

## Article

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## Noun Phrase Complexity: Influence of L1 (Mandarin) on L2 (English) Academic Writing

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### ABSTRACT

Noun phrase (NP) complexity can be examined through the types of noun modifiers and phrasal features used in a specific NP. This study intends to address the gap focusing on the NP complexity of students with similar proficiency levels, taking into consideration the possible influence of the syntactic structure of their L1. The analytical model of this study made use of the Hypothesized Developmental Stages for Noun Phrase Modification (Biber et al., 2011). Data examined in this study were academic writings from the master students of University of Malaya (UM), who major in Linguistics or English Language studies. Of the five essays examined, 855 complex NPs were identified. The attributive adjective was found most frequently with 395 occurrences in total. Despite being competent users of the English language, NPs of higher complexity stages were not found abundantly across all the essays. Complex NPs of the lower stages like attributive adjective (47.1%), nouns as pre modifiers (12.2%), of phrases as post modifiers (19.7%), prepositions other than of (concrete/locative meanings) / (abstract meanings) (5.1% / 4.8%) remained as some of the most-frequently used NPs. This study implicates that although students are competent users of the English language, the L1 still has an influence on their essay writing.

**KEYWORDS:** noun phrase complexity, L1 influence, Mandarin, academic writing

### Introduction

Noun phrase (NP) complexity, according to Biber et al. (2011), can be examined through the types of noun modifiers and phrasal features used in a specific NP. Recent studies on this topic correlate NP complexity in writing with the language user's proficiency (Xu, 2019; Jitpraneechai, 2019; Sarte & Gnevshva, 2021). Although some of the studies had contradicting findings, most

of them concluded that proficiency played a role in language users' NP complexity in writing essays. Despite that, the studies did not mention whether a language user's L1 could possibly influence NP complexity in L2. Therefore, this study intends to address the gap focusing on the NP complexity of students with similar proficiency levels, taking into consideration the possible influence of the syntactic structure of their L1.

This study aims to investigate NP complexity in Chinese students' English academic writing with the consideration of potential L1 influence. The study will address two research questions:

- 1) What types of noun modifiers do Chinese students use in English academic writing according to the hypothesised development stages of NP complexity?
- 2) To what extent does L1 influence the NP complexity in Chinese students' English academic writing?

## Literature Review

Numerous studies have been conducted on NP complexity among L2 users over the past few years (e.g., Liu & Li, 2016; Wang & Beckett, 2017; Xu, 2019; Sartre & Gnevsheva, 2021). Most of these studies found that L2 users, or at least those who are more proficient, tend to produce NPs of higher complexity stages. Liu and Li (2016) have investigated the NP complexity of Chinese EFL students at the postgraduate level and found that complexity levels were significantly higher in published corpus as compared to student corpus. This is congruent with Sartre and Gnevsheva (2021) study, in which they have found that proficient writers tend to use more complex NPs, and the contrast between writers of higher and lower proficiency was the most prominent when this involved NPs of higher complexity. However, the study also noted that the essay topic assigned to students could influence their NP complexity, as complex topics could have elicited NPs that were more complex (Sartre & Gnevsheva, 2021).

In addition, Xu (2019) has also conducted a similar study, albeit providing a more detailed finding in terms of the types of NPs used. The study examined argumentative essays of Chinese EFL students with different proficiency scores alongside essays written by native speakers. It was found that students with higher proficiency performed similarly, and sometimes even better than native speakers in terms of NP complexity. Chinese students tend to extend NPs by embedding them in pre and post modifiers typically through phrasal rather than clausal elaboration (Xu, 2019). Similarly, Wang and Beckett (2017) study have investigated the NP complexity of Chinese EFL students with lower proficiency with that of proficient English users and found that students of lower proficiency tend to use more pre modifiers, while proficient users were more likely to use prepositional phrases after NPs (Wang & Beckett, 2017).

