

Noun Phrase Complexity in Academic Writing: A Comparison of Argumentative English Essays Written by Thai and Native English University Students

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Abstract

Focusing on noun phrase complexity in writing, this study adopted Biber, Gray and Poonpon's (2011) hypothesized developmental stages to investigate the academic writing of Thai and native English university students by comparing their argumentative English essays as concerns their usage of noun modification. Prenominal modifiers and postnominal modifiers were identified and coded manually. It was found that both groups of writers heavily relied on attributive adjectives, nouns as premodifiers and prepositional phrases as postmodifiers, and there were no significant differences in the use of prenominal modifiers between both groups of students for the most part. The most significant differences between both datasets were in the use of prepositional phrases with abstract meanings and multiple prepositional phrases as postmodifiers. These are hypothesized to be acquired at later developmental stages and were more frequently used by native English university students than Thai university students. The findings of this study may contribute to greater insights into the nature of noun phrase complexity used by Thai undergraduates. Pedagogical implications based on the findings are also provided.

Keywords: noun modification, premodifiers, postmodifiers, phrasal complexity, academic writing

Introduction

Effective written communication is among the skills essential for students in aiding them to advance within their careers in the 21st-century workplace (Wagner, 2010). A survey by the Association of American Colleges and Universities (2008) also revealed that writing is one of the most addressed skills in college and university study. For learners who learn English as a foreign language (EFL), including a number of Thai learners, writing is regarded as one of the most problematic skills. Writing in English is not easy, and writing in an academic context or within any professional communities is even more challenging.

Several studies have shown that the more learners' English proficiency develops, they tend to rely more on economical and concise but complex features at the phrasal level. Biber and Gray (2011) analyzed several corpora and suggested that nominal structures with phrasal modification became much more prevalent in academic research writing compared to conversation or other written registers such as fiction and news reports. Later, Parkinson and Musgrave (2014) found that the writing of a more proficient group of writers was greater in similarity to the published academic articles in the use of higher-level types of noun modifiers, whereas such modifiers were not prevalent in the writing of less proficient writers. Recently, a comparative study of Wang and Slater (2016) suggested that one key difference which

distinguished the writing of EFL Chinese students from that of more proficient writers was the use of complex nominal structures.

In Thailand, very few studies have explored the issues concerning the grammatical complexity of Thai learners of English. Chuenchaichon (2014) reviewed EFL writing research conducted in Thailand from 2004 to 2013 and found that various writing research (e.g. L2 writing errors, writing assessment, writing feedback, coherence in writing, online writing/new technology and writing, genre-based writing instruction, approaches to teaching writing, written discourse analysis and learning strategies) in different settings (e.g. schools and universities) was conducted. Of the 48 studies reviewed, L2 writing errors and written discourse analysis and more recently, online writing/new technology and writing were studied the most. However, only one study (Biber, Gray & Poonpon, 2011) addressed complexity in L2 writing, with the purpose of challenging the use of T-units and clausal subordination as writing development measures and proposing their own hypothesized developmental stages for measuring writing complexity. Nevertheless, complexity in the writing development of Thai learners, which this present study attempts to investigate, is still evidently under-researched.

Staples, Egbert, Biber, and Gray (2016) asserted that the university years are when development of phrasal complexity becomes most obvious, even for native English writers. A body of research has observed L2 academic writing development (see Ansarifar, Shahriari & Pishghadam, 2018; Lu, 2011; Parkinson & Musgrave, 2014), but none has focused on EFL Thai students. Ai and Lu (2013) investigated the differences between syntactic sophistication in the writing of Chinese learners and that of native speakers of English. They suggested that future studies examine students of other L1 backgrounds to better understand the influence of L1 on L2 syntactic development as an L1 background can potentially affect L2 syntactic development.

Adopting Biber et al.'s (2011) hypothesized developmental stages (see Figure 1), this study aims to investigate noun phrase complexity in the argumentative essay writing of Thai university students compared with that of native speakers of English (NSs). It also aims to provide insights into the patterns of noun modifiers used by Thai undergraduates compared with those used by NSs. The fact that NSs are used as a benchmark for higher proficiency, is another point that sets this study apart from some recent studies in which the researchers compared the written work of writers of clearly different levels of study such as comparing EAP students' argumentative essays to MA students' assignment papers (Parkinson & Musgrave, 2014) or comparing MA students' abstracts to those of PhD students (Ansarifar et al., 2018). Unlike previous research, this current study compares the writing of second-year Thai undergraduates studying in Thailand, whose letter grades of the EAP writing course range from B, B+ to A, with the writing of NSs whose grades and proficiency are unknown. Based on Biber et al.'s (2011) hypothesized developmental stages, writers who are deemed good or excellent are expected to exhibit prevalent use of phrasal features of the later stages.

Considering the aforementioned purpose, this study attempts to answer the following research questions:

1. What are the most and the least prevalent noun modifiers used in the argumentative essays written by Thai university students and native English university students?
2. Are there any significant differences in terms of noun modifiers between the argumentative essays written by Thai university students and those written by native English university students?

