grammatical markers specifying the semantic relations between head nouns and modifiers. Therefore, novice readers who lack the specialist knowledge to readily infer the expected meaning need to practice extracting the inexplicit semantic relations between constituents in condensed nominal structures (Biber & Gray, 2010).

There has been a semantic expansion of lexical and phrasal modifiers. For example, Biber and Gray (2011) observed the changing patterns of nouns which functioned as pre-modifiers. According to their study of noun-noun sequences, pre-modifying nouns in the seventeenth and eighteenth centuries were of three semantic categories: titles, places or locations, and concrete or tangible nouns, as in (6a) - (6c). The late 1800s witnessed a marked expansion in meanings, including institutions, physical states or conditions, and other intangibles, as in (6d) - (6f). With the introduction of nominalizations in noun-noun sequences in the mid-nineteenth century, nouns derived from verbs which expressed processes or activities occurred as pre-modifiers, as in (6g); this was followed by nouns derived from adjectives which expressed abstract attributes or qualities in the twentieth century, as in (6h).

(6) a. Captain Smith
b. town wall
c. coffee house
d. school proposal
e. cancer cells
f. temperature chart
g. investigation department
h. freedom movement
(Biber & Gray, 2011, p.236-237)

Prepositional phrases are another type of modifier that has expanded semantically. According to Biber and Gray (2011), in the seventeenth and eighteenth centuries, only *of*-prepositional phrases abounded in academic prose. In the twentieth century, there was a dramatic increase of prepositional phrases as nominal modifiers in informational texts; *in*-prepositional phrases took the lead, with a strong increase starting in the nineteenth century. Their pattern of use also showed semantic extensions. In the past, *in*-prepositional phrases mainly expressed concrete meanings (representing materials, physical forms, or places) even in academic prose, as in (7a) - (7c); their use for abstract

meanings (representing relations or concepts or having no concrete existence) is a relatively recent development primarily restricted to writing, particularly informational texts, as in (7d) - (7e) (Biber & Gray, 2011, 2016). Around 60% of their occurrences in academic prose at present express abstract meanings (Biber & Gray, 2011).

(7) a. location inside a body part: pain in his knee
b. location inside an object or substance: kernels in your meat
c. geographic location: our apothecaries in England
d. description of a process or activity: specializations in printing
e. identification of a research domain: his learning in all sciences
(Biber & Gray, 2011, p.243-245)

In addition, nominal modifiers in academic prose have grammatically expanded. An example is the use of multiple pre-modifying nouns. Sequences of three nouns occurred in the late nineteenth and early twentieth centuries; in the second half of the twentieth century, the NNN pattern is common and the NNNN pattern is not unusual (Biber & Gray, 2011), as in (8).

(8) a. health department clinics
b. peace treaties enforcement action
(Biber & Gray, 2011, p.238)

To conclude, studies on written academic ELF have received much less attention, compared to those from ESL and EFL viewpoints (Mauranen, 2018; Wu et al., 2020). Moreover, many discussions of grammatical change in English have concentrated on grammatical innovations in spoken interaction, with just a few recent studies on written discourse (Biber & Gray, 2016). The findings of the present study will add to the previous literature, contributing to research on English prose, particularly on the changing nominal structures in written discourse of academic ELF.

Methodology

The process of collecting and analyzing the data is described below.

Data Collection

Data were taken from research manuscripts in the fields of language and linguistics submitted to an international journal administered by a public university in Bangkok, Thailand. This is a double-blind peer-review journal whose scope covers areas of social sciences, such as history, anthropology,

psychology, social studies, language education, and linguistics. The journal, which has been indexed in Scopus since 2006, publishes research articles and review articles in English periodically, with four issues per year. To gain access to its manuscripts, the researcher sent a formal letter to the Editor-in-Chief asking for permission. The permission was given provided that the titles of manuscripts and the authors' personal information would not be revealed. Since the data were intended for the dissemination of research studies, they could be said to represent authentic academic ELF written by non-native researchers for a global audience.

