The Ordering Distribution and Competing Motivation of Evidential and Logical Causal Clauses in English and Chinese

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ABSTRACT

The ordering distribution of causal adverbial clauses in English and Chinese differs due to distinct factors, with English clauses tending to appear finally and Chinese clauses initially. This study aims to analyze the ordering distribution of logical and evidential causal clauses in English and Chinese using Diessel's competing motivation model, investigating the interplay of semantic forces, syntactic processing, and discourse pragmatics. A corpus-based analysis was conducted on 800 sentences from the British National Corpus and the Lancaster Corpus of Mandarin Chinese, focusing on four causal subordinators in each language. The results reveal a clear cross-linguistic distinction: In Chinese, evidential causal clauses occur initially at 82.5%, driven by iconicity and discourse coherence, while logical causal clauses show a lower initial occurrence rate of 67.3%. Conversely, English causal clauses tend to occur in final positions, with evidential clauses at 91.66% and logical clauses at 84.2%, due to the relative semantic independence, functioning as independent processing units. The ordering distribution reflects competing motivations: Chinese prioritizes iconicity and discourse coherence, while English emphasizes syntactic independence and processing ease. The study provides new insights into the interaction of semantic, syntactic, and pragmatic forces in shaping clause positioning across languages.

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1. INTRODUCTION

This study explores the difference in ordering distribution and their competing motivation model of causal adverbial clauses in English and cause-effect complex sentences in Chinese under the logical and evidential frameworks, focusing on two types of causal clauses: logical causal clauses and evidential causal clauses. In Chinese, cause-effect complex sentences consist of a cause complex as a subordinate clause followed by a main clause. Logical causal clauses represent the objective causality of events, while evidential causal clauses provide the evidence that enables the speaker to make such a statement (Qiaoyun, 2004). The evidential causals are greatly different from the logical ones in such respects as meaning, relationship, structure and syntactic function.

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Since the 1970s, research on the positional distribution of main and subordinate clauses has expanded significantly. Scholars such as Diessel (2005) and Hetterle (2011) have examined the placement of causal adverbial clauses in English and Chinese, focusing on factors like conjunction usage, grammatical structure, and pragmatic influences. Additionally, studies by Abraham (1991) and Yu (2006) have highlighted the dominant positional patterns in these languages, with findings showing that English typically places causal clauses in final positions, while Chinese prefers initial positioning. Recent studies, including Ai and Jin (2020), have confirmed these cross-linguistic tendencies and focused on analyzing the syntactic, pragmatic, and discourse factors contributing to these distributions. However, a critical gap remains in exploring the influence of semantic cause-effect relationships, particularly the distinctions between evidential and logical causality, on the distribution of these clauses. This underexplored area is essential for understanding the deeper mechanisms shaping clause positioning across languages.

To address this gap, this study, based on Diessel's (2005) competing motivation model, examines the influence of evidential and logical causes on the ordering distribution of causal adverbial clauses at the semantic level, alongside syntactic processing and discourse pragmatic forces. It investigates the specific competing patterns between these factors. The study focuses on English and Chinese causal clauses due to their shared characteristics of mixed clause distribution (pre-posed and post-posed) and the complexity of semantic features in causal clauses. To guide this research, the following questions are examined:

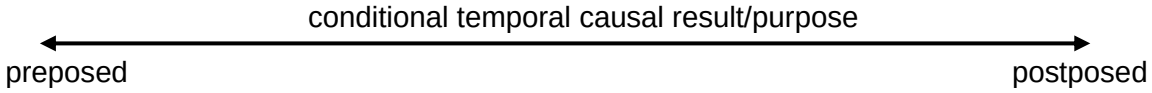
1. Do evidential and logical causal adverbial clauses exhibit different positional tendencies in English and Chinese?
2. What factors contribute to the different positional distributions of causal adverbial clauses in English and Chinese?
3. Is the competing motivation model consistent in the positional distributions of causal adverbial clauses in English and Chinese?

2. LITERATURE REVIEW

Greenberg (1963) proposed that in OV languages (Object-Verb order languages), pre-posed to the main clause is the dominant position for subordinate clauses. According to Diessel (2001), VO-type languages exhibit a coexistence of pre-posed and post-posed for subordinate clauses, while the majority of OV languages tend to prepose subordinate clauses. In other words, in OV languages, the ordering distribution between the main and subordinate clauses is relatively fixed, resulting in higher consistency. In contrast, in VO-type languages, there is more flexibility in the ordering distribution between the main and subordinate clauses.

Chinese, as a typical mixed-type language with both VO and OV characteristics (Lixin, 2016), exhibits certain tendencies in subordinate clause positioning while also maintaining its own flexibility. English, as a VO language, possesses a flexible subordinate clause position. Therefore, the differing degrees of positional pattern in the two languages render the investigation of subordinate clause positioning tendencies and their underlying competing motivation valuable. Diessel (2001) proposed an ordering hierarchy regarding the degree of pre-posed in languages using preposed subordinating conjunctions. Diessel (2005) conducted research on the positional distribution of five common adverbial clauses in English and summarized an ordering hierarchy: conditional clauses precede the main

clause more often than temporal clauses, which in turn are more often preposed than causal, result, and purpose clauses. Ai and Jin (2020) verified the ordering hierarchy proposed by Diessel through a comparative analysis of subordinate clause distribution in English and Chinese. The main difference between the two lies in the tendency for initial occurrence in Chinese and final occurrence in English.



2.1 Ordering Distributions of Causal Clauses

For English adverbial causal clauses, scholars such as Quirk (1985) have proposed that the position of the clause correlates with the subordinator used to introduce it. Quirk analyzed that different causal subordinators result in different distributions of clause positions. Additionally, some scholars have explored how Chinese learners are influenced by their native language concepts in the distribution of adverbial clause positions from a second language acquisition perspective (Qi & Wei, 2023). Regarding Chinese causal complex sentences, early research (Abraham, 1991; Kirkpatrick, 1993) suggested that they adhere to a logical sequence of cause and effect. Yu (1999, 2002) explained the tendency for pre-posed and post-posed in written and spoken Chinese, respectively, through information structure and speaker-listener interaction mechanisms. Further investigation by Zuoyan and Hongyin (2008) based on corpus data concluded that the majority of adverbial clauses in Chinese causal complex sentences are preposed. Guo Linlan (2018) analyzed significant differences in the position of adverbial causal clauses between English and Chinese from a statistical perspective.

