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Syntax and Morphology Interface: A Study within Lexical-Functional Grammar

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Abstract

The present paper is aimed at providing information on the interaction of syntax and morphology within Lexical-Functional Grammar (hereinafter LFG). It is to introduce how c-structure and f-structure as levels of representation in LFG are assigned to sentences in English Language. This paper is also an investigation of how distinct syntactic relations are obtained when changing words or phrases in sentence structures. This is obviously shown in c-structure and f-structure. The former denotes the constituent structure of sentences which entails the composition of words into phrasal constituents hierarchically. Whereas, the latter represents the grammatical relations between the units of a sentence, which includes subject, object, complement, adverbial, and so forth. Further, the aim of the paper is to cast light on different important phenomena that are the principal concern of LFG viz head mobility, passive, and wh-movement. Finally, how changes of lexical forms

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of processes and participants assign verbs with different functions and changes the structure of sentences.
Key Word : LFG; c-structure; f-structure; grammatical relations

مزج المستويات النحوية و المورفولوجية ضمن قواعد النحو الوظيفي و الجملي

د جلال سعدالله حسن

جامعة كرميان

الـمستـخلـص

في هذه الدراسة سلط الضوء على مزج المستويات النحوية و المورفولوجية ضمن قواعد النحو الوظيفي و الجملي.

وحاولت الدراسة التركيز على تكوين f لتحديد الجملة في اللغة الإنكليزية.

كما حاولت الدراسة وضع بصمتها على أوجه الاختلاف والمقارنة بين ...f–str مع...c– stru

وأشار البحث إلى النوع الأول الذي يكمن في تكوين الكلمة، ويؤكد النوع الثاني على تركيبات الجملة مثل الفاعل والمفعول به وشبه الجملة الظرفية.

1. Introduction.

The aim of this paper is to shed light on the interaction between syntax and morphology and to show how one can get different grammatical relations changing words or phrases in the structures of sentences. In this paper, different points are mentioned. Starting with a short introduction in the first section. The second section of the paper is to introduce the LFG and its origin; the third section shows the differences between constituent structures and function structures because one of the unique features of LFG is that it pays more attention to both structures and explicates the two types of representations: the c-structures which represent the constituent structures of the sentence and the f-structures which represent the relational structures of the sentence; still in this section grammatical functions are focused on to figure out how some grammatical functions are a

part of the verb's sub-categorization and how some are not. The fourth section lays emphasis on c-structures and f-structures in different languages. The fifth section is about the mapping of both structures. The sixth section of the paper states the conditions that should be taken into consideration in making the c-structures and f-structures well-formedness. The seventh section concentrates on some different phenomena that LFG accounts for, like head mobility, passives and wh-movement. Lastly, the concluding points of the paper are presented.

2. LFG and Its Origin

As a device, LFG arises from the necessity to explain the importance of syntactic patterns in human languages. In LFG, a mapping is employed that is identified by lexical entries in order to specify semantic arguments and surface grammatical functions. Then, the surface functions along with the configuration of morphology and constituent structure are specified by syntactic rules. In addition, well-formedness of functional and constituent structures in a sentence is determined by grammatical specifications (Kaplan and Bresnan, 1995: 30).

LFG was first developed in the mid-to-late 1970s, out of the work of two people. The first was Joan Bresnan, a syntactician and the former student of Chomsky's. The second person was Ronald M. Kaplan, a computational linguist and a psycholinguist. After realizing their similarities, they determined to work collaboratively. From the collaboration between both pioneers Bresnan and Kaplan, LFG came into existence, so presumably as a model for linguistic learnability and language processing. Further, it has built on a variety of morphological, syntactic, and semantic theories (Falk, 2001: 2-3). To Dalrymple (2001: 1) LFG is "a non-transformational theory of linguistic structure which assumes that language is best described and modeled by parallel structures representing different facets of linguistic organization and information, related to one another by means of functional constraints".

Van Valin (2004: 182) claims that like Relational Grammar (henceforward referred to as RelG), LFG expanded out of traditional transformational grammar, but unlike RelG, it refuses the view of abstract fundamental syntactic representations and transformational

rules. Like RelG, it is a constraint-satisfaction theory. LFG is a member of a group of modern theories which have the following properties:

(1) They don't posit abstract underlying syntactic representations;

(2) They stress the clear representation of morph- syntactic information by way of syntactic features;

(3) The lexicon plays a very significant role; and

(4) They employ unification as a chief mechanism in the grammar.

Dalrymple (2001: 9-10) asserts that LFG presumes that there are a repository of grammatical functions as a universal phenomenon, as follows; (SUBject, OBject, OBJθ, COMP, XCOMP, OBLiqueθ, ADJunct, XADJunct). The labels OBJθ and OBLθ represent specific semantic roles, with the θ subscript to embody the roles semantically correspond to the argument. To illustrate, OBJTHEME is a one of the thematically restricted OBJθ functions which has the THEME role; while OBLSOURCE and OBLGOAL are members of the OBLθ group of grammatical functions, which possess the semantic roles SOURCE and GOAL.

Further, Van Valin (2004: 182-3) adds that LFG has a unique feature which is concerned with both 'relational and constituent types of structure', and it syntactically provides any sentence with c-structure and f-structure characterization.

3. C-Structures *vs.* F-Structures

LFG as a medium is used as an account of a number of linguistic phenomena. It assigns two levels of syntactic representation to a sentence, the constituent and functional structures. The c-structure is equivalent to the tree diagram of a phrase structure that stands for phonological interpretation. By contrast, the f-structure accounts for grammatical relation using hierarchical attribute-value matrix (Kaplan, 1995: 7-8).

Dalrymple (2001) asserts that LFG assumes that c-structure and f-structure, which are syntactic representations, account for two subsystems of the overall system of linguistic structures. The functional structure is the abstract functional syntactic organization of the sentence, and represents the syntactic predicate-argument structure and functional relations

like subject and object. By contrast, the constituent structure is a more concrete level of linear and hierarchical organization of words into phrases (7).

