

A Comparative Study of Causals and Conditionals Based on Iconicity

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Abstract: Based on the iconicity of sequence and iconicity of markedness, this study makes a comparative study of causals (causal complex sentences) and conditionals (conditional complex sentences) through corpus analysis. The results show that the iconicity of sequence outweighs the iconicity of markedness in conditionals, whereas the iconicity of markedness is more prevalent in causals. Logical causals and evidential causals frequently employ sequential or marked iconic expressions, while logical conditionals and evidential conditionals often utilize the iconicity of sequence. These results suggest that both causals and conditionals can convey the iconicity of sequence and iconicity of markedness. Conditionals typically convey hypothetical, uncertain, possible, or counterfactual meanings that necessitate the consideration of the conditional clause as a cognitive framework. Furthermore, due to their contrastive nature, conditional clause tends to exhibit a preference for prepositions. Therefore, the conditional clause usually precedes the main clause, exhibiting iconicity of sequence. However, causals usually express the causal relationships between actual events and their causality without explicit contrasts or hypothetical conditions. As a result, the causal clause can be positioned either before or after the main clause, exhibiting iconicity of sequence and iconicity of markedness.

Keywords: Causals; Conditionals; Iconicity of Sequence; Iconicity of Markedness

1. Introduction

Complex sentences are comprised of two or more clauses, with each clause possessing the characteristics of relative independence and

interdependence[1]. There are many different types of complex sentences, such as causals (causal complex sentences) that convey cause-and-effect relationships, and conditionals (conditional complex sentences) that convey hypothetical or conditional relationships. Causality can be categorized into a narrow sense and a broad sense, and the latter can be extended to other relations such as conditional relation [1]. This study focuses on Chinese causals from a narrow perspective, that is, subordinate clause explains the cause while main clause usually elucidates the effect, establishing a relationship between cause and effect within these complex structures[2]. This study holds that causals are made up of two or more clauses, each of which has the features of interdependence and relative independence; it does not include the relation of condition, hypothesis and purpose. Conditionals refer to the subordinate clause presents a condition and the main clause indicates the result when this condition is met[3]. In conditionals, the main clause and the conditional clause are joined by connectives, and the conditional clause serves as a prerequisite for the realization of the main clause. According to Hu[4], conditional relations include hypothetical relations in which one clause presents a hypothetical condition while another explains its resultant outcome, and these relations are often expressed using connectives like “if”. This study includes hypothetical statements conveying hypothetical relationships into the concept of conditionals to correlate with if-conditionals in English.

Based on whether the relation between cause/condition and effect/result conform to logic, Xu [5] classifies English conditionals into logical and evidential conditionals. Meanwhile, Xu and Li[6] and Liao[7] categorize causals into logical and evidential

causals. Logical causals and logical conditionals are in line with the logic, while evidential causals and evidential conditionals are usually not adhere to the logic, but express the subjective cognition, inference and viewpoint of speaker. This study classifies causals and conditionals into logical causals, evidential causals, logical conditionals, and evidential conditionals. For example,

(1) Because it is raining, the ground is wet[8].

(2) Zhang Gang still loves Xiao Li because he has come back.[7].

(3) If you pour oil on water, it will float.[9]

(4) If she doesn't get first prize, she's no daughter of yours.[10]

Example (1) and (2) are causals, while example (3) and (4) are conditionals. Specially, example (1) and (3) describe common sense knowledge; example (2) and (4) infer the cause or result based on a specific effect or condition. Thus, example (1) is a logical causal complex sentence; example (2) is an evidential causal complex sentence; example (3) is a logical conditional complex sentence; example (4) is an evidential conditional complex sentence.