The data collection covered a three-year period of 2020-2022. Twenty manuscripts in each year were selected, yielding 60 manuscripts in total. These manuscripts were similar in several aspects. First, they were written by non-native English scholars from many countries, including Cambodia, Indonesia, Iran, Jordan, Malaysia, Thailand, the People's Republic of China, the Republic of Korea, and Vietnam. These authors were identified as non-native by their names and institutional affiliations. Second, the manuscripts were related to the fields of English language study and linguistics and conformed to the journal's guideline of approximately 18 pages in length, with 1.5 line spacing. Furthermore, to guarantee their overall quality, the manuscripts passed the journal's preliminary checking, which was a step that examined the scope of content, language, and the presentation format. Since English language editing was required only for manuscripts accepted for publication, the use of English in these manuscripts had not been edited by a native speaker assigned by the journal. Thus, the data more precisely reflected the authors' own choices of nominal structures.

Nouns are the largest word category in terms of dictionary entries and occurrences in texts (Huddleston & Pullum, 2005). The use of nouns even doubles in academic prose: while approximately 150,000 nouns per million words occur in conversation, approximately 300,000 nouns per million words appear in academic writing (Biber et al., 1999). Therefore, only noun phrases in two sections of the manuscripts, i.e., the introduction and method sections, were collected. These sections were chosen for two reasons. First, both usually appear in research papers separately, not combined with other sections. Second, the language use in these sections is very important. A well-written introduction shows the author's clear and logical argument about the background and importance of a research topic, encouraging the reader to become engaged in the study. A good method section must provide clear and precise explanations about an entire process of data collection, allowing the reader to replicate it and judge the validity of the results (Hartley, 2008). Also, to eliminate any potential bias, noun phrases in headings, subheadings, tables, and figures were excluded because they conventionally appeared in compact, non-clausal modification structures.

Data Analysis

The study adopted ELF's notion of intelligibility, whereby ELF users do not need to demonstrate their mastery of NS English, but their English must be clear and understandable (Alhasnawi, 2021). Thus, recognition of a single word in an utterance is not necessary so long as other participants can maintain a grasp of the overall gist (Deterding & Kirkpatrick, 2006). Based on this viewpoint, both grammatical noun phrases and noun phrases that had unconventional features (e.g., an incorrect preposition, an article omission) but did not cause a communication breakdown were included in the analysis.

Since the amount of data was not large and the analysis required very careful classification of each type of nominal modifiers, the study employed a manual coding procedure. As Biber and Gray (2010, 2011) suggested, some modifiers including prepositional phrases and appositive phrases should be coded manually for the accurate identification of their features. The analysis focused on the types and characteristics of pre- and post- nominal modifiers based on Biber and Gray's (2011, 2016) and Downing and Locke's (2006) classification (see the results section below).

To ensure the reliability of data coding, an intercoder procedure was conducted. Twenty-five percent of the noun phrases were coded by two experts to crosscheck the researcher's analysis. Both had taught courses in English and linguistics at a university for more than 15 years. They identified the types (e.g., adjectives, relative clauses) and characteristics (i.e., numbers, meanings) of noun modifiers based on the coding guidelines provided by the researcher. The average percentage of agreement between the two expert coders and the researcher for each coding category was as follows: types and numbers of modifiers (95.6%), meanings of pre-modifying nouns (86.5%), and meanings of post-modifying *in*-prepositional phrases (90.6%).

Results

As Table 1 shows, the number of noun phrases in the introduction and method sections in 60 language and linguistics manuscripts during 2020-2022 was 6,545. These included 2,084 simple noun phrases (31.84%), which appeared as proper nouns (e.g., *English*), abbreviations (e.g., *EFL*), and common nouns with/without determiners (e.g., *the study, data*). The other 4,461 noun phrases (68.16%) consisted of a head noun and one or more modifiers. Given such differences in occurrences, it can be stated that ELF authors tended to form noun phrases of complex structures that described an entity with different kinds of modifiers.