Concerning f-structure, (Kaplan 1975, cited in Kaplan, 1995: 8) represents underlying grammatical relations, since the hierarchical and ordered tree structures are not handy to reveal more abstract relations among grammatical functions and features. To exemplify, in '*John saw Mary'* it is a fact that *John* is the Subject NP that comes under the S node in a tree diagram, but such an indirect way of encoding has no explanatory advantage.

Regarding c-structure, Austin (2001: 8749) elaborates as follow:

> LFG adopts the X-bar model of capturing head-dependent relations, and treat 'functional' elements such as Determiners, Complementizers and Inflections as co-heads of lexical elements such as Nouns and Verbs. LFG c-structures, however, are subject to the lexical integrity principle which states that minimal c-structure elements are whole words, not part of words or empty categories. No movement of c-structure constituents (such as V to I movement) is allowed in LFG, unlike in other syntactic theories. Syntax cannot see into the internal composition of words.

With regard to (V to I movement), in English auxiliary elements occur in the (I) c-structure position, while there will be no auxiliary then the verb may appear (i.e., the distribution is conducted by classifying an inflected verb like believes as in *"This child believes that the prince has died"* as an (I) category element marked for TENSE but an untensed form like believe as V (ibid, 8750).

In general, c-structures and f-structures are ways of representing syntactic structures in LFG; the former is to reveal about functional relation and the latter overtly shows the lexical relations and the organization of words into phrases.

3.1 C-structure

The major idea of LFG is that "the words of a sentence are organized into constituents, which are represented by a tree, and generated by rules. In LFG, these trees are called the

c-structure, and are roughly equivalent to the s-structure in Principles and Parameters approach" (Carnie, 2006: 436).

Concerning the constituency, Brwon and Miller (1980: 21-23) describe it as some proper subpart of a sentence relevant to its analysis. Constituent structure analysis consists of analysis of the sentence and the relevant parts; and the grammatical description of its parts. For instance, the structure of the sentence below is describing as; *The dog* frightened *the child.* The relevant units can be the NP/Subject *the dog,* the VP/Verb *frightened,* and the NP/Direct Object *the child,* which construct the sentence. That is, *the dog* and *the child* are constituents of the same type, but have different grammatical functions and these functions are easily determined by their positions in the sentence. The idea of relational structure, to (Van Valin, 2004: 21) implies the role of the concepts (subject, direct object, and indirect object).

3.2 Grammatical Functions

Van Valin (2004: 183-184) claims that the LFG account of grammatical functions is not the same as the grammatical relations in the RelG. Figure 1, which is adopted from Bresnan (1982b) suggests grammatical functions for simple sentences.

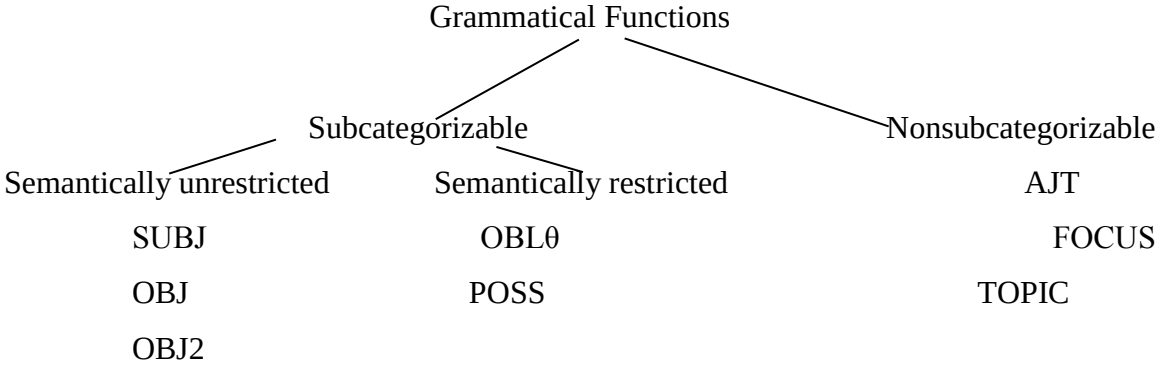


Figure 1 *Grammatical Functions in simple sentences.*

In the organization, the grammatical functions that can be part of a verb's subcategorization and those that cannot be, are divided. With respect to subcategorizable functions, the difference is made between semantically unrestricted and restricted functions. The semantically unrestricted functions are subject (SUBJ), direct object (OBJ) and secondary object (OBJ2); they are semantically unrestricted because arguments bearing a variety of thematic relations can have these functions. For example, subjects can

be agents, experiencers, patients, etc. depending on the selection of the verb. Similarly, direct object can be themes, patients, instruments, etc. depending upon the verb. That is, morphosyntactic features of the verbs determine the structure of the sentences. The secondary object with ***hand*** in *Arthur handed his teacher the exam paper* would be a theme, while the one with ***show*** in *Chris showed Pat the book* would be a stimulus.

The semantically restricted grammatical functions are associated with particular thematic relations, e.g., recipient, instrument, or benefactive or semantic functions e.g. possessor (POSS). The traditional indirect object in ***Chris gave the book to Pat*** is analyzed as an OBLθ in LFG as is the *with PP* in ***He cut the bread with a knife*** and the locative PP with verbs like ***put***. The non-subcategorizable functions are adjunct (AJT), TOPIC and FOCUS. Both TOPIC and FOCUS are to refer to functions of discourses. That is, the 'topic' denotes old or prior mentioned information and the 'focus' is referred to new information as in;

- Q: what happened to John?
- A: He got arrested.

According to the context, *John* is TOPIC, which is referred to by an unstressed pronoun *he* in the answer. While, the predicate *got arrested* is FOCUS, which is new information and referred to as comment.

