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Construction Grammar: Disciples and Followers

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Abstract
The present study is related to the linguistic description of special units in language: constructions or collostructions. They are characterized as not simple, since they consist of several simpler units, but function as a single whole. Achievements in this field can no longer be ignored – they have to be included in all linguistic theories, regardless of the initial postulates, accepting that the facts require recognition of the closest connection between form and meaning. For this reason, I think it is necessary to mention about Construction Grammar. On the other hand, the philosophy of corpus-based approach envisages well in the framework of the Construction Grammar. The concern will be about different concepts, descriptions, and theories of language in Construction Grammar. The theory of the Construction Grammar (abbreviated CxG or CG) was suggested at the end of 80s – it was from the time when this term began to appear in the lectures and public speeches. The founder of CG is a linguist Charles Fillmore, who generally writes a little and has practically no books.
Key Words: *construction, collostruction, argument structure.*

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The fundamental work by C. Fillmore's student Adele Goldberg under the title "A Construction Grammar Approach to Argument Structure" [9] is still the most reliable introduction to CG, although it was published in 1995. In this work, she argued that sentence meaning was defined not only by the verb and its arguments, but also by the construction in which they occur. Below the "core" constructions studied by Goldberg are illustrated, together with some limitations on their use. Ditransitive construction contains verbs with two arguments in addition to the subject: a "recipient" or "addressee" argument, and a "theme" argument. Ditransitive verbs have sense of giving, selling, bringing, telling, etc. The ditransitive construction implies the intention of transferring of something to something. [9]

Intention is one of the principal semantic constraints, as demonstrated in the examples below [9,143]:

(1) Joe painted Sally a picture.

In (1), Joe painted a picture intentionally for Sally, so Sally is an intended recipient.

(2) *Hal brought his mother a cake since he did not eat it on the way home.

Example (2), however, sounds odd and weird because supposedly if Hal intended the cake for his mother, it would never have crossed his mind to eat it on the way home.

Finally, there is another issue related to the argument structure, which Goldberg also supposes to solve relying on CG. It is known that the same syntactic construction can be grammatically correct or incorrect, depending on what words are used in it. Let's compare the following examples from her work (Goldberg, 1995):

(3) a. Sam carefully broke the eggs into the bowl.

b. *Sam unintentionally broke the eggs onto the floor.

(4) a. This room was slept in by George Washington.

b. This room was slept in by Mary.

Such pairs are a quite challenging issue for a generative approach, under which it is assumed that the verb defines the number of its arguments. For example, the verb "give", which specifies three arguments (subject, direct object and indirect object), as in John gave Jane a letter. However, as we can see, real examples like pairs (3) – (4), do not always correspond to this.

At the same time, within the constructionist approach, which ascribes argument structures not to the verb, but to syntactic constructions in which it appears, is absolutely natural. As a matter of fact, if we admit that the general semantics of the construction presented in (3) is related to intended activity, the semantics of its locative participant should reflect the idea of the intended action, as in (3a). However, the adverb with the sense "accidently" and the surface (floor) do not correspond to this construction, therefore the substitution made in sentence 3b turns out to be impossible.

Analyzing such kind of examples, I come to the conclusion that constructions as a tool for describing a sentence turn out to be more flexible than the traditional verb-centered approach. They are better at "coping" with issues arising in the field of

argument structure, - whether it is a change of management model by a verb or stylistically marked and other occasional uses in which the verb deviates from its standard syntactic behavior.

Anatol Stefanowitsch and Stefan Gries: Collostructional analysis.

Recently, the theoretical constructions of A. Goldberg concerning the dependence of the components of a structure on its general meaning and their interdependence from each other, received powerful support in the form of a statistical base – methods and techniques, by which such dependencies can be assessed mathematically. The popularity of statistics among CG supporters is growing rapidly; a vivid example of this is the "collostructional analysis", that is a research area created by Stefan Gries and Anatol Stefanowitsch. [10,11]

Coll. analysis is a corpus-based quantitative method of defining the reciprocal attraction of lexemes and constructions which has gained immense popularity in the field of corpus and cognitive linguistics. Coll. analysis is a method that allows you to study collocations inside the grammatical construction. It can answer the following questions:

Which words are attracted to a grammatical construction? for instance future construction – be going to, which occurs with any word (drink, meet, have fun);

Are the verbs specially attracted? Do they appear more often than it is expected? That is what the coll. analysis can help to figure out.

