Grammaticality in the Minimalist Program: A New Horizon towards Minimalist Functionalism

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Abstract

Syntax has always been considered as the core of language in Chomskyan generative enterprise, and in turn, grammaticality as the core of syntax. Until the Minimalist Program, particularly in the earlier form of the Principles and Parameters Approach known as the Government and Binding Theory, the conditions governing and determining grammaticality, whether in derivational or representational modes, were those of 'well-formedness', imposed on syntactic operations or levels from within; that is, the conditions were not motivated by any external systems and were construed within and by syntax proper. In Government and Binding, the structural description of a linguistic expression involved four levels of representation; such levels were then checked by various independent sub-theories (of principles), e.g. projection principle, binding and bounding, which acted as well-formedness conditions, or filters, on the relevant levels. With the advent of the Minimalist Program and the re-interpretation of grammaticality as 'convergence' at the two, and only two, interface levels, grammaticality of linguistic expressions comes to be determined language externally; that is, by cognitive performance systems, external to language, yet internal to mind. This article is an attempt to demonstrate how the re-definition of grammaticality and well-formedness conditions as convergence and legibility conditions respectively turns Minimalism into a functional theory, albeit a generative one.

Keywords: Grammaticality, Legibility Conditions, Intelligibility Conditions, Minimalist Functionalism

دستوری بودن در برنامه کمینه‌گرا: افقی تازه به سوی نقش‌گرایی کمینه‌گرا

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چکیده

نحو، در رویکرد زایشی چامسکی، همواره به عنوان هسته زبان در نظر گرفته شده و دستوری بودن نیز به نوبه خود، هسته نحو تلقی گردیده است. تا پیش از ظهور برنامه کمینه‌گرا و به‌طور خاص، در چارچوب نظریه «حاکمیت و وابستگی» که سرآغاز رویکرد «اصول و پارامترها» محسوب می گردد، شرایط تعیین کننده و حاکم بر دستوری بودن ساخت‌های زبانی، خواه اشتقاقی و خواه بازنمودی، شروط خوش ساختی بودند که بر سطوح گوناگون و سازوکارهای نحوی زبان، از درون اعمال می گردیدند، بدون آن‌که تحت تأثیر نظامی بیرون از حوزه نحو قرار داشته باشند. در نظریه «حاکمیت و وابستگی» توصیف ساختاری یک عبارت زبانی، چهار سطح بازنمایی را در بر می‌گرفت که حضور این سطوح یا توسط اصول و پارامترها، که به عنوان شروط خوش ساختی عمل می‌کردند، تعیین می‌شد، و یا توسط صافی‌های ناظر بر سطوح گوناگون. با ظهور برنامه کمینه‌گرا و ارائه تفسیری نوین از دستوری بودن در قالب شرایط خوانش پذیری، دستوری بودن جمله ها، تحت تأثیر عوامل بیرونی کنشی تعیین می شوند. به دیگر بیان، عملکرد نظام‌های کنشی خارج از حوزه زبان اما درون ذهن، تعیین‌کننده دستوری بودن عبارت‌های زبانی می گردند. این مقاله کوششی است برای نشان دادن این‌که چگونه بازتعریف دستوری بودن در قالب شروط خوانش پذیری، کمینه‌گرایی را که برنامه ای صورت گراست به نظریه‌ای نقش‌گرا مبدل ساخته است.

کلیدواژه‌ها: دستوری بودن، شروط خوانش پذیری ، شروط درک پذیری، نقش‌گرایی کمینه‌گرا

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1 - Introduction

Grammaticality, or grammaticalness, has been of fundamental importance in Chomskyan generative enterprise. It, in one way or another, led to a very basic tenet in generativism known as the 'autonomy of syntax thesis' stating that the formal grammar - to which Chomsky (1982: 114) uses the term 'syntax' inclusively - is autonomous from other systems.

However, the development of the concept shows the use of a number of other terms, e.g., well-formedness, full interpretation, convergence and finally legibility.

This paper is an attempt to delineate that such terminological developments, in particular the 'legibility conditions,' do not merely indicate the use of more complicated terms and in fact are indicative of a development in the trend of Chomskyan enterprise to what the author suggests to be termed 'Minimalist Functionalism'.

The article is presented in 4 more sections; in Section 2, a very brief history of the debate on linguistic explanation as the primary goal of linguists from two angles of functionalism and formalism will be provided as our point of departure; in Section 3, grammaticality arguments will be presented; in Section 4, some recent expansions will be introduced; and Section 5 will conclude the paper.