Van Valin (2004) elaborates, in LFG, the terms TOPIC and FOCUS are used to describe specific functions which NPs and PPs are treated as grammatical functions, as in; *Montreal I'd like to visit someday*. In which (Montreal) is the TOPIC, and the rest is a comment about it. And in *What did Chris give Pat.* (What) is the FOCUS, as Wh-words are always focal in nature (184-185).

More on the distinction between semantically restricted and unrestricted functions as (Bresnan 1982a) asserted; it is explicated by (Dalrymple, 2001: 13-16) that both functions are governable grammatical functions.

The semantically unrestricted functions like SUBJ and OBJ (Fillmore, 1968), which can be associated with any semantic role, as shown;

a. *He hit the ball.*
b. *He received a blow.*
c. *He received a gift.*
d. *He loves her.*

e. He has black hair.

Above-given examples declare that the SUBJ of different verbs is associated with different semantic roles: AGENT in (a), GOAL in (b), and so forth. OBJs are also play different semantic roles in correspondence with different verbs.

Unlike semantically unrestricted functions, restricted ones such as (OBJθ and OBLθ) are compatible with a particular semantic role. For the purpose of illustration, see the points below;

- The OBJTHEME is corresponding merely with the semantic role THEME as in *I gave her a book.*
- And the OBLGOAL is in association only with GOAL as in *I sent a letter to Azad.*

In addition to semantically unrestricted and restricted functions, a much of emphasis is also laid on Terms (direct functions) and Non-terms (obliques) in governable grammatical functions. The Terms embody (SUBJ, OBJ, OBJθ), whereas, (OBLθ, XCOMP, COMP) are Non-terms.

Dalrymple (2001: 24) makes distinction between XCOMP and COMP. XCOMP is an open complement; it is typically nonfinite clause; the X is to indicate an open function as in;

- *David seemed to yawn.*
- *Chris expected David to yawn.*

Unlike XCOMP, COMP is a closed complement; is the function of sentential complements. Generally, it is a finite embedded clause as in;

- *David complained that Chris yawned.*
- *David wondered who yawned.*
- *David couldn't believe how big the house was.*
- *I thought that he was taking the exam.*

3.3 F-structure

According to Falk (2001:11-12) LFG claim is that grammatical functions are elements of syntactic representation, but of a kind of that exist in parallel to c-structure. Unlike c-structure, this level of representation is grounded in grammatical functions, the representation of which entails a feature of a more conventional nature; called f-structure

where one can think of ***f*** as standing for either function or feature. Consider c-structure and f-structure of the sentence to make the idea concrete:

e.g. *The dinosaur doesn't think that the hamster will give a book to the mouse*.