The motivation behind the distribution of main and subordinate clause positions is mainly discussed from three perspectives: discourse pragmatic function (new and old information, focal information), cognitive semantics (iconicity of sequence and semantic features of the clause itself), and syntactic processing (position of conjunctions and clause length). According to Diessel (2005)'s model of competing forces in clause positioning, syntactic processing suggests that clauses with preposed subordinators result in the lowest processing difficulty due to the principle of early recognition of direct elements and the ratio of direct elements to words. In terms of discourse pragmatic force, some clauses are preposed due to factors like their "topic." Pragmatic factors such as discourse strategies also influence language structure (Diessel & Hetterle, 2011). Semantically, the principle of iconicity is used to explain the order of conditional and temporal clauses (Yunhua &Chunfang 2016). Tongxi (2014) analyzed the distribution patterns of English and Chinese clauses based on discourse information function, considering clauses as "background" and main clauses as "foreground" with respect to new and old information.

2.2 Evidential Causals and Logical Causals

The causal relationship between main and subordinate clauses is generally classified into the direct motivation-consequence relationship and the indirect proposition-support relationship. Quirk (1985) holds that causal relationships can be classified as direct and indirect reasons. Sweetser (2002) categorizes causal relationships into three domains: content, knowledge, and speech act. Qiaoyun (2004, 2007, 2008) differentiates between

"logical causal clauses" and "evidential causal clauses" in English, where logical causal clauses represent objectively existing relationships between causes and effects, while evidential causal clauses explain the reasons (or conditions) for speaker's utterances based on evidence. She also puts forward the process of abduction, formation mechanism, and construal mechanism to complete the description of evidential causal clauses (Qiaoyun, 2010). From a cognitive grammar perspective, Baoyi (2006) summarizes them as objective causal clauses and subjective causal clauses. Renfei (2009) further classifies Chinese causal complex sentences into explanatory causal relationship and inferential causal relationship. Additionally, some scholars (Wencheng& Chaoyi, 2023) have analyzed that Chinese causal constructions highlight the objective causal relationship between main and subordinate clauses, while English causal constructions emphasize the subjective cognitive relationship between the speaker and events, possessing subjective semantic characteristics.

In conclusion, research on the position of adverbial causal clauses in English and Chinese covers multiple dimensions such as grammar, semantics, statistics, and second language acquisition, providing comprehensive perspectives for a deeper understanding of this linguistic phenomenon. However, there are still aspects that require further exploration, particularly regarding semantic motivations behind the distribution of causal adverbial clauses. The semantic features of causality between the main and subordinate clauses have not been thoroughly studied, and there has been limited investigation into the specific comparison between evidential and logical causal clauses in Chinese and English, as well as the impact of these semantic differences on the distribution of clause positions. Investigating these two types of causal logic relationships can lead to a better understanding of the distribution patterns of subordinate clauses.

3. METHOD

Diessel (2005) argues that the positional patterns of adverbial clauses are motivated by a competing motivation framework. Specifically, it is shown that the final occurrence of adverbial clauses is motivated by syntactic processing, while the initial occurrence results from semantic and discourse pragmatic forces that may override the syntactic processing force. However, semantic forces may have different positional effects in main and subordinate clauses. Therefore, this study will analyze the role of the cause-effect relationship between evidential and logical as the positional determinants.

3.1 Data Collection

The British National Corpus and the Lancaster Corpus of Mandarin Chinese each provided 800 sentences, categorized into logical causal clauses and evidential causal clauses for analysis. In English, four causal subordinators will be selected based on the descending order of frequency (Xi & Deng, 2020), namely *because, for, since*, and *as*. For Mandarin Chinese, four commonly used causal conjunctions are selected: *yinwei* (because), *youyu* (due to), *zhengshiyinwei* (precisely because), and *jiran* (since) (Renfei, 2009). Each conjunction contributed 100 sentences, resulting in 400 sentences for both English and Mandarin Chinese.

In Chinese, the causal subordinators *yinwei* (because), *youyu* (due to), *zhengshiyinwei* (precisely because), and *jiran* (since) serve distinct functions in expressing causal relationships. *Yinwei* is a commonly used and neutral causal conjunction, suitable

for both spoken and written language, emphasizing direct cause and effect. *Youyu* has a more formal tone and is typically used to express external, objective causes, often found in written language contexts. *Zhengshiyinwei* highlights the decisive role of a specific cause in the causal relationship, commonly used to emphasize the importance of the reason in a particular context. *Jiran* emphasizes an already known premise or background, often used to set up reasoning or actions, and expresses inference based on a given fact.

Exclusions for statistical analysis included the following sentences: (i) sentences with only subordinate clauses and no main clause present, as in (1); (ii) subordinate clauses lacking finite verbs, as in (2) and (3); (iii) main and subordinate clauses connected by a period, as in (4) and (5); (iv) causal clauses positioned in the middle of the sentence, as in (6); and (v) causal clauses where both main and subordinate clauses were paired with coordinating conjunctions, such as *yinwei … suoyi …*. This sentence structure was excluded as it followed a fixed word order of cause preceding effect, which did not exist in English.

(1) Well *because* he will say nothing.
(2) This “explosion” of Internet usage is created in part *because of* the wide availability.
(3) *Zhèngyīnwèi* chángqīyǐláide jiānchíbùxiède nǔlì,
[due to over the long term arduous and unremitting efforts.]
Zhōngguó tiàoshuǐ cáiyǒule jīntiānde huīhuāng.
[China’ diving resulted in today's splendor.]

Interpretation: Due to the arduous and unremitting efforts over the long term, China's water management has resulted in today’s splendor.

(4) And uh, he seeks us. *Because* we seek him.
(5) Zán bié lǐhuì tā le. *jìrán* dōu zhèyàng le.
[We don't pay attention to her PERFECTIVE since all like this PAST.]
Interpretation: Let's not bother with her anymore since it's come to this.
(6) I decided to stay home and rest, *because* I had been feeling exhausted lately, and I needed some time to recharge.

3.2 Annotation System of Logical and Evidential Causals

Based on relevant literature and selected corpus, this study establishes an evidential-logical causal clause classification system (see Table 1) and uses this system for corpus annotation and analysis.

Primary classification: For the sake of semantic similarity and statistical refinement, this study constructs classification criteria by combining the classifications of previous studies (Quirk et al., 1985; Hui & Jiajin, 2022) with the corpus data. Evidential causals express indirect reasons, and the relationship between the evidential causal clause and the main clause follows a support-proposition pattern, as in sentence (7). Logical causals express direct reason, and the relationship between the logical causal clause and the main clause follows a motivation-consequence pattern, as in sentence (8).

(7) He is absent today *because* his mother told me so.
(8) The flowers are growing so well *because* I sprayed them.