Table 1

The Number of Noun Phrases

Year	Simple NP	Complex NP	Total
2020	522	997	1,519
2021	918	1,871	2,789
2022	644	1,593	2,237
	2,084	4,461	6,545

The analysis of the 4,461 complex noun phrases includes three parts: types of noun modifiers, modifiers of structural compression and elaboration, and characteristics of noun phrases.

Types of Noun Modifiers

Noun modifiers were identified according to Downing and Locke's (2006) classification, which offered a large set of rather conventional, familiar terms of syntactic features. In total, there were 6,369 noun modifiers, which belonged to 15 types. Three types occurred much more often than others: prepositional phrases (34.84%), adjectives (26.69%), and nouns (10.88%) (see Table 2).

Table 2

Modifiers during 2020-2022

Modifier	Frequency	Example
1. Prepositional phrase	2,219 (34.84%)	*exercises* [on word stress]
2. Adjective	1,700 (26.69%)	the [communicative] *approach*
3. Noun	693 (10.88%)	[data] *sources*
4. Relative clause	340 (5.34%)	*individuals* [who are motivated]
5. Proper noun	298 (4.68%)	[British] *accents*
6. Noun phrase	253 (3.97%)	[English language] *teachers*
7. Past participial clause	219 (3.44%)	the *example* [mentioned above]
8. Appositive phrase	193 (3.03%)	*polysemy*, [words with many functions or meanings]
9. *To*-infinitive clause	114 (1.79%)	the *ways* [to achieve that goal]
10. Past participle	92 (1.44%)	the [identified] *moves*
11. Adjective phrase	88 (1.38%)	the speaking *skills* [useful in the real world]
12. Present participial clause	74 (1.16%)	*linguists* [specializing in cognitive linguistics]
13. Abbreviation	60 (0.94%)	the [BNC] *corpus*
14. Complement clause	18 (0.28%)	the *fact* [that the classes are totally online]
15. Present participle	8 (0.13%)	a [crosschecking] *stage*
Total	6,369 (100%)	

To see whether the preferences for prepositional phrases, adjectives, and nouns were associated with ELF research writing in the overall three-year period, and not a result of the overwhelming use in one particular year, the types of noun modifiers found in the manuscripts in each year were examined. As Table 3 shows, these three modifiers were most common and had quite similar proportions across the three years: prepositional phrases (32.88%, 35.85%, 34.85%), adjectives (27.91%, 25.33%, 27.55%), and nouns (12.23%, 12.31%, 8.38%). The other modifiers were used in much smaller proportions, with less than 6% occurrences.

Table 3

Modifiers in each Year

Modifier	2020	2021	2022
1. Prepositional phrase	457 (32.88%)	964 (35.85%)	798 (34.85%)
2. Adjective	388 (27.91%)	681 (25.33%)	631 (27.55%)
3. Noun	170 (12.23%)	331 (12.31%)	192 (8.38%)
4. Relative clause	79 (5.68%)	138 (5.13%)	123 (5.37%)
5. Proper noun	68 (4.89%)	96 (3.57%)	134 (5.85%)
6. Noun phrase	41 (2.95%)	134 (4.98%)	78 (3.41%)
7. Past participial clause	38 (2.73%)	98 (3.64%)	83 (3.62%)
8. *To*-infinitive clause	37 (2.66%)	53 (1.97%)	24 (1.05%)
9. Appositive phrase	30 (2.16%)	74 (2.75%)	89 (3.89%)
10. Past participle	28 (2.01%)	30 (1.12%)	34 (1.48%)
11. Adjective phrase	19 (1.37%)	31 (1.15%)	38 (1.66%)
12. Present participial clause	18 (1.29%)	27 (1.00%)	29 (1.27%)
13. Abbreviation	10 (0.72%)	27 (1.00%)	23 (1.00%)
14. Complement clause	6 (0.43%)	2 (0.07%)	10 (0.44%)
15. Present participle	1 (0.07%)	3 (0.11%)	4 (0.17%)
Total	1,390 (100%)	2,689 (100%)	2,290 (100%)

Modifiers of Structural Compression and Elaboration

Based on the cline of structural compression adapted from Biber and Gray (2016), in which the left groups of modifiers are more compressed than the right ones: adjectives, participles, nouns > prepositional and appositive phrases > non-finite clauses > relative clauses, the 15 types of modifiers were divided into four major categories with distinct levels of compression. Note that although a greater variety of noun modifiers was found in this study, they could be all classified into one of the four major categories of compression.