Figure 2 C-structure

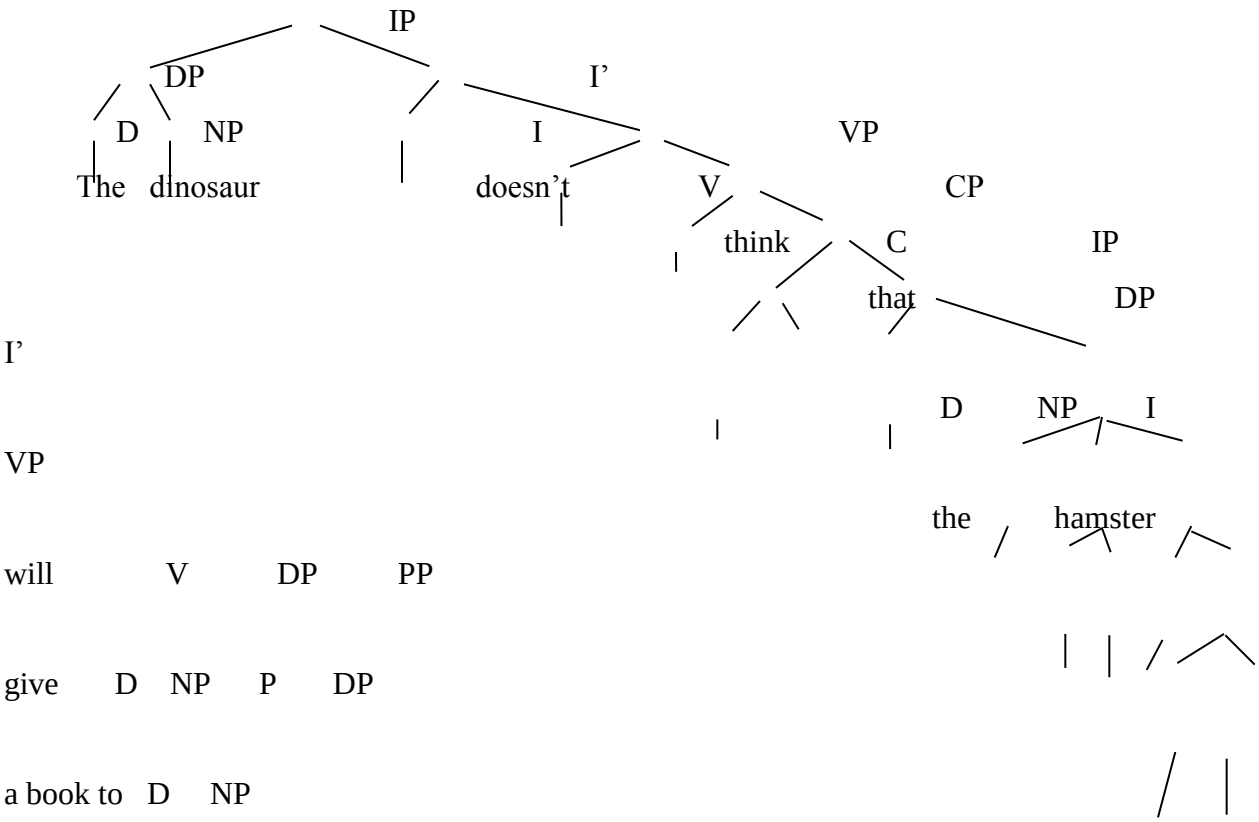
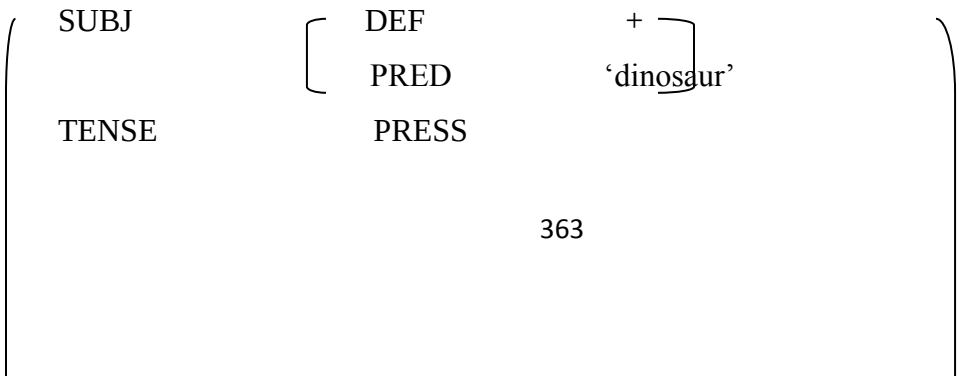
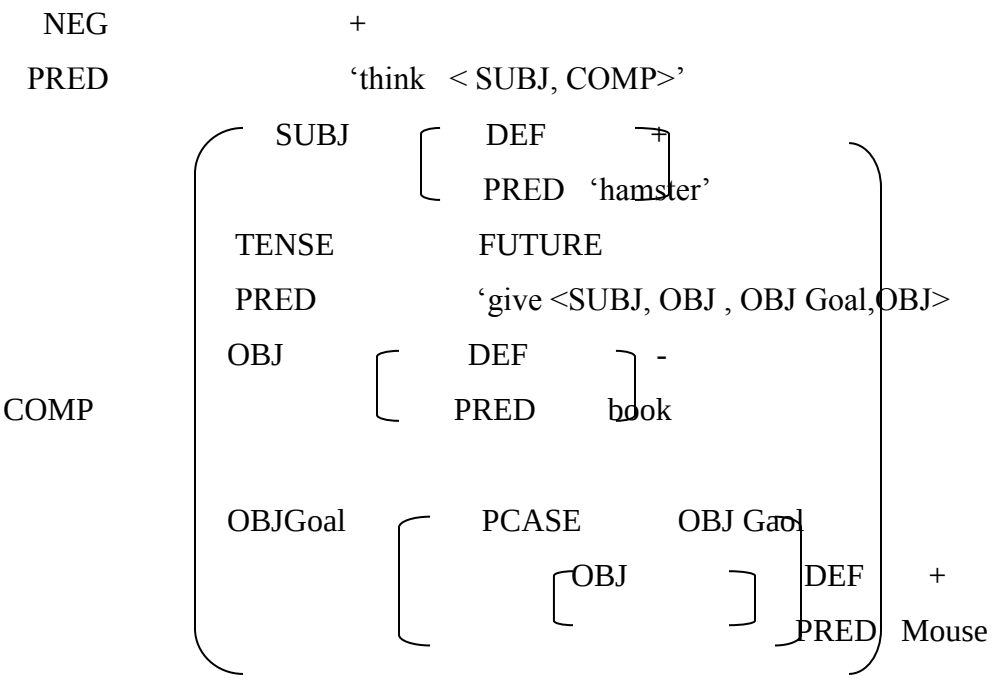


Figure 3 F-structures

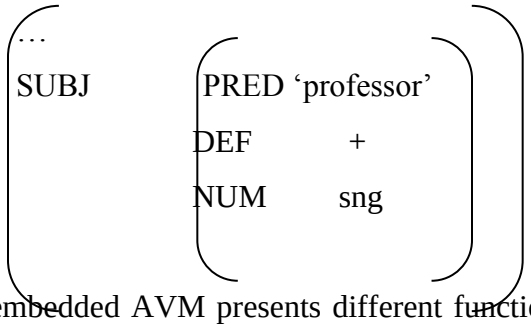




The f-structure sometimes is called an attribute-value matrix (AVM). An attribute is a feature or function name, the attribute name precedes the value; f-structure contains five attribute names: SUBJ, NEG, TENSE, PRED, and COMP. To the right of each attribute names its value. Three of the attributes; TENSE, NEG, and PRED are features; they have simple values. The other two attributes, SUBJ and COMP are functions; their values are smaller f-structures.

In addition to that, Carnie (2006: 437-438) elaborates on attribute value matrix (AVM) with the following example;

The professor loves phonology.



The embedded AVM presents different functions; the function PRED shows the lexical content of the subject NP, DEF shows its definiteness and indefiniteness, NUM represents

the number of NP, etc. these are all properties of the subject. Thus, an important point can be noticed that it holds and represents a wide range of functions.

According to the AVM, the item on the left is the attribute or function, while the item on the right is the value attribute to that function: SUBJ PRED 'Diana' .

4. C-structure and F-structure in Different Languages

Van Valin (2004: 183) as LFG assigns two representations to each sentence, it is easy to represent how individual languages differ structurally and how similar they are functionally. In the examples below all of which mean '*Juan sees a dog'*, show that each language has a different c-structure on its own, they all possess the same f-structure.

a. Juan sieh-t ein-en Hund. German
Juan.NOM see-3sgPRES a-ACC dog

b. Juan-I kay-lul po-n-ta. Korean
Juan-NOM dog-ACC see-PRES-IND

c. Mang-ida biang si Juan. Toba Batak
ACTIVE-see dog PN Juan

Figure 4 C-structure representations for 'Juan sees a dog'