As shown in previous studies, proficiency does have an effect on complexity, but very few focus on the potential of L1 in L2 writing. Bennui (2016) was among the few who looked at L1 interference or language transfer in Thai EFL students. The study has analysed writings by these students to examine three levels of L1 interference (words, sentences, discourse) and found that negative transfer was more pronounced than positive ones, confirming that L1 does in fact affect L2. Our study takes into account the possible negative transfers made, but emphasis is made on the types of complex NPs produced in reference to Mandarin NP structures. In extension, the current study investigates this gap by focusing on academic essays written by Chinese postgraduate students of University of Malaya, who are competent users (those who obtained at least a 6.0 are

considered competent users according to IELTS official website) of the English language as an L2. Among past studies, some of them (Liu and Li, 2016; Wang and Beckett, 2017; Xu, 2019) used computer programmes like the L2 Syntactic Complexity Analyzer (L2 SCA) developed by Lu (2010) and UAM Corpus Tool 2013 version to streamline the data analysis process. However, as one of the research questions of the current study is to identify to what extent L1 influences L2 writing, it is hoped that through manually coding the NPs that recurring patterns or phrases influenced by L1 would be easier to spot for comparative analysis with the syntax of the students' L1 (Mandarin). In terms of the framework, most of the studies used Biber et al. (2011) hypothesised developmental stages for noun phrase modification model to categorise each of the NPs found in L2 writing. This framework listed out 13 noun modifiers (such as attributive adjective, relative clause and nouns as pre modifiers) including pre and post modifiers labelled according to their typical use as either a phrasal or clausal type, and assigning a complexity level from stage 2 to 5 for each of them. Our study has also implemented this framework as the categorisations are helpful to identify the NP complexity of a sentence and to compare its structure with that of the user's native language, in this case, Mandarin.

Table 1 Hypothesized Developmental Stages for Noun Phrase Modification

Stage	Grammatical structure(s)		Example(s)
2	Attributive adjective	2a	It certainly has a <u>nice</u> flavor
		2b	Tom Jones is apparently a <u>real</u> name
3	Relative clause	3a	...the guy <u>that made that call</u>
		3b	...some really obscure <u>cable channel</u>
		3c	<u>Tobie's</u> voice
		3d	editor <u>of the food section</u>
		3e	house <u>in the suburbs</u>
4	Nonfinite relative clauses	4a	... the method <u>used here</u> should suffice...
		4b	The prevalence of <u>airway obstruction</u> and <u>self-reported disease status</u>
		4c	The specific growth rate <u>at small population sizes...</u>
5	Preposition + nonfinite complement clause	5a	The idea <u>of using a Monte Carlo approach</u>
		5b	The hypothesis <u>that female body weight was more variable</u>
		5c	The CTBS <u>(the fourth edition of the test)</u> was administered in 1997–1998
		5d	The [presence of layered <u>[[structures] at the [[borderline]] of cell territories]]]</u>

## Method

### *Data Sources*

Data examined in this study were academic writings from the master students of University of Malaya (UM), who major in Linguistics or English Language studies. The type of academic writings includes research articles, journal critiques, article reviews, and reflective essays with a total number of approximately 5000 words. The participants are all Chinese students from China who learn English as a foreign language (EFL). All of the participants have an IELTS (International English Language Testing System) score of over 6.0 since that is the lowest entry requirement for international students of UM. The sampling method used was convenience sampling. Two researchers have invited their classmates or friends who have met the requirements to participate in the research, and consent papers were signed by all of the participants to ensure all ethical issues related to the study have been taken serious consideration.

### *Data Analysis*

In the process of data analysis, both quantitative and qualitative methods were involved. The first 4 steps are all related to data coding. In step 1, the researchers have recorded all of the data sentence by sentence for clearer and more convenient observation. In step 2, the noun phrases in each sentence were identified and listed behind each sentence. In step 3 and 4, the modifiers and the corresponding complexity of each NP were identified according to Table 1. This is the end of data coding. In step 5 and 6, the first research question is answered by counting the percentage of each category of modifiers and finding out the most prevalent modifier and the least one. In the last step, which is step 7, the results of the first research question are compared and contrasted with the NP structure in Chinese. The Chinese textbook *Modern Chinese* (Huang & Liao, 2002) is used as the main reference for Chinese NP structure.

