Construction Grammar and Its Application to Second Language Acquisition

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Abstract: Construction is a basic unit of language acquisition. It involves multiple aspects of language, from morphemes, words, phrases to sentences. In a sharp contrast to generative grammar as well as traditional grammar, construction grammar makes some progress. Its principles are partially applied to the second language acquisition but most of the studies related are restricted to a narrow areas and lack of systematicness. This paper will summarize the advancement of construction grammar and list some main standpoints about how to utilize construction grammar to optimize language teaching and learning. In the final section, the paper will discuss the limitations of these research in terms of research achievements and methods.

1. Introduction

Construction grammar attempts to reveal the nature, structure and functions of language. Pondering on Generative grammar, construction grammar, a theoretical system of language based on cognitive linguistics, puts forward many opposite principles. They contradict transformation theory with the belief that any structure is transparent and cannot be derived from other structures. Followers of construction grammar hold that sentence meanings and sentence forms are conventionally paired. Different grammar structures must share different semantics and functions. Traditional grammar take the commonest and the most normal rules as their core objects. While as a supplement to the traditional one, construction grammar commits to take both normal and abnormal grammars as their objects and put them in an equal position. Construction grammar also defends that every structure is meaningful and there are many hidden restrictions in element slots waiting for learners to discover. These new perspectives shed light on the application of construction grammar to the second language acquisition and the former provides new theory foundations for the latter.

2. The advancement of construction grammar

In recent years, construction grammar has aroused wild attention among academic circles, but its application to the second language acquisition is limited. Tang Lijun (2009) argues that the main reason of the problem in question is that the construction grammar itself has many limitations.

According to Goldberg (1995:4), "C is a construction if and only if C is a form-meaning pair $<F_i, S_i>$ such that some aspect of F_i or some aspect of S_i is not strictly predictable from C's component parts or from other previously established constructions." That is to say construction grammar is dealing with some unpredictable form-meaning pairs whose generative rules cannot be derived from other normal rules, which means that the targets of construction grammar are some unusual expressions, the marked expressions or idiomatic expressions. Traditional grammar regards these expressions as peripheral phenomena and it did not attempt to give a unified explanation for the whole grammar. However, Tang (2009) puts forward that the emphasis on idiomatic expressions of construction grammar would be the key to its interaction with the second language acquisition. Generative grammar emphasizes a bottom-up deduction, which contends that the meaning of a sentence depends on the sum of the meanings of its compositions and their sequences. However, it can do nothing for the learning of idioms, as "once in a blue moon" with the meaning of "rarely". In contrast, construction grammar has a powerful explanation for idioms.

The reason why construction grammar is more sophisticated than some other theories, like Government and Binding Theory by Chomsky, is that it can avoid unreasonable items of a verb. Tang holds that the usage of a verb is not determined by itself but by the constructions it is associated with. For example:

(1) John sneezed the napkin off the table.

(2) Mary baked John a cake.

In the above examples, the verb "sneeze" and "bake" are typical intransitive verbs. In example (1), the verb "sneeze" can be followed by an object is determined by the verb-complement structure, and the verb "bake" is endowed with a meaning of "giving" by the double-object construction. Nevertheless, according to Chomsky's Government and Binding Theory (1981), the argument structure of a sentence reflects the number of arguments that a verb can carry. When they try to figure out the number of arguments a verb can carry, they rely on how many arguments are occurred in the sentence containing the verb. Obviously, the theory is lame on the grounds of a circular reasoning. For example:

(3) a. The horse kicks.

b. Pat kicked the wall.

c. Pat kicked the football into the stadium.

d. Pat kicked Bob the football.

e. Pat kicked his way out of the operating room.