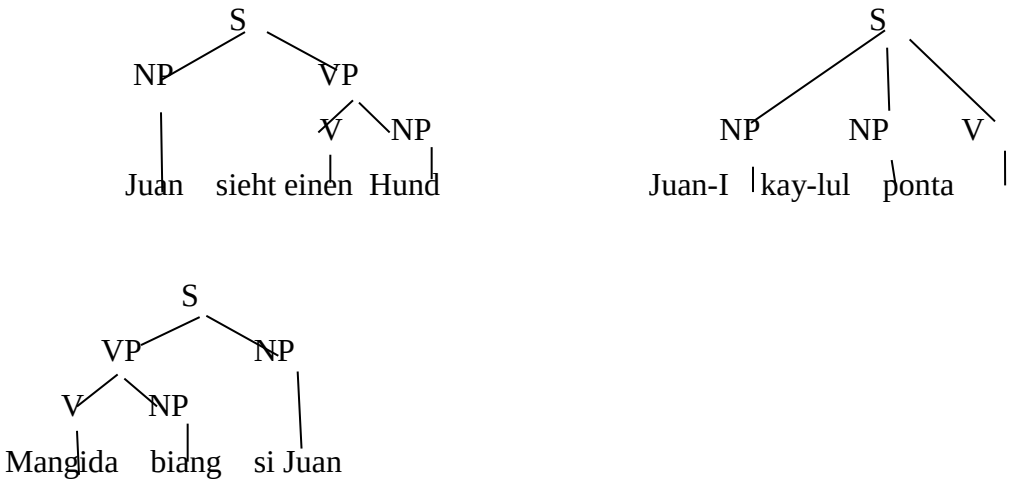


Figure 5 f-structure representations for 'Juan sees a dog'

SUBJ PRED ‘Juan’
OBJ PRED ‘dog’
DEF -
NUM SG
TENS PRES
PRED ‘see
<(↑SUBJ) (↑SUBJ)>’

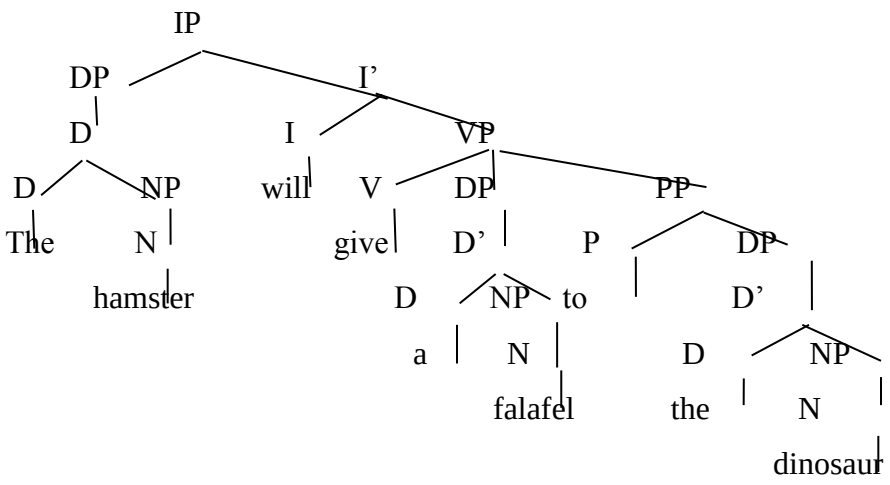
The very one distinction in the f-structures across the provided languages would be the lexical items supplying the values for the ‘PRED’ functions, e.g., German *Hund,* Korean *kay*, Toba Batak *biang*, and English *dog*.

5. The c-structure and f-structure mapping

Falk (2001: 62-64) describes the c-structure and f-structure mapping as the heart of the descriptive power of LFG. That is, the mapping is to deal with the syntactic elements corresponding to the traits they stand for. In other words, in LFG the nodes in the c-structure and parts of the f-structure are correlated. To illustrate, the value of the TENSE feature comes from I, and the value of the PRED feature comes from V. SUB attributed is present because of the IP property, which has DP daughter. Eventually, the properties of the VP assure the existence of the OBJ and OBLGoal attributes. The outermost f-structure thus corresponds to an area of the c-structure composed of the IP-I projection and the VP-V projection. In the similar way, the DP node on the leftmost and whatever it handles is associated with SUBJ value. Thus, the mapping between the both structures can be noticed in the figures below, which is from the sample sentence:

- *The hamster will give a falafel to the dinosaur.*

Figure 6 c-structure and f-structure mapping correspondence



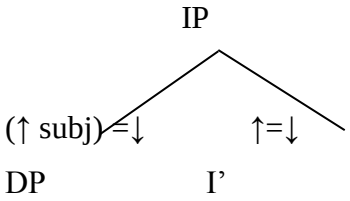
$$
\begin{bmatrix}
\text{SUBJ} & \begin{bmatrix} \text{DEF} & + \\ \text{PRED} & \text{'hamster'} \\ \text{NUM} & \text{SG} \end{bmatrix} \\
\text{TENSE} & \text{FUT} \\
\text{PRED} & \text{'give <SUB, OBJ, OBLGOAL OBJ>'} \\
\text{OBJ} & \begin{bmatrix} \text{DEF} & - \\ \text{PRED} & \text{'falafel'} \\ \text{NUM} & \text{SG} \end{bmatrix} \\
\text{OBLGOAL} & \begin{bmatrix} \text{PCASE} & \text{OBLGOAL} \\ \text{OBJ} & \begin{bmatrix} \text{DEF} & + \\ \text{PRED} & \text{'dinosaur'} \\ \text{NUM} & \text{SG} \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$

Furthermore, on the c-structure and f-structure mapping correspondence (Asudeh and Toivonen, 2010: 247-248) elaborates with examples as presented;

IP → DP I'

(↑ subj) =↓ ↑=↓

This is referred to as the c-structure annotated version, which is in f-structure appears differently.



Asudeh and Toivonen (2010: 229-230) assert that "The terminal nodes of c-structure are morphologically complete words". That is, the nodes in c-structure are to be words, but not to be any other morphological structures. Consequently, the main function of syntax is to see the word category. In other words, the nodes are syntactic units equal to morphological words. "The terminal nodes in c-structure are lexical entries, which specify the form of the word, its syntactic category, and a set of f-structure constraints" (ibid, 248).