Previous studies on the causals and conditionals mainly involves the following aspects: (1) Investigating the position of connective from syntactic level[11]; (2) Exploring the classification of complex sentences including causals and conditionals from semantic perspective[12]; (3) Discussing the pragmatic effects of sentence order variation from pragmatic perspective[13]; (4) Exploring the cognitive mechanisms of causals[7], subjectivity of connectives[14], and sentence order preferences[15-17] from cognitive perspective. Among these studies on sentence order in complex sentences, it is generally observed that subordinate clauses precede main clauses. However, due to contextual constraints or specific expressive needs, the main clause can also be placed before the subordinate clause[1]. In recent years, a growing number of researchers have employed corpus-based methods to investigate sentence order of complex sentences, resulting in findings that differ from previous studies. Specifically, the dominant order is placing the main clause before its subordinate clause [18-21]. Although there have been studies on sentence order, most of them have been explained in terms of "figure-ground"[22] and

iconicity of sequence[23,24], and few have been explained from the perspective of iconicity of markedness.

The iconicity of linguistic signs emphasizes the correlation between linguistic form and meaning, challenging Saussure's notion of the arbitrariness of linguistic signs while also providing a substantial complement to it. Therefore, based on iconicity of sequence and iconicity of markedness, this study conducts a comparative study on causals and conditionals with an aim to provide novel insights for further exploration into complex sentences.

2. Philosophical Basis and Content of Iconicity

2.1 Philosophical Basis of Iconicity

Ancient Greece is widely recognized as the birthplace of Western philosophy, and the issues related to and concerned by philosophy of language can be traced back to ancient Greek philosophers. The origins of linguistic iconicity can be found in the debates among these philosophers regarding the relationship between names and their referents, which gave rise to two opposing schools: Nominalism and Realism. Aristotle, a prominent representative of Nominalism, argued that names and symbols used by people do not possess an inherent connection with what they signify; rather, their meaning is determined by convention. While Plato exemplified Realism by asserting that there exists a fundamental link between names and the entities they represent, suggesting that names have the potential to reveal essential characteristics of things[25]. The medieval scholastic dispute over universals and particulars can be seen as a continuation of this ancient Greek debate between Nominalism and Realism.

In Saussure's era, Saussure, the eminent proponent of Nominalism, put forward the notion of arbitrariness to indicate that the relationship between signifier and signified of signs is arbitrary. This arbitrary proposed by Saussure gained prominence in linguistic research during that period and exerted dominance over the entire field of linguistics. However, this does not imply stagnation in Realism (iconicity). Some scholars have persistently challenged the prevailing arbitrariness theory and made relentless endeavors to do so. From as early as the

nineteenth century, Humboldt and Wittgenstein proposed the concept of isomorphism between language and reality. Around the same time as Saussure, Peirce proposed a trichotomy of signs (icon, index, symbol) and the term iconicity is derived from icon. Iconicity refers to a relationship of similarity between signifier and signified. Nevertheless, these views have not received enough attention because of the prevalence of arbitrariness theory. It was only in the late 1970s with the emergence of cognitive linguistics that criticism against arbitrariness theory surfaced; positing language as an outcome shaped by human interactive experiences and cognitive processing led to a well-deserved focus on studying iconicity.

2.2 Iconicity

Iconicity can be understood in a narrow sense and a broad sense. In a narrow sense, iconicity refers to the resemblance between a linguistic sign and its signified in terms of sound, shape, or structure, as the imagic icons proposed by Peirce. In a broad sense, iconicity corresponds to what is commonly known as “motivation”, where linguistic symbols are grounded in people’s experiential modes, conceptual frameworks, semantic systems, and exhibit their own motivation rather than being arbitrary[26]. According to cognitive linguistics, the linguistic form is shaped by various external and internal factors such as experience, cognition, semantics, and pragmatics. Therefore, iconicity does not imply a direct reflection of objective external entities like a mirror but highlights how linguistic form reflects individuals’ perception, experience and cognitive understanding of the real world. Consequently, more scholars tend to favor this broader interpretation at present, and this study also adopts a broad understanding.

Scholars have identified three principles of iconicity at the syntactic level: iconicity of distance, quantity, and sequence. Wang[27] has proposed another type of iconicity, namely iconicity of markedness. This study primarily investigates causals and conditionals based on iconicity of sequence and iconicity of markedness, thus focusing on these two types of iconicity.