Secondary classification: Based on observations of the corpus, it is found that logical causals also exhibit evidential phenomena similar to evidential causals. Zhenhai (2015)

divides evidential linguistic elements into perception, inference, and hearsay. Logical causals can also contain evidential linguistic elements. For example, evidentiality of hearsay mainly expresses “third-hand” information or highly authoritative sources that may or may not specify the source. In sentence (9), the logical causal provides a direct reason, which may be based on some investigative data or widely accepted facts, both of which can be considered “third-hand” information, fitting the characteristics of hearsay.

(9) CHELTENHAM / Gloucestershire Cheltenham Borough Council is shedding thirteen jobs from its treasury department *because* there is less work with the new council tax than with the poll tax.

Both evidential causals and logical causals share the feature of evidentiality, so this study uses the same secondary annotation classification for both types of sentences. Based on the characteristics of logical and evidential causals and the process of abduction (Qiaoyun, 2007), this study identifies four features: ordering distribution, semantic function, perspective, and pragmatic function. A system to annotate the data is shown in Table 1. (i) Ordering distribution only considers the cases of initial occurrence and final occurrence in this study. (ii) According to the speaker's intention, the semantic function of the causal clause to the main clause can be divided into explanatory, supplementary, inferential, and conditional. (iii) According to the perspective from which the causal clause is elaborated, it can be divided into subjective or objective. (iv) According to the speaker's experiential framework, the pragmatic function of the causal clause was categorized as content (indicating the expression of events or entities in the objective world), knowledge (indicating the expression of the speaker's viewpoint, thoughts, or judgments), or speech act (indicating the causal clause is used to accomplish a certain communicative purpose) (Sweetser, 2002).

Table 1
Annotation system of logical and evidential causals

Primary Classification		**Secondary Classification**			
Evidential Causals	Logical Causals	Ordering Distribution	Semantic Function	Perspective	Pragmatic functions
Direct (motivation-consequence)	Indirect (support-proposition)	Initial Final	Explanatory Supplementary Inferential Conditional	Subjective Objective	Content Knowledge Speech act

4. RESULTS AND DISCUSSION

Through further statistical analysis of the positional patterns of main and subordinate clauses in the valid corpus, the overall positional distribution of causal clauses in both English and Chinese is obtained, as shown in Table 2.

Table 2
Overall positional distribution

Ordering	**Chinese Frequency**	**Chinese Percentage**	**English Frequency**	**English Percentage**
Initial occurrence	252	79.5%	46	13.4%
Final occurrence	65	20.5%	298	86.6%

The data indicate that initial occurrence is used more frequently in causal clauses in Chinese, whereas final occurrence is used more frequently in causal clauses in English. The dominant positional distribution for causal clauses in English is the final occurrence. Some studies (Diessel & Hetterle, 2011) have pointed out that the final occurrence of causal clauses is a universal pattern in human languages. The data from this study confirm that causal clauses in English adhere to the universal pattern of being placed in final occurrence. However, there is no consensus on the positional pattern of causal clauses in Chinese. Some research (Abraham, 1991; Kirkpatrick, 1993) suggests that the Chinese tend to use the "cause-effect" initial ordering pattern to express causality, while other studies (Yu, 2006) indicate that the positional pattern of Chinese causal clauses is influenced by register, leaning slightly towards initial occurrence in written language and final occurrence in spoken language. In the absence of a distinction between registers in the data of this study, causal clauses in Chinese exhibit a tendency towards initial occurrence.

Based on Diessel's (2005) competing motivations framework, three factors influence the position of subordinate clauses, i.e., discourse pragmatic forces, syntactic processing force, and semantic force. Discourse pragmatic forces lead to the initial occurrence, while syntactic processing force leads to the final occurrence, and the semantic force has different positional tendencies in different situations. Based on two dominant patterns of Chinese and English, semantic force serves as the pre-posed motivation in Chinese causal clauses and the post-posed motivation in English causal clauses.

4.1 The Positional Difference Between Chinese Evidential and Logical Clauses

Based on the causal relationship between the main clause and the subordinate clause, this study categorizes causal clauses into evidential clauses and logical clauses. To compare the differences in the ordering distribution of these two types of causal clauses in Chinese, this study conducted a statistical analysis of their respective distribution patterns, as shown in Figure 1.

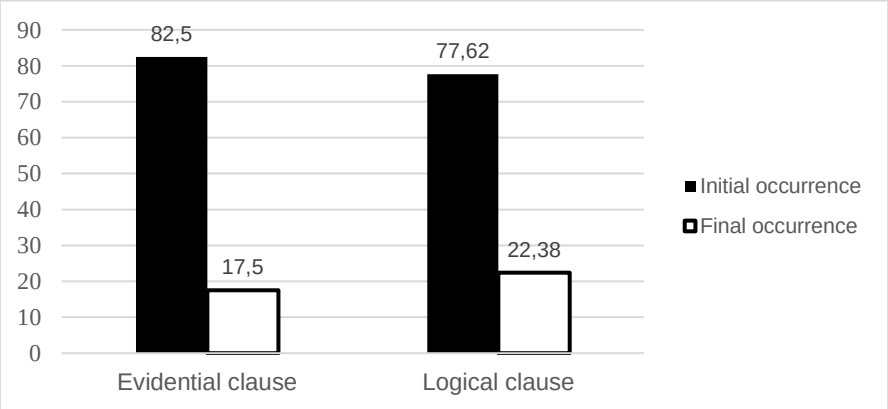


Fig. 1. Mean proportions of the ordering of Chinese evidential and logical clause

As can be seen in Figure 1, in both evidential and logical clauses, initial adverbial clauses are more frequent than final adverbial clauses. A larger proportion of initial clauses is found in evidential clauses, where an average of 82.5 percent of all evidential clauses precede the main clause. Logical clauses precede the main clause less frequently. However, A Mann-Whitney U test performed on the proportions of initial adverbial clauses in the two

groups reveals only a trend (Z = -0.587, p = 0.561). Overall, while both tend to occur predominantly before the main clause, evidential clauses exhibit a higher degree of initial position compared to logical clauses, but the difference is relatively small.

Diessel (2008) conducted a corpus-based study on the position of temporal adverbial clauses in English. The study found that the sequence of clauses in complex sentences conforms to the iconicity of the sequence principle (Yin, 1999). Similarly, causal clauses denote an event that logically precedes the one in the main clause (Jiaxuan, 1993). In logical sentences, the logical cause serves as motivation, directly leading to the expected outcome of the activity, and the causal event precedes the result event. The same iconic order of the described event can be reflected in the linear clause order in logical sentences. Thus, iconicity can be a persuasive factor motivating the strong tendency for logical causal clauses to occur initially. However, because the iconicity factor interacts with two other factors—discourse pragmatics and syntactic processing, there are logical clauses that do not follow the iconicity principle.