If we use GB theory to explain the above situations, the verb "kick" can carry different number of arguments. Unless we can make a exhaustive investigation, we will not find out how many arguments the verb "kick" can carry. Whether it is a transitive verb or an intransitive verb is not clear. However, Goldberg (1995, 2001) in his research found that the verb may not have that potent prediction of a sentence meaning as traditionally thought. The evidences defending his claim are that the part of speech of a verb and its meaning may vary according to different sentence structures. The verb "kick" is a typical intransitive verb and usually presented in the construction like sentence (3) a (sb. kick). While in sentence b-e it becomes qualified as a transitive verb with object or direct and indirect objects followed. Similar with the verb "give", "kick" in sentence d contains a meaning of "transferring". The other evidence shows that the verb and the construction it co-occurred with may mismatch and a verb can often appears in different constructions. The above examples are exemplars. Because of the inability of argument structure theory which centers on verbs to explain the above two phenomena, Goldberg (1995) puts forward construction grammar which adopts the perspective of form-meaning pairs to justify the internal and complex regularities between sentence forms and sentence meanings. Construction grammar indicates that "kick" itself is an intransitive verb and typically it can carry only one argument. The reason it can carry different number of arguments is

determined by the structures it co-occurred with. It is the structure that enriches the verb's argument. Put another way, the inner properties of a verb are fixed, but it will bent to the linguistic environment by masquerading as other qualified verbs temporarily in order to adjust to the current situation.

The advantage of construction grammar is that it can ensure the economy of semantics of verbs. However, it also puts a heavy burden on our memory. Namely, students not only have to remember several meanings of a verb, but also have to confront and handle the meanings of many vague and unsystematic constructions. Compared with verbs, the meaning of a construction is more precarious and prone to change, which is a formidable obstacle for second language learners. This factor implies that applying construction grammar to the second language acquisition is not that realistic.

3. Acquiring idioms by construction grammar

Anyway, idioms have relatively stable meanings that cannot be derived from their components. For English learners, it is essential to master and flexibly apply idioms in their writing and speaking to make their English more fluent and idiomatic. According to Dong Yanping and Liang junying (2004), they believe that to comprehend the idiomaticity of a construction is to realize the distinctiveness of the expression first whose understanding depends on the generality of the language. For example:

(4) a. red tape

b. white elephant

To understand the above phrase, hearers or readers should undergo the following stages: understanding the literal meaning of the phrase→ acquiring the whole meaning of the construction→ reaching the literal meaning plus the whole meaning. In other words, to understand the construction meaning requires learners to analyze the literal meaning of its components. The literal meaning of "red" is a blood-like color; "tape" is a long strip of cloth, so the whole meaning of "red tape" is "a long strip of cloth of blood-like color". In the last stage, we need the help of metonymy and metaphor. Early in the 17th century, "red tape" debuted in English, and until the early 19th century, the phrase became a common metaphor to indicate "delays caused by bureaucracy". The meaning is associated with red tape is because that formerly British official documents are bound with red tapes conventionally, so gradually people use "red tape" to take place of its strongly affiliated thing-official documents. Then official documents are used to symbolize consuming procedure. However, the middle phase is somehow fading out of the historic stage. Ultimately, "red tape" is used to represent "official forms and procedures, especially when oppressively complex and time consuming".

There is an intriguing story about "white elephant". In old times, if the Thai King dislikes someone, he will give a white elephant to that person. However, the white elephant is a symbol of Thai royal and it is not allowed to be killed. It is also terribly costly to raise a white elephant, so the raiser usually ends up with bankruptcy. The literal meaning of "white" is milk-like color, of "elephant" is a very large wild animal with very long nose. The combination of the two meanings leads to the whole meaning of the phrase, that is "the animal elephant with milk-like color". With the help of the cultural background, we can figure out that the white elephant symbolizes "a rare, expensive possession that is a financial burden to maintain".

From the above two examples, we can conclude that on the basis of the components' literal meanings, replenishing some missing knowledge of metonymy, metaphor, cultural background and so on and so forth, we can acquire the construction meaning. This method can help learners avoid remembering idioms by rote and the stories behind these idioms also adds some relish to themselves, which may successfully contribute to enhancing learners' memory.

4. Reaching a sentence meaning with construction grammar

Croft (2009:157) extols the construction grammar of Goldberg who comes up with adopting a usage-based perspective to analyze different constructions, which contributes a lot to the comprehension of syntax. Meanwhile, Croft compares a usage-based construction grammar with generative grammar critically. For example:

(5) a. The workers built the bridge.

b. The bridge was built by the workers.