Literature Review

Writing quality is one of the indices that differentiates students of different proficiency, and syntactic complexity is one of the components used in determining language development (Wang & Stater, 2016). Syntactic complexity refers to “the range of forms that surface in language production and the degree of sophistication of such forms” (Ortega, 2003, p.492), and is one of the essential indices to measure learner proficiency and linguistic development. At university, academic writing skill development is regarded as a major concern as students should be able to elaborate their ideas in forms of grammatically-complex discourse (Staples et al., 2016).

Issues about syntactic complexity and L2 writing have been widely discussed in literature. Silva (1993) highlighted that a stark contrast was evident between native speakers’ and non-native speakers’ written work regarding their fluency, accuracy and syntactic complexity. Hinkel (2003) investigated academic essays written by non-native and native English speakers studying in universities in the U.S. and discovered that the non-native group tended to over-rely on simple sentence structures. More recent studies (e.g. Biber & Gray, 2011; Biber et al., 2011; Rimmer 2006; Taguchi, Crawford, & Wetzel, 2013) have pointed out that good quality writing is characterized by more complex language at the phrasal level such as noun modifiers, especially prepositional phrases as postmodifiers.

Noun modification and its role in writing complexity

Grammatically speaking, a simple noun phrase is a phrase with a determiner and head noun, and additions to this simple structure make them become more grammatically complex (Biber & Gray, 2016). Biber (1988) claimed that when compared to speech, which is typically characterized by clausal subordination, phrases are more common features in formal writing. Also, attributive adjectives and prepositional phrases which pre- or postmodify the head noun are typically found in written registers.

Below is how Biber, Johansson, Leech, Conrad, and Finegan (1999, p. 574) presented the basic noun phrase structure. The structure can potentially be more complex when multiple pre- or postmodifiers are added.

*Determiner + (premodification) + **head noun** + (postmodification and complementation)*

e.g. *a (big golden) **box** (that I bought)*
 *The **fact** (that I haven’t thought of)*

There are various types of noun pre- and postmodifiers. Adjectives (e.g. intense marketing), participles (e.g. no fixed hours), nouns (e.g. a web page), and possessive nouns (e.g. people’s attention) are categorized as noun premodifiers while relative clauses (e.g. the one that reaches customer first), ing-clauses (e.g. the majority of people living in big cities), ed-clauses (e.g. the aspects presented above), prepositional phrases (e.g. commercials on social media), noun phrases in apposition (e.g. All Seasons – a clothing retailer), and complement clauses (e.g. the fact that our sales keep going down) are classified as noun postmodifiers.

The fact that information in academic prose is usually required to be presented with high density has led writers to greatly rely more on structures of noun phrases (Ni, 2003) with different levels of complexity depending on the number of modifiers those noun phrases carry. Biber and Gray (2010) note that greater reliance on phrasal expressions results from the need for

denser textual information that helps texts to be more economical and facilitates faster reading. This supports Halliday's (1993) claim that text becomes more compressed when nominal expressions are used rather than clausal structures. He further commented that when compared to speaking, writing is phrasally more complex with embedded nominal structures, but clausally simpler. Wolfe-Quintero, Inagaki, and Kim (1998) also found that the writing of those with higher English proficiency is more likely to display more conciseness with greater use of more reduced forms such as the use of prepositional phrases instead of a relative clause or the use of infinitive or a gerund instead of a nominal clause. The fact that students encounter academic texts written in compressed discourse styles, their success, to a certain extent, depends on the ability to comprehend and produce the language that conforms to the norm of the academic or professional world (Biber & Gray, 2016). Therefore, it can be useful for students to harness the knowledge of such grammatical structures so as to properly incorporate grammatical complexity into their writing.

Writing complexity measurement

Research into the syntactic complexity of the language produced by native and non-native English writers has been conducted. Several studies (e.g. Henry, 1996; Lu, 2011; Ortega, 2003) adopted different complexity measurements such as sentence complexity, length of production unit, and varieties of sentence structures and their frequency. Among these measurements, the analysis of T-unit has been extensively used for measuring the syntactic maturity of written and spoken language and has been well-received as a reliable measure of overall syntactic complexity (Gaies, 1980). Coined by Hunt (1965), T-unit refers to a main clause including all subordinate clauses and other structures that might be attached to it. The growth of syntactic maturity is shown through the length of the T-units one formulates. T-unit-based measures have been applied in subsequent studies (e.g. Ortega, 2003; Wolfe-Quintero et al., 1998) and have been regarded as well-established measures of first and second language development and acquisition.

Wolfe-Quintero et al. (1998) examined 39 studies on L2 writing, and also highlighted the importance of clauses and T-unit to language development. They asserted that T-unit complexity ratio (clauses per T-unit, or C/T) generally grew as proficiency level increased. Nevertheless, the use of T-unit-based measures has been challenged by many researchers. Several studies (e.g. Bardovi-Harlig, 1992; Rimmer 2006) showed that learners with high proficiency did not necessarily produce longer T-units and clauses. Rimmer (2006) suggested that noun postmodifiers and some other phrasal features be taken into consideration when measuring syntactic complexity.