Unlike logical clauses, where the cause directly leads to the consequence, the cause in evidential clauses is not the direct motivation of the result event. Instead, evidential causes are generated through a mechanism of retroactive causality, serving as support for the speaker's proposition (Qiaoyun, 2008). Thus, the initial tendency of evidential causal clauses cannot be explained by the iconicity of sequence. According to the autonomy-dependence formation mechanism of causal clauses, evidential causal clauses are dependent. In contrast, logical causal clauses are automatic, indicating that evidential causal clauses are more dependent on the main clause and have a higher degree of cohesion with the main clause. In evidential sentence (10), clause A creates a thematic link for the main clause, and its indirect evidential clause is dependent on the proposition of the main clause. Specifically, once the setting of the episode in the main clause is removed, the logical structure of the physical world cannot be inferred from the linguistic structure of the evidential clause. Sentence (10) is reanalyzed to derive its logical causal clause B, which provides the direct motivation for the outcome.

Even if the main clause is removed, it is still possible to infer the logical structure of the physical world from the linguistic structure of the logical clause. Thus, the logical reason clause is independent. Diessel (2008) suggests that initial adverbial clauses and the main clause are more tightly integrated and are typically treated as a single processing unit, whereas final adverbial clauses are often processed as two separate elements. If the subordinator of Clause A is removed and it is separated from the main clause to become ‘I work night shifts. My taxi has become a mobile confessional,’ then the causal relationship between the two sentences will no longer exist. This indicates the high dependency of the evidential causal clause on the main clause. However, in the sentence ‘The nighttime taxi provides a relaxing environment for passengers to share their thoughts. My taxi has become a mobile confessional,'' there is still an implicit causal relationship, which shows that the logical causal clause has a lower dependency on the main clause. Thus, the high dependency on the main clause makes evidential causal clauses tend to be preposed, forming a single processing unit with the main clause. Alternatively, logical causal clauses, being a more independent unit, tend to be preposed less than evidential clauses. Thus, the high dependency with the main clause results in the high preposed tendency of evidential causal clauses in Chinese.

(10) Yóuyú wǒ shàng yèbān, wǒde chūzūchē jiù chéngwéi yī liàng liúdòngde …
[Because I work night shifts my taxi just become a mobile …]
chanhuishi.
[confessional.]
Interpretation: Because I work night shifts, my taxi has become a mobile confessional.

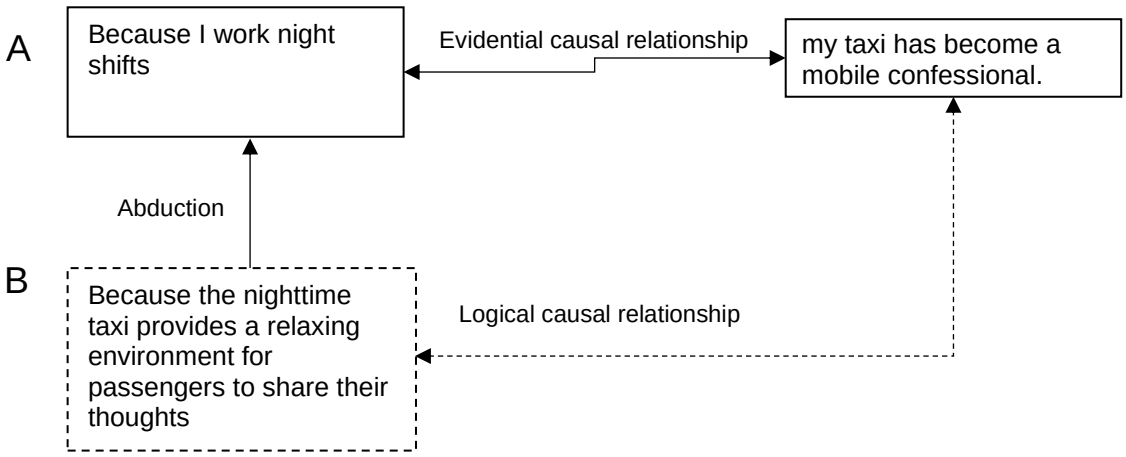


Fig. 2. The causal relationship of evidential clause and logical clause

4.2 The Ordering Distribution of Chinese Causal Clauses by Different Subordinators

The four causal subordinators in Chinese are classified and statistically analyzed for their distribution of causal clauses. Table 3 presents the distribution of positional patterns in causal clauses introduced by four subordinators.

Table 3
Proportion of ordering of four Chinese subordinators

	Initial Evidential clause	**Final evidential clause**	**Initial logical clause**	**Final logical clause**
yinwei [because]	50	50	33.9	66.1
youyu [due to]	80	20	90.9	9.1
jiran [since]	100	0	95.8	4.2
zhengshiyinwei [precisely because]	100	0	89.8	10.1

The data shows that the initial evidential clauses and logical clauses led by *yinwei* are less frequent compared to other subordinators. Specifically, 50% of evidential clauses and 33.9% of logical clauses led by *yinwei* are preposed, indicating a flexible ordering pattern. In contrast, clauses of *youyu, jiran*, and *zhengshiyinwei* show a strong tendency for initial occurrence. Except for *youyu*, the initial occurrence of evidential clauses led by other three subordinators is more frequent than that of logical clauses. Among them, *jiran* and *zhengshiyinwei* are used 100% at the initial occurrence of the clause. For logical clauses, *youyu* is mainly used in the initial position (90.9%), and *jiran* and *zhengshiyinwei* also appear more frequently in the initial position (95.8% and 89.8%, respectively). Overall, the four subordinators tend to be more preposed in evidential clauses than in logical clauses, especially *jiran* and *zhengshiyinwei*, which are completely preposed in evidential clauses.

A preliminary data analysis suggested that the frequency of initial occurrence in evidential clauses is greater than that of logical clauses. Evidential clauses exhibit a stronger dependency on the main clause and have a higher degree of coherence with it compared to logical clauses. For instance, in sentences (11) introduced by *jiran*, evidential clause cannot be fully understood in isolation by human parser. Instead, it depends on the request expressed in the main clause, providing a plausible excuse and thereby reducing the processing load.

(11) Lǎo xiōng, jìrán nǐ dōu yíng le zhème yī dà bǐ qián,
[Old fellow since you already won PAST such a large sum of money,]
wǒ zhǐ qiú nǐ yījiànshì.
[I only ask you one thing.]
Interpretation: Old fellow, since you have won such a large sum of money, I only ask you for one thing.'