Generative grammar argues that sentence a can be transformed into sentence b and vice versa. That is to say Sentence b can be regarded as the deep structure of sentence a and sentence a the surface structure of sentence b. While the meaning of a sentence belongs to its deep structure, sentence a and b share the same meaning. However, a usage-based grammar believes that the usage of a language determines its grammatical representation. According to Zhang Ren (2006), Language structure is shaped by language use, so the former must be influenced by human cognitive experience in the physical world. Structures co-vary with experience and they will finally reach a stable point where they acquire a fixed form with some degree of abstractness and complexity. Put another way, if people employ different structures, they intend to express different meanings and functions. Construction grammar take sentence a and b as different constructions, which distinguishes the subtle semantic differences between the two. As is well-acknowledged that language has the tendency to simplify itself. If there are no differences between two different language expressions, they will compete with each other fiercely and ultimately one of them will fade out or develop other meanings to survive. Therefore, any seemingly similar existential expressions must have differences in usage. In the passive construction, like sentence b, there are more semantic restrictions in the subject slot. For example:

(6) a. The corner was turned by him.

b. The page was turned by him.

Sentence (6) b is acceptable while b is unacceptable in semantics. Simply due to the reason that the subject of (6) a is not affected by the actions represented by the verb, so there is no reason to use passive construction. Transforming it into "He turned the corner" is more natural and idiomatic. To master such subtle differences among similar constructions is significant for language learners. Dong Yanping and Liang Junying(2004) carry out an empirical research about the influence of construction on the comprehension of English sentence meaning for Chinese Students brings it to light that beginners are prone to be influenced by verbs, while middle-level and advanced learners are inclined to rely on argument construction to obtain a sentence meaning. Therefore, English learners will finally step into the phase where they resort to construction grammar as their guideline. Beginners are easily to judge whether a sentence is grammatical or ungrammatical by the verbs contained in the sentence, so they may accept and produce similar sentences like sentence (6) a. While as a keen construction learner, one should pay attention to the whole structure and figure out the restrictions hidden in every element slot. As in the above examples, the subject should be something that can be changed by the verb. "The corner" keeps intact no matter how one turns his direction, right or left. That is to say the agent's action has no effect on the patient. However, when "the page" is turned, the agent comes into another page. "The page" disappears because of the action "turn". Therefore, it is an efficient way for learners to avoid producing semantically abnormal sentences. It can also make learners become more tolerant. For example:

(7) John sniffed the napkin off the table.

"Sniff" is a typical intransitive verb, but it can sometimes serve as a transitive verb. The construction endows the verb with the meaning of "cause something to move". The sentence can be construed in another way that "John's sniff caused the napkin to move out of the table." Anatol

Stefanowitsch and Stefan Th. Gries in *Collostructions: Investigating the interaction of words and constructions* come up with a idea that "a word may occur in a construction if it is semantically compatible with the meaning of the construction." As the verb "give" and ditransitive construction both contains the meaning- "sb transfers sth to sb", they are semantically similar and they can co-occur. While the verb "hit" does not have a transfer meaning, it repulses ditransitive construction. Because a burst of air has the potential force to move something, the verb "sniff" is at some degree semantically agreeable to the caused-motion construction. That is why "sniff" can enter into this construction and gradually gains a meaning of "cause something to move". If learners can master this rule, they become more tolerant to verbs and turn to constructions for the comprehension of a sentence meaning.