A linguistic description of academic prose is comprehensively provided in the *Longman Grammar of Spoken and Written English* (LGSWE; Biber et al, 1999). With a large corpus, around 5 million words from both spoken and written English, the LGWSE can identify the patterns of grammatical features commonly used in conversations, newspapers, fictions, and academic texts. According to the corpus analysis reported in the LGSWE, while approximately 150,000 nouns per million words are used in conversation, about twice more (approximately 300,000 nouns per million words) nouns are used in academic prose. The findings from the LGSWE also illustrate that verbs and related word classes such as adverbs and adverbials are more prevalent in conversation, making clauses more prevalent than phrases in this register accordingly. In contrast, nouns and their associated word classes such as adjectives and prepositions prevail in academic prose.

A subsequent study by Biber and Gray (2010) also complements the above-mentioned findings revealing that any types of written academic texts, even faculty web pages, show more reliance on condensed, less elaborated structures, and that means university students are exposed to this style of discourse typically everywhere, not necessarily limited to formal academic or research writing. Their findings have challenged the stereotype of grammatical complexity in writing which usually places emphasis on more elaborate and explicit clausal structures. They also encouraged further studies to shift their focus to grammatical features that have proven to be ubiquitous in academic prose but overlooked, for instance, noun phrases and their pre-/postmodifiers such as attributive adjectives, prepositional phrases, and several others. These features are uniquely common in written register and deserve greater attention.

Biber and Gray (2011) claimed that academic writing, which is regarded as an advanced written register, shows a prevalence of non-clausal phrases and the highly complex structure of noun phrases. Findings from corpus-based research and the belief that T-unit analysis alone does not comprehensively reflect writing complexity led Biber et al. (2011) to question the validity of T-unit based indices to measure syntactic complexity and propose hypothesized developmental stages that cast new light on the study of complexity in writing development. They conducted a comparison between the use of 28 features found in conversation and academic writing. This study confirmed that academic writing is clausally less complex, but that it showed a higher degree of noun phrase complexity.

More recent studies (e.g. Ansarifar et al., 2018; Parkinson & Musgrave, 2014; Taguchi et al., 2013) found that noun phrase modifiers including attributive adjectives as premodifiers and prepositional phrases as postmodifiers of noun phrases were indicators of writing quality. In their corpus-based research findings, Biber and Gray (2016) emphasized again that some grammatical structures, such as dependent clauses, were not prevalent in written registers, whereas phrasal structures that previous research did not pay much attention to such as attributive adjectives, noun as nominal premodifiers, prepositional phrases as nominal postmodifiers, and appositive noun phrases were more frequently used. Staples et al. (2016) examined the writing development of L1 English university students, from first-year undergraduate to graduate level, and found an increase in the use of phrasal features but a decrease in that of clausal features as the students' academic level grew.

Figure 1 shows the developmental stages for noun modification. This index starts from stage 2, which is regarded as an intermediate stage (Biber et al., 2011, p. 30), and progresses to stage 5, which is the most advanced stage.

Stage	Grammatical structures	Examples from the corpora
2	Attributive adjectives - Common attributive adjectives - Less common attributive adjectives	an <u>important</u> role <u>attractive</u> promotions
^a 3	Participial premodifiers	<u>retired</u> people, <u>growing</u> sales
3	Relative clauses Nouns as premodifiers Possessive nouns as premodifiers <i>Of</i> phrases as postmodifiers (concrete/locative meanings) Prepositions other than <i>of</i> as postmodifiers (concrete/locative meanings)	anything <u>which is published online</u> <u>customer</u> service <u>customers'</u> activities all movements <u>of</u> goods the settings <u>on</u> a Facebook page
4	<i>-ed</i> participle as postmodifiers <i>-ing</i> participle as postmodifiers Multiple premodifiers in the NP: attributive adjectives, nouns as premodifiers <i>Of</i> phrases as postmodifiers (abstract meanings) Prepositions other than <i>of</i> as postmodifiers (abstract meanings)	aspects <u>presented above</u> people <u>living in big cities</u> a <u>popular cosmetics</u> shop a higher risk <u>of miscommunication</u> big data <u>for market analysis</u>
5	Prepositions + nonfinite complement clause (<i>of</i> + <i>-ing</i>) Complement clauses controlled by nouns (<i>that</i> + N. complement clauses) Appositive noun phrases Multiple prepositional phrases as postmodifiers with levels of embedding	the idea <u>of using social media marketing</u> The fact <u>that our sales keep going down</u> the modern microcomputer (<u>PC</u>) progress <u>in integration with the introduction of community policy instruments</u>

^aNot included in Biber et al. (2011).

Figure 1. Hypothesized developmental stages for noun phrase modification proposed by Biber et al. (2011)

Methodology

Data sources

Thirty-nine argumentative essays (totaling 12,310 words) on *social media marketing* written in English by Thai second-year students at a university in Thailand were obtained from students who received the letter grades of B, B+, and A from their English for Academic Purposes (EAP) writing course. Informed consent forms permitting the researcher to use their essays were collected. As a required task of the course, each student wrote an argumentative essay to respond to the question of *whether a company should apply social media marketing to its business*. This

genre of academic writing was chosen as it is believed to require high order thinking. Also, in order to make their logical thinking evident through argumentation, a wide variety of language structures, including noun phrases and a variety of noun modifiers, are expected to be used. Before completing this task, the students had learnt about the topic in class through reading exercises and group discussion, and had about one week to research the topic. Essay writing was carried out in class and timed for one hour.