Iconicity of sequence can be defined as the order of thinking is similar to the order of

linguistic units[27]. There exists a high degree of iconicity between sentence order and the temporal sequence of a sentence, typically depicting events in a chronological manner. The arrangement of syntactic elements mirrors the sequence of actual states or times they represent. The fundamental principle of cognitive linguistics is “reality-cognition-language”, which reflects interact among reality, cognition, and language. Language serves as a manifestation of the cognitive subject’s interactive experience and cognitive processing towards the real world; moreover, it reflects the sequential arrangement of events in reality as perceived by the cognitive subject. This results in a phenomenon known as iconicity of sequence in language, where the order of syntactic components reflects expressed event sequences.

Iconicity of markedness can be defined as the natural process of cognition in which markedness arises from unmarkedness, with marked features resembling additional meanings[27]. Unmarked term resembles predictable and conventional meaning, which conforms to people’s general cognitive mode, while marked term resembles additional and unpredictable meaning, requiring more time and cognitive effort to process it [28].

When conducting pragmatic analysis within the framework of iconicity theory, it is usually carried out in a sequential order, starting from the iconicity of sequence and progressing towards iconicity of markedness[26]. Therefore, it should be noted that sequential iconicity alone fails to account for instances where the order of signs deviates from chronological order yet conveys additional meaning. Hence, integrating the principles of both iconicity of sequence and iconicity of markedness in pragmatic analysis provides more plausible explanations for numerous phenomena.

3 The Iconicity of Causals and Conditionals

3.1 Investigation of Sentence Order of Causals and Conditionals

Based on the Chinese National Corpus, this study examines the positional relationship between main clause and subordinate clause in causals and conditionals, which can be divided into cause/condition preposition and

postposition. This study did not conduct an exhaustive search on all sentence patterns of causals and conditionals. Instead, the most representative connectives “Yinwei” (*because*) and “Ruguo” (*if*) that express causal and conditional relationships were selected for retrieval. A total of 200 cases were randomly selected and the frequency of different sentence orders was calculated, as shown in Table 1.

Table 1. Sentence order distribution of causals (*because*) and conditionals (*if*)

	Cause/ Condition Preposition	Cause/Condition Postposition	Total
Causals (<i>because</i>)	90 (45%)	110 (55%)	200 (100%)
Conditionals (<i>if</i>)	199 (99.5%)	1 (0.5%)	200 (100%)

According to the statistical results, the proportion of cause preposition and cause postposition is approximately 45% and 55% respectively in causals that use the connective “Yinwei” (*because*) to express causality. However, the proportion of the condition preposition and the condition postposition is 99.5% and 0.5% respectively in conditionals that use the connective “Ruguo” (*if*) to express hypothetical or conditional relations. These results indicate that the effect preposition is the dominant sentence order in causals, while the condition preposition is the dominant sentence order in conditionals.

In the previous studies of Chinese complex sentences, the preposition of subordinate clause has traditionally been considered as the default sentence order, and the same is true for causals[29]. Young[30] found that native Chinese speakers tend to place causes before effects when speaking English and suggested that they were influenced by the prepositional patterns of causality in their native language. Song and Tao[20] found that cause preposition is the preferred expression through an analysis of titles from CNKI between 1997 and 2007 containing the connective “because”.

However, Biq[18] found that the cause postposition is the dominant sentence order in both Chinese spoken (conversational) and written (news reporting) genres based on corpus investigation. The research results of scholars such as Wang[31], and Song and Tao have also reached a similar conclusion, that the postposition of cause is the dominant sentence

order in Chinese causals. The findings of this study are consistent with this viewpoint.

Compared to causals, the research results of conditionals are relatively unified. Greenberg[32] has formulated a general rule that all languages tend to place the conditional clauses before the main clauses in conditionals. Scholars such as Comrie[33], Diessel[34], and Wang[35] found that the dominant sentence order is indeed the conditional preposition in conditionals through corpus-based research. The results obtained in this study regarding the sentence order of conditionals are also consistent with this viewpoint.