5. Studying systematically through construction grammar

Construction grammar holds that the language forms, meanings and functions are tightly associated with one and another. The key of language acquisition is not determined by innate factors, but by postnatal language input. Xu Weihua and Zhang Hui (2010) summarize how the frequency of a construction influences second language acquisition. They point out that individuals' language development relies on the type frequency and token frequency of particular constructions in language input. Goldberg (2004) investigates children's early language in the CHILDES Corpus and finds that in almost every construction, there is a verb with relatively high frequency of occurence. Later experiments by Goldberg also confirms that providing high frequency verbs with prototypical meaning for learners can optimize construction study. Ellis and Ferreira-Junior (2009a) retrieve the European Science Foundation Corpus to search for data that are used for the second language learning of English. The results are found to be in line with Goldberg's and they find that learners first acquire the commonest and the most prototypical examples. Another inspiration from construction grammar proposed by Lu Hua (2016) is that it pays attention to the input materials for learners. In the process of acquiring a second language, sentences contained in the target language is indefinite, while learners' input is limited. It is impossible for learners to obtain all sentences, on the basis of which to epitomize its construction and the construction system of the target language. Cognitive grammar holds that members of the same category share different status and some belongs to peripheral members while others prototypical members. In a similar way, some typical examples are likely to reveal their forms and meanings to learners, which facilitates the establishment of constructional conceptions by learners. Therefore, to improve the productivity of language expressions requires learners to be exposed to simple and familiar contents first and then deepen the contents. Once the conception of the construction was shaped, learners can study it systematically.

Take the prefix "un" as an example. Teachers should firstly display some vocabularies that illustrate general negative meanings, such as "unfair" in opposition to "fair", "unnatural" which is not natural. Then learners can conclude that the construction of "un- plus a root" can negate the "root". Later, some more complex vocabularies like "unalienable", "unfriendly" and "unacceptable" should be presented. Because of the appearance of some suffixes like "-able", "-ly" and "-table", these words become non-prototypical members of the construction in question. After the above two processes, learners will successfully acquire the form and meaning of the "un- plus a root" construction. Not unexpectedly, knowing the meaning of "academic" will lead to the prediction of the meaning of "unacademic" by learners. Simultaneously, the word "unanimous" will be excluded from the category since "animous" is not a root even not a word, which provides no clue to the prediction of the meaning of "unanimous".

Thus, learners finally acquire the formal requirements, meanings and functions of the construction. In this way they can study vocabularies systematically and improve their study efficiency. From

concrete examples to abstract construction and then coming back to concrete examples conforms to the law of learning. That is why this method can make great contribution to the second language acquisition in terms of study efficiency.

6. Conclusion

Although construction grammar has many advantages, previous studies about it still stay at the theory level. The study of its application to second language acquisition is at a trial stage. Up to now, only a few empirical research have proved that construction grammar plays a significant role in second language acquisition. Among them, the most representative is the research carried out by Dong and Liang in 2004, which reveals that the transformation from verbs to constructions embodies the improvement of learners' learning. Instead of relying on verbs of a sentence, learners resort to constructions for the meaning of a sentence. Nevertheless, other relative studies focus on some particular constructions acquired by learners. Influenced by Goldberg and other representatives, the application research of construction grammar mainly centers on some special syntactical structures, like ditransitive constructions, caused-motion constructions. Gries and Wulff (2009) compares the gerund and the infinitive constructions of English. For example: "She tried rocking the baby." and "She tried to rock the baby." They find that the later is usually used to describe concrete, potential and coming things, while the former generally designates common and current things whose time is the same as the speaking time. The study contributes to increasing the accuracy and precision of comprehending and using the two constructions but it can do nothing for other constructions. Some researchers also adopt the principles of construction grammar to exploring words. By making a comparison between the corpus of Japanese second language learners and CNN Larry King Live Corpus, Matsumoto (2008) analyzes the word "find" when it is followed by complements and subordinate clauses. The study discovers some problems of Japanese learners and then advocates how to teach this construction. However, its beneficiaries are confined to Japanese learners. It does not mention how to extend his research in other construction learning and how to make it systemic so that textbooks can be compiled to teach. All these studies only inherit partial properties of construction grammar, and the range of their application is limited. Therefore, there are rarely a few research findings can be directly applied to language teaching and learning.

As for the methodology of research, language comparison (comparing the differences between the first language acquisition and the second language acquisition), empirical experiments and corpus investigations are mainly adopted by investigators. Some of these methods are hard to replicate and spread, while others are time-consuming and lack of accuracy. Xu and Zhang recommend more methods as a supplement to the former ones, such as neurolinguistic experimentation, multi-modal analysis of language study and inquiry methods of sociology study.

The theory of construction grammar still needs to be constantly optimized, and it has a promising future in the field of applying it to the second language acquisition. Meanwhile, more novel combinations between the two are expected.

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