Another set of data was derived from the Louvain Corpus of Native English Essays (LOCNESS), consisting of British pupils' A level compositions, and British and American university students' essays. This corpus contains 434 essays (totaling 324,304 words). Only argumentative essays of British and American university students were used to increase the variety of Englishes. Crawford and Csomay (2015) suggested that two corpora of a similar number of words, rather than similar number of texts, are preferable when comparing the frequency of features of interest. Following their suggestion, this study used 28 essays (totaling 12,694 words) randomly selected from LOCNESS. The British essays were not rigidly timed while the American ones were. The topics of the chosen essays range from international politics and social issues to science and technology.

Table 1 shows the total number of essays, the mean length of essays, and the total number of words. It can be seen that the essays of NS students are generally longer, but the total numbers of words in both corpora are similar.

Table 1
Details of the corpora

	Number of essays	Mean length of essays	Total number of words
Thai	39	315.64	12,310
NS	28	453.36	12,694

It is necessary to note that despite the attempt to make the data between both groups homogeneous, not all variables could be controlled. First of all, while one set of essays were produced by Thai students in the same faculty and university, the other set of essays were written by British and American students from different academic disciplines and universities. Additionally, information regarding the proficiency and letter grades of British and American students is not available. However, since the LOCNESS subcorpora contain numerous essays of the same genre and similar nature, that is timed argumentative essays, 28 essays were randomly selected and used to compare with those of the Thai group in this study.

Data coding and analysis

Since the amount of data is relatively small, this study relied on manual coding. Biber and Gray (2011) conceded that some features such as prepositional phrases and appositive noun phrases require manual analysis and that the automated taggers may not yield complete accuracy. In this study, any target features that contained grammatical errors affecting intended meanings or intelligibility were not counted, whereas those with minor grammatical errors that did not hinder comprehension such as misspelling, articles or prepositions in some collocations such as *marketing has a impact for the business* (*for* instead of *on*) were included. Also, some key words or phrases from the prompt of the Thai undergraduates' essays such as *social media* and *social*

media marketing when they do not modify another noun were not counted in order to avoid their influence on the results since they accounted for almost 350 hits among the 39 Thai undergraduates' essays analyzed.

The grammatical features of noun modifiers are the primary focus of the current study. The developmental stages of grammatical features proposed by Biber et al. (2011, p. 30) were adopted as a measure to identify the complexity of the features that appeared in the essays. The frequency of noun premodifiers (common/less attributive adjectives, participial adjectives, nouns as premodifiers, possessive nouns, and multiple premodifiers) and noun postmodifiers (relative clauses, prepositional phrases with concrete/abstract meanings, participial clauses as postmodifiers, noun complement clauses, appositive noun phrases, and multiple prepositional phrases) were identified and recorded.

Biber et al. (1999) analyzed corpus data and distinguished between common and less common attributive adjectives. Common attributive adjectives refer to adjectives that occur more than 200 times per million words and are mostly monosyllabic and semantically simple such as good, nice, whole, social, important, and so forth. Those not meeting these criteria are considered less common adjectives. Biber et al. (1999) also reported that less common attributive adjectives occur more frequently in academic writing. However, when Biber et al. (2011) proposed their developmental stages, they did not treat common and less common attributive adjectives as different features. In a recent study by Parkinson and Musgrave (2014), these two types of adjectives were coded separately. This present study followed suit and used the list of common attributive adjectives suggested by Biber et al. (1999, p. 512) to help distinguish common attributive adjectives from less common ones and to see whether the findings of this present study would support their findings.

Additionally, Biber et al. (2011) did not separate participial premodifiers from attributive adjectives; however, Parkinson and Musgrave (2014) believed that participial premodifiers are potentially acquired later and presumably placed them in stage 3. Therefore, participial premodifiers are considered a separate feature in more recent studies (e.g. Ansarifar et al., 2018; Parkinson & Musgrave, 2014) as well as in this present study. Also, based on Biber and Gray (2016), prepositional phrases with concrete/locative meanings refer to those representing materials, physical forms, or places (e.g. *functions on electronic devices, employees in the meeting room, and users from China*), while prepositional phrases with abstract meanings include those representing concepts, relations, or those without concrete existence (e.g. *information for analysis and progress in integration*).

After the researcher coded every essay, 10 percent of the essays were randomly selected and coded manually by the second coder to ensure that the coding was consistent and reliable. The second coder was a non-native speaker who is a proficient user of English and has taught EAP courses for undergraduate students for nine years. He was trained by the researcher to code the data based on Biber et al.'s (2011) developmental stages and the coding guidelines provided by the researcher. The percentage of agreement and correlation were calculated to deal with the consensual and consistent aspects of the inter-coder reliability. Then, Fisher's exact test was computed to identify whether there were significant differences in the use of noun modifiers between both groups. Fisher's exact test was chosen since it works especially well for small samples. The Statistical Package for the Social Sciences (SPSS, Version 20) was utilized to compute the correlation and to run Fisher's exact test. The result of the percentage of agreement

was 94.12% whereas that of the correlation for all the features coded was above .90. For both procedures, a score over .90 is considered excellent (Portney & Watkins, 1993; Salkind, 2011).