2 - Background: Linguistic Explanation and Formalism vs. Functionalism Dichotomy

One of the primary goals of linguists has been to explain language. In this regard, linguists seem to belong to two different camps: formalists and functionalists. The former is said to focus on form and discard the interaction and interdependence between linguistic forms and functions. The latter is known to assume functions of language to serve as the pivot.

In his categorization of contrasting perspectives on the goals of linguistic theory, Van Valin and Lapolla (1997: 8 -15) introduces formalists as linguists who focus on syntactocentric perspective and functionalists as the ones who seek language explanation within the communication-and-cognition framework.

Haspelmath (2005) also divides language explanation in terms of two opposing approaches: generative and functionalist, with the former being of a language-particular description based on a theory-specific metalanguage and a constrained universal metalanguage, and the latter of a theory-neutral language-particular description based on system-external explanation and adaptive performance, diachronic and typological regularities.

Within such a distinction, Chomsky is claimed to be a linguist of the formalist camp. He has been criticized by many, including a generativist linguist, Newmeyer (1998: 305) of being "... extremely reluctant to point to *any*

external forces shaping the design of UG [Universal Grammar], suggesting, in fact, that its properties are actually *dysfunctional.*"

However, Chomsky's minimalist initiative seems to cast a serious doubt on such assumptions and criticisms, introducing him as a minimalist functionalist within the cognitive domain of linguistic inquiry. The evidence to support such a claim comes from his minimalist analysis of grammaticalness.

3 - Grammaticality in Chomskyan Linguistics

The analysis and explanation of grammaticality, or grammaticalness, in Chomsky's generative grammar can be broadly divided into two eras: one the pre-minimalist and the other the minimalist periods.

3 -1 - Pre-Minimalist Developments

Chomsky's (1957: 11) classic example, *Colorless green ideas sleep furiously,* can be taken as a point of departure in his theorizing for a need to make a distinction between 'grammatical' and 'acceptable' as part of linguistic judgments. Such sentences are judged as grammatical since they conform to the then so-called grammatical/syntactic rules of a language but unacceptable in not possessing a coherent (literal) interpretation.

However, Chomsky (1961: 219 -239) initiates a debate on the gradedness of grammaticalness and suggests that grammaticality - Chomsky prefers the term 'grammaticalness' then - is a graded property rather than a dichotomous one. At a closer look, one can observe that this gradedness, in fact, refers to degrees of deviance from grammaticality rather than degrees of grammaticality. In effect, what Chomsky proposes then is the thesis that the degree of deviance is an integer measure based on the level of generality at which a given sentence breaches some rule of grammar.

Given a grammatically deviant utterance, such as Dylan Thomas's 'a grief ago' or Veblen's 'perform leisure,' we attempt to impose an interpretation on it, exploiting whatever features of grammatical structure it preserves and whatever analogies we can construct with perfectly well-formed utterances.

Therefore, Chomsky proposes that a distinction is to be made between a class of sentences that need no analogical or imposed interpretation and others which can only receive some interpretation by virtue of their relations to properly selected members of the former class. However, there are some combinations which may not even receive the slightest degree of interpretation, e.g., 'a the ago' or 'perform compel'.

With the introduction of *Government and Binding Theory* in 1981 as the first model within the Principles and Parameters (P & P) Approach to

Universal Grammar, grammaticality in effect turned into well-formedness of a sentence guaranteed by a number of separate well-formedness conditions in the form of a number of principles and self-contained modules. In other words, grammar in such a framework was postulated to comprise a universal set of modules, namely, bounding theory, government, X-bar theory of phrase structure, binding theory, theta-theory, case theory and control. Language, or grammar as a linguistic model, was also assumed to constitute 4 levels of representation: D-structure, S-structure, Logical Form (LF) and Phonetic Form (PF). The former two where syntax-internal, whereas the latter two were the interface levels between language/grammar and the other internal-to-mind performance systems, namely Conceptual-Intensional system(s) of interpretation and Auditory-Perceptual system(s) of language reception and production.

So far, all the earlier language rules or later principles were internally driven; that is, they were postulated to serve as mechanisms required for the well-formedness of a sentence.

The issue of derivational application or representational filtering of such operations building the language apparatus is of little significance here.

Nevertheless, the continuation of the Principles and Parameters approach in the form of the Minimalist Program in its later versions, especially the post-2000 ones, offers a major departure from such conceptualizations and formalizations of grammaticality.

