

A corpus-based study on differences in positions of adverbial clauses between translational and original English

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Abstract. As widely used in natural language, adverbial clauses can convey various semantic meanings with their flexible position. This study chooses the Corpus of Translational English (COTE) and the Freiburg-LOB Corpus of British English (FLOB) as the research corpora to examine the distribution of adverbial clauses of time, place, reason, condition, and concession in COTE and FLOB across different text categories. Results indicate that although adverbial clauses are mainly placed after the main clause in both translational and original English, translational English shows a lower tendency to put adverbial clauses after the main clauses. A few variations in the position of adverbial clauses are observed based on the subordinating conjunctions and the text categories. This research further discusses the factors influencing the position of adverbial clauses, mainly focusing on iconicity of time, iconicity of space, and Mean Dependency Distance (MDD). The findings show that all three factors can be regarded as significant factors, which can be explained by conceptual order, implicit meaning, and working memory load, and also proposed other potential factors.

Keywords: position of adverbial clauses, translational English, original English, COTE and FLOB

1. Introduction

Adverbial clauses are commonly used in natural language, and can convey a variety of semantic meanings including time, place, reason, condition, and so on. Their flexible positioning, occurring either before (initial) or after (final) the main clause, increases the complexity of sentence structures and has thus attracted scholars' attention. Corpus-based research has revealed that adverbial clauses are more frequently placed after the main clause, indicating a general preference for final positioning [1-8].

Scholars have sought to identify the factors influencing the position of adverbial clauses. Among these, the most frequently discussed are "iconicity of time", "iconicity of space", and "dependency distance" [6,9-11]. Researchers connect iconicity of time with the chronological order of an event, iconicity of space with the logical sequence of an event, and dependency distance, proposed by Liu [12], with the linear distance between the governing word and the dependent word. Studies have shown that shorter dependency distances tend to reduce cognitive load, often favoring final clause placement [13,14].

While much of the existing research focuses on adverbial clauses of time and adopts a second language acquisition perspective [15-17], fewer studies examine the distribution and influencing factors of various adverbial clause types in translational English. Therefore, this study seeks to fill this gap by comparing the positioning of adverbial clauses in original English and translational English across four genres. To achieve the above goals, the study addresses the following research questions: (1) What is the distribution of various types of adverbial clauses in both original English and translational English across 4 genres (initial, final)? (2) How iconicity of time, iconicity of space, as well as mean dependency distance, influence positions of adverbial clauses?"

2. Methodology

2.1. Corpora used and tools

This study adopted a corpus-based method, employing empirical research based on two corpora: FLOB (The Freiburg – LOB Corpus of British English) and COTE (The Corpus of Translational English). FLOB consists of 500 texts of about 2000 words each, covering 15 text categories across four genres: Press, General Prose, Learned, and Fiction. COTE is a matched corpus

containing 500 translational English texts with identical genre and category distribution, enabling direct comparison between native and translational English. Table 1 lists the genres and number of texts in COTE and FLOB.

Table 1. The genres and number of texts in COTE and FLOB [18]

COTE (The Corpus of Translational English) & FLOB (The Freiburg – LOB Corpus of British English)			
Genre	Category	Content	Number of texts
Press	A	Reportage	44
	B	Editorial	27
	C	Review	17
General Prose	D	Religion	17
	E	Skills, trades and hobbies	38
	F	Popular lore	44
	G	Belles Lettres, biographies, essays	77
	H	Miscellaneous	30
Learned	J	Science	80
Fiction	K	General fiction	29
	L	Mystery and detective fiction	24
	M	Science fiction	6
	N	Adventure and Western	29
	P	Romance and love story	29
	R	Humor	9
Total			500

This study employed the research tool PowerGrep 4, an advanced research tool that facilitates large-scale data retrieval via regular expressions, to extract corpus data. This study also utilized SPSS, a data management and analysis software package, to examine the significance of each factor influencing the positions of adverbial clauses.

2.2. Data collection and analytical techniques

This paper referred to Quirk et al., Biber et al., Liu, Wu, Halliday, and Cobuild's classification of adverbial clauses as well as the real situation of research corpora, focusing on the study of adverbial clauses of time, place, reason, concession, and condition [2,3,7,8,19,20]. The selection of subordinating conjunctions for adverbial clauses was guided by Diessel's two reasons, which are first, these conjunctions are among the most frequent in English, and second, they hold particular semantic interest for the study's purpose [6].