Results

Figure 2 illustrates the frequency of each type of noun modifier and the percentage it accounts for of all noun modifiers from each corpus, together with the result of a two-sided Fisher's exact test. When the p -value is $< .05$, the difference is significant. Regarding descriptive statistics, see Appendix A for details.

Stage	Grammatical structures	Thai	NS	Fisher's exact test
2	Attributive adjectives			
	- Common attributive adjectives	135 (8.32%)	170 (8.96%)	No ($p = 0.239$)
	- Less common attributive adjectives	326 (20.10%)	415 (21.88%)	No ($p = 0.059$)
^a 3	Participial premodifiers	25 (1.54%)	42 (2.21%)	No ($p = 0.091$)
	Relative clauses	73 (4.50%)	118 (6.22%)	Yes ($p = 0.022$)
	Nouns as premodifiers	301 (18.56%)	112 (5.90%)	Yes ($p = 0.049$)
	Possessive nouns as premodifiers	64 (3.95%)	28 (1.48%)	No ($p = 0.500$)
	<i>Of</i> phrases as postmodifiers (concrete/locative meanings)	65 (4.01%)	92 (4.85%)	Yes ($p = 0.008$)
	Prepositions other than <i>of</i> as postmodifiers (concrete/locative meanings)	110 (6.78%)	116 (6.11%)	No ($p = 0.127$)
4	- <i>ed</i> participle as postmodifiers	5 (0.31%)	26 (1.37%)	Yes ($p = 0.000$)
	- <i>ing</i> participle as postmodifiers	4 (0.25%)	29 (1.53%)	Yes ($p = 0.000$)
	Multiple premodifiers in the NP: attributive adjectives and nouns as premodifiers	92 (5.67%)	94 (4.96%)	No ($p = 0.172$)
	<i>Of</i> phrases as postmodifiers (abstract meanings)	163 (10.05%)	289 (15.23%)	Yes ($p = 0.000$)
	Prepositions other than <i>of</i> as postmodifiers (abstract meanings)	137 (8.45%)	209 (11.02%)	Yes ($p = 0.002$)
5	<i>Of</i> + - <i>ing</i>	41 (2.53%)	13 (0.69%)	Yes ($p = 0.000$)
	<i>that</i> + N. complement clauses	21 (1.29%)	15 (0.79%)	No ($p = 0.771$)
	Appositive noun phrases	4 (0.25%)	15 (0.79%)	Yes ($p = 0.013$)
	Multiple prepositional phrases as postmodifiers, with levels of embedding	56 (3.45%)	114 (6.01%)	Yes ($p = 0.000$)
	Total noun modifiers	1,622	1,897	

^aNot included in Biber et al. (2011)

Figure 2. Noun modifiers in Thai and NS argumentative essays

As can be seen in Figure 2, it was found in the Thai dataset that the most common grammatical feature was less common attributive adjectives (20.10%), followed by nouns as premodifiers (18.56%). Those used in moderation were *of* phrases as postmodifiers with abstract

meanings (10.05%), prepositions other than *of* as postmodifiers with abstract meanings (8.45%), common attributive adjectives (8.32%), prepositions other than *of* as postmodifiers with concrete/locative meanings (6.78%), and multiple premodifiers (5.67%). The findings also revealed that relative clauses (4.50%), *of* phrases as premodifiers with concrete/locative meanings (4.01%), possessive nouns as premodifiers (3.95%), multiple prepositional phrases as postmodifiers with levels of embedding (3.45%), *of* + *ing* (2.53%), participial premodifiers (1.54%), *that* + noun complement clauses (1.29%) were used slightly. Finally, *-ed* as postmodifiers (0.31%), *-ing* as postmodifiers (0.25%), appositive noun phrases as postmodifiers (0.25%), were the least frequently used features.

In contrast, the NS dataset showed the highest reliance on less common attributive adjectives (21.88%), *of* phrases as postmodifiers with abstract meanings (15.23%), and prepositions other than *of* as postmodifiers with abstract meanings (11.02%) whereas common attributive adjectives (8.96%), relative clauses (6.22%), prepositions other than *of* as postmodifiers with concrete/locative meanings (6.11%), multiple prepositional phrases as postmodifiers with levels of embedding (6.01%), and nouns as premodifiers (5.90%) were moderately used. This group also slightly used multiple premodifiers (4.96%), *of* phrases as premodifiers with concrete/locative meanings (4.85%), participial premodifiers (2.21%), *-ing* as postmodifiers (1.53%), possessive nouns as premodifiers (1.48%), and *-ed* as postmodifiers (1.37%). Lastly, *that* + noun complement clauses (0.79%), appositive noun phrases as postmodifiers (0.79%), and *of* + *ing* (0.69%) were the least preferred features among the NS group.

Research question 1: What are the most and the least prevalent noun modifiers used in the argumentative essays written by Thai university students and native English university students?

Overall, the most prevalent features of noun premodifiers used by both groups were attributive adjectives [*a good idea* (common), *a controversial topic* (less common)] and nouns as premodifiers (*sales promotion*), whereas the most frequently used postmodifiers were prepositional phrases with both concrete/locative and abstract meanings [*the cost of digital marketing* (abstract), *comments about your products* (concrete), and *the settings on a Facebook page* (locative)].

