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Rethinking Lexicon-Interface Interaction in Generative Grammar

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Abstract

This study aims at investigating the relationship between the lexicon and the interfaces. It shows that the lexicon encompasses formal, semantic and phonological features. It also shows that Narrow syntax is autonomous, which means only formal features are allowed to enter the syntactic derivation. The study proposes that there have to be a lexicon- interface interaction that allows the phonological and semantic features to access the A-P and the C-I interface.

Key Words: the architecture of grammar, the inverted Y model, interfaces, features

1. Introduction

The overall aim of this paper is to envisage a model of the architecture of grammar that enables feature transfer between lexicon and the interfaces. A standard assumption in TGG framework is that only syntactic features are allowed to be computed on the system. Put it differently, neither semantic nor phonological are allowed to enter narrow syntax. Chomsky (1957) thinks that 'we are forced to conclude that grammar is autonomous and independent of meaning' (p. 17) and 'grammar is best formulated as a self- contained study independent of semantics' (p. 106). Nevertheless, syntax became less autonomous with the introduction of Theta- criterion in Chomsky (1981) and C- selection in Chomsky (1986), though he later claims that 'in a perfectly designed language, each feature would be semantic or phonetic, not merely a device to create a position or to facilitate computation' (Chomsky, 2000, p.109). In fact, the grammar of language stresses the separation of the lexicon from the interfaces by narrow syntax. That is NS feeds on the lexical entry/ Numeration before it spells out the derivations.The discussion is structured as follows: Section two reviews the architecture of grammar. Section three identifies the components of the lexicon in generative grammar. Section four identifies the problem and presents a proposal to resolve the problem. Section five concludes the discussion.

2. Review of Literature

2.1 *The architecture of grammar*

The first attempt to describe the architecture of grammar was in T- model which has its roots in Chomsky's (1957) Syntactic Structures, i.e. with the advent of deep structure and surface structure as depicted in (1a). The T- model dates back to the Standard theory expounded in Chomsky (1965). Generative grammar has three components: the syntactic, the phonological and the semantic component. The syntactic component or NS feeds on the lexicon and generates a pair of linguistic structures. One generated linguistic structure goes to Articulatory-Perceptual

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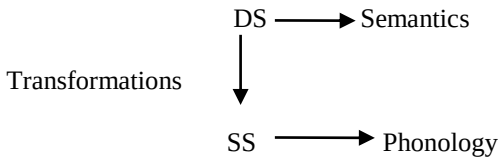
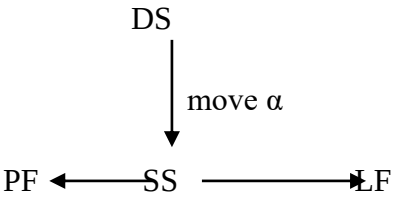
system (A-P) and is readable as Phonological Form. The phonological component of a grammar assigns a Phonological Form (PF) to the generated structure. The other goes to Conceptual-Intentional (C-I) system to be semantically interpreted by the semantic component, giving rise to Logical form (LF) (Chomsky, 1965, p. 16). Ideas from Government and Binding further revived the model as depicted in (1b).

(1a)

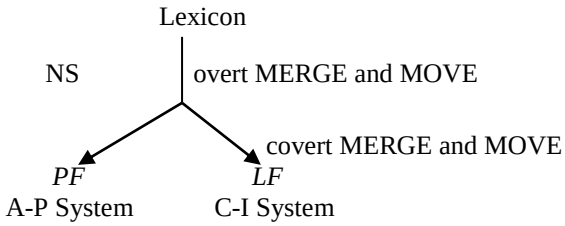


(1b) T- model



The distinction between DS and SS has been lost with the advent of the Minimalist program. The model has acquired a new look. This has come to be known as the inverted Y model and it can be depicted in (2).

(2) inverted-Y model:



The inverted- Y model in (2) has been criticized for 'the lack of isomorphism between syntactic structure and phonological structure' (Irurtzun, 2009, p. 144. On the other hand, Jackendoff (1997) proposed a parallel model of grammar. The syntax, phonology and conceptual modules create their own derivations. There are also correspondence rules among the modules. Jackendoff's model is given in (3).