The study first conducted an overview examination of the frequency of subordinating conjunctions in both corpora and then manually distinguished their specific usages to ensure semantic consistency. For instance, "since" could introduce both adverbial clauses of time and adverbial clauses of reason. Upon completing these two steps, the study ultimately determined the subordinating conjunctions for each type of adverbial clause.

To analyze the factors influencing clause positioning, a representative sample of adverbial clauses was selected from both corpora across genres. The main factors examined in this study were iconicity of time, iconicity of space, and Mean Dependency Distance (MDD). For iconicity of time, the study labeled adverbial clauses as "prior" (the subordinate event happened prior to the main event), "simultaneous" (the subordinate event happened at the same time as the main event), and "posterior" (the subordinate event happened posterior to the main event). For iconicity of space, the research labeled the adverbial clauses as "ground" (the event in the subordinate clause is the cause or premise of the main clause), and "figure" (the event in the subordinate clause is the result of the main clause). Additionally, the study calculated the mean dependency distance, the linear distance between the governing word and the dependent word, for the extracted adverbial clauses.

The resulting data were statistically analyzed using SPSS. The study adopted binary logistic regression to test the significance of each factor's influence on the positioning of adverbial clauses. A significance level of $p < 0.05$ was used to determine statistical relevance.

3. Position of adverbial clauses

3.1. Distribution among different types of adverbial clauses

The study focuses on five types of adverbial clauses, which are adverbial clauses of time, place, reason, concession, and condition, with reference to Quirk et al., Biber et al., and Liu's classification of adverbial clauses. The positions of adverbial clauses are categorized as initial, and final clauses [2,3,19]. The distribution of these adverbial clauses in COTE and FLOB is detailed in Table 2.

Table 2. Distribution of adverbial clauses in COTE and FLOB

Type of Adverbial Clause	Initial		Final		Total	
	COTE	FLOB	COTE	FLOB	COTE	FLOB
Time	1264	747	2382	2311	3646	3058
	34.67%	24.43%	65.33%	75.57%	100.00%	100.00%
Place	128	137	513	485	641	622
	19.97%	22.03%	80.03%	77.97%	100.00%	100.00%
Reason	378	201	1176	789	1554	990
	24.32%	20.30%	75.68%	79.70%	100.00%	100.00%
Condition	907	945	1320	1389	2227	2334
	40.73%	40.49%	59.27%	59.51%	100.00%	100.00%
Concession	541	541	643	900	1184	1170
	45.69%	37.54%	54.31%	62.46%	100.00%	100.00%

Adverbial clauses in both COTE and FLOB are predominantly found in final positions, which is consistent with the findings of Ford, Biber et al., and Diessel [1-6]. Among the five clause types, adverbial clauses of concession constitute the largest proportion of initial adverbial clauses in COTE, while adverbial clauses of condition account for the largest percentage of initial adverbial clauses in FLOB. Within final adverbial clauses, clauses of place are most prevalent in COTE, whereas clauses of reason are most common in FLOB. Notably, only adverbial clauses of place appear more frequently in the final position in COTE than in FLOB. Moreover, the distribution of conditional clauses is nearly identical across both corpora. In contrast, time clauses in COTE show a 10.24% lower rate of final positioning compared to FLOB.

These findings indicate that although translators tend to maintain the target language's native preference for placing adverbial clauses after the main clause, there are still discrepancies noted in the adverbial clauses of place.

3.2. Distribution among different subordinating conjunctions

The choice of subordinating conjunctions is based on their frequency and semantic relevance [6], as well as their representation in the corpora.

For adverbial clauses of time, six conjunctions were selected: when, after, before, until, since, and while. In both corpora, adverbial clauses of time introduced by these conjunctions overwhelmingly favor the final position, especially those led by "until" (89.06% in COTE, 90.16% in FLOB). The only exception is the "after" clause in COTE, which slightly favors the initial position (50.20%). In contrast, "when" clauses occur most frequently in the initial position in FLOB (30.07%). Generally, final adverbial clauses are more dominant in original English than in translational English. For example, "after" and "before" clauses appear significantly more often in the final position in COTE than in FLOB.

For adverbial clauses of place, the study took "where" as the sole subordinating conjunction. Both COTE and FLOB display strong final placement preferences (80.03% in COTE and 77.97% in FLOB), with COTE showing a higher percentage.

For adverbial clauses of reason, the subordinating conjunctions "because" and "since" are compared. Both in COTE and FLOB, "because" clauses exhibit a strong final tendency (over 80%), more than "since" clauses. Furthermore, FLOB demonstrates a stronger preference for the final position across both subordinating conjunctions.