On the other hand, *-ed* and *-ing* participles as postmodifiers (*campaigns promoted on Facebook*, *customers using social media*) were used very slightly by the Thai students, while *of* + *ing* (*the idea of having a single market*), and *that* + noun complement clauses (*the fact that it is an island*) were the least prevalent features found in the NS essays. Finally, appositive noun phrases (*All Seasons*, *a clothing store*) were one of the least prevalent features used by both Thai and NS students. As shown in Figure 2, all of these postmodifiers accounted for less than 1% of the total noun modifiers found in the essays of each group.

Research question 2: Are there any significant differences in terms of noun modifiers between the argumentative essays written by Thai university students and those written by native English university students?

As can be seen from Figure 2, 10 out of 17 features show statistically significant differences including relative clauses, nouns as premodifiers, *of* phrases as postmodifiers (concrete/locative meanings), *-ed* participle as postmodifiers, *-ing* participle as postmodifiers, *of* phrases as postmodifiers (abstract meanings), prepositions other than *of* as postmodifiers

(abstract meanings), *of + ing*, appositive noun phrases, and multiple prepositional phrases as postmodifiers with levels of embedding. Interestingly, all of these features, except *nouns as premodifiers*, are noun postmodifiers.

Discussion

As regards research question 1, it was found that Thai and NS students most frequently used attributive adjectives and nouns as premodifiers whereas prepositional phrases were the most prevalent postmodifiers. This supports Biber et al.'s (1999) claim that attributive adjectives, nouns as premodifiers and prepositional phrases as postmodifiers characterize academic prose, and confirms some previous studies (e.g. Ansarifar et al, 2018; Parkinson & Musgrave, 2014) which found that the most prevalent types of noun premodifiers were attributive adjectives and nouns while that of noun postmodifiers is prepositional phrases. Staples et al. (2016) also noted that in both L1 and L2 academic writing, phrasal features such as noun phrases with attributive adjectives and nouns as premodifiers are considered significant components of academic writing.

As for the least frequently used features, the findings of this study regarding the use of *-ed* and *-ing* participles as postmodifiers (stage 4) support Biber et al.'s (1999) claim that full relative clauses are a more preferred feature than participles. Additionally, according to Biber et al.'s (2011) hypothesized developmental stages, relative clauses are placed in stage 3, which implies that they are acquired earlier than participles. Therefore, both Thai and NS students might be more inclined to use relative clauses than *-ed* or *-ing* participles in this study. In the case of noun complement clauses (*of + ing* and *that + noun complement clauses*), despite being strongly associated with academic writing, these modifiers are not particularly prevalent by themselves (Biber & Gray, 2016). Therefore, it is not surprising that they were slightly used by both groups of students. Moreover, although Biber and Gray (2011) highlighted the growing importance of appositive noun phrases in academic writing, this present study found these phrasal devices to be among the least used features. This finding, however, supports Biber et al.'s (2011) placement of appositive noun phrases in stage 5, the most advanced stage. Overall, the findings of this current study are in line with those of Parkinson and Musgrave's (2014) in that the aforementioned features were least preferred in EAP and MA writing.

To discuss research question 2, noun modifiers were grouped into pre- and postmodifiers. Regarding noun premodifiers, *nouns as premodifiers* is the only one among the other premodifiers that shows statistically significant difference (Thai = 18.56%; NS = 5.90%) in this study. Unexpectedly, Thai students used these phrasal devices more than the NSs did. This finding proves inconsistent with the previous studies of Parkinson and Musgrave (2014) and Ansarifar et al. (2018) which suggested that writers with higher proficiency or more experience tend to use premodifying nouns more than less proficient writers. A closer look at the data of Thai writers revealed a possible explanation for this inconsistency. The data suggested that many Thai students took some phrases directly the reading sources. These recurring phrases included:

social media platforms = 14 counts
social media site(s) = 8 counts
social media users = 5 counts
social media + other nouns = 8 counts
social network + other nouns = 6 counts

internet marketing = 4 counts
(*social media* is considered a single entity, so it is regarded as a noun in this study.)

The fact that *marketing* was the topic area of the essay also influenced Thai students' repeated use of the word as noun premodifier such as:

marketing strategy(ies) = 10 counts
marketing channel(s) = 9 counts
marketing tool(s) = 8 counts
marketing + other nouns = 18 counts

Assumed to be acquired later than attributive adjectives (stage 2), participial premodifiers were considered a separate feature. Nevertheless, no significant difference in the use of this feature was identified in this study. Although the result of this study differs from that of Parkinson and Musgrave (2014) who found significant distinction across the groups they studied, it is similar to that of Ansarifar et al. (2018). Possessive nouns as premodifiers (stage 3) was another feature for which no statistically significant difference was found, which was consistent with Ansarifar et al. (2018) but inconsistent with Parkinson and Musgrave (2014) whose data showed significant difference in the use of possessive nouns.

