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On Syntactic Complexity in English Language

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Abstract

English is a language of hypotaxis, which means the language depends on syntactic and lexical devices to form one sentence or sentences. The paper discusses the syntactic relations and illustrates the syntactic complexity with examples. The paper focuses on the ambiguities caused by different factors to highlight the syntactic complexity of English.

Keywords

syntax, complexity, ambiguity

1. Introduction

The term syntax, derived from the Greek word Syntaxis, is made up of two morphemes: 〔syn〕and 〔tax〕. The former means "together", and the latter "to arrange", hence the literal meaning "a setting out together" or "arrangement" (Hu, 2001, p. 115). In linguistics, Syntax is the way in which words are arranged to show relationships of meaning within and sometimes between sentences. Simply put, it studies the rules that govern the formation of sentences. Most modern languages resort to word order and function words for the expression of grammatical meanings, so they set great store by syntax. Most syntactic studies have been focused on sentence structure, for this is where the most important grammatical relationships are expressed. Syntax shows the role of words in a sentence. For example,

(1) a. John hit Sue.

b. Sue hit John.

Here knowing the subject allows us to know what is going on. Syntax shows how words are related in a sentence. For example,

(2) a. Visiting aunts ARE boring.

b. Visiting aunts IS boring.

Subject-verb agreement allows us to disambiguate the two sentences. Syntax shows how words are related between sentences. For example,

(3) a. Italy was beating England. Germany, too.

b. Italy was being beaten by England. Germany, too.

Here ellipsis does not allow us to understand the second sentence. But syntax allows us to see what is missing.

2. Syntactic Relations

According to Saussure, the words which are combined to form sentences have two relations, syntagmatic and paradigmatic. The former is a relation between one item and others in a sequence, whereas the latter is a relation between elements which are replaceable with each other at particular point in a structure. For example, in the following sentence:

(4) a. Mom is smiling at the boy.

The relation between *mom* and the others is syntagmatic. In addition, in this sentence, *mom* can be replaced by such words as *dad, sister, brother*, i.e., any singular human nouns, which are in a paradigmatic relation. Saussure's view of language as system of syntagmatic and paradigmatic relations operating at various hierarchical levels exerted great influence on modern linguistics. Later, Firth inherited and developed this view. Firth put forward two elements: SYSTEM and STRUCTURE. While "structure" is the syntagmatic ordering of elements, "system" is a set of paradigmatic units, each of which can be substituted by others in certain places. Thus, structure is horizontal and system is longitudinal.

S
Y
S
S T R U C T U R E
E
M

Firth pointed out that the system prescribes the positions where linguistic elements can occur, this co-occurrence of words and phrases is called COLLOCATION.

Still take the above sentence for example,

(4) b. *Smiling mom is at boy the.

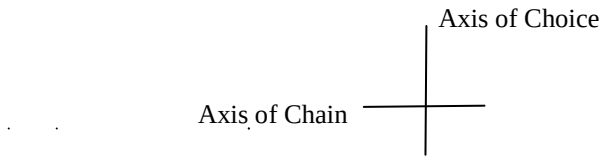
The sentence is wrong in that the arrangement of words violate the syntactic rules. *Mom*, as subject should be at the beginning of the sentence, the linking verb *is* should proceed the present participle *smiling* and the definite article *the* always occurs before the noun. Similarly, we cannot replace *mom* with a *house*,

(4) c. *A house is smiling at the boy.

The verb *smile* requires an animate subject.

From the above, it can be concluded that a correct sentence must meet both syntactic and semantic

conditions, which are summarized by Chomsky as selectional rules in his *Aspects of the Theory of Syntax*. While in systemic grammar, all the semantically relevant choices in the language are represented as the chain system and the choice system:



The axis of chain represents syntagmatic relations; the axis of choice represents paradigmatic relations. The constraints on word relations in a sentence reflect the syntactic complexity. By syntactic complexity is meant that sentence structures are complicated and the same structures may produce different interpretations.

3. Complicated Structures

In English, sentences can be extended by either conjoining or embedding for as long as possible, Moreover, a basic sentence structure does not always follow the normal order: subject+verb+object. All kinds of linguistic phenomena are employed such as omission, inversion and parenthesis, which tend to stand in the way of comprehension. The following are some examples of difficult sentences selected from the texts of Lesson Eleven and Twelve of Contemporary College English Vol.3. Its users are the second year ESL college students in a foreign language Department in China. The criteria according to which to classify the sentences as difficult here is that one third of 31 students in one class fail to parse the sentence correctly.