3 - 2 - The Minimalist Period

Until the Minimalist Program, particularly in the earlier form of the Principles and Parameters approach known as the Government and Binding Theory, the conditions governing and determining grammaticality, whether in derivational or representational modes, are those of 'well-formedness', imposed on syntactic operations or levels from within; that is, the conditions are not motivated by any external systems and are construed within and by syntax proper. In the Government and Binding theory, which was the immediate precursor to the Minimalist Program, for instance, the structural description of a linguistic expression involved four levels of representation whose existence is determined by the theory of principles - i.e., various sub-modules referred to earlier - which acts as well-formedness conditions, or even filters - e.g., in the case of Case Theory - on the various levels. Therefore, grammaticality is determined from 'within'.

However, the Minimalist Program poses serious questions about the necessity of such machinery and not only puts a question mark in front of a number of postulated principles and sub-theories/internal modules such as government but also rejects the need for two syntactic levels—namely D-

structure and S-structure—and as a result, offers a model in which only two interface levels are required as conceptually necessary.

Thus Minimalism seeks to find answers to two questions:
  a. What is 'good design' for language?
  b. What are the minimal design specifications for the language faculty (FL)?

Both of these questions are addressed by Chomsky 'in terms of the question: "how perfect is language?" (Smith 2005: 37),' with the answer being, exceptionally surprising for a biological system as perfect (Chomsky 2000: 9). In other words, on the one hand, the design of the universal linguistic machinery—e.g., language faculty—conforms to conceptual necessity, and on the other hand, any deviations from conceptual necessity are motivated by the conditions imposed from the outside.

> Suppose some event reorganizes the brain in such a way as, in effect, to insert FL. To be usable, the new organ has to meet certain "legibility conditions." Other systems of the mind/brain have to be able to access expressions generated by states of FL ((I-) languages), to "read" them and use them as "instructions" for thought and action. We can try to formulate clearly - and if possible answer - the question of how good a solution FL is to the legibility conditions, and these alone. That is essentially the topic of the Minimalist program.
>
> (Chomsky 2000: 94)

Also, Chomsky (2000: 96) adds that language is an optimal solution to legibility conditions, calling it the strongest minimalist thesis.

As such, the Minimalist Program is an economy-based program deploying two types of economy considerations:

> The first type we may call measures of methodological economy. These are familiar benchmarks such as simplicity and parsimony - that is, standard Ockham's razor sorts of consideration...The second type we may call measures of linguistic economy. These substantive, least effort economy notions generalize themes that have arisen in grammatical research. The idea is that locality conditions and well-formedness conditions reflect the fact that grammars are organized frugally to maximize resources.
>
> (Epstein and Hornstein 1999: xi)

Therefore, for a sentence - linguistic expression - to be grammatical, it is required to meet legibility conditions - also known as bare output conditions -

imposed by the need for other systems of the mind/brain to use information provided by FL.

Grammaticality, in this new light, is a function of the principle of Full Interpretation (FI); that is, all linguistic features must receive a proper interpretation at interface levels, namely Phonetic Form (PF) and Logical Form (LF) levels. Hence, a linguistic expression is said to converge - the new term used for the previous 'grammatical' - if and only if it is legible at both interface levels. Consequently, grammaticality, or convergence, is met externally and all linguistic operations are 'motivated' by external-to-FL systems and are driven to meet such conditions.

Even further, Chomsky (1999), inspired by Epstein's (1999) and Uriagereka's (1999) ideas, suggests that derivations are carried out, or computed, in terms of 'phases' so that at the end of each phase, the linguistic derivation "thus far created is encapsulated and sent off to the interface components for *all* phonological and semantic interpretations. Thus, while there is still what might be called PF and LF components, there are no *levels* of PF and LF" (Lasnik 2005: 82).

It would, therefore, not be incorrect if we claimed that the Minimalist Program offers a Minimalist Functionalist solution to the question of language design and its computational architecture. The operations within FL and the Universal Grammar as its model are determined by and derivable from Conceptual-Intensional and Auditory-Perceptual systems and as such the properties of human language are motivated by the demands imposed by the function it is meant to serve in the mind/brain. In Chomsky's own terms:

> The language is embedded in performance systems that enable its expressions to be used fro articulating, interpreting, referring, inquiring, reflecting and other actions. We can think of the SD [syntactic Derivation] as a complex of instructions for these performance systems, providing information relevant to their functions.
>
> (Chomsky 1995: 168)

Therefore, the so-called grammatical or well-formed linguistic expressions are those which are legible by the external-to-FL and Internal-to-Mind/Brain performance systems.

