# THE GENERATIVE LEXICON AND THE PHRASE FORMATION

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*Abstract: The present paper aims at presenting the role of the generative lexicon in the formation of phrases. As we are going to see, it is very important since it helps to predict the projections of the lexical item by offering the the most detailed semantic representation of the head of the phrase.*

*Keywords: the generative lexicon, argument structure, event structure, qualia structure*

The generative lexicon plays an important role in the formation of phrases by offering the most detailed semantic representation of a lexical item and by presenting the possibilities of combining lexical items in order to give various meanings. Pustejovsky defines it as „a core set of word senses, typically with greater internal structure than is assumed in previous theories, is used to generate a larger set of word senses when individual lexical items are combined with others in phrases and clauses"[1] .

The generative lexicon is structured on three levels of representation: the argument structure (ARGSTR), the event structure (EVENSTR) and the qualia structure (QUALIA).

The argument structure refers to the number and type of arguments selected by the lexical item: true arguments (*John* in 1a), default arguments (*out of bricks* in 1b), shadow arguments (*a waltz* in 1c) and true adjuncts (*Sunday* in 1d).

(1) *a. John danced.*
*b. John built the house out of bricks.*
*c. John danced a waltz.*
*d. John danced on Sunday.*

The first category, true arguments, cannot be omitted. Default arguments are not necessarily expressed syntactically. Shadow-arguments are those arguments whose presence is allowed only if they belong to a subtype of the type which, if expressed by an argument, would generate a pleonasm. Adjuncts include expressions of temporal or spatial modification.

Given this typology, Pustejovsky believes that the arguments for a lexical item, $ARG_1$,..., $ARG_N$, are represented in a list where the argument type is directly included in the argument structure, as shown in (2):

(2)
$$\begin{bmatrix} build \\ ARGSTR = \begin{bmatrix} T-ARG_1 = x : human \\ T-ARG_2 = y : artifact \\ D-ARG_1 = z : material \end{bmatrix} \end{bmatrix}$$

The nouns follow the same pattern. For example, the argument structure for the lexical item *arrival* presents two arguments: a true argument referring to the person who performs the action (x) and a default argument, referring to the place being arrived at (y).

(3)
$$\begin{bmatrix} \text{arrival} \\ ARGSTR = \begin{bmatrix} ARG1 & = & x : individual \\ D-ARG1 & = & y : place \end{bmatrix} \end{bmatrix}$$

[1]Pustejovsky, James, 1995, *The Generative Lexicon*, The MIT Press, London p.2.



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The event structure characterizes both the basic event type of the lexical item and its subeventual structure: states, processes and transitions (4).

(4) *to be (state)*
*to walk (process)*
*to arrive (transition)*

According to the generative lexicon, activities are defined as processes, achievements and accomplishments are called transitions and they are defined by the combination of the two concepts: a process and a state that results. The prominence for an event is given by the HEAD marker.

(5) $$\begin{bmatrix} \text{development} \\ EVENSTR = \begin{bmatrix} E1 & = & process \\ E2 & = & state \\ RESTR & = & <_{\alpha} \\ HEAD & = & e1 \end{bmatrix} \end{bmatrix}$$

In (5), the event structure for the lexical item *development* presents two subevents, that is, a process and a state. The process takes place before the state and the focus is on the process (e1).

The novelty of the generative lexicon is represented by the qualia structure. It describes four essential characteristics of the meaning of a word:

- the constitutive role (the relation between an object and its constituent parts: material, components),
- the formal role (that which distinguishes the object within a larger domain, its physical characteristics: orientation, form, dimension),
- the telic role (the purpose and the function of the object),
- the agentive role (factors involved in the origin of the object: artefact, creator).

Qualia structure helps in distinguishing between semantically related words, such as *novel* and *dictionary*. While both are books (formal role), what differentiates them is their structure (constitutive role): the novel is a story and the dictionary is a list of words. Another difference refers to their purpose (telic role): the novel is made to be read and the dictionary is made to be consulted. The last difference between these two objects refers to the way in which they were created (agentive role): while the novel was written, the dictionary was compiled.

(6) $$\begin{bmatrix} novel \\ QUALIA = \begin{bmatrix} CONST & = & \text{story} \\ FORMAL & = & \text{book} \\ TELIC & = & \text{to read} \\ AGENTIV & = & \text{written} \end{bmatrix} \\ dictionary \\ QUALIA = \begin{bmatrix} CONST & = & \text{list of words} \\ FORMAL & = & \text{book} \\ TELIC & = & \text{to consult} \\ AGENTIV & = & \text{compiled} \end{bmatrix} \end{bmatrix}$$

All this information related to the form, structure, purpose of the lexical item is very useful since it helps us understand how words combine in order to form correct phrases in any language.

Thus, for the lexical item *house*, the possible combinations will be: beautiful/big/yellow house, house of bricks/stone, holiday/summer house.



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$$(7)\ a.\begin{bmatrix} house & & \\ ARGSTR & = & \begin{bmatrix} ARG1 & = & x:human \\ ARG2 & = & y:building \\ D-ARG & = & z:material \end{bmatrix} \\ EVENSTR & = & [E1 = state] \\ QUALIA & = & \begin{bmatrix} FORMAL & = & building \\ CONST & = & walls, doors, roof \\ TELIC & = & to\ \ inhabit \\ AGENTIVE & = & to\ \ build_act \end{bmatrix} \end{bmatrix}$$

$$b.\begin{bmatrix} house & of & bricks & \\ ARGSTR & = & \begin{bmatrix} ARG1 & = & x:human \\ ARG2 & = & y:building \\ D-ARG & = & z:bricks \end{bmatrix} \\ EVENSTR & = & [E1 = state] \\ QUALIA & = & \begin{bmatrix} FORMAL & = & y(building) \\ CONST & = & z(bricks), walls, doors, roof \\ TELIC & = & to\ \ inhabit \\ AGENTIVE & = & to\ \ build_act \end{bmatrix} \end{bmatrix}$$

$$c.\begin{bmatrix} holiday & house & & \\ ARGSTR & = & \begin{bmatrix} ARG1 & = & x:human \\ ARG2 & = & y:building \\ D-ARG & = & z:material \end{bmatrix} \\ EVENSTR & = & [E1 = state] \\ QUALIA & = & \begin{bmatrix} FORMAL & = & y(building) \\ CONST & = & walls, doors, roof \\ TELIC & = & to\ \ inhabit\ during\ \ holidays \\ AGENTIVE & = & to\ \ build_act \end{bmatrix} \end{bmatrix}$$

The noun phrase *house of bricks* can be semantically explained as follows:

1) the nominal head *house* (7a) presents two true arguments in the argument structure (the one who builds the house and the object that results – the house) and a default argument (the material used in the building of the house). In the event structure, we notice that the type of the event is a state, and in the qualia structure, the four roles provide a detailed description of the head, that is: the house is a building (the formal role) which consists of walls, doors, roof, windows (the constitutive role), is made to be inhabited (the telic role) and it was built (the agentive role).

2) Having all this information about the head-noun, now we observe what types of adjuncts can be attached to the head-noun. Therefore, an adjunct such as the prepositional phrase *of bricks* (7b) may be attached to the head-noun because it makes reference to the material used in the building of the house. This information will appear in the formal role of the noun phrase *house of bricks* (7c).

The prepositional phrase *of books* would have been impossible to attach to the head-noun because it does not refer to any of the roles in the qualia structure.



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The examples above emphasize the role of the generative lexicon in the interpretation of words. At the same time, we have noticed that we cannot attach any word to the head of a phrase, but we have to take into account its qualia structure in order to form correct structures in a language.

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