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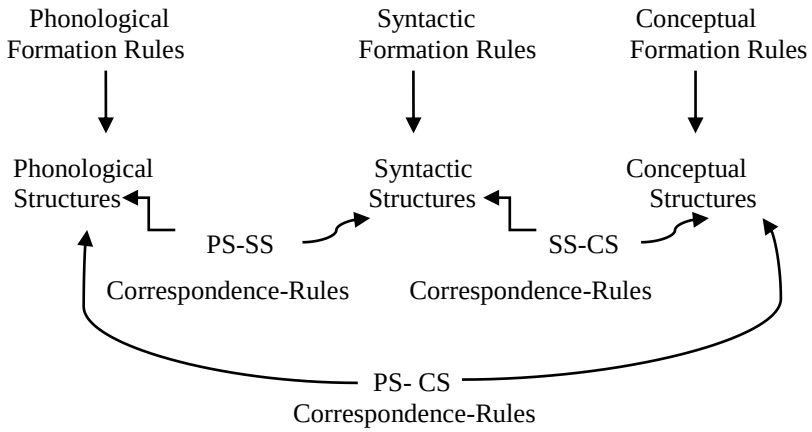
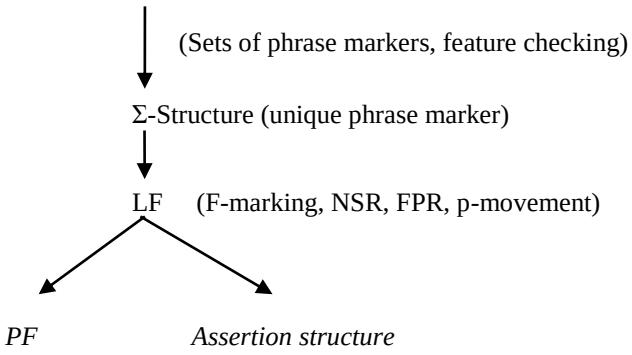
(3) The architecture of grammar (parallel model)



(Taken from Irurtzun 2009, p. 144)

The model in (3) is very successful as it allows for more interaction among the modules i.e. syntactic, phonological and conceptual. Nevertheless, derivational operations are unmotivated and the model incurs in a *look ahead* (Irurtzun, 2009). Irurtzun further adds that 'the idea of independent derivations is extremely dubious: what type of phonological representation are we going to build independently of syntax? And how are they going to affect syntactic structure building?'(Irurtzun, 2009, p. 53). Similarly, Zubizarreta (1998) proposes architecture of grammar wherein a unique phrase marker represented by Σ-Structure is obtained from a set of phrase markers. Then operations such as F-marking, Nuclear Stress Rule (NSR), Focus Projection Rules (FPR), prosodic movement (p-movement) take place until LF level is reached. Here, the system diverges leading to PF level on the one hand and assertion structure on the other. This is given in (4).

(4)



(Zubizarreta, 1998, p. 32)

This system has been criticized for being not able to account for the linguistic variation as the input of PF "is the output of the logically unambiguous and universal representation in LF"

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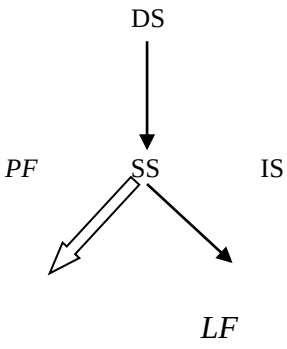
(Irurtzun, 2009, p. 152). It is also evident that the system does not show how PF or LF receives their own features.

Vallduví (1995), investigating the structural properties of information packaging, also postulates an architecture of grammar. He argues that a surface structure (SS) is derived directly from the deep structure (DS). SS does the role of a hub, wherein different fundamental levels of representation meet and exchange information. IS, being a cross-linguistically uniform abstract level of representation, is derived from SS. LF and PF are derived from SS, too. The arrow indicates other possible strata representing other relations. This model is represented in (5).

(5)



(Vallduví, 1995, p. 147)

The same problem holds here, the system does show in any way from where the different representational levels get their respected materials though it has been designed to be more interactive in nature than the T model. Having reviewed the architecture of grammar, the next section touches the lexicon.