1. Words: single-word modifiers
   abbreviations, adjectives, nouns, past participles, present participles, proper nouns

2. Phrases: non-verbal modifiers composed of more than one word adjective phrases, appositive phrases, noun phrases, prepositional phrases
3. Non-finite clauses: dependent clauses containing non-finite verbs past participial clauses, present participial clauses, *to*-infinitive clauses
4. Finite clauses: dependent clauses containing finite verbs complement clauses, relative clauses

According to Table 4, the lexical and phrasal categories (44.76% and 43.22%, respectively) occurred in very high proportions, indicating strong preferences for the compressed types of modifiers. These figures are in sharp contrast to the clausal categories: non-finite clauses (6.39%) and finite clauses (5.62%). The examination of occurrences in an individual year showed similar results (see Figure 1).

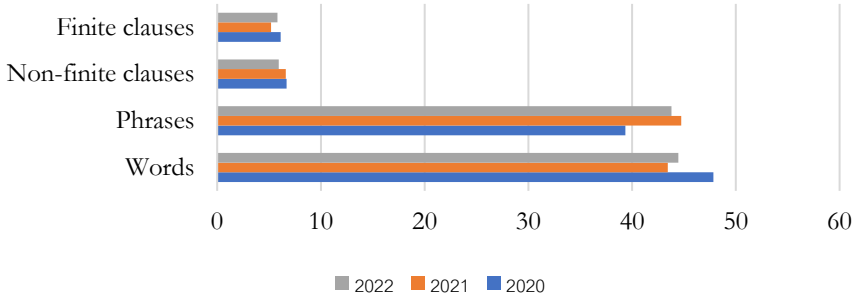
Table 4

Modifiers of Structural Compression and Elaboration during 2020-2022

Category	Frequency
Words	2,851 (44.76%)
Phrases	2,753 (43.22%)
Non-finite clauses	407 (6.39%)
Finite clauses	358 (5.62%)
Total	6,369 (100%)

Figure 1

Modifiers of Structural Compression and Elaboration in each Year



Characteristics of Noun Phrases

ELF authors' noun phrases were examined in terms of the layered structures and meanings of modifiers.

Layered Structures of Modifiers

For modifiers before head nouns, among the 4,461 noun phrases, the heads of 366 phrases occurred with two or more pre-modifiers. Generally, these noun phrases were not structurally very complex: 341 phrases had only two modifiers (93.17%) while 25 phrases took three-five modifiers (6.83%). Moreover, although all these 366 noun phrases belonged to a variety of 46 patterns, the most common patterns contained only two modifiers of lexical types: the "Adj-Adj" (28.69%), "Adj-N" (19.13%), "Adj-Proper N" (6.01%), and "N-N" (4.92%) patterns, as illustrated respectively in (9). The other patterns, including those with three-five modifiers (e.g., "Adj-Adj-Adj") and those with more elaborated types of modifiers (e.g., "NP-NP"), were less common: each had a proportion of occurrence lower than 4%.

(9) a. the [international] [academic] *community*
b. [sufficient] [computer] *skills*
c. [unnatural] [English] *use*
d. [movement] and [settlement] *names*

As for modifiers after heads, the heads of 442 noun phrases occurred with two or more post-modifiers. Generally, these noun phrases were not structurally very complex: 411 phrases had only two modifiers (92.99%) while 31 phrases took three-five modifiers (7.01%). Moreover, although all these 442 phrases belonged to a variety of 52 patterns, the most common patterns contained only two modifiers mainly of phrasal types: the "PP-PP" (46.38%), "PP-RC" (11.99%), "PP-Past Participial Cl" (7.01%), and "PP-Appositive Ph" (5.66%) patterns, as illustrated respectively in (10). The other patterns, including those with three-five modifiers (e.g., "PP-PP-PP") and those with more elaborated types of modifiers (e.g., "RC-RC"), were less common: each had a proportion of occurrence lower than 3%.