(5) Only in the present century has one species—man—acquired significant power to alter the nature of his world.

(6) And even this, were it by some miracle possible, would be futile, for the new chemicals come from our laboratories in an endless stream; almost five hundred annually find their way into actual use in the United States alone.

(7) Obviously then, an insect that lives on wheat can build up its population to much higher levels on a farm devoted to wheat than on one in which wheat is intermingled with other crops to which the insect is not adapted.

(8) That their teachings have been largely accepted when what they advocate is so obviously self-serving is a tribute to how effective they have been in getting their message across.

(9) Our needs push us to strive for fulfillment; whether in our attempt to satisfy them we do right or wrong is up to each of us to decide.

In (5) the subject is *one species*, what confuses the students is *has* is shifted before the subject and *man* is parenthesized between the subject and main verb. The sentence is inverted according to the rule that an adverbial phrase introduced by *only* occurs at the head, hence the sentence is complicated. It will be

less complex, easier to understand, if we change it in the following way:

(5) a. One species—man—has acquired significant power to alter the nature of this world only in this century.

In (6), what makes the sentence complicated is, in the first part, the subject is separated from its verb by an unreal conditional clause, which is in an elliptical and inverted form. We can rewrite the sentence as:

(6) a. And even this would be futile, if it were possible by some miracle, for the new chemicals come from our laboratories in an endless stream; almost five hundred annually find their way into actual use in the United States alone.

The sentence (7) contains one comparative clause as its main structure, three attributive clauses modifying respectively *an insect*, *one* and *other crops* and one post-modifier after *farm*. All these combine to contribute to its complexity. In (8), its complexity lies in its subject clause, which contains an adverbial clause of time, while the subject of this adverbial clause is a clause itself. In (9), the latter part of the sentence is hard for the students to identify its main structure. Normally immediately after the conjunction *whether*, there should occur the subject of the clause, here instead, is an adverbial made up of prepositional phrase; besides, the subject is a clause. To simplify the sentence, we can readjust its order as:

(9) a. Our needs push us to strive for fulfillment; whether we do right or wrong in our attempt to satisfy them is up to each of us to decide.

The above are only random examples of difficult and complicated sentences for students. To make them easier to understand, the lecturers tend to reword and paraphrase them at the cost of their original styles or the languages' beauty or the authors' purposes. These sentences show one aspect of syntactic complexity. There are some less complicated sentences in terms of structure, which still cause trouble to students' comprehension, and they are ambiguous constructions.

4. Syntactic Ambiguity

Stephen Levinson (1990) has argued that language is ambiguous by nature.

"When we say that language is always ambiguous, what we mean is that we can never fully control the meanings of the things we say and write. The meanings we exchange by speaking and by writing are not given in the words and sentences alone but are also constructed partly out of what our listeners and our readers interpret them to mean. To put this quite another way, meaning in language is jointly constructed by the participants in communication. This is the first general conclusion reached in the research on communication" (Scollon & Scollon, 2000, p. 6).

Structural ambiguity occurs when a phrase or sentence has more than one underlying structure, such as the phrases "Tibetan history teacher", "a student of high moral principles" and "short men and women", and the sentences "The girl hit the boy with a book" and "Visiting relatives can be boring". These ambiguities are said to be structural because each such phrase can be represented in two structurally

different ways. With immediate constituent analysis, such phrases can be got as "((Tibetant history) teacher)" or "(Tibetan (history teacher))"; "((short men) and women)" and "(short (men and women))". The existence of such ambiguities provides strong evidence for syntactic complexities. The factors that cause the syntactic ambiguity are various.

4.1 Ambiguity Caused by Attributive Modifiers

(10) Small jacket buttons are available in the shop.

(11) I am tired of the man next to the lady wearing casually.

(12) My mom likes the flowers in the vase that she bought the other day.

(13) That Japanese vegetable soup is delicious.