In sentences (12) introduced by *zhengyinwei*, evidential causal serves as the thematic ground for the imperative meaning expressed in the main clause. The relationship between the evidential clause and the main clause is more closely intertwined.

(12) Zhèngyīnwèi wǒmen liǎojiě bìng zhǎngwò
[Precisely because we understand and master]
mǒuyīshìwùdezhīshì, women gèng yào jǐngxǐng
[knowledge of a certain object we furthermore must be vigilant]
zhè zhīshì hěnkěnéng huì jiào wǒmen zìgāo zìdà.
[This knowledge will very likely make us arrogant.]
Interpretation: Precisely because we understand and master knowledge of a certain thing, we must furthermore be vigilant as this knowledge very likely will make us arrogant.'

In sentence (13), the evidential causal clause 'Because it's very concise' provides the recapitulative description of the book, while the main clause 'there's no nonsense' elaborates on the characteristic of being concise. Recapitulative and detailed descriptions are two levels of presenting information. The recapitulative description typically appears before the detailed description, providing an overall framework of the topic, while the detailed description further explains and expands upon the content of the overview. The causal relationship between the two clauses is indirect and tends to present a complementary relationship rather than a causal one, thus indicating a higher level of coherence.

(13) Yīnwèi tā hěn jīngjiǎn, méiyǒu fèihuà.
[Because it very concise not have nonsense.]
Interpretation: Because it's very concise, there's no nonsense.

Apart from the sentences introduced by *youyu*, the frequency of initial evidential clauses introduced by the other three subordinators is higher than that of initial logical clauses. The special phenomenon of *youyu* clauses can be explained by the mechanism of semantic force. In *youyu* logical clauses, the semantic function of "inferential" accounts for 4.3% of all initial logical clauses. In *youyu* evidential clauses, inferential evidential clauses account for 2.5% of all initial evidential clauses. The inferential clause denotes a possible situation that would suffice for the main event to occur (Dancygier, 1998).

Given that future events are uncertain, the inferential clause generally serves as a nonfactual hypothesis to provide orientation for the situation described in the main clause. Clauses denoting future situations prefer initial occurrence for lower processing load (Diessel, 1996). Furthermore, when there is a final inferential causal clause, it necessitates a specific explanation because the human parser might mistakenly interpret the preceding main clause as a factual statement when, in fact, it is a hypothesis. For instance, in sentence (14), inferential cause serves as the inference providing possible scenarios as premises, leading to suggestions in the main clause. Thus, the semantic function of "inferential" demonstrates a tendency of initial occurrence. In the mechanism of semantic force, the semantic function of "inferential", together with iconicity, serves as a motivation for the initial occurrence of logical clauses. However, when semantic function "inferential" also acts as a motivation for the initial of evidential clauses, inferential evidential clauses are less frequent, indicating that the motivation of semantic function of "inferential" is weaker compared to its role in logical clauses. This explains why the frequency of initial evidential clauses introduced by *youyu* is lower than that of initial logical clauses.

(14) Yóuyú nǐ yǒukěnéng zài cǐkè císhì, name xiāngyìngde
[Because you possibly at this moment pass away then accordingly]
tiàojié nǐde měiyī xíngwéi hé sīxiǎng ba.
[adjust your every behavior and thought PARTICLE INDICATING SUGGESTION]
Interpretation: Because you might pass away at this moment, adjust each of your actions and thoughts accordingly.'

Additionally, apart from causal clauses introduced by *yinwei*, which tend to be predominantly postposed, causal clauses introduced by the other three subordinators exhibit a strong tendency for pre-posed. This phenomenon may be attributed to the semantic function of "supplementary". Compared to the other three subordinators, the proportion of supplementary causal clauses introduced by *yinwei* is the highest, accounting for 18.4% of all final *yinwei* clauses. In supplementary causal sentences, the supplementary clause provides given information while the main clause provides new information. Therefore, the main clause is the prominent part of the sentence, and the causal clause serves a supplementary function (Renfei, 2009; Wenguo, 2004). A significant characteristic of supplementary causal clauses is that the main clause remains semantically valid even if the following causal clause is omitted. However, the meaning is less complete, as illustrated in sentence (15). When causes are considered supplementary explanations, they can be placed in the latter part of the sentence as non-salient elements. Thus, *yinwei* clauses, which have a higher proportion of supplementary causal clauses, exhibit a stronger tendency to be postposed compared to the other three subordinators.

(15) Liǎng nián hòu, tā líkāile zài Luòjīyà-Fěisī de gōngzuò, yīnwèi tā
[Two years later he left in Nokia-Firth's job because he]
wúlùnrúhé jiānchí bùxiàqùle.
[no matter what couldn't continue]
Interpretation: Two years later, he left his job at Nokia-Firth because he simply couldn't hold on any longer.

4.2 The Positional Difference between English Evidential and Logical Clauses

To compare the differences in ordering distribution between two types of causal clauses in English, we conducted a statistical analysis of their respective positional distributions, as shown in Figure 3.

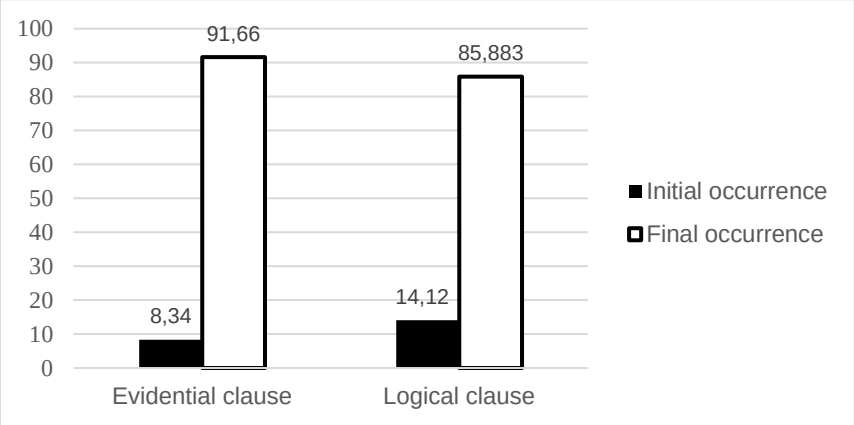


Fig. 3. Mean proportions of the ordering of English evidential and logical clause

As can be seen in Figure 3, in both evidential and logical clauses, final adverbial clauses are more frequent than initial adverbial clauses. A larger proportion of final clauses is found in evidential clauses, where an average of 91.66 percent of all evidential clauses precede the main clause. And the final occurrence of logical clauses is less frequent. However, A Mann-Whitney U test performed on the proportions of final adverbial clauses in the two groups reveals only a trend ($Z = -1.155$, $p = 0.343$). Overall, while both tend to occur predominantly after the main clause, evidential clauses exhibit a higher degree of final position compared to logical clauses, but the difference is relatively small.