Concerning noun postmodifiers, the Thai dataset showed less reliance on relative clauses than the NS dataset did (4.50% of Thai modifiers compared to 6.22% of NS modifiers). This supports the findings of Parkinson and Musgrave (2014) and Ansarifar et al. (2018) who also found that less proficient writers used relative clauses less than more proficient ones. However, only Parkinson and Musgrave's (2014) findings revealed a statistical difference in the use of relative clauses. In this present study, since the NSs' essay topics (e.g. British sovereignty, European integration, feminism, and inventions and discoveries) were more specific, the NS writers may have been more inclined to include more proper nouns or technical terms in their writing, thus increasing the chance of using relative clauses by way of further explanation of such terms. In contrast, Thai students were assigned a general topic – *marketing*; thus, the chances that they would use relative clauses could have been fewer. Some examples from the corpora are as follows:

Thai:

people who shop in the mall

anyone who visits the website

many competitors who also use this method

NS:

feminism, which has had a significant impact on...

a Federal Union which would ensure decisions where possible

the Women's Suffrage Movement which resulted in the women of America being recognized as full citizens

Another problem which may be the most serious This view of the legislative supremacy was expressed by **Dicey** who wrote that...

Statistically significant differences were also observed across the use of all types of prepositional phrases as postmodifiers, except for prepositions other than *of* with concrete/locative meanings. Both datasets showed frequent use of prepositional phrases, with higher proportion of abstract meanings (stage 4) than concrete/locative meanings (stage 3). This corroborates Biber and Gray's (2011) study which found that about 60 percent of occurrences of prepositional phrases as postmodifiers in 20th-century written academic prose carry abstract meanings. Nonetheless, this study contrasts with Ansarifar et al.'s (2018) in that almost every prepositional phrase feature they analyzed showed no statistically significant difference while Parkinson and Musgrave (2014) reported such significant distinction only in the use of prepositional phrases with prepositions other than *of* (abstract meanings). Overall, Thai students used all types of prepositional phrases significantly less than NSs did.

Placed at stage 4, there were statistically significant differences in the use of -ed and -ing participles as postmodifiers between Thais (0.31%, 0.25%) and NSs (1.53%). Similar to what Parkinson and Musgrave (2014) and Ansarifar et al. (2018) found, these postmodifying features were not the main features of both sets of data considering the small proportions found. This probably stemmed from higher reliance on stage-3 relative clauses than these stage-4 participles.

Interestingly, Thai students used stage-5 noun complement clauses, including preposition + nonfinite complement clauses (*of* + ing) and complement clauses controlled by nouns (*that* + noun complement clauses), more frequently than the NSs did. However, statistically significant difference was only observed in *of* + ing (Thai = 2.53%; NS = 0.79%).

The use of *that* + noun complement clauses is also worth mentioning as despite no statistically significant difference was found, Thai students unexpectedly used this stage-5 feature more frequently than NSs (Thai = 1.29%; NS = 0.79%). These unexpected results might result from the influence of the essay prompts and some stock phrases in Thai students' course materials, or these students might have been prepared by their teachers to incorporate what they learned in their writing. However, the findings of this study corroborate the recent studies of Parkinson and Musgrave (2014) and Ansarifar et al. (2018) in that no statistically significant difference was found in both. The examples of repeatedly used noun complement clauses found in the Thai dataset include:

the idea of + -ing = 18 counts
danger of + -ing = 8 counts
I am for/against the idea that.... = 18 counts
It is my belief that ... = 5 counts
the fact that ... = 3 counts

Appositive noun phrases also deserve attention. Despite being infrequently used across both datasets, statistically significant difference was found in this study. This is also the case for Parkinson and Musgrave's (2014) study but not for Ansarifar et al.'s (2018). The NS students used this stage-5 feature more than their Thai counterparts (Thai 0.25%; NS = 0.79%). This possibly resulted from the influence of essay topic areas. As mentioned earlier, the NSs' essay

topics were more specific. Thus, the use of proper nouns or technical terms can be anticipated as appositive noun phrases are sometimes necessary in order to “provide an explanatory gloss to a technical reference or name of some entity” (Biber et al., 1999, p. 639).

As the last feature of the developmental stages, multiple prepositional phrases as noun postmodifiers are expected to be more prevalent in the NS dataset than in the Thai dataset. A statistically significant difference between both groups in the use of this feature was found (Thai = 3.45%; NS = 6.01%). Similarly, Ansarifar et al. (2018) found that expert writers used this stage-5 feature more than the other groups of writers they studied with statistically significant differences observed across all groups. The findings of this present study also confirm Biber et al.’s (2011) hypothesis that more proficient writers would rely more on the final-stage feature than less proficient ones.

Additionally, a closer look at the essays of both groups enabled the researcher to see that the strings of noun phrases with multiple prepositional phrases as postmodifiers produced by the NSs were often longer with more modifiers than those produced by Thai students although the number of prepositional phrases per case did not differ greatly. In other words, not only did the NSs show greater use of this stage-5 feature, but the cases found in their essays also exhibited a higher level of complexity compared to those found in the essays of Thai students as the prepositional phrases found in their noun phrase strings usually carry fewer modifiers within them. The following are cases taken from the corpora showing multiple prepositional phrases.