(10) a. the *role* [of cognitive processes] [in language acquisition]
b. a *repository* [of each individual group] [that stores knowledge, history, myth, belief and culture]
c. average *scores* [of each variable] [obtained from two countries]
d. the two *variables* [under investigation], [perception and attitude]

Moreover, there were 1,037 noun phrases whose heads occurred with both pre- and post- modifiers. Likewise, these phrases were not structurally very complex: many head nouns had one lexical pre-modifier and one phrasal post-modifier. The most common structure was "Adj-N-PP", with 337 noun phrases in this pattern (32.50%) (e.g., *the last section of the questionnaire*).

Meanings of Modifiers

One modifier that showed a semantic expansion in English academic prose was nouns (Biber & Gray, 2011). Pre-modifying nouns in noun-noun sequences in the data were grouped based largely on Biber and Gray (2011)'s semantic classification (see Table 5). The results indicated that these nouns expressed various concrete and abstract meanings, suggesting that their scope of meanings was extended, not restricted to concrete, existing entities such as objects and places. Moreover, like Biber and Gray's (2011) study, most pre-modifying nouns were those denoting intangibles (47.87%) and nominalized forms denoting processes or activities (30.95%).

Table 5

Meanings of Nouns

Meaning	Frequency	Example
1. Intangible	314 (47.87%)	[gender] *equality*
2. Process or activity	203 (30.95%)	[pronunciation] *problems*
3. Abstract attribute or quality	37 (5.64%)	different [politeness] *systems*
4. Person or agent of an action	29 (4.42%)	[customer] *demands*
5. Concrete or tangible object	25 (3.81%)	sufficient [computer] *skills* to register for the test
6. Place or location	17 (2.59%)	[classroom] *observation*
7. Profession or field of knowledge	15 (2.29%)	the [humanities] *research*
8. Institution	10 (1.52%)	the other [family] *members*
9. Time	5 (0.76%)	the [time] *limit*
10. Physical state or condition	1 (0.15%)	foreign [health] *authorities*
Total	656 (100%)	

Another modifier that expanded semantically in academic prose was *in*-prepositional phrases. Post-modifying *in*-prepositional phrases in the data were divided based largely on Biber and Gray (2011)'s semantic classification (see Table 6). The results indicated that they expressed not only concrete but also abstract meanings. The largest categories were textual or language-related locations (27.05%) and geographic locations (26.78%). Moreover, like Biber and Gray's (2011) study, most *in*-prepositional phrases in this study denoted abstract meanings; while there were only two categories of concrete meanings (geographic locations and locations inside an object or substance), the other categories were abstract (e.g., textual or language-related locations, temporal locations).

Table 6

Meanings of in-Prepositional Phrases

Meaning	Frequency	Example
1. Textual or language-related location	99 (27.05%)	the original *meanings* [in Korean]
2. Geographic location	98 (26.78%)	ESL/EFL *teachers* [in Thailand]
3. Relevance to a topic or area of knowledge	68 (18.58%)	*linguists* [in this field]
4. Describing a process or activity	64 (17.49%)	an important *tool* [in establishing identities]
5. Temporal location	12 (3.28%)	the identical *number* of respondents [in each year]
6. Location inside an object or substance	10 (2.73%)	the front *cover* [in Arab women magazines]
7. Location related to a human mind or experience	10 (2.73%)	offline *communication* [in real life]
8. Cyber location	5 (1.37%)	the social media *users* [in the cyberspace]
Total	366 (100%)	

Discussion and Conclusion

All these findings reveal how ELF authors use and adapt the language in circumstances in which two competing factors interact: *conciseness* (a present-day trend in English academic prose caused by the need to produce economical text in a limited space and to facilitate faster reading) and *explicitness* (a communicative process frequently found in ELF interactions to make oneself clear and reach mutual understanding among non-native users).