3.2 Iconicity of Causals and Conditionals

3.2.1 Iconicity of Sequence Embodied by the Proposed Cause and Condition

Causals express the relationship between cause and effect, which is an expression formed by the subject’s interactive experience and cognitive processing of causal relationships in the real world. Usually, the clause used to express cause, reason, or motivation precedes the main clause. This expression is in line with people’s cognition and logic. For example, (5) Because after 10 years of reform, the entire economic system has undergone profound changes. (The following examples are quoted from the Chinese National Corpus unless otherwise noted)

(6) Because the facts are all present, there is no room for opposition.

Examples (5) - (6) are all logical causals, and the causal relationships are reflected as follows: “After 10 years of reform” leads to “profound changes in the economic system”, “all facts are present” leads to “no opposition”. These examples follow the iconicity of sequence, which describes the causes followed by the consequences.

According to iconicity of sequence, sentence structure is determined by the chronological order of events and their development, accurately reflecting the order of actual events occur. In terms of time, space, psychology, and cognition, it possesses characteristics related to iconicity of sequence. In causals that convey cause-and-effect relationships, a temporal sequence exists between the cause and effect, aligning with the natural laws governing objective phenomena. This causal relationship pattern is consistent with human cognitive psychology, and from a logical standpoint, the

development of “cause and effect” is consistent with the laws governing the development of events. As a result, conventional thinking favors cause-and-effect relationships that cause precedes effect.

Regarding conditionals, Greenberg[32] finds that conditional clauses precede the main clauses is the normal sentence order in conditional sentences. According to Comrie[33], the clauses’ linear arrangement reflects their chronological orders; conditional sentences are best understood in terms of the iconicity of temporal order. In other words, the condition clause usually precedes the main clause. Furthermore, Comrie[33] proposes that one of the common characteristics of conditionals is the causal relationship between the conditional clause and the main clause. Comrie suggests that the tendency of conditional clauses precedes main clauses in sentence structure may be an iconic representation of the cause-and-effect relationship between two clauses. For example,

(7) If inflation is serious in a country, it causes domestic prices to rise.

(8) If she hadn’t been ill this time, she would have gone back with us to manage the property.

Example (7) is a logical conditional complex sentence, “if p then q” is used to express a hypothetical meaning. The existence of p inevitably leads to q, but the negation of p cannot predict q, and the authenticity of q is uncertain. This is a common characteristic of a logical conditional complex sentence. In other words, inflation will definitely cause price increases, but the absence of inflation does not necessarily mean that price increases will not occur. Example (7) is in line with common sense and logic. Example (8) presents a counterfactual situation stating that if she was not sick, she would have returned with us to manage the property; however, because she was sick in fact, she was unable to return with us to manage the property. Therefore, whether it is a hypothetical sentence expressing real condition or a counterfactual sentence expressing non real condition, it follows the sentence order of conditional clause precedes result clause, which is consistent with the iconicity of sequence.

3.2.2 Iconicity of Markedness Embodied by the Postposed Cause and Condition

Cognitive linguistics emphasizes the close relationship between reality, cognition, and language. Reality, as an objective existence in time and space, serves as the foundation for individuals’ interactive experiences and cognitive processing. Since cause typically comes before effect in the real world, which is a universal law of nature, there exists naturally a sentence pattern that the cause is positioned before the effect in language. However, language is a product of subject’s interactive experience and cognitive processing of the real world, it is not always necessary to strictly place cause before effect when describing the relationships between events. It may be appropriate in some circumstances to present the result first, followed by an explanation or a condition that must be met, creating complex sentence structures where the effect/result comes before the cause/condition. For example,

(9) All the joy disappears because nothing has changed here.

(10) My father often urged me to go away, because he had to go to work.

Examples (9) - (10) belong to causals; and the causal relationships are reflected as follows: “Without a single change” leads to “all the joy disappears”, “my father wants to go to work” leads to “urging me to go”. These examples show the iconicity of markedness that the effect is described first, followed by the cause which is used to supplement and elucidate the effect.