4 - Recent Expansions

There are two issues which require further analysis and explanation: one is the functionalist approach of the Minimalist Program and the other the issue of intelligibility.

Epstein (a and b, to appear) offers the term I-(nternalist) Functional Explanation in Minimalism to distinguish what was presented above from functionalist approaches to language in which their adherents seek explanation from without language, e.g., in the sense that everything in grammar/language can be explained, ultimately, by reference to how language is used; or regarding language "in the first place as an instrument by means of which people can enter into communicative relations with one another." (Dik 1980: 46) I find this type of terminology somewhat misleading, resulting in some confusion, for two reasons. Firstly, legibility conditions are posed by PF and LF; they are systems which, although internal to mind/brain, are external to FL. Secondly, as Čermák rightly mentions, "[s]urprisingly, T. Givón (1995: 7) must, in fact, consider Chomsky (a kind of) functionalist, too, calling his approach of the sixties "a blatantly functional idea, i.e., isomorphism between deep syntactic structure and propositional meaning". For these reasons, I offer and have used *Minimalist Functionalism* instead.

Now, let us focus on the issue of intelligibility. When reading Chomsky, one may find it hard not to be confused at times since he uses terms which he does not always keep very clear. One of them is the term uninterpretable. Examples are:

*Who does John like Mary? (for which *x*, John likes Mary)
*John likes _____ (John likes *x*)

This vague notion of interpreting a representation in the post PF/LF interpretive components are now referred to in terms of intelligibility (Lasnik and Uriagereka 2005: 105).

In other words, the earlier Full Interpretation (FI) is now re-interpreted in terms of legibility conditions and the concept of interpreting a representation/phase in the interpretive components is termed *intelligibility*.

Equipped with these two terms, now we can re-cast the earlier distinctions in the generative grammar for a linguistic expression/syntactic derivation as follows:

Legible	+	+	-	-
Intelligible	+	-	+	-

Sentences - linguistic expressions - such as *'colorless green ideas sleep furiously'* are [+legible, - intelligible]; those like *'a grief ago'* are [-

legible, +intelligible], and the ones such as *'a ago brief'* are [- legible, -intelligible].

Not only is such a distinction important in linguistics but it may also be of interest to Second Language Acquisition (SLA) theoreticians:

*[[John to play baseball]]] is fun
*[John seems [*t* is nice]]

Such sentences may be used by learners of English, which are [–legible] but quite intelligible; also, when learning a second language, learners may manifest mispronunciations which are [–legible] at PF but quite intelligible to the hearer.

Therefore, although " … we do not know enough about the "external" systems at the interface to draw firm conclusions about conditions they impose … the problems are nevertheless empirical, and we can hope to resolve them by learning more about the language faculty and the systems with which it interacts (Chomsky 1995: 222).

5 - Conclusion

In this article we addressed the notion of grammaticality and its development in Chomskyan generative grammar. It was demonstrated how the concepts of grammaticality and well-formedness turned into the Minimalist notion of 'legibility'.

It was also argued that in the generative models and theories before the Minimalist Program, grammaticality and well-formedness were unmotivated concepts and were guaranteed by syntax-internal mechanisms, be it in the form of rules, or constraints imposed by syntactic sub-modules on linguistic representations. However, in the Minimalist Program, such mechanics were shown to be motivated by external performance systems in terms of the legibility conditions they impose on the language faculty.

It was further argued that such an analysis indicates a functional approach within Minimalism. Epstein's term in this regard - i.e., I-Functionalism - was demonstrated to be insufficient and Minimalist Functionalism was proposed instead.

It was also delineated that, besides legibility conditions, there are interpretive intelligibility conditions imposed on linguistic derivations. Being equipped with the mechanics of legibility and intelligibility, not only linguists but literary scholars and SLA theoreticians may also be in a better position to deal with and explain language in their own fields.

Although such a distinction proves helpful and promising, there are still many questions before us in this regard; as Chomsky puts it:

The external systems are not very well understood, and in fact, progress in understanding them goes hand-in-hand with progress in understanding the language system that interacts with them. So we face the daunting task of simultaneously setting the conditions of the problem and trying to satisfy them, with the conditions changing as we learn more about how to satisfy them. But that is what one expects in trying to understand the nature of a complex system.

(1998:18)

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