The ↑and↓ arrows in the annotated c-structure and f-structure are employed to denote to the mother node (↑) and the current node (↓). To put it another way, the up arrow refers to the f-structure associated with the mother of the node above. While, the down arrow refers to the f-structure related to the current node which the below element is coming (Wescoat, 2005: 11). In addition to that, with regard to the syntactic rules and the form of lexical items in LFG (ibid, 2-4) clarifies as follow;

Usually, syntactic rules are divided into left- and right-hand sides. The left-hand side is the mother node (S= sentence), on the other hand, the right-hand side represents the daughter nodes (NP and VP).

Concerning the form of lexical items, it concerns "representation of the form of the item, the syntactic category to which the item belongs, and a list of functional schemata" (3).

John N (↑ PRED)='JOHN'
(↑ PERS) =3
(↑ NUM) =SING

(John) stands for the representation of an item, (N) refers to the syntactic category, and (↑ PRED) ='JOHN' (↑ PERS) =3 (↑ NUM) =SING, is used for showing the list of functional schemata (4).

In brief, arrows in LFG are important; they represent functional annotations (i.e., functional signs). The arrow to the right represents the sentence element (the lexical item), the arrow to the left represents the grammatical function of this lexical item. Hence, the trees in LFG are lexical-functional trees.

6. Well-formedness conditions on C-structures and F-structures

LFG makes distinction between c-structures and f-structures, and structural descriptions that well-formed structures must satisfy. The structural descriptions are sets of constrains, one of which is a declaration that is either true or false of a structure.

6.1 Conditions on C-structures

Phrase structure tree is the formal structures in c-structure. The structural descriptions that constrain the phrase structure tree are formalized as phrase structure rules, such as:

IP ⟶ DP I’

A c-structure to be considered well-formed, it must satisfy all applicable phrase structure rules and every sub-tree in a well-formed c-structure must suit some phrase structure rule. Some LFG phrase rules are expressions that have optionality, disjunction, negation, and arbitrary repetition. Consider, for example, the following V’ rule:

V’ ⟶ V (NP) ({ CP | VP }) PP

The parentheses indicate optionality; disjunction is indicated with notation { X | Y }. The above rule has a single compulsory element, V. The verb may also have either a CP or a VP sister or neither. Finally, the V’ may end in any number of PPs, or ending in none (Asudeh and Toivonen, 2010: 436-437).

6.2 Conditions on F-structures

F-structures need to have some well-formedness conditions: completeness, coherence, and consistency (Kaplan and Bresnan 1982). Both completeness and coherence conditions make sure the presence of the whole arguments that a predicate requires. The consistency condition ensures that each attribute of an f-structure has a single value (Dalrymple, 2001: 35-39).

1. Completeness: requires that no argument of a predicate to be missing, and that there would be no additional arguments that the predicate does not need. For instance, (**David devoured)* is an ill-formed sentence, since it doesn't contain values for the grammatical functions. In other words, the sentence lacks a value for the OBJ, and is therefore incomplete. The PRED and semantic form for a verb like *devoured* are:

   PRED 'DEVOUR (SUBJ, OBJ) '

   This reveals that the verb *devour* governs the grammatical functions SUBJ and OBJ, and the example has SUBJ but not OBJ, therefore it is unacceptable according to the completeness requirement.
2. Coherence: this condition does not allow f-structures with extra governable grammatical functions that are not contained in the argument list of their semantic form. That is, extra materials from appearing to be restrained. For example, (**David yawned the sink*), owns an ill-formed and ill-coherent f-structure, since the coherence requirement applies only to governable grammatical functions, not functions that are ungoverned, such as modifying adjuncts. Whereas, (*David yawned yesterday*) has a perfect coherent f-structure.
3. Consistency: it is also known as Uniqueness Condition, which requires that each attribute of an f-structure may have only one value, not more. That is, it disallows f-structures satisfying incompatible constraints. To exemplify, (**The boys yawns*) has ill-formed f-structure, because the SUBJ NP *the boys* is plural, but the verb of the sentence *yawns* needs a singular subject. In other words, the value of the attribute NUM in f-structure must be either SG or PL, and it cannot have both simultaneously.

7. Assorted Phenomena

After talking about the fundamentals of LFG (c-structure, grammatical function and f-structure), the following phenomena are treated;

7.1 Head Mobility

Carnie (2006:444) shows that in French the main verb is dependent on the presence or absence of an auxiliary. Putting it another way, the verb doesn't change its position, when auxiliary is present. That is, the availability of auxiliary affects the verb. Austin (2001) as previously mentioned, asserts that in English helping verbs occur in their specific position in a declarative sentence, once there is no helping verb the main verb appears there. For instance

- *He doesn't eat breakfast on Fridays.*
- *He eats breakfast on Fridays.*

That is, the head verb has the movement as there will be no auxiliary verbs.

Carnie (2006:444) further explains how French verbs move to T, if no auxiliary is present. This suggests that tensed verbs and untensed participle forms appertain to different categories, which is termed head mobility. Tensed and untensed verbs belong to distinct categories. The former to category T, and the latter to V, for example:

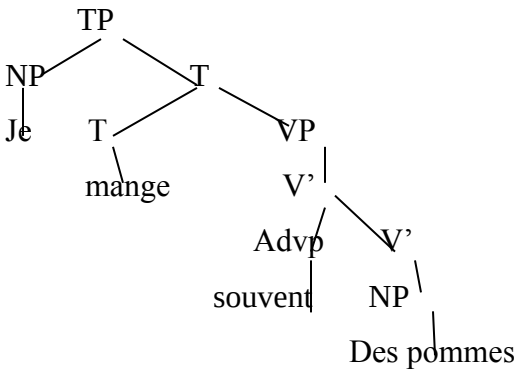
J' ai souvent mange' des pommes

Figure 7: a) mange' T (↑PRED)= 'eat<↑SUBJ),(↑OBJ> '
(↑TENSE)= present

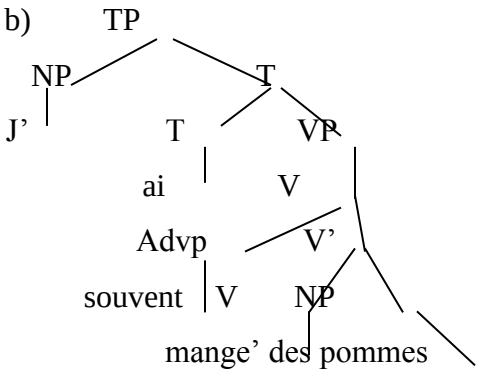
b) Mange' V (↑PRED)= 'eat <(SUBJ),(↑OBJ> '

C) ai T (↑TENSE)= present

a)



b)



It is noticed that in (figure 7 a) the VP has no head V, which is allowed in LFG. In English, the category V subsumes both participles and tensed verbs; while, only auxiliaries are subsumed under the category T.

Figure 8 a) eat V (↑PRED) = 'eat<↑SUBJ), (↑OBJ> '
(↑TENSE) = present.
b) eaten V(↑PRED) = 'eat<↑SUBJ), (↑OBJ> '
c) have T (↑TENSE) = present.

It is shown that the participle and the tensed form will appear in the VP and no pretense of head movement occurs.

7.2 Passives

LFG has an important feature that the sub-categorization attribute of verbs are declared in terms of relational rather than constituent structure. The completeness and coherence conditions refer crucially to sub-categorization information, and since it is formulated in terms of grammatical functions, they can only be satisfied by a well-formed f-structure.

Concerning the occurrence of changes of grammatical functions in passive and dative shift, LFG asserts that the changes are completely related to the morphosyntactic nature of the lexical forms of verbs. Passivizing a sentence, one needs to take the argument that is OBJ in the active voice and convert it to the SUBJ of the passive sentence. Consequently, the subject of the active structure which is an argument undergoes either the process of omission or appears as an OBLθ. That is, the key role of lexical rules which are applied in the lexicon.

Figure 9 a) lexical rule for passive:

SUBJ → Ø/ OBLθ

OBJ → SUBJ

b) break <↑SUBJ) (↑SUBJ>' → 'broken<↑OBLθ)/Ø (↑SUBJ>'

AGENT PATIENT AGENT PATIENT

(Van Valin, 2004: 190)

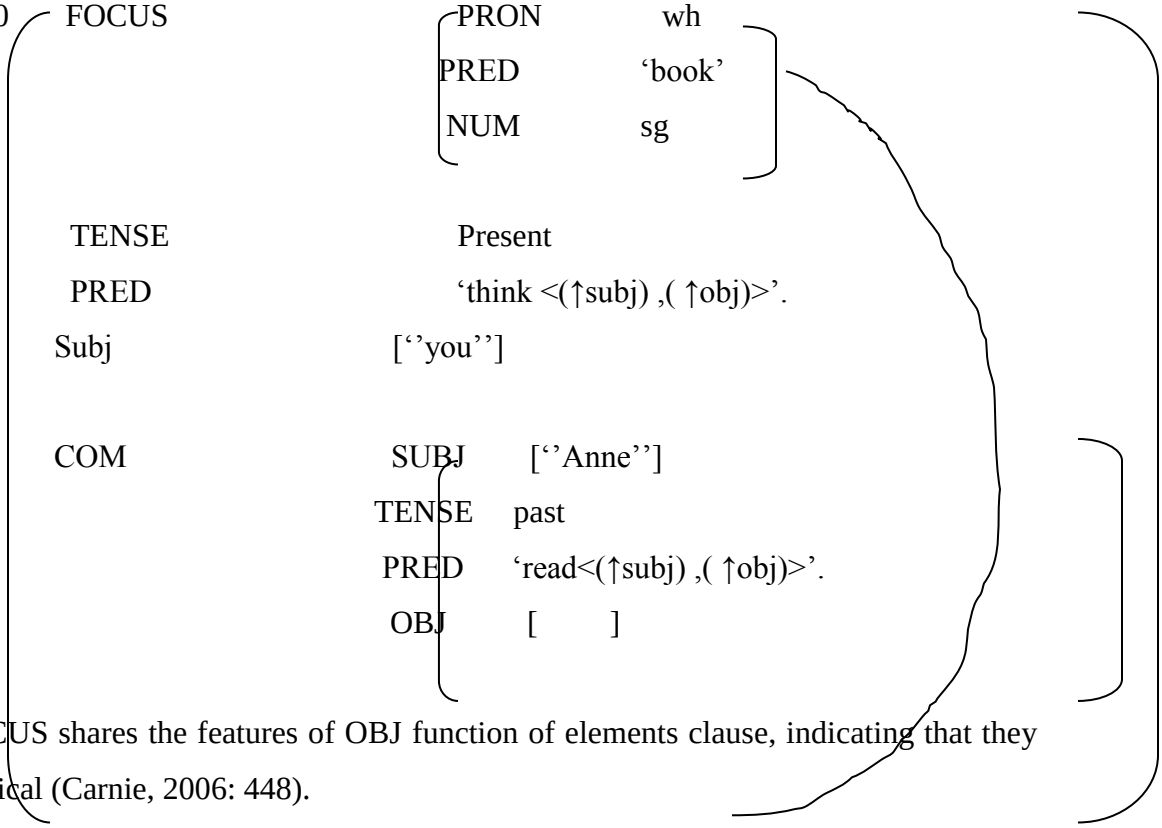
In (a) it can be noticed that the grammatical functions are changed by the rule, which the verb is subcategorized for and relinks the thematic relations. That is, in the active voice

agent is linked to SUBJ, however, in passivation what links to SUBJ is the patient; while agent is either omitted (represented by Ø) or linked to OBLθ. In English, the morphology of the verb is also influenced by the very rule; as the verb changes its form to past participle. That is, inflectional suffixes (-ed or -en) are employed. The form which co-occurs with the auxiliary verb ***be*** in the passive construction.