Compared to causals, there are very few cases of conditional postposition in conditionals, with only 1 case out of 200 randomly selected examples. For example,

(11) They might have sat on a grass near the inn and restaurant for the cool weather, if it had not rained so suddenly.

Example (11) belongs to a counterfactual conditional sentence, where the condition “rained suddenly” leads to “could not sit on a grass near the inn and restaurant for the cool weather”. The conditional clause is placed after the result clause.

Examples (9) - (11) deviate from the norm and are highly marked compared to the expressions “cause precedes effect” and “condition precedes result”. Therefore, listeners need more cognitive resources to process them. Speakers state the result in advance to emphasize it, making it the main focus of the

communication; the subsequent condition serves as a supplementary explanation to the preceding result.

Therefore, sentence order of “cause/condition before effect/result” is used in causals and conditionals respectively to convey iconicity of sequence, while “effect/result after cause/condition” is used to reflect iconicity of markedness respectively.

3.3 Iconicity of Logical and Evidential Classification in Causals and Conditionals

Based on whether the causal relationship and conditional relationship conform to the logic, this study categorizes causals and conditionals into two types, namely logical causals/conditionals and evidential causals/conditionals. Both logical causals and logical conditionals express cognitive modes that adhere to the logical order of events. Cause/condition can be positioned before or after the effect/result, reflecting iconicity of sequence and iconicity of markedness. For example,

(12) Because it is raining, the ground gets wet.[5].

(13) If it is raining, (then) the ground gets wet. [5].

(14) There is nothing false about this illustration, because it is drawn from a real photograph.

(15) I have to go to work if I don't get into college[15].

The causal and conditional relationship between rain and wet ground is demonstrated in examples (12) and (13), where rain causes wet ground. Although the causal clause and conditional clause in example (14) and example (15) are positioned after the main sentence, they both indicate a logical relationship between the two events. In example (14), it is drawn based on real photos, ensuring its authenticity. In example (15), it implies that not entering university necessitates taking up a job.

However, evidential causals and evidential conditionals infer causes and conditions based on certain facts or phenomena, where the “causes” and “conditions” are not logical causes and conditions. Both of these complex sentences can be reflected in iconicity of sequence or iconicity of markedness. For example,

(16) We had fine weather last Friday, if you remember.[36]

(17) If he is intelligent, then I am Albert Einstein. [37]

(18) John loved her, because he came back.[38]

(19) Because the ground was wet, it rained. [8].

In example (16), memory does not determine good or bad weather, and conditional clauses indicate the listener's lack of confidence in the knowledge beyond language required for accurate comprehension of expression. In example (17), his intelligence is not a prerequisite for me to be Einstein; rather, it expresses that “If you claim that he is intelligent, then I will assert that I am Einstein”, thereby negating the content of the condition. In example (18), John's return is not the cause of John still loving her; instead, it is a subjective inference that the speaker's knowledge of John's return serves as a premise leading to the conclusion that John loved her. In example (19), the wetting of the ground does not directly cause rain, but it expresses subjective speculation based on the phenomenon of wet ground that it is caused by rain. Examples (16) to (19) express subjective reasons and conditions for speculation.

Thus, both causals and conditionals exhibit iconicity of sequence and iconicity of markedness. However, based on the above statistical findings that effect preposition (cause preposition (45%) vs. cause postposition (55%)) is the dominant sentence order in causals, while the condition preposition (conditional preposition (99.5%) vs. conditional postposition (0.5%)) is the dominant sentence order in conditionals, we can find that logical causals and evidential causals commonly employ iconicity of sequence and iconicity of markedness, whereas logical conditionals and evidential conditionals predominantly utilize iconicity of sequence, and the utilization of iconicity of markedness remains relatively limited.

