# Frame Semantics: Cognitive Theory of Semantics

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**ABSTRACT**

*Past 2-3 decades a lot of stress has been given to "cognitive linguistics". Its approach is concerned with how the process and how patterns are conceived in conceptual content and organized. It targets the semantic structure of morphological and lexical forms. Cognitive linguistics, addresses two approaches to language. Firstly, it examines the formal properties of language from its conceptual perspective. Needless to say that it aims to analyze grammatical structure in terms of the functions which in turn works as representation of conceptual structure. Secondly, one of its most distinguishing features is, that it aims to connect its findings to the cognitive structures that relates to the psychological approach. It aims both to help account for the behavior of conceptual phenomena within language in terms of those psychological structures, and at the same time, to help work out some of the properties of those structures themselves on the basis of its detailed understanding of how language realizes them.*

## I  INTRODUCTION

Cognitive semantics is part of the cognitive linguistics movement. Cognitive semantics is typically used as a tool for lexical studies such as those put forth by Leonard Talmy, George Lakoff, Dirk Geeraerts and Bruce Wayne Hawkins. Before getting into the relevant details about cognitive semantics here it becomes necessary understanding to mention a preview about cognition and semantics. In science, cognition is a group of mental processes that includes attention, memory, producing and understanding language, learning, reasoning, problem solving, and making. The dictionary meaning says it is the psychological result of perception and learning and reasoning. Semantics on the other hand is related to meaning or the study of meaning of a language.

Cognitive semantics is the study of knowledge within the human mind, the branch of semantics that studies the cognitive aspects of meaning. Thus it shares one basic property with pragmatics, namely, that language is not analyzed as an abstract structure but as a human quality. Semantics, as the theory of the relation between language and the world, is reformulated as cognitive semantics referring to the theory of the relation between the language and the mind's setup of the world. It combines analysis of cognitive structure, conceptual structure and semantic structure. Thus cognitive semantics as per definition is a cross-disciplinary approach to language where an exposure to psychology, neurology and biology is a necessity. One immediate result of this innovative approach is that truth cannot be described as an absolute measure but as a relative one, as a pragmatic entity, which rests entirely on the users and the situation. Thus meaning is no longer a function of satisfied truth-conditions, i.e., that a if we consider a proposition is to be false that does not mean that it has no meaning. Following are the assumptions which form basis of theory:

(a) Meaning is Conceptual
(b) There is a clear demarcation between real and conceptual
(c) No direct interchange of real and conceptual
(d) Cognitive theory relates only to the conceptualized
(e) It describes only the organization of cognition *i.e.* your conceptualized units.
(f) Human beings have an innate quality to learn these conceptualized thoughts

Cognitive semantic theories are typically built on the argument that lexical meaning is conceptual. That is, the meaning of a lexeme is not reference to the entity or relation in the "real world" that the lexeme refers to, but to a concept in the mind based on experiences with that entity or relation. An implication of this is that semantics is not objective and also that semantic knowledge cannot be differentiated from the knowledge gained by dictionary or encyclopedia.

Cognitive semantic theories are strongly based upon the idea that semantics is acquiescent to the same mental processes as dictionary knowledge. They thus involve many theories from cognitive psychology and cognitive anthropology.

Cognitive semantics has sought to challenge traditional theories in two ways: first, by providing an account of the meaning of sentences by going beyond truth-conditional accounts; and second, by attempting to go beyond accounts of word meaning that appeal to necessary and sufficient conditions. It accomplishes both by examining the structure of concepts.

Another trait of cognitive semantics is the recognition that lexical meaning is not confirmed but a matter of explanation and conversation. The processes of linguistic explanation, as it is argued, are the same psychological processes involved in the processing of perception and learning through encyclopedia. According to the reference from encyclopedia Wikipedia this view has inferences for the problem of compositionality. An account in cognitive semantics

called the dynamic construal theory makes the claim that words themselves are without meaning: they have, at best, "default construal," which are really just ways of using words. Along these lines, cognitive semantics argues that compositionality can only be intelligible if pragmatic elements like context and intention are taken into consideration.

Cognitive semanticists argue that truth-conditional semantics is restricted to account of full sentences. They are not entirely against the truth-conditional semantics; although they point out that it has limited explanatory power. Needless to say, it is limited to indicative sentences, and does not seem to offer any straightforward or intuitive way of treating (say) commands or expressions. By arguing this, cognitive semantics seeks to cover the full range of grammatical moods by also making use of the notions of framing and mental spaces.

## II FRAME SEMANTICS

Frame semantics, developed by Charles J. Fillmore, attempts to explain meaning in terms of their relation to general understanding, not just in the terms laid out by truth-conditional semantics. The basic idea is that one cannot understand the meaning of a single word without access to all the essential knowledge that relates to that word. A **semantic frame** is a collection of facts that specify "characteristic features, attributes, and functions of a denotatum, and its characteristic interactions with things necessarily or typically associated with it."

The term frame semantics relates to a wide range of theories to the systematic description of the meanings in natural language. The one common feature of all these assumptions is the following slogan by Charles Fillmore (1977):

*"Meanings are relative to scenes."*

According to him meanings have innate constitution which is resolved relative to a backdrop frame or a scene.

**(a) History-** There are at least two historical roots of frame semantics; the first is linguistic Syntax and Semantics, especially Fillmore's case grammar, the second is Artificial Intelligence (AI) and the notion of frame introduced by M. Minsky (1975) in this field of study. A case frame in case grammar was taken to characterize a small abstract scene which identifies (at least) the participants of the scene and thus the arguments of predicates and sentences describing the scene. In order to understand a sentence the language user is supposed to have mental access to such schematized scenes.