In 10, *small jacket buttons* can mean that either "buttons for small jackets" or "jacket buttons of small size" are available in the shop. The two interpretations of the meaning of the sentence can be illustrated by two tree structures representing two different syntactic structures of the NP Small jacket buttons. Each tree diagram representation of the NP corresponds to one of the possible meanings of the NP. When the same sequence of words can be associated with more than one tree structure, it is said to be structurally ambiguous. Thus, multiple tree structures can explicitly account for structural ambiguity. In 11, present participle phrase *wearing casually* functions as post-modifier, modifying either *the lady* or *the man*. Similarly, the attributive clause in sentence 12 can be the modifier of either *the vase* or *the flowers*. In 13, *that Japanese vegetable soup* can be interpreted as that soup made with Japanese vegetable or that vegetable soup of Japanese style.

"A phrase or sentence may be understood in different ways according to the possible interpretations of its structure; however, it is the syntactic rules that determine its meaning" (Li, 1999, p. 142).

4.2 Ambiguity Caused by Adverbial Modifiers

(14) The driver is instructed periodically to check the oil level.

(15) The driver is instructed to check the oil level periodically.

(16) The cook broils steak rarely.

The sentence 14 is ambiguous: is the driver instructed periodically, or is it the checking that is to be done periodically? In 15, *periodically* could conceivably be thought to modify to check rather than instructed. It's a weak ambiguity, but readers can be confused. *Rarely* in 16 can be the modifier of the whole sentence, then it indicates time, meaning *seldom*. If it is thought to modify *broils*, it functions as the modifier in terms of degree, the whole sentence means that steak is not overcooked.

4.3 Ambiguity Caused by Clauses

(17) I like Bill more than Tom.

(18) Go and ask the Dean who will teach the First Year students English literature.

(19) As my parents grow old, they will have to retire from work.

(20) Tell me if you have time.

(21) The news that Tony had successfully passed the exam finally reached us.

Sentence 17 is a comparative adverbial clause and ambiguous in that it can be understood in two ways:

(17) a. I like Bill more than I like Tom.

(17) b. I like Bill more than Tom likes him.

In sentence 18 *who will teach the First Year students English literature* is a clause. If it is assumed to qualify *the Dean*, it is an attributive clause; or assumed to be the object of *ask*, it is an object clause. In sentence 19, the clause *as my parents grow old* can be either the clause of time or that of reason. If it is the clause of time, *as* means *when*; the clause of reason, it means *because* depending on its different senses. In 20, *if you have time* is a clause. It can be taken as a conditional clause, then the sentence means If you have time, tell me (about it). Or it is an object clause, the sentence means Tell me whether you have time. In 21, the clause that *Tony had successfully passed the exam* has two different grammatical functions: attributive and appositive clause. Whichever it is, it makes no difference to the sentence meaning, except that the focus is on *news* when it is an attributive clause and that *the news* and the clause have the same reference when it is an appositive clause.

4.4 Ambiguity Caused by Negation

(22) Mary didn't sing as she wished.

(23) I didn't buy the book because I was interested in poetry.

(24) She didn't come to see him when he asked.

In an English sentence, if the main verb is in negative form and there is an adverbial clause, it tends to cause ambiguity. In 22, two interpretations result:

(22) a. Mary didn't sing, because she had wished not to sing.

(22) b. Mary didn't sing as well as she had wished.

In 23, the scope of negation may extend to the adverbial clause, hence the following two interpretations:

(23) a. I bought the book, but it wasn't because I was interested in poetry.

(23) b. I didn't buy the book, because it has nothing to do with poetry, and it is poetry that I was interested in.

Similarly, 24 has two interpretations, moreover, one is when- clause functions as the modifier of the infinitive clause *to see him*, the other is when- functions as the adverbial of the main clause. That is:

(24) a. She came to see him, but not at the time he asked her to come to see him.

(24) b. When he asked, she didn't come to see him.

4.5 Ambiguity Caused by Infinitive Phrase

(25) The tiger is too small to kill.

(26) The old couple were friendly enough to help.

(27) It is good for Franklin to do that.

In English, some verbs can be both transitive or intransitive, their active forms take on passive meaning. This usage can lead to ambiguity. The verbs *to kill* and *to help* are a case in point. As a consequence,

the sentences 25and 26are respectively interpreted as:

(25) a. The tiger is too small to kill others.

(25) b. The tiger is too small to be killed by others.

(26) a. It was friendly enough for the old couple to help others.

(26) b. It was friendly enough for others to help the old couple.

The sentence 27 is ambiguous for its two interpretations too,

(27) a. To do that is good to Franklin.