4. Comparative Analysis of Iconicity in Causals and Conditionals

Iconicity of sequence refers to the alignment between the sentence order and the chronological order of events being described. This is manifested as a sequence of cause/condition followed by its corresponding

effect/result in causals and conditionals respectively. The statistical findings presented in this study demonstrate that both causals and conditionals exhibit iconicity of sequence; however, conditionals display a higher proportion of iconicity of sequence. It should be noted that not all complex sentences adhere strictly to the cause-effect or condition-result order. This variation can be attributed to iconicity of markedness. Based on specific communicative purposes, speakers may decide to prioritize information by putting it first if it is the most important, urgent, difficult to access or predict.

Compared to causals, conditionals exhibit a tendency towards iconicity of sequence. This study suggests that the reasons for this phenomenon are as follows: Firstly, according to Greenberg[32], all languages have the normal sentence order, which puts the conditional clause before the main clause in conditionals. Numerous scholars have further confirmed this principle through cross-language corpus-based research. However, causals allow for flexibility in positioning causes either before or after effects based on communicative needs. When the effect is placed before the cause for achieving a certain communicative effect, it can be elucidated or supplemented by the postposition cause.

Secondly, from the perspective of pragmatic function, prepositional clauses are commonly used to organize the discourse information flow, establish a starting point for subsequent discourse[39], or provide a scope or direction for the topic[34,40]. Conditionals express hypothetical, uncertain, possible, or counterfactual meanings, rather than the meaning of actual events. In accordance with the principle of cooperation, listeners tend to assume that what speakers utter is true. To avoid misunderstandings and ensure clarity before engaging in communication, it becomes necessary to explicate any underlying assumptions. Only by construing within a framework of shared hypothetical cognition can postpositional results be deduced and effective communication be achieved. Therefore, conditional clauses are better suited for constructing the necessary cognitive framework for interpreting postpositional results. However, unlike conditionals, causals usually describe actual events that have

already happened and do not strictly require a cognitive framework as a background reference. Thus, cause can be positioned either before or after the effect so as to facilitate mutual understanding.

Finally, conditionals are contrastive in nature[21]. This contrast stems from the hypothetical nature of conditionals themselves, which is a counterfactual assumption about past facts or current common sense, or a predictive assumption about the future. When expressing a hypothesis, speakers select an event from two or more possible worlds, based on a comparison of various possible worlds. In order to communicate more effectively, speakers want to let listeners know that what he's describing is this possible world rather than others. Simultaneously, listeners strive to comprehend the sentence in speakers' possible world at the beginning. This communicative principle guides the sentence order in conditionals where the conditional clause precedes the main clause. However, causals convey causal relationships between real events, which involve no hypothetical relationships and lack contrastive feature. In contrast to conditionals, it lacks a strong motivation to prioritize the cause before the effect.

5. Conclusion

This study introduces that iconicity is the result of the continuation of the debate between Nominalism and Realism. Then, based on the iconicity of sequence and iconicity of markedness, this study makes a comparative study of causals and conditionals through corpus analysis. The results are as follows: (1) Sentence order of "cause/condition before effect/result" is used in causals and conditionals respectively to convey iconicity of sequence, while "effect/result after cause/condition" is used to reflect iconicity of markedness respectively. (2) Iconicity of sequence outweighs iconicity of markedness in conditionals, but iconicity of markedness is more common in causals. (3) Sequential or marked iconic expressions are frequently used in logical causals and evidential causals; however, iconicity of sequence is frequently used in logical conditionals and evidential conditionals. These results suggest that both causals and conditionals can convey the iconicity of

sequence and iconicity of markedness. Conditionals typically convey hypothetical, uncertain, possible, or counterfactual meanings which require regarding the conditional clause as a cognitive framework. Additionally, due to their contrastive nature, conditional clause tends to exhibit a preference for prepositions. Therefore, the conditional clause usually precedes the main clause, exhibiting iconicity of sequence. However, causals usually express the causal relationships between actual events and their causality without explicit contrasts or hypothetical conditions. As a result, the causal clause can be positioned either before or after the main clause, exhibiting iconicity of sequence and markedness. These findings can provide some insights into our understanding and using complex sentences.

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