Thai:

*the advertising cost **for** promoting **on** offline channels*

*campaigns **from** the company **on** social media*

*rapidness **of** the flow **of** information **via** social media*

*customers’ opinions **on** the products **on** social media*

*high competition **among** brands **on** social media*

NS:

*greatest co-operation and joint action **in** the areas **of** foreign, social and environmental policy*

*the expansion **of** the British market **into** all the other markets **of** Europe and vice versa*

*more participation **in** the election **of** members **of** the European Parliament*

*favorable trading condition **with** the USA and **with** the countries **of** the Commonwealth*

*the dismantling **of** the Berlin Wall and hundreds **of** other smaller symbols **of** freedom*

By and large, the writing of both datasets was fairly similar in the use of noun premodifiers (stages 2-3). The only type of noun premodifier showing statistically significant difference was *nouns as premodifiers*. Yet, the contrast between both datasets became noticeable in the use of noun postmodifiers (stages 4-5) in that fewer of these stage-4 and -5 features appeared in the essays of Thai students. In addition, the use of almost all types of postmodifiers

by both groups of writers differed significantly, except prepositions other than *of* (concrete/locative meanings) and *that* + noun complement clauses.

Considering the above discussion and the results shown in Figure 2, although argumentative English essays written by Thai students fairly approximate those written by NSs in the use of early-stage features, they do not approximate those written by NSs in the use of higher-stage features (stages 4-5). In other words, the writing of Thai university students was not as complex as their NS counterparts.

Conclusion

This study compares noun modification in the argumentative English essays of Thai and NS university students. The developmental stages for noun phrase modification proposed by Biber et al. (2011) were empirically tested as suggested by Biber et al. (2011) themselves. The findings of this present study support the idea of the hypothesized developmental stages of Biber et al. (2011) in that presumably less proficient writers (i.e. Thais) rely more heavily on the features of earlier stages than more proficient writers (i.e. NSs). This suggests that focusing on each of the higher-level features less preferred among Thai students can be particularly helpful in developing writing complexity.

The findings of this study can help English language instructors, especially those who teach academic writing, gain more insights into noun modification features and encourage them to identify the complexity levels of their students' work using Biber et al.'s (2011) hypothesized developmental stages. These insights can potentially enable the instructors to indicate what needs to be done in order to improve academic writing skills among Thai students and to fill the void and increase syntactic complexity in writing. It is hoped that the results of this study will bring about better material design with an additional focus on grammatical features such as noun postmodifiers, especially prepositional phrases postmodifying nouns, which have long been overlooked in academic writing courses. Materials or tasks that help draw students' attention to complex phrasal features in academic prose can be incorporated to allow students to produce written work that meets an academic writing style that is internationally acceptable.

This study also contains some limitations. Firstly, the size of the dataset is relatively small and the generalizability of the study's findings might be somewhat limited. Future research can be conducted with larger data size. Secondly, as mentioned earlier, there are some differences between the two datasets that the researcher was not able to control, such as the essay topics or fields of study of the NS group. Although all of the writing samples are of the same genre, it is undeniable that differences in essay topics and students' academic discipline may, to some extent, affect the use of certain grammatical features. Future studies could take the issue of topic differences into account. Another uncontrollable factor was the nature of the writing course. The argumentative essay writing of the Thai students was timed due to the design of the course. In contrast, the NS essays were a combination of timed and not-rigidly-timed essays. This might not reflect authentic, real-world writing which allows writers sufficient time to gather and put together information, as well as time to revise and polish their writing. Future studies can take this issue into consideration to ideate better research design.

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Appendix A

Descriptive statistics of noun modifiers for Thai and NS groups.

		No. of essays	Min	Max	Mean	Std. Dev.
Cmm Adj	Thai	39	0	9	3.54	2.73
	NS	28	0	16	6.54	4.77
Less Cmm Adj	Thai	39	0	20	8.56	4.59
	NS	28	3	28	14.93	6.52
Parti Prem	Thai	39	0	4	0.95	1.19
	NS	28	0	6	2.07	1.96
Rel Cl	Thai	39	0	5	1.85	1.53
	NS	28	0	11	4.18	2.80
N Prem	Thai	39	0	14	7.54	4.25
	NS	28	0	13	3.54	3.13
Poss Prem	Thai	39	0	9	1.62	2.01
	NS	28	0	5	1	1.33
<i>Of</i> Post Conc	Thai	39	0	6	1.67	1.46
	NS	28	0	8	3.32	2.16
Other Pp Conc	Thai	39	0	7	2.82	1.83
	NS	28	0	13	4.14	2.77
<i>Ed</i> Part Post	Thai	39	0	1	0.13	0.34
	NS	28	0	6	0.93	1.22
<i>Ing</i> Part Post	Thai	39	0	1	0.1	0.31
	NS	28	0	5	1.07	1.12
Multi Prem	Thai	39	0	6	2.31	1.76
	NS	28	0	8	3.36	2.50
<i>Of</i> Post Abst	Thai	39	0	10	4.15	2.24
	NS	28	2	22	10.29	4.64
Other Pp Abst	Thai	39	0	11	3.51	2.21
	NS	28	0	17	7.46	3.91
<i>Of</i> Ing	Thai	39	0	3	1.05	0.89
	NS	28	0	4	0.46	0.96
<i>That</i> N Comp	Thai	39	0	2	0.54	0.68
	NS	28	0	2	0.54	0.74
Appos N Post	Thai	39	0	1	0.1	0.31
	NS	28	0	3	0.5	0.75
Multi Pp Post	Thai	39	0	5	1.46	1.10
	NS	28	0	9	4.07	2.32