The other historical root of frame semantics is more difficult to describe. It relates to the notion of frame-based systems of knowledge representations in AI. This is a well thought-out approach to knowledge representation which combines together information about particular objects and events to arrange them into a taxonomic hierarchy familiar from biological taxonomies. However, the specific formalism suggested in the above mentioned paper by Minsky was not considered successful in AI.

**(b) Basic Tools-** Considering Frame Semantics to be a theory of meanings we can make the assumption that there is always some background knowledge relative to which a word does some highlighting, and akin to which it is defined. Two ideas are conceived to be essential:

(i)     A background concept
(ii)    A lexical set including all the words that utilize this conceptual background.

Two other important frame theoretic concepts are frame elements and profiling.

A frame element is basically a regular participant, feature, or attribute of the kind of situation portrayed by a frame. In frame semantics, all word meanings are relative to frames. Buta word meaning does not set off a whole frame. Different words decide on different aspects of the background to profiles (here we use the terminology introduced in Langacker 1984). At times these various facets are just reciprocally selected parts of the kinds of circumstances being described like distinct participants, such as the husband and wife in the marriage frame. However at word meanings vary not only in what they profile, but in how they profile it.

**(c) The Understanding-** Collective pieces of linguistic evidence motivate the frame-semantic project. Firstly we can highlight that word meaning is an expansion of our bodily and cultural experiences. For example, the notion of school is connected with a series of concepts, like class, board, teachers, games etc. These rich-but-contingent associations cannot be monitored by an analysis in terms of necessary and sufficient conditions, but still they convey us the meaning of a school.

Secondly, and importantly, these conditions are not sufficient to report for irregularity in their usage. According to a semantic feature analysis, there is nothing more to the meanings of "boy" and "girl" than: BOY is a young male and GIRL is a young female. Here we need to mention that people consider girl to be a young woman but are apprehensive of using 'boy' for a borderline young man. This is the result of different exposure of conceptual units.

Thirdly, argument is that in truth-conditional semantics there is a lag in dealing with some aspects at the level of the sentence. Take the for example "You didn't spare me a day at the seaside; you deprived me of one". In this case, the truth-conditions of the state articulated by the precursor in the sentence are not being denied by the proposition expressed after the clause. Instead, what is being turned down is the way that the precursor is framed.

Finally, with the frame-semantic standard analytical tools, we are able to explain a wider range of semantic phenomena than possible by providing requisite conditions. Some words have the same definitions or intensions, and the same extensions, but convey different meanings at different arenas. For example, the lexemes *land* and *ground* are synonyms, yet they naturally contrast with different things -- *sea* and *air*, respectively.

Acknowledging, that the frame semantic version not only limited to exploring the study lexeme, along with it we can scrutinize it at a higher and filtered level, including the level of the sentence (or, more precisely, the utterance). The notion of framing is considered as a synonym to pragmatic notion of background assumptions. Philosopher of language John Searle explains the latter by asking readers to consider sentences like "The cat is on the mat". For such a sentence to make any sense, the interpreter makes a series of assumptions: i.e., that there is gravity, the cat is parallel to the mat, and the two touches. For the sentence to be intelligible, the speaker supposes that the interpreter has an idealized or default frame in mind.

In totality we can deduce that, in the field of cognitive linguistics and of cognitive semantics in particular considers the representation of conceptual structure in language as its core. The field refers features of conceptual structures both local and global, both autonomous and interactive, and both typological and universal. It connects the linguistics properties to the wide range properties of cognition. Although a lot of work has been done in this novel and young linguistic tradition, it remains quite dynamic and is extending its explorations in a number of new directions.

## III APPLICATIONS

Frame semantics has a wide range of applications ranging from sub-branches of linguistic theorizing such as Morphology to Typology, Discourse Analysis, and Language Acquisition. Yet, the fundamental and most successful application seems to be (computational) lexicography. In a frame based lexicon the frame accounts for linked meaning of a single word and its semantic associations to other words. As a result frame based lexicon offers more widespread information than the traditional lexicon. An example of computational lexicography is the Frame Net-System (see Boas (2002)).

## IV CONCLUSION

(a) Frames are evoked when we understand words

(b) Some words highlight particular parts of a frame

(c) Frames evoke a particular perspective on a situation

(d) Frames suggest a particular history in a concept

(e) Frames often assume larger cultural frames

(f) Frames are structured representations of causal and relational information about objects, scenes, and events

(g) Knowledge is represented in an idealized form in frames

(h) Cultural behavior often involves negotiating over when to apply particular frame

The syntax of human languages, with some limited but very interesting exceptions in sign language, forces us to lineup the participants of the events we are talking about. The logical notion of a relation, which preserves certain aspects of linearization, has at times appeared to offer an attractive account of what we grasp when we grasp meanings. But the data we have been looking at in this brief excursion into frame semantics has pointed another way. Lexical senses seem to be tied to the same kind schemata that organize our perceptions and interpretations of the social and physical world.

In these schemata participants are neither lineup nor uniquely individuated, and the mapping into the lineup regime of syntax is constrained but underdetermined. Thus we frequently see individual words with options in what their exact participants are and how they are realized or closely related words with distinct realization possibilities for the same participants.

Frames offer a model that is both specific enough and flexible enough to accommodate these facts, while offering the promise of a firm grounding for lexicographic description and an account of text understanding.

We conclude with a quote from Fillmore. Note the careful placement of the negation in the last sentence:

People need to categorize objects and events in their world.

When we wish to study instances of categorization provided by the lexical items in their language, we can do this only by asking what functions such categorizations have in their lives. Some of the categorizations we found are only linguistic explanations: people do it that way because that's how their language evolved, and it could have evolved in a number of other ways. Others have, at least in part, explanations that depend in crucial ways

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