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Cognitive Models of Grammatical Competence of Students

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Abstract

The article is based on the precepts of cognitive science and considers grammar competence of language learners as a semantic network of concepts, categories, prototypes, frames, scripts, schemata acquired as knowledge and grammar skills. The author examines students' grammatical competence in the light of cognitive approach and presents the cognitive model of grammatical competence. The model shows what components are needed for the students' to know how an English sentence is grammatically organized. This makes cognitive model of grammatical competence of students a useful tool for students and teachers.

Keywords: Grammar competence; cognitive model; grammatical frames; cognitive science

1. Introduction

Basic contradiction of the cognitive model of grammatical competence of students is the seeming incompatibility of the views of "cognitive" (Langacker, 1986) and "mental" (Chomsky, 1965; Chomsky, Lasnik, 1993) grammars. In fact, the contradiction between mentalism and cognitivism in understanding the nature of grammatical competence explains a single process of linguistic functioning – "from the brain" (mentalism) and "to the brain" (cognitivism).

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2. Grammatical competence of students in the light of scientific concepts

In the most general form, grammatical (linguistic) competence was defined by N. Chomsky, as theoretical and practical knowledge of a limited number of grammatical rules, which allow generating an unlimited number of correct sentences (Chomsky, 1965). It can be assumed that the grammatical competence in the context of learning a foreign language is a set of theoretical knowledge (rules) and language skills that are necessary and sufficient for students to construct correct sentences, to understand them, to monitor grammatical errors, to pass judgments about right and wrong linguistic forms, and to perform language testing tasks.

In the 80s, the American linguist R. Langacker put forward the idea of "space grammar". He claimed that the grammatical structures are closely related to lexical semantics and, together, constitute a single space of interrelated elements (Fodor, 2010).

The idea of the interconnectedness of the elements of language knowledge gradually led to the development of scientific ideas, dubbed "connectionism" (McClelland & Rumelhart, 1986). The essence of the idea of connectionism with respect to grammatical competence was the fact that the grammatical competence can be represented as a network of elements interacting in the intertwining connections. If we draw a parallel with the organization of the human brain, then there is an association with a network of neurons (brain cells).

3. Grammatical programming of sentences

The most common and persistent grammatical rules for constructing sentences in each language were called by N. Chomsky "grammar principles". For example, the proposal "John goes to the pub" corresponds to the principle of constructing sentences with the 3d person singular according to the rules of English grammar. To make the picture of grammar principles more complicated, the grammar of any language is characterized by "switches". A grammatical switch is usually an exception to the rule in forming a relationship between words in a sentence, which is not always consistent with the principles of a particular language. A grammatical switch is very typical for young children with native English, as in the sentence "Dad goed to work". This phenomenon is called «overgeneralization», that is, the application of a common grammatical rule to all cases in the language.

As a result of principles and switches merging together certain "acceptable norms" surface up in the language that N. Chomsky called "language parameters" (Chomsky & Lasnik, 1993). Language users have the right to deviate from grammar principles and to perform switches within certain socially acceptable parameters.

Native speakers do not always comply with the "principles of language." In their speech there are numerous deviations from formal rules and language "liberties" in such cases characterize authentic speech. Note that the parameters of grammatical correctness in oral communication are generally broader and wider than in writing, where strict and narrow linguistic principles prevail. The wider the students employ authentic grammar, the more advanced they are in their grammatical competence and the more their grammar parameters approach the standards of authenticity.

4. Instances (exemplars), concepts, categories, prototypes, frames, scripts in the cognitive model of grammatical competence of students

Let's consider the following terms of cognitive psychology and linguistics as an "instance" (exemplar), "concept", "category", "prototype', "frame" and "script" as each of them suggests a useful idea and each can help in understanding the structure of the grammatical competence of students.

Grammatical instances (exemplars) – are specific examples of language used in natural communicative situations. Language instances stored in the memory of native or trained speakers are an integral part of their grammatical competence.

By grammatical concepts in linguistic competence of students we mean notions that can be used to describe the correct English sentence. Important concepts for learning English grammar are parts of speech (noun, verb, adjective, etc.), their function in the sentence (subject, predicate, minor sentence), the order of words in the English sentence (direct order and inversion), morphological features of grammatically correct statements and many others. We can say that the grammatical concepts for students are the meta-language (the language of linguistic terms), with