(27) b. For Franklin to do that is good.

4.6 Ambiguity Caused by the Construction of "Transitive verb + Object"

In English, the construction 'transitive verb + object' may cause ambiguity. For example:

(28) The Chairman appointed Mr. Brown an assistant.

(29) Tony called himself a repairman.

In 28, transitive verb *appointed* takes two nouns *Mr. Brown* and *an assistant*. The latter can be thought to function as either the object complement or the direct object of the verb, thus

(28) a. The chairman appointed Mr. Brown to be an assistant.

(28) b. The chairman appointed an assistant for Mr. Brown.

In 29, after transitive verb *called* are two words, one is pronoun *himself*, the other is noun *a repairman*. The sentence is ambiguously understood.

(29) a. Tony described himself as a repairman.

(29) b. Tony called (sent for) a repairman for himself.

4.7 Ambiguity Caused by Coordinate Conjunction "and"

Coordinate conjunction is used to connect two coordinate elements. When there is one modifier before or after one of them, the structure causes ambiguous comprehensions. For example:

(30) Mr. Williams was a professor and a dramatist of great fame.

(31) The scholar wrote long thesis and books.

In sentence 30, the conjunction *and* connects two elements *a professor* and *a dramatist* with a post-modifier *of great fame*, which causes ambiguity in that the construction of *great fame* can modify *an dramatist* alone or the two coordinated nouns *a professor and a dramatist*. In sentence 31, there are two coordinated elements *thesis*, *books* connected by *and*, before them is an attributive modifier *long*, which modifies *thesis* alone or *thesis and books* together. To disambiguate the sentences, we can use immediate constituent analysis to parse each sentence as:

(31) a. Mr. Williams was ((a professor) and (a dramatist) of great fame).

(31) b. Mr. Williams was (a professor and (a dramatist of great fame)).

(32) a. The scholar wrote (long (thesis) and (books)).

(32) b. The scholar wrote ((long thesis) and books).

4.8 Ambiguity Caused by the Verb Inflections

In English, the verbs have three kinds of inflections: past tense -ed, past participle -ed and present participle -ing. Some present and past participles are used as adjectives in their original forms. These changes of syntactic functions tend to produce ambiguity. For example:

(33) *Flying* planes can be dangerous.

(34) The woman is *calculating*.

(35) The miserable man had *discarded* clothes.

In 33, the word *flying* has two usages: gerund and present participle. In terms of the former usage, *flying planes* is gerundial phrase, functioning as the subject of the sentence, otherwise it is equivalent to an adjective. The sentence is interpreted respectively as:

(33) a. To fly planes can be dangerous.

(33) b. The planes that are flying can be dangerous.

In 34, the word *calculating* has two interpretations. As present participle, together with *is*, it is the progressive aspect; or as adjective, it functions as the complement. We can add something to distinguish the two usages.

(34) a. The woman is calculating (quickly).

(34) b. The woman is (very) calculating.

In 35, *discarded* can be understood in two ways, one is past participle, functioning as the predicate of the sentence, together with *had*; the other is adjective, functioning as attributive modifier. The sentence is paraphrased as:

(35) a. The man had thrown away clothes.

(35) b. The man had clothes that were discarded.

4.9 Ambiguity Caused by Prepositional Phrase Tag

(36) Leave the book *in the room*.

(37) The man beat the boy *with a stick*.

(38) It is difficult to breathe *in the filthy air*.

In 36, *the book in the room* may be understood, on the one hand, as the book which is in the room, and on the other, as referring to a room where some book is to be left.

The sentence 37 can be understood in two ways:

(37) a. The man used a stick to beat the boy.

(37) b. The man beat the boy who has a stick with him.

The sentence 38 may have two different structures with different meanings:

(38) a. (It is difficult to breathe) in the filthy air.

(38) b. (It is difficult to breathe in) the filthy air.

5. Conclusion

The above is a list of ambiguities caused by different factors. The list is not exhaustive, but it is a tribute to the syntactic complexities of English language. It is important to have a good command of English syntactic complexity, especially for Chinese students in that English is a language of hypotaxis while Chinese is that of parataxis. That is one English sentence or sentences are connected by syntactic devices or lexical devices while the formation of one Chinese sentence or sentences depend on the semantic connection. The knowledge of syntactic complexity is conducive to the improvement of one's language performance.

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