## Results

### *Types of noun modifiers used*

RQ1 examines the types of noun modifiers used in the academic essays written by Chinese students. Of the five essays examined, 855 complex NPs were identified. The results are presented in Table 2 and Figure 1. The attributive adjective was found most frequently with 395 occurrences in total. This is followed by of phrases as post modifiers (165), nouns as pre modifiers (102), prepositions other than of (concrete/locative meanings) (42), prepositions other than of (abstract meanings) (40), relative clause (26), possessive nouns as pre modifiers (25), extensive phrasal embedding in the NPs (14), complement clauses controlled by nouns (11), phrasal embedding: attributive adjectives (10), nonfinite relative clauses (4), preposition + nonfinite complement clause (3), and appositive noun phrase (1). Complex NPs that are only found in some or only once in one of the essays is not featured in this study due to lack of recurrence in the essays analysed. The findings discuss only the top five complex NPs found in all five essays.

Table 2 Occurrence of each NP Modification

NP Modification	Occurrence	NP Modification	Occurrence
Attributive adjective	395	Phrasal embedding: attributive adjectives, nouns as premodifiers	10
Relative clause	26	Prepositions other than of (abstract meanings)	40
Nouns as premodifiers	102	Preposition + <u>nonfinite</u> complement clause	3
Possessive nouns as premodifiers	25	Complement clauses controlled by nouns	11
Of phrases as postmodifiers	165	Appositive noun phrases	1
Prepositions other than of (concrete/locative meanings)	43	Extensive phrasal embedding in the NPs	14
<u>Nonfinite</u> relative clauses	4		

Occurrence

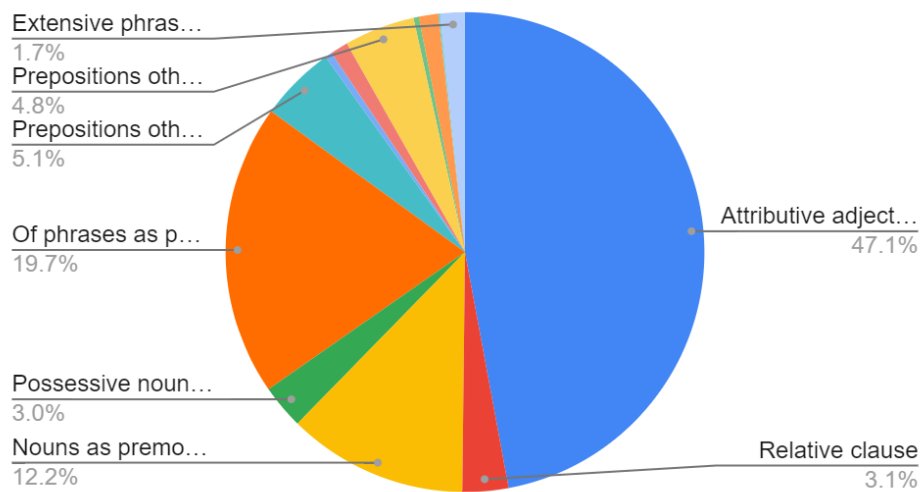


Figure 1 Percentage of each NP Modification

*Attributive adjective*

Attributive adjective belongs to the lowest and the only stage 2 complex NP according to Biber et al. (2011) framework. Here are some examples of attributive adjectives found in each of the essays: different metaphorical meanings; educational institutions; six basic aspects; general procedure; and thinking patterns.

All five examples here begin with an adjective which modifies the noun following it. ‘Different metaphorical meanings’ in example 1 has ‘different’ and ‘metaphorical’, both adjectives modifying the word ‘meanings’ behind them. Without each of the adjectives modifying the noun, the noun would have had an entirely different definition.

*Of phrases as post modifiers*

Of phrases as post modifiers is one of the five stage 3 complex NPs. There are examples from each essay: mapping of the structure; weakness of every element; verbal structure of a message; context of the sentence; and basic unit of a language.

As the second most-used complex NP in the data, of phrases as post modifiers can be found in NPs containing the preposition ‘of’ in between two NPs. ‘Mapping of the structure’ in example 6 begins with the noun ‘mapping’ which is modified by the preposition ‘of’ following it, then the NP following the preposition ‘the structure’ to complete the phrase.

*Nouns as pre modifiers*

Nouns as pre modifiers is also another complex NP in stage 3. Examples from each essay are as follows: language learners; development process; background information; speech pattern; and verbal communication.

Nouns as pre modifiers, as the third most commonly used complex NP in the data contains nouns modifying another noun. This is found in NPs like ‘development process’ in which the word ‘development’ on its own already functions as a noun, yet it becomes a pre modifier when another noun ‘process’ follows it.