For English, both evidential clauses and logical clauses are in a final occurrence. Some studies suggest that the final occurrence of causal clauses is a is a universal situation across human languages (Diessel & Hetterle, 2011). Diessel (2005) argues that English causal clauses are less influenced by iconicity, showing a tendency to be postposed even though they denote an event that occurs prior to the main clause. The majority of final logical causal clauses suggest that in the construal of the sequence of events in the objective world, English is driven by stronger psychological prominence, tending to present a "figure-ground" ordering pattern.

Unlike final logical clauses, final evidential clauses do not reflect the logical relationships in the objective world. Therefore, the above explanation cannot account for their strong tendency of final occurrence. If we analyze these final evidential clauses more closely, we will find that, similar to Chinese evidential clauses, they support the proposition described in the main clause. However, unlike the dependent elements in Chinese, data shows that English final evidential clauses have a relatively independent relationship with the main clause. As seen in evidential causal clauses (16), semantically, the evidential clause expresses the speaker's subjective judgment. Formally, they are often in final occurrence and separated by a comma without exhibiting any embedding. Functionally, they serve as independent assertions that support the viewpoint expressed in the main clause. Therefore, there is a relatively weak connection between English evidential causal clauses and the main clause, making them easier to process as a single unit when placed in a final position.

(16) The interpreter may assume that the idea of poetry or drama as art can be abandoned *since* what counts are cultural traces.

As for why English evidential clauses have a stronger tendency to be in the final occurrence than English logical clauses, it can be explained by the tendency of evidential clauses to form coordinate structures. When causal clauses are postposed, they function as independent processing units similar to causal coordinate constructions (Keding, 2023). Due to its relatively independent relationship with the main clause, when an evidential clause is in a final occurrence, it is more likely to separate from the main clause and form an independent clause, resulting in a coordinate structure that exhibits characteristics similar to a single unit. The data samples are as follows:

(17) We must see the cross as the ruling principle of the Christian life, *for* there can be no true reflection of Christ that does not consist of bearing his cross.

(18) Things would deteriorate rather quickly, *for* Alberto would return to his hotel in the evening with a sculpture eight to twelve inches tall under his arm.

In clause (17), removing the subordinator of the evidential causal clause and separating it from the main clause to form a coordinate structure does not affect the support-proposition meaning between the evidential clause and the main clause at the semantic level. However, if the subordinator of the logical causal clause (18) is removed and it is separated from the main clause, the logical causal relationship between the clause and the main clause becomes incomplete. Thus, compared to logical causal clauses, evidential causal clauses have a weaker connection with the main clause. When both tend to be in a final occurrence, evidential causal clauses show a tendency to be separated from the main clause to form a coordinate structure, resulting in a stronger tendency for the final position than logical causal clauses.

4.3 The Ordering Distribution of English Causal Clauses by Different Subordinators

The paper categorizes causal clauses in English based on four subordinators and conducts a statistical analysis of their ordering distribution. Table 4 presents the ordering distribution of causal clauses introduced by four English subordinators.

Table 4
Proportion of ordering of four English subordinators

	Initial Evidential clause	Final evidential clause	Initial logical clause	Final logical clause
because	10	90	13.9	86.1
for	9.1	90.9	2.9	97.1
since	0	100	18.4	81.6
as	14.3	85.7	21.2	78.8

From Table 4, evidential clauses show a strong preference for final placement, with *since* at 100% in the final position, indicating no initial placement. Logical clauses, while also favoring the final position, show more flexibility; for example, *as* has 21.2% of its logical clauses in the initial position, the highest among the subordinators. For final evidential clauses, the proportion of final occurrence for *since* clauses is the highest (100%), while the

proportion for *as* clauses is the lowest (85.7%). For final logical clauses, the proportion of postposition is highest for *for* clauses (97.1%) and lowest for *as* clauses (78.8%). Except for *for* clause, where the proportion of final logical clauses (97.1%) is higher than that of final evidential clauses (90.9%), the proportion of final evidential clauses is higher than that of final logical clauses for all other subordinators. A preliminary analysis of the data suggested that the tendency of final occurrence in English evidential clauses is higher than that in English logical clauses.

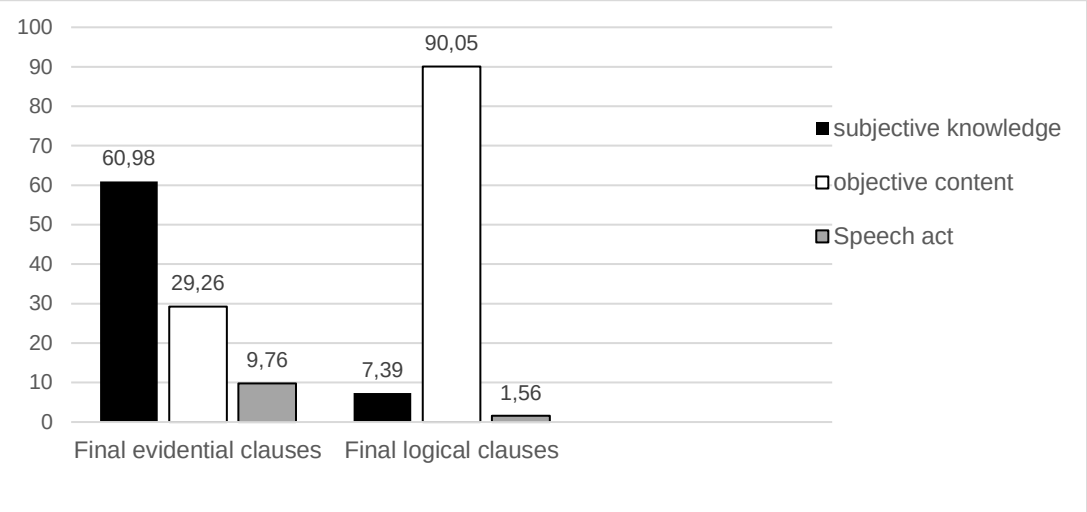


Fig. 4. Proportion of pragmatic function in final evidential and logical clauses

According to Figure 4, clauses expressing subjective knowledge account for 60.98% of final evidential clauses, while those expressing objective content account for 29.26%. Among final logical clauses, clauses expressing objective content account for 90.05%, while those expressing subjective knowledge account for 7.39%. When a causal clause indicates a factual statement of objective content, the semantic relationship between the causal clause and the main clause reflects the causal relationship in the objective world. However, when the causal clause expresses subjective knowledge, it serves as a supplement or support to the assertion in main clause without corresponding to any objective causal relationship. Thus, causal clauses expressing objective content exhibit a higher connection with the main clause compared to those expressing subjective knowledge. Below are examples (19, 20, 21) of evidential clauses introduced by *as*, *since*, and *because*. They are all final clauses and express subjective knowledge.