For adverbial clauses of condition, those introduced by "if" and "unless" show a preference for the final position in both corpora. However, "unless" clauses have a higher inclination toward the final position than "if" clauses. Moreover, the distribution of "if" clauses is nearly identical between COTE and FLOB.

Adverbial clauses of concession introduced by "although", "though", and "while" are generally found in the final position. However, "although" clauses tend to occur more frequently in the initial position, especially in COTE (55.32%). The most striking difference lies in the "though" clauses, where COTE favors final positioning (51.97%) less than FLOB (68.12%).

In summary, all types of adverbial clauses introduced by the subordinating conjunctions are primarily placed after the main clause. However, the proportion of the final clauses varies among different conjunctions even within the same type of adverbial

clauses.

3.3. Distribution among different text categories

The study compares the position of adverbial clauses across four major genres: Press, General Prose, Learned, and Fiction.

Across all genres in both corpora, final adverbial clauses dominate. The Press genre has the highest proportion of final clauses in both corpora, while the highest frequency of initial clauses is found in the General Prose genre in COTE and the Learned genre in FLOB. Compared to FLOB, COTE consistently displays a higher proportion of initial clauses and a lower proportion of final clauses across all genres except Learned. The smallest differences between COTE and FLOB appear in the Press and Learned genres, while the largest discrepancy is found in General Prose.

Final adverbial clauses of time are significantly more frequent in FLOB across all genres. For instance, in the Press genre, final adverbial clauses of time account for 81.91% in FLOB but only 72.01% in COTE. Similarly, final adverbial clauses of reason in General Prose are 10.70% more frequent in FLOB. Fiction displays a striking 19.14% higher frequency of final adverbial clauses of concession in FLOB than in COTE.

By contrast, adverbial clauses of place and condition appear more frequently in the final position in COTE. Notably, in the Press genre, final adverbial clauses of condition in COTE exceed those in FLOB by 12.10%, further suggesting variation in clause positioning between translational and original English.

Overall, the results indicate a shared tendency toward final positioning across genres, but genre-specific differences do exist.

4. Factors influencing the position of adverbial clauses

This study conducted a sampling analysis and focused on subordinating conjunctions with significant positional variations between translational English and original English. Thus, the research selected subordinating conjunctions “after”, and “before” from adverbial clauses of time, “since” from adverbial clauses of reason, “if” from adverbial clauses of condition, and “although” and “though” from adverbial clauses of concession. Building upon this, the study extracted one-third of the sentences from texts containing more than 500 adverbial clauses as the sampled data, and retained all the sentences from texts containing less than 500 adverbial clauses. The sampling quantity results are presented in Table 3.

Table 3. The sampling quantity of adverbial clauses in COTE and FLOB

Type of Adverbial Clauses	Subordinating Conjunction	Sampling Quantity	
		COTE	FLOB
Adverbial Clauses of Time	after	165	217
	before	233	321
Adverbial Clauses of Cause	since	486	248
Adverbial Clauses of Condition	if	700	732
Adverbial Clauses of Concession	although	405	169
	though	328	435

This study examined the data from three dimensions: iconicity of time, iconicity of space, and mean dependency distance, clarifying their impact on the position of adverbial clauses.

Iconicity of sequence refers to the sequential ordering of linguistic elements in discourse and complex sentences [6]. According to iconicity of time, adverbial clauses were labeled as “prior”, “simultaneous”, or “posterior” depending on whether the event described in the adverbial clause occurred before, during, or after the main clause event. Scholars proposed that the adverbial clause is likely to be placed after the main clause when the event it denotes occurs posterior to the event in the main clause. (Diessel, 2008; Ouyang & Jiang, 2023a) [6, 11]. Binary logistic regression analysis confirms that iconicity of time significantly predicts the position of adverbial clauses in both COTE ($p < .01$, $OR = 1.295$, 95% CI [1.122, 1.492]) and FLOB ($p < .01$, $OR = 1.889$, 95% CI [1.669, 2.139]), aligning with the findings from studies in second language acquisition that emphasized iconicity of time as a significant factor which can influence the position of adverbial clauses [10,14,16].