The results of this study indicate that ELF authors tend to produce condensed structures, with preferences for lexical and phrasal modifiers, i.e., prepositional phrases, adjectives, and nouns, embedded in noun phrases, over the more elaborated verbal style of clausal modification. These results support previous studies (e.g., Ansarifar et al., 2018; Biber & Gray, 2016; Parkinson & Musgrave, 2014) which found that adjectives and nouns as pre-modifiers and prepositional phrases as post-modifiers are linguistic features typical of academic prose. Moreover, ELF authors' tendency to produce condensed noun phrases reveals the way this group of experienced users shape English according to the immediate context. In the production circumstances of the written mode in which time is available and also the situational context of the audience's shared specialization and background knowledge in an academic field, ELF authors tend to carefully form, revise, and edit noun phrases of compressed structures to meet their communicative needs, i.e., to convey much information in the limited space of the written medium in a concise

way, to facilitate faster reading for expert readers, and to conform to the present-day norm of academic written discourse.

On the other hand, academic prose is more than just narrating events: it is meant to explain and interpret information related to a discipline explicitly and unambiguously (Biber & Conrad, 2009). This goal of explicitness, which goes against the genre-based demand of conciseness, is particularly noticeable in ELF settings, where speakers vary in lingua-cultural backgrounds, English proficiency levels, and educational systems (e.g., Meknakha & Timyam, 2023; Wu et al., 2020). The results of this study show that ELF authors manage the goal of explicitness to improve communication efficiency in two ways. First, they tend to produce noun phrases which are not structurally highly complex to facilitate their readers' understanding. Most noun phrases with layered modifiers contain only two pre- or post- modifiers while those taking both preceding and following modifiers usually have one pre-modifier and one post-modifier. These noun phrases are structurally more explicit and easier to read and process than those containing multiple modifiers, with much information packed into a single head noun. Although extensive phrasal embedding in a noun phrase is one of the complex grammatical structures acquired by non-native writers at the last stage of their development (Biber et al., 2011), it cannot be denied that noun phrases with one or two modifiers are structurally simpler and more explicit, suggesting ELF authors' attempts to produce structures that do not cause difficulties in understanding. Second, ELF authors' choice of prepositional phrases as their most preferred type of noun modifiers can be explained as another explicitness strategy. According to Biber & Gray (2016)'s cline of compression, prepositional phrases are more structurally compressed than dependent clauses and are less structurally compressed than words. In terms of meaning, based on the notions of explicit and implicit meaning in academic writing that involve "the meaning relations among grammatical constituents" (Biber & Gray, 2010, p.11), prepositional phrases are considered as more semantically explicit than words, having a preposition as a signal of the semantic relation between a head noun and its modifier. Many prepositional phrases with concrete or abstract meanings not only give information about a noun but also clarify the semantic relation with the noun. Thus, complex noun phrases modified by prepositional phrases can convey similar information with fewer words than those modified by clauses, and the semantic relations between their constituents are more explicit than those with pre-modifying words (Wu et al., 2020). For example, the meaning of *a benefit of reading* is more explicit than *a reading benefit*, with *of* clearly stating the possession relation. Likewise, the two prepositional phrases in *the torment [in his mind] [due to loneliness and homesickness]* contain the prepositions *in* and *due to*, which help indicate the relations with the head noun *torment* regarding its location and reason. Although prepositions do not always provide a clear,

unambiguous meaning, in many cases they signal the logical relations between head nouns and modifiers, mitigating the burden of processing meaning. This result supports Wu et al.'s (2020) study, which also found an abundance of prepositional phrases to raise explicitness in meaning in ELF research articles. To conclude, although ELF authors produce noun phrases in compressed modification structures, these noun phrases are structurally and semantically explicit due to the limited number of layered modifiers and their preferred choice of prepositional phrases.