These three evidential causal clauses can be separated and combined with the main clause to form the following three coordinate sentences (22, 23, 24). Because evidential clauses expressing subjective knowledge have a relatively independent relationship with the main clause, they are not indispensable objective explanations for the main clause but rather subjective interpretations serving as the speaker's or writer's basis for speech. Therefore, their positional order has a higher degree of flexibility; they can function as final clauses or as coordinate clauses without affecting the overall understanding or logical relationship of the sentence.

(19) The points were made that parking there can not be dangerous *as* it is permitted during part of the year.

(20) The interpreter may assume that the idea of poetry or drama as art can be abandoned *since* what counts are cultural traces.

(21) The ideas and energy ought to come from the political parties *because*, in theory, they are supposed to provide the driving force in political development.

(22) The points were made that parking there can not be dangerous, *and* it is permitted during part of the year.

(23) The interpreter may assume that the idea of poetry or drama as art can be abandoned *and* what counts are cultural traces.

(24) The ideas and energy ought to come from the political parties *and,* in theory, they are supposed to provide the driving force in political development.

Additionally, among all logical causal clauses, the postposition frequency of *for* causal clauses is higher than the other three subordinators. The final percentage *for* logical causal clauses expressing subjective knowledge is 13.6%, the highest among the four subordinators. This also indicates that in *for* causal clauses, the final occurrence frequency of logical clauses is higher than that of evidential clauses. For example, in *for* logical causal clauses expressing subjective knowledge, they can be separated and used as coordinate clauses, as in (25) and (26). This illustrates that the coherence between this logical clause and the main clause is relatively low.

(25) Not a new situation, *for* there are ample historical parallels.

(26) Not a new situation, *and* there are ample historical parallels.

4.4 Positional Patterns in English and Chinese Competing Motivation Model

Based on previous data analysis, it can be observed that under the influence of the semantic force of evidence and logic, Chinese causal clauses tend to be placed initially. In contrast, English causal clauses are more likely to be positioned finally. A Mann-Whitney U test reveals a significant difference in the proportion of initial evidential clauses between Chinese and English and final evidential clauses between Chinese and English ($Z = -2.323$, $p = 0.029$). Another Mann-Whitney U test also indicates a significant difference in the proportion of initial logical clauses and final logical clauses between the two languages ($Z = -2.309$, $p = 0.029$). These results suggest that the mechanisms of the semantic factors of logic and evidence in English and Chinese are quite distinct. In Chinese, evidence and logic serve as initial drivers, whereas in English, they function as final drivers. Additionally, evidence tends to have a higher degree of initial or final positioning compared to logic.

Table 5
Results for Initial and Final Evidential and Logical Clauses in Chinese and English

Sentence type	Group	Mean rank	Rank sum	z	p*
Evidential clauses	Initial (Chinese)	6.5	26	-2.323	0.029
	Initial (English)	2.5	10		
	Final (Chinese)	3.25	13	-1.461	0.2
	Initial (English)	5.75	23		

Continuation of ***Table 5***

Sentence type	Group	Mean rank	Rank sum	z	p*
Logical clauses	Initial (Chinese)	6.5	26	-2.309	0.029
	Initial (English)	2.5	10		
	Final (Chinese)	2.5	10	-2.309	0.029
	Initial (English)	6.5	26		

*Significant level =< 0.05

The differences in the driving forces of evidence and logic in English and Chinese stem from the different mechanisms of meaning construction of cause and effect in Chinese and English. The ordering in causal-effect sentences is primarily influenced by utterance planning. When constructing the meaning of a causal-effect sentence, speakers prefer to arrange the subordinate causal clause after constructing the main clause, which reduces the semantic construction burden (Thomas, 2002). If the causal clause is placed at the beginning of the sentence, the speaker must construct a comprehensive meaning plan to ensure the speaker's commitment to producing a cause-effect sentence consisting of at least two clauses. Thus, the final placement of causal clauses is a universal phenomenon in many languages. However, the phenomenon of initial placement in Chinese indicates that utterance planning is not the sole factor determining the position of causal clauses.

The initial placement of causal clauses in Chinese is more influenced by iconicity. In Chinese cause-effect complex sentences, there are many paired causal conjunctions, such as *yinwei … suoyi …* (because ... therefore ...), *youyu …yushi …* (due to ... as a result ...), and *jiran … name…* (since ... then ...), which are used extensively. The causal structures with paired related subordinators depict the natural order of cause-and-effect relationships through following temporal sequences of cause-effect event (Renfei, 2009). Consequently, when speakers use paired related subordinators in cause-effect sentences, they often place the causal clause initially to construct the meaning according to the logical sequence. Many examples exist of this time-sequence-based expression of logical cause-effect relationships. Influenced by the frequent use of paired related subordinators, when constructing causal compound sentences without paired conjunctions, speakers tend to initially position the causal clause and finally position the main clause of effect according to the cause-effect sequence to express the implied evidential causal relationship, as shown in example (27). In contrast, English does not have similar paired related subordinators, and there are cases where events described in English subordinate clauses occur before the main clause but are placed after it, as shown in example (28). Thus, the influence of iconicity on English causal clauses is relatively small, while the influence of utterance planning is significant.

(27) Rújiā běnshēn yě zhèng zāoshòuzhe gèzhǒng jiǎodùde
[Confucianism itself also PROGRESSIVE suffering various angles']
gōngjī, wǒmen dàoyào fǎnguòlái tóngqíng rúxué
[Attacks we instead turn around sympathize with Confucian learning]
de chǔjìng le.
POSSESSIVE PARTICLE situation CHANGE OF STATE
Interpretation: Because Confucianism itself is also currently suffering attacks from various angles, we instead want to turn around and sympathize with the situation of Confucian learning.'

(28) Thomas' father, a Swansea lawyer, discouraged her from going into the legal profession *because* he thought she would get too involved in her cases.