7.3 Wh-movement

In wh-movement, LFG lays emphasis on the relationship between a wh-phrase and the gap (or trace) it is associated with. One significant grammatical function is found in wh-construction, which is FOCUS, but in English, this function is associated with the specifier of CP. Taking the FOCUS function, the element ought to share features with some argument, which constraints of coherence oblige the linguistic unit. The following is the f-structure for the sentence ***which novel do you think Ann read?***

Figure 10



The FOCUS shares the features of OBJ function of elements clause, indicating that they are identical (Carnie, 2006: 448).

According to Van Valin (2004) the f-structure is expected from c-structure, though appears to be imperfect; nothing can satisfy the function of OBJ. In the f-structure, however, an additional unsubcategorized grammatical function exists, which is the FOCUS NP (what). If it's PRED is interpreted as also being the PRED satisfying the OBJ function,

then the f-structure would be complete and the sentence grammatical. Thus, the FOCUS is allowed to satisfy unsatisfying function. If there were not unsatisfied functions, then the resulting f-structure would be incoherent, because there would be no way to interpret the FOCUS NP, as in **What did Pat buy the book?* Similarly, if there were two unsatisfied functions, then the occurrence of a FOCUS NP couldn't save the f-structure from being incomplete as in **Where did Pat put?* Thus, in order to delineate long-distance dependencies like WH-questions in English, the LFG uses the grammatical function of FOCUS and an extended notion of completeness. This approach to long- distance dependencies is called 'functional uncertainty' (192).

8. Conclusions

Writing about LFG within such a limited paper doesn't afford enough space to the writer to write about every aspect of this theory, however, the main purpose of this paper is to give a brief and abstract information of the theory and lay the ground for the reader to search for further information about this topic in other various sources. By reading this short information about LFG, one can get the insights about how human language works and also how this theory relates to other theories in the field of studying grammar. This theory is an endeavor to respond the questions about the nature of language, the changes that language undergoes, and particularly, to realize the crucial role of lexical information and how a change in lexical information in the structure of a sentence can result in syntactic consequences.

One can also conclude that LFG reveals that languages to some extent are distinct structurally, while they share nearly similar functions; the difference that they have in their f-structure is due to different lexical items. In addition, the mapping of c-structure and f-structure is the core of the descriptive aspect of LFG. The idea which LFG is based on mainly is the manifestation of the relation between nodes in the c-structure and the parts or features of the f-structure. Rules in LFG are syntactically divided into left and right sides. The left represents the mother node, which refers to the grammatical function of lexical items; whereas, the right is the daughter that denotes the lexical items. Further, a c-structure to be considered well-formed has to satisfy all phrase structure rules applied. For f-structure to meet the demand of well-formedness, has to have completeness, coherence,

and consistency, which they can grant all the arguments of a predicate and indicate that any attribute of f-structure has its own value. LFG posits that in English tensed verbs and participle forms are of the same category, except auxiliaries that are from different categories. The theory postulates that changes in lexical forms of verbs are prerequisite of the changes in grammatical functions in passive voice constructions. Eventually, FOCUS, a grammatical function, is strictly associated with wh-construction. In English, the function is mainly related to the specifier of the complementizer phrase (CP).

REFERENCES

Asudeh, A. and Tivonen, I. (2010). "Lexical-Functional Grammar". In Heine, B. and Narrog, H. (eds.). *The Oxford Handbook of Linguistic Analysis.* Oxford: Oxford University Press, 425-458.

Austin, P. K. (2001). "Lexical Functional Grammar". In Smelser, N. J. and Baltes, P. B. (eds.). *International Encyclopedia of Social & Behavioral Sciences.* Oxford: Pergamon Press, 8748-8754.

Brown, E. K. and Miller, J. E. (1980). Syntax: A Linguistic Introduction to Sentence Structure. London: Hutchinson & Co.

Carnie, A. (2006). Syntax: A Generative Introduction (2nd ed.). New York: Blackwell Publishing.

Dalrymple, M. (2001). Syntax and Semantics: Lexical and Functional Grammar. San Diego: Academic Press.

Falk, Y. N. (2001) Lexical-Functional Grammar: An Introduction to Parallel Constraint-Based Syntax. Stanford: CSLI Publications.

Kaplan, R. M. and Bresnan, J. (1995). Lexical-Functional Grammar: A Formal System for Grammatical Representation. In Dalrymple, M., Kaplan, R. M., Maxwell III, J. T., and Zaenen, A. (eds.). *Formal Issues in Lexical-Functional Grammar.* California: CSLI Publications, 29-130.

Van Valin JR, R. D. (2004). Introduction to Syntax. Cambridge: Cambridge University Press.

Wescoat, M. T. (2005). *Practical Instructions for Working with the Formalism of Lexical-Functional Grammar*. Retrieved from http://www.fb10.uni-bremen.de/khwagner/lfg/pdf/wescoat.pdf. Date of Access: Dec. 18th 2020.

Abbreviations

AdvP	Adverb Phrase
AJT	Adjunct
AVM	Attribute Value Matrix
COMP	Complementizer
CP	Complementizer Phrase
DEF	Definite
DP	Determiner Phrase
LFG	Lexical functional grammar
IP	Inflectional phrase
NEG	Negation
OBJ	Object
OBJ2	Secondary object
OBJθ	Semantically restricted object
OBL	Oblique
POSS	Possessor
PP	Prepositional phrase
PRED	Predicate
PRO	Pronoun.
RelG	Relational grammar
SG	Singular number
SUBJ	Subject
TP	Tense phrase
V	Verb
VP	Verb phrase
XP	Phrase with head of category ‘X’