2.2 The components of the lexicon

Features are defined as the 'properties of lexical elements, listed in lexical entries' (Dikken, 2000, p. 5). The early attempts in generative grammar started with identifying what lexical entry is. To give the core of the idea, Chomsky assumes that "each lexical entry [is] a pair (D, C), where D is a phonological distinctive feature matrix "spelling" a certain lexical formative and C is a collection of specified syntactic features' (Chomsky, 1965, p. 84). To the best of our humble knowledge, the best characterization of the lexicon is given in Chomsky (1981). That is, lexicon proceeds syntax and it 'specifies the abstract morpho-phonological structure of each lexical item and its syntactic features, including its categorical features and its contextual features. The rules of the categorical component meet some variety of X-bar theory' (Chomsky, 1981). Given this, it can be inferred that the lexicon within a generative perspective comprises morphological, syntactic, phonological, and contextual features. Following Gallego (2010), let us assume that lexicon also encompasses semantic features, too, as depicted in (6).

(6) The lexicon components

a. Phonological P = {/what/, /did/, /you/, /see/},

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b. Semantic *I = {[what], [did], [you], [see]}*

c. Formal base = {D, N, V, T, C}, select = {=D, =N, =V, =T, =C},

Licensors {+wh}, licensees {-wh}

LEX: [$_{\text{-wh D}}$ what], [$_{\text{=V T}}$ did], [$_{\text{D}}$ you], [$_{\text{=D =D V}}$ see], [$_{\text{=T +wh C}}$ ∅]

(Gallego, 2010, p. 6)

Hence, lexicon can be thought of as the totality of morpho-syntactic, semantic, and phonological features. Having known that the lexicon comprises the formal, semantic, and phonological features, there ought to a mechanism that regulates the lexicon- interface interactions. No study to the best of our knowledge has been conducted to investigate the interaction between lexicon and the interfaces or at least how the interfaces get their respected PHON and SEM materials. To reiterate, this section showed the basic components of lexicon and assumed that that SEM and PHON components should reach the respective interfaces.

3. The proposal

Recall in section 1 that grammar tends to be autonomous, that is, only formal features are selected for Narrow syntax operations. NS does not deal with Phonological and semantic features. From a technical point of view, it is dubious to argue that out of formal features, the system could output PHON and SEM components without any reference to the phonological and semantic features that are essentially stored in the lexicon. Hence, one unresolved issue is how phonological and semantic features which are typically stored in the lexicon reach the interfaces. The available models do not tell us anything about the issue in hand. This paper postulates that formal features are stored in the lexicon but there is a way in which the lexicon and interfaces communicate with no recourse to NS. This is partly in line with Chomsky's framework that only formal features are dealt with in syntax. Phonological and semantic features are not entertained in NS. The proposal ahead of us argues that while formal features are computed on at NS, phonological and semantic features are sent to the respected interfaces directly. The lexicon given in (5) encompasses phonological and semantic components. The Phonological are given the slashes {/what/, /did/, /you/, /see/}, and the Semantic are bracketed as in *{[what], [did], [you], [see]}*. If grammar is autonomous (Chomsky, 1957), we would expect that there has to be lexicon- interface interaction. This interaction enables the phonological and the semantic components to reach the A-P and the C-I respectively. The implications of the discussion that has been presented can be summarized as follows: first, the inverted Y- model has been revamped in such a way that the lexicon can interact with interfaces. The semantic and the phonological features are sent directly to the A-P interface and the SM interface respectively. Secondly, the way language faculty works can be described in terms of parallel human language computing. Parallel means more than one process is carried out concurrently. The formal features are computed on in the narrow syntax. The phonological and semantic features are cyclically sent to the respective *interfaces* in the same way as there is cyclic access to numeration. Thirdly, the lexicon is no longer separated from the interfaces.

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4. Conclusion

This study shows that the autonomy of grammar allows only formal features to enter the syntactic derivation and to be computed on. The phonological and the semantic features, which are essentially part of the lexicon, are discarded. This study suggests that there should be some kind of parallel interaction between the phonological features and the A-P interface and interaction between the semantic features and the C-I interface.

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