Taking these results together, this study reveals that ELF authors deal with the contrasting goals of conciseness and explicitness in academic writing in combination, not letting one goal totally override the other. The present-day trend of compact prose is valued in academic writing, and a high level of semantic implicitness is tolerated by expert readers. Meanwhile, ELF authors need to present information clearly to ensure that their intended meaning is conveyed accurately to all groups of readers with different lingua-cultural backgrounds. To achieve a delicate balance between these competing goals, ELF authors prefer to produce condensed noun phrases, with lexical and phrasal modifiers denoting a range of concrete and abstract meanings to describe head nouns. Their noun phrases are concise and complex, containing embedded lexical and phrasal modifiers instead of more elaborated clausal modifiers. Nonetheless, these noun phrases are not highly complex: they are structurally explicit, taking only one or two modifiers. Also, as prepositional phrases are structurally less compressed and semantically more explicit than words, they offer ELF authors a trade-off or an effective choice of modifier to handle the tension between economy of expression and explicitness of meaning. Thus, the overall results of the study indicate that condensed noun phrases in ELF academic writing emerge from functional reasons: they are intended to facilitate the global exchange of knowledge and also preclude miscommunication or confusion. In this regard, the ultimate aim of this study is not simply to show the "product", or the characteristics of noun phrases in ELF academic prose which are in fact adaptive and subject to change like other ELF forms, but rather to reveal the underlying "process", or the way ELF users draw on their linguistic knowledge and communicative strategies to appropriate English for their purposes and their immediate communicative context.

In addition, this study provides empirical evidence to support the claim that variability is at the core of ELF communication (House, 2014). The form of ELF is context-bound: it is determined and negotiated by participants in a particular setting. Like other ELF communicative contexts, collaboration and exchange in ELF academic settings have led to the modification of conventional linguistic, pragmatic, and rhetorical patterns. Thus, contrary to traditional belief, academic written discourse is not uniform and dependent

on standard norms: it varies according to various factors such as language competence, disciplines, generic conventions of academic language, and the local tradition and culture (Gotti, 2017). Moreover, like other ELF settings, variability in ELF academic writing is also determined by the demands of the communicative situation, i.e., the unique situational context of the register, so it is quite organized, not totally random (Biber & Gray, 2016; Ranta, 2018). According to the results of this study, ELF authors have developed nominal structures in a similar direction. They prefer to form condensed noun phrases with lexical and phrasal modifiers, particularly adjectives, nouns, and prepositional phrases, which are not highly complex in terms of the number of layered modifiers preceding or following a head noun. Noun phrases of such structures are produced to meet the communicative demands of conciseness and explicitness, which are both vital in ELF's academic context of an international journal.

This study has pedagogical implications. Linguistic diversity involves not only using different languages but also using one language in different ways. At present, there are multiple forms of English which vary according to the situational context. In response to this sociolinguistic reality, English teachers should incorporate ELF perspectives into classrooms, by raising students' awareness of global English and their role as active language users and familiarizing them with forms and practices of English in multilingual-cultural contexts.

This study has some limitations. First, as the authors of the collected manuscripts did not provide their personal information regarding language backgrounds and were identified as non-native by their names, institutional affiliations, and countries, it could not be confirmed that they were actually non-native English users. Second, although the manuscripts were in the initial stage of the journal's preliminary checking, it was difficult to be sure that all of them had not been edited by a native speaker as some authors had probably had their manuscripts proofread before submission. Moreover, since the data were taken from research manuscripts related to language and linguistics in one journal, they could not represent academic ELF in all settings. Also, the analysis of meanings focused only on two modifiers: pre-nominal nouns and post-nominal *in*-prepositional phrases. In the recommendations for future research directions in the area of academic ELF, studies that include research articles from many fields and international journals and examine the meanings of various types of modifiers should provide a better understanding of noun phrases in ELF academic writing. For research on various types of ELF written discourse, it is recommended to compare academic prose with other genres in which limited space is not a crucial factor.

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