*Prepositions other than of*

Prepositions other than of belong to two stages in Biber et al. (2011) framework. If it refers to concrete or locative meanings, it belongs to stage 3, while those referring to abstract meanings belong to stage 4. There are some examples of concrete/locative meanings such as words in the target language; information about the author; course in general linguistics (1916); general procedure for collecting data; and video call with your father.

With 43 occurrences across five essays, prepositions other than of (concrete/locative meanings) refer to nouns followed by prepositions like ‘in’, ‘about’, ‘for’ or ‘with’, except for ‘of’. The NPs

attached to it must also have a concrete or locative meaning to them. ‘Words in the target language’, for example, begins with the noun ‘words’, followed by the preposition ‘in’, then with the NP ‘the target language’ to complete the phrase.

Some examples of abstract meanings found in the essays are metaphorical distancing from an idealized conversation space; valuable contributions to the development process; purest grammatical expression in the vocative and imperative; less confident in their perceptions; and major reason for pragmatic failure of culture.

As shown in the examples above, prepositions other than of (abstract meanings) refer to nouns followed by any preposition other than ‘of’, completed with another NP. However, complex NPs belonging to this stage contain an abstract meaning that exists more as a thought than a physical entity. For example, the NP ‘less confident’ precedes the preposition ‘in’, followed by another NP ‘their perceptions’, which is more of a thought than a concrete object.

### *Influence of L1 in L2 writing*

According to Huang and Liao (2002), there are 7 types of noun phrases in Mandarin. They are (1) Nominal joint phrase; (2) Pian Zheng phrase; (3) Appositive phrase; (4) Orientation phrase; (5) Quantifier phrase; (6) “de” phrase; (7) “suo” phrase. Each of these have their Chinese features and cannot be found corresponding to Biber et al. (2011) categories of NP modification. The first one, nominal joint phrase, refers to two nouns/pronouns joined by “and”, like “He and I”. The second one, Pian Zheng phrase, can include “Attributive adjective”, “Possessive nouns as pre modifiers”, “Nouns as pre modifiers”, generally speaking, the modifier and the main nouns of Pian Zheng phrase will be linked by an auxiliary word “de”. The third one, appositive phrase, is different from Appositive noun phrases in Biber et al. (2011). In Biber et al. (2011), appositive noun phrases refer to the full writing of an abbreviation (as the example in Table 1), however, appositive phrase in Mandarin is noun phrase consists of two parts which are different nouns but refer to the same thing and have the same grammatical function, like “Capital Beijing” which consists of “capital” and “Beijing”, and the two nouns refer to the same city in China. The fifth one, quantifier phrase, refers to nouns preceded by number words, like “one person”. The fourth, sixth and seventh phrases are Chinese particular NPs which cannot be found in English.

TABLE 3 NPs in Mandarin and the correspondence with Biber et al. (2011)

NPs in Mandarin	Correspondings in Biber’s	Examples
Nominal joint phrase	/	He and I
Pian Zheng phrase	Attributive adjective/ Possessive nouns as premodifiers/ Nouns as premodifiers	Different meanings/ Jack’s book/ Video call
Appositive phrase	/	Capital Beijing
Orientation phrase	/	/
Quantifier phrase	Attributive adjective	One person
“de” phrase	/	/
“suo” phrase	/	/

As we can see in Table 3, attributive adjectives and nouns as pre modifiers are two of the forms of NPs in Mandarin which was included in the Pian Zheng phrase. This can be a potential reason for why Chinese students have a tendency to use more “attributive adjectives” (47.1%) and “nouns as pre modifiers” (12.2%) compared to other NPs in their English academic writings. With reference to Figure 1, we can know that Chinese students also frequently used “of phrases as post modifiers” which took up 19.7% in all the NPs. Except for the prevalence of “of phrases as post modifiers” in English, L1 influence can also be a potential reason. From Table 3 we can see that there is no corresponding “of phrases as post modifiers” in Mandarin, but the auxiliary “de” in Mandarin has a very similar function with “of” in English which expresses the relationship between a part and a whole. The examples below show the similar function between “of” and “de”.