In 1900s the purpose of corpus linguists was to measure the degree of mutual attraction between lexical elements in content, therefore they focused on associations between constructions and lexemes. In 2003, Anatol Stefanowitsch and Stefan Th. Gries presented a set of methods entitled "collostructional analysis".[10] The corpus-based methods aim for the development of tools for investigating interactions between lexemes and grammatical patterns. To be more exactly, coll.analysis determines the associational strength between constructions and the lexical elements and gives an explanation to the semantic differences between synonymous constructions ('alternations') by comparing the collostruction strength. Coll. analysis includes a particular construction and investigates the most strongly attracted and repelled lexemes (collexemes), or which lexemes appear more or less frequently. S & G in their research focused their attention on the verb slot, the two dative alternation constructions.

E.g., She gave him the book.

She gave the book to him.

Moreover, they demonstrated the "N waiting to happen" construction, where they paid attention to the nominal slot.

Eventually coll. an. depends on frequency of tokens of different types of phenomena (lexemes) in a corpus. To apply this approach successfully, S & G took for different scores for frequency of a target lexeme (L) and a target construction (C) from the corpus:

- the frequency of L in C,

- the frequency of L in all other constructions,

- the frequency of C with lexemes other than L,

- the frequency of all other constructions with lexemes other than L.

S & G demonstrated this setup with data from the British National Corpus (BNC) with the noun accident in the construction N waiting to happen (cf. Table 1):

Table 1. The frequency table of data from S & G [10;219].

1. frequency of L in C 14	2. frequency of C with other than L 21	row total 35
2. frequency of L in all other constructions in the corpus 8,606	4. frequency of all other constructions with lexemes other than L 10,197,659	row total 10,206,265
column total 8,620	column total 10,197,680	grand total 10,206,300

The frequency table serves as input for statistical tests that measure the association between constructions and lexemes. Although various tests are available, Gries in most studies have used a test known as Fisher Exact or Fisher-Yates to carry out the coll. an. Coll. strength defines the degree of attraction or repulsion of a lexeme and that is considered as the p-value of Fisher Exact Test. In other words, the smaller the p-value, the higher the strength of association between lexeme and construction. Very often, p-values are so small that their significance resides only in the number of decimal places. These scores are expressed in numbers like "1.12E-10": we read 1.12 times 10 to the power of minus 10", i.e., 0.000000000112. To make it simple, a logarithmic transformation of these scores is often given, which essentially shows the number of decimal places. This transformation turns the score of 1.12E-10 into "10". The lower the p-value, and thus the stronger the expected attraction between lexeme and construction. P-values are calculated individually for each of the lexemes investigated in a given construction based on their observed frequencies.

Thus, lexemes which occurred less frequently than others in a given construction may still show a smaller p-value (and thus be more strongly attracted than more frequently found ones) if they occur less often in the corpus altogether. For example, the verb award has higher collostruction strength in the ditransitive construction than the verb allows, even though the latter verb appears 18 times in the construction in the BNC, and the former no more than 7 times [10;229]. This is because award is less frequent than allow in the whole corpus.

Table 2. list of collostruction strengths of top-ranking verbs in the ditransitive construction

Collexeme Raw frequency in ditransitive C Collostruction strength

Collexeme	**Raw frequency in ditransitive C**	**Collostruction strength**
give	461	0
tell	128	1.6E-127
send	-64	7.26E-68
offer	43	3.31E-49
show	49	2.23E-33
cost	20	1.12E-22
teach	15	4.32E-16
award	7	1.36E-11
allow	18	1.12E-10
lend	7	2.85E-09
deny	8	4.5E-03
owe	6	2.67E-09

promise	7	3.2E-08

The term "Collostruction" is made up of two words: collocate and construction. Collocates (collocations) are the words with which commonly a target word co – occurs. Each collocate is associated with a single meaning of a target word. They can be left and right. Left collocates co – occur words immediately preceding a target word. For example, the most occurred left collocates of the word "virus" are nouns INFLUENZIA (9.84), AIDS (7.19) and BACTERIA (7.43). Right collocates take a place just after the target word or the following the target word. According to Biber [1,2], focusing on collocates is useful way to investigate the meaning of the words.

Theoretically, coll.analysis is based on the theory of CG, practically it includes three main research methods: collexeme analysis, distinctive collexeme analysis and covarying collexeme.

1) Collexeme analysis, which helps to measure the degree of attraction/repulsion for the specific word.

2) Distinctive collexeme analysis, that determines which of two functionally similar constructions a specific word prefers.

3) Covarying collexeme analysis is a method that allows to measure how often one lexeme in one of the slots is used simultaneously with certain lexemes in other slots.

On the basis of the above given examples and above mentioned, I would say that the basic aim of the coll.analysis is to figure out the association between words and construction. Specifically, it aims (1) to determine coll. strength, the strength of association between a particular syntactic pattern and its constituent lexical constructions and (2) to identify the meanings of these constructions.

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