Iconicity of space originates from Figure-Ground theory, which suggests that the events in subordinate clauses are often premises or causes of the events in main clauses, so subordinate clauses correspond to the ground, while main clauses correspond to the figure, and in English, the figure precedes the ground [21]. This study categorized adverbial clauses based on whether the events in the adverbial clauses function as premises/causes (labeled as “ground”) or results (labeled as “figure”) of the events in the main clauses. Most clauses in both translational English and original English were labeled as “ground”, reflecting their role as premises or causes for the events in the main clause. Accordingly, the final adverbial clause occupies the most prominent place among adverbial clauses, in accordance with the principle that in English, the figure precedes the ground [21]. The result of

binary logistic regression analysis indicates that iconicity of space significantly predicts clause positioning in both COTE ($p < .05$, $OR = 1.385$, 95% CI [1.058, 1.813]) and FLOB ($p < .01$, $OR = 0.707$, 95% CI [0.568, 0.880]).

As Diessel proposed “the conceptual order is inferred from the meaning of the whole sentence because the conjunction itself does not express a particular order”, the subordinating conjunctions chosen in this study also have strong conceptual order [6]. For instance, “after” clauses usually refer to a prior event that precedes the events that happened in main clauses. “Before” clauses, in contrast, mainly refer to a posterior event that happened after the events happened in the main clauses. Implicit meaning can also help to explain why iconicity of sequence can play a significant role in clause positioning. Conditional clauses with an implicit conditional meaning usually precede the main clauses, and causal and purposive clauses with an implicit causal or purposive meaning are mostly placed after the main clauses [6]. The study chose five types of adverbial clauses and three of them are adverbial clauses of cause, condition, and concession, which all have implicit meanings. Due to the selection of certain types of adverbial clauses and subordinating conjunctions, conceptual order and implicit meaning can explain why these factors influence the positioning of adverbial clauses.

Dependency Distance is the linear distance between two words in a sentence that bear syntactic relations [12]. According to Ouyang and Jiang [14], the dependency distance of an adverbial clause refers to the linear distance between the governing verb of the main clause and the subordinate verb of the clause. In both COTE ($p < .01$, $OR = 1.845$, 95% CI [1.510, 2.253]) and FLOB ($p < .01$, $OR = 1.662$, 95% CI [1.393, 1.984]), MDD can be regarded as a significant factor which can influence the position of adverbial clauses. In cognitive science, dependency distance is widely regarded as a measure of working memory load [22]. Under the combined influence of grammar and cognition, people tend to use sentences with shorter dependency distances to reduce the burden of working memory. The length of adverbial clauses placed before the main sentence should be shorter than those placed after the main sentence [5]. This tendency is reflected in both COTE and FLOB where in sentences with shorter mean dependency distance, the tendency of clauses in initial positions slightly increased.

Moreover, the traits of text categories may also have an impact on the position of adverbial clauses. The Press genre covering reportage, editorials, and reviews, is a typical informative text. Under huge time pressure and the responsibilities of the media they represent, the translators, especially those who are novices, may choose to stay close to the surface structures of the original texts or the guidelines provided by the news agencies [23]. This approach helps prevent the distortion of meanings or unintended interpretations, and may explain why the discrepancy in the proportions of initial, and final adverbial clauses between translational English and original English is the smallest in the Press genre compared to other text categories.

Xu & Li also found that numerous syntactic complexity indices of translational English fiction texts are significantly more complex than original English texts [23]. Additionally, translators must produce texts that carry literary merits of their own, a work that is “designed to be read as literature”. Thus, translators tend to add paraphrastic elements to achieve the effects of the original text, and this indicates that translational English fiction can be regarded as the main contributor to the syntactic complexity of translational English. This practice might explain why the Fiction genre, more than other text categories, exhibits the greatest discrepancy in the proportions of initial, and final adverbial clauses between translational English and original English.

5. Conclusion

In terms of the distribution of various types of adverbial clauses in both original English and translational English across 4 genres (Press, General Prose, Learned, and Fiction), adverbial clauses are predominantly placed after the main clause. With the exception of final adverbial clauses of place, translational English has a lower percentage of final adverbial clauses of time, cause, condition, and concession when compared to original English. Moreover, the proportion of final adverbial clauses varies between different subordinating conjunctions. With a tendency for placing adverbial clauses after the main clauses, iconicity of time, iconicity of space and MDD are found to have significant impact on the positions of adverbial clauses. The study also figure out how the traits of text categories and syntactic complexity indices of certain texts.

There are at least some restrictions on the findings. Firstly, not all potential conjunctions that can affect where adverbial clauses are positioned are included in the predetermined choosing of subordinating conjunctions in the study. Second, not all possible linguistic impacts are taken into account. Subsequent studies could surmount these shortcomings by taking more subordinating conjunctions in order to figure out more linguistic symptoms, and taking more translation-related factors, such as translators’ skills and background, into consideration. Thus, they could provide a more in-depth and comprehensive understanding of the position of adverbial clauses between translational and original English.

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