English		Mandarin
mapping of the structure	=	the structure “de” mapping
weakness of every element	=	every element “de” weakness
verbal structure of a message	=	a message “de” verbal structure

With reference to the above examples, although the meanings of two sides are the same, the place of “a part” and “a whole” is exactly opposite. Therefore, in the process of English study and writing, Chinese students tend to equate “of” with “de” in their L1 thus can easily produce a lot of “of phrases as post modifiers”. This language transfer also has an influence on the use of “possessive nouns as pre modifiers”. Although “possessive nouns as pre modifiers” has its corresponding noun in Mandarin, it only takes 3% in the use of NPs. The reason for this may be as follows: In Mandarin, “de” is also used to express “possessive relation”, for example “Jack’s book” is “Jack de book” in Mandarin. Therefore, Chinese students may also transfer the use of “of” to express “possessive relation” instead of using “possessive nouns as pre modifiers” which leads to a lack of “possessive nouns as pre modifiers” in their writings.

Except for “attributive adjective”, “possessive nouns as pre modifiers”, “nouns as pre modifiers”, and “of phrases as post modifiers” who has similar function with “de”, neither of the noun modification in Biber is corresponding with Mandarin, meanwhile, the percentage of those noun modification are almost all less than 5% (“Prepositions other than of (concrete/locative meanings)” takes 5.1%). Interestingly, the NP correspondences with Mandarin all belong to relatively lower complexity stages in Biber et al. (2011), which are distributed in stage 2 and 3. In addition, we found that, in the lower complexity stages, only two don’t have correspondence in Mandarin which are “Relative clause”(stage 3) and “Prepositions other than of (concrete/locative meanings)”(stage 3), and as expected, the prevalence of these two categories are quite low in Chinese students’ academic writings which take 3.1% and 5.1% respectively. This finding further proves the L1 influence on Chinese students’ writings.

## Discussion

This study has examined the NP complexity of Chinese students in their English academic writing based on Biber et al. (2011) framework, with consideration of L1 influence by referencing the structure of Mandarin NPs in Huang and Liao’s (2002) textbook. Past studies indicated that



proficient users tend to use NPs of higher complexity, but according to our findings, this may not be the case. Despite being competent users of the English language, NPs of higher complexity stages were not found abundantly across all the essays. Complex NPs of the lower stages like attributive adjective (47.1%), nouns as pre modifiers (12.2%), of phrases as post modifiers (19.7%), prepositions other than of (concrete/locative meanings) / (abstract meanings) (5.1% / 4.8%) remained as some of the most-frequently used NPs. NPs of higher complexity were not the dominant form across all the essays, nor were they frequently used by the Chinese students. According to the findings of past studies like Sarte and Gnevshva (2021), this can only mean that the students had a lower proficiency in English, however, this was not the case, as all of them had at least a band 6 in IELTS. If the students were in fact less proficient, relative clause as a stage 3 NP should have appeared more frequently than what was recorded (3.1%) in the current study.

Therefore, our study has compared Mandarin's NP structure with those proposed by Biber et al. (2011). It was found that only a small number of Mandarin NPs follow the grammatical structure of English NPs, and they include NPs of lower complexity like attributive adjective, possessive nouns as pre modifiers, nouns as pre modifiers. The rest of the NPs in Mandarin have their own structure, and do not have correspondence with English based on Biber et al. (2011) framework. As shown in the findings section, NPs like relative clauses (3.1%) and prepositions other than of (concrete/locative meanings) (5.1%) were not found abundantly across our data despite being a low complexity (stage 3) NP. This could be attributed to the absence of these structures in Mandarin, since all the students were competent users in English. Other NP structures in Mandarin that resemble those in English were found frequently in their English writing, including attributive adjectives, of phrases as post modifiers, and nouns as pre modifiers.

## Conclusion

In conclusion, Chinese postgraduate students used complex NPs from every stage according to the framework by Biber et al. (2011). However, attributive adjectives from stage 2, and a few of stage 3 and 4 were used more than the others. Evidence on L1 influence on L2 writing was also found when low complexity NPs (e.g. relative clause) were found to be lacking in English writing since it does not exist in Mandarin, while Mandarin NP structures that could equate to English NPs (e.g. attributive adjective) were used more frequently. Future research can continue to study this phenomenon to determine whether this is also true in students with other L1s, especially those with syntactically different NP structures from English.

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