From a cognitive perspective, the predominant ordering of initial occurrence in Chinese reflects the focus of agents on facts in the objective world. The predominant ordering of final occurrence in English uses a "figure-ground" structure, which contrasts with the sequence of events and emphasizes the subjective perspective, which results in a stronger psychological prominence during the process of construal of causal relationships (Wencheng & Chaoyi, 2023). In contrast, the Chinese ordering of initial occurrence utilizes a "ground-figure" structure that aligns with the temporal sequence of cause-effect, adhering to the characteristics of natural development in the real world. Although its psychological prominence is not as strong as the former, its objectivity is higher (Baoyi, 2006). As a derivative of logical causal sentences, even though the semantic construction of evidential causal sentences differs from that of logical causal sentences, speakers construct similar sequences for evidential sentences as they follow the logical temporal order. This approach aligns with the objective and reproducible nature of Chinese thinking pattern (Shuneng, 2002). English, on the other hand, emphasizes subjectivity and cognitive prominence (Baoyi, 2006). Even logical causal sentences that conform to the temporal sequence of objective events are placed post-position, thus highlighting the speaker's subjective construal and aligning with individualism.

Table 6
The Competing Motivation Model of Chinese Causal Clauses

Clausal type	Discourse pragmatic force	Semantic force	Syntactic processing
Evidential causal	+	+	-
Logical causal	+	+	-

According to the overall effect of semantic force, the competing motivation model for the ordering distribution in Chinese causal clauses can be illustrated in Table 6. In Table 6, '+' indicates preposed force, and '-' indicates postposed force. When both discourse pragmatic and semantic force are prepose-driven, they dominate over the syntactic processing, a postposed factor, leading to an overall tendency of preposing in the ordering distribution of Chinese causal clauses.

Table 7
The competing motivation model of English causal clauses

Clausal type	Discourse pragmatic force	Semantic force	Syntactic processing
Evidential causal	+	-	-
Logical causal	+	-	-

In English causal clauses, the overall effect of evidence and logic, tends to be postposed-driven. The competing motivation model for the ordering distribution in English causal clauses can be illustrated as shown in Table 7. When both semantic force and syntactic processing are postposed-driven, they dominate over discourse pragmatic factors, a preposed factor, resulting in an overall tendency of postposed in the ordering distribution of English causal clauses.

Overall, the results confirm the research questions of the study, providing clear evidence that evidential and logical causal adverbial clauses exhibit different positional tendencies in both English and Chinese, with evidential clauses tending to appear more frequently in the initial position in Chinese, and in the final position in English, in line with previous studies (Diessel & Hetterle, 2011; Ai & Lixin, 2020). This aligns with the first research question by highlighting that these positional differences are systematic and consistent across the two languages. Furthermore, the results address the second research question by identifying key contributing factors in the two languages. In Chinese, the strong tendency for initial positioning is driven by iconicity, reflecting the natural temporal and causal sequence, while in English, the final positioning is influenced by psychological prominence and cognitive ease. Semantic forces, including the iconicity of sequence and the role of subjective construal, significantly shape clause positioning in both languages.

However, the study also reveals language-specific patterns: while English evidential clauses are typically postposed and often independent from the main clause, Chinese evidential clauses are more tightly connected with the main clause, demonstrating their high dependency and preposed tendency. This supports findings from recent studies (Wencheng & Chaoyi, 2023; Wenguo, 2004) that emphasize the role of syntactic dependency and cognitive factors in clause positioning. Furthermore, the study provides new insights into Diessel's (2005) competing motivation model regarding the third research question. In Chinese, the dominant preposed forces (discourse-pragmatic and semantic) lead to a preference for initial causal clauses, particularly evidential ones. In contrast, English evidential clauses, influenced by reduced syntactic dependency, tend to occur in the final position. This distinction highlights the interaction between universal linguistic principles and language-specific constructions, suggesting that iconicity plays a stronger role in Chinese, while English emphasizes subjectivity and cognitive processing in the final position.

Based on the research results, the study reveals how causal clause positioning reflects broader cognitive and cultural priorities in language use. In Chinese, the predominance of initial causal clauses, especially evidential ones, highlights a linguistic system that aligns with real-world temporal and logical sequences, emphasizing discourse coherence and contextual integration. This reflects a collectivist cultural orientation favoring shared understanding. In contrast, English prioritizes postposed causal clauses, driven by syntactic independence and psychological prominence, aligning with an individualistic focus on subjective interpretation. Additionally, the competing motivation model is refined by showing that iconicity and discourse-pragmatic forces dominate in Chinese, while syntactic processing ease and semantic independence are stronger in English. These findings explore how languages not only encode causal relationships but also reflect deeper cultural and cognitive patterns, offering new perspectives for future linguistic and cross-cultural research.

5. CONCLUSION

This research investigated the ordering distribution of evidential and logical causal adverbial clauses in English and Chinese, confirming that the two languages exhibit distinct tendencies. In Chinese, both logical clauses and evidential clauses tend to occur initially. The evidential clause is more inclined to be in initial occurrence than the logical clause., especially when the causal subordinators *yinwei, jiran, zhengshiyinwei* appear. In English, both logical clauses and evidential clauses tend to occur finally. Evidential clauses are more

inclined to be in final occurrence than logical clauses, especially when the clausal subordinators *because, since*, and *as* appear. The distinct patterns in causal clause positioning are driven by the semantic mechanisms of Chinese and English. English causal clauses, especially logical ones, are often postposed due to their semantic independence, resembling coordinate constructions. Evidential clauses show an even stronger postposition tendency as subjective complements with greater structural flexibility. In Chinese, logical clauses favor initial placement due to iconicity, while evidential clauses are even more preposed due to their dependency on the main clause. These differences reflect distinct competing motivation models: Chinese prioritizes preposed discourse-pragmatic and semantic forces, while English emphasizes postposed semantic and syntactic factors.

The observed patterns reveal how linguistic systems encode causality differently, reflecting broader cognitive and cultural orientations. Chinese emphasizes coherence and iconicity, aligning closely with collectivist communication styles, while English prioritizes subjectivity and flexibility, consistent with individualistic tendencies. This underscores the role of cultural and cognitive factors in shaping linguistic structures, offering valuable insights for cross-linguistic and typological studies. The present study also paves the way for future research to explore clause positioning in additional languages and clause types, such as concessive and conditional clauses. Further investigation into how cultural and cognitive factors interact with syntax could yield deeper insights into the universality and variability of clause ordering across languages.

This study is subject to several limitations that may affect its findings. The differences in discourse contexts between the English and Chinese corpora may have introduced inconsistencies, potentially affecting the accuracy of the comparative analysis and the extent to which the results reflect actual language use and expression patterns in the two languages. Additionally, the scope of the study is limited to causal clauses introduced by specific subordinators, which restricts the comprehensiveness of the analysis and leaves other causal constructions unexplored. Future research could address these limitations by examining a broader range of subordinators and incorporating spoken language data.

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