پژوهشـنامه علوم انسانی: شماره 56، زمستان 1386 «118 ـ 99»
Human Sciences: No. 56, Winter 2008 «107 - 126»

Un-Principled UG: Qualms on the Necessity of Principles

* **Keivan Zahedi**

Shahid Beheshti University

Abstract

The present article intends to discuss the repercussions of a recent trend introduced by Chomsky within the generative enterprise known as the Minimalist Program. It has opened a new front which makes possible an attempt to eliminate redundant elements and concepts, either formal-i.e., methodological-or substantive, from the theory of language required to be succinctly, or elegantly, formalized. It will be demonstrated that a minimalist version of Universal Grammar is possible to be posited which dispenses with "principles" as linguistic invariants altogether. Within such a framework, a final theory of language constitutes parameters only. However, contrary to the standard assumptions, such parameters allow no/bi-valuation when being set besides the general possibilities of fixing one or the other valuation options postulated for a parameter; such a minimalist version is suggested to be called the Unified Theory of Parameters (UTP) or Un-Principled UG (UPUG).

Keywords: Universal Grammar, Principles and Parameters Approach, Functional Minimalism, Un-Principled UG

دستور همگانی بی‌اصول: تردید درباره ضرورت اصول زبانی

کیوان زاهدی

استادیار گروه زبان‌شناسی، دانشگاه شهید بهشتی

چکیده

در این مقاله نگارنده قصد دارد به عواقب و نتایج رویکرد اخیر ارائه شده توسط چامسکی در دستور زایشی بپردازد که از آن به عنوان برنامه کمینه‌گرا یاد می‌گردد. این برنامه پژوهشی عرصه جدیدی در نظریه‌پردازی زایشی است که در آن پژوهشگران و نظریه‌پردازان به دنبال حذف عناصر زاید و مفاهیم غیرضروری از مدل‌های ارائه شده درباره زبان، همت می‌باشند، خواه این عناصر و مفاهیم صوری باشند و خواه جوهری. در واقع، هدف نهایی این برنامه رسیدن به نظریه‌ای زبانی است که با حداقل امکانات بیشترین و بهینه‌ترین تبیین‌ها را ارائه نماید. در این مقاله نشان داده می‌شود در چارچوب این برنامه می‌توان گونه‌ای از دستور همگانی را ارائه نمود که در آن نیازی به مفروض دانستن اصول مطلق یا غیرمتغیر زبانی نباشد. به‌این‌ترتیب استدلال می‌گردد که نظریه زبانی در نهایت صرفاً از پارامترهای تغییر زبانی تشکیل می‌گردند. همچنین نشان داده می‌شود امکان دارد چنین پارامترهایی که به صورت معیار تاکنون به هنگام تثبیت صرفاً یکی از دو حالت ارزشی خود برخوردار بوده‌اند می‌توانند یا تثبیت نشده باقی بمانند و یا در هر دو ارزش خود تثبیت گردند. نگارنده پیشنهاد می‌نماید چنین نظریه‌ای را در صورت حصول، نظریه یکپارچه پارامتری و یا دستور همگانی بی‌اصول نامند.

کلیدواژه‌ها: دستور همگانی، رویکرد اصول و پارامترها، کمینه‌گرایی نقش‌گرا، دستور همگانی بی‌اصول

---

* Ph.D in Linguistics from Tarbiat Modares University. Assistant Professor, Department of Linguistics, Faculty of Letters and Human Sciences.

The Minimalist Program (MP) introduced in the early years of the last decade of the 20th century was in certain respects a departure from earlier models of the Chomskyan generative enterprise and even from the Government- Binding (GB) theory which may be considered as the only linguistic ***theory*** offered within the framework of the Principles and Parameters (P & P) Approach.

In fact, although Chomsky's most recent attempt—i.e. MP—made in his studies of the human language faculty (FL) shows to have still retained the same fundamental assumptions about FL offered in the earlier P & P model, it has given the approach a new direction, which I should like to call them 'departures' from previous theorizing.

The most important departure in my view is Chomsky's discussion of 'legibility conditions' imposed by the performance systems (PS) on FL as the only determining output conditions on language; therefore, heralding a era of Internalist Functionalism (IF) in Epstein's terms and Minimalist Functionalism (MF) in mine.

This paper intends to investigate the repercussions of such a departure and discuss aspects of a minimalist endeavor to the effect of eliminating linguistic principles altogether. A bell of caution is to be rung here: more research will be required in this regard as the programmatic nature of minimalism manifestly denotes. However, I will present a number of arguments indicating that what I am about to offer is on the right track, albeit presumably refutable.

The present article comprises the following parts: in Section 1, I shall provide a critical analysis of the latest relevant developments in the minimalist program. In section 2, I will discuss how a number of so-called principles may be reduced to parametric variations only; hence, in line with minimalist aspirations suggesting a new model to replace the P & P approach, which I suggest to be called the Unified Theory of Parameters (UTP) or Un-Principled UG (UPUG). Section 3 concludes the paper.

1. MP: Latest Developments

MP shares quite a good number of fundamental assumptions and postulates with its immediate predecessor, that is, the Government and Binding Theory (GB). They are both considered as having taken and guided by the same approach, the Principles and Parameters (P & P) Approach.

However, to me, their differences are more than what has been claimed to be by some Chomskyan generativists. It seems to offer a new direction not adopted and explored before. Neither do I have the inclination nor does the scope of the paper allow me to go into details concerning the differences between GB and MP here. Interested readers are referred to Chomsky (2000a), Epstein and Hornstein (1999) and Martin and Uriagereka (2000). Therefore, here I shall limit myself to the arguments and/or assumptions relevant to my discussion only.

What follows is in line with Zahedi (2007). Until the beginning of Minimalism, language and its grammatical structure were autonomous and independent of performance forces. However, MP's most fundamental hypothesis is that '[l]anguage is an optimal solution to legibility conditions' (Chomsky 2000a: 96), which are imposed by the performance systems, external to language but internal to mind (Chomsky 1995: 221).

In other words, in the earlier version of the P & P approach—i.e., GB—grammatical well-formedness, or in simpler yet out-of-fashion term grammaticality, was defined by various language-internal 'output conditions'; however, in the Minimalist Program, there are no output conditions except for those imposed externally, that is, by performance systems; hence, called 'bare output conditions' (BOCs) (Chomsky 2000a: 141). They are called 'output' conditions since they operate on interface levels; they are designated as 'bare' since they are no longer part of the computational system as postulated in GB such as filters and ranked constraints.

With this introduction, I shall now discuss various aspects and repercussions of such minimalist hypotheses.

1. 1. Chomsky's Fable of the Evolutionary Origin of Language

The first issue to be discussed is the design specifications of the language faculty (FL). Chomsky (2000a: 94) asserts that:

> To clarify the problem of design specifications, let us invent an evolutionary fable, keeping it highly simplified. Imagine some primate with the human mental architecture and sensorimotor apparatus in place, but no language organ. It has our modes of perceptual organization, our propositional attitudes (beliefs, desires, hopes, fears, etc) insofar as these are not mentioned by language, perhaps a "language of thought" in Jerry Fodor's sense, but no way to express its thoughts by means of linguistic expressions, so that they remain largely inaccessible to it, and to others. 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***. [italics mine]

Taking the assumptions made to be on the right track, one understands a language to be a system generating, or perhaps more properly deriving, sentences in the form of two representations, one sound-bound known as the Phonetic Form (PF) and the other meaning-bound known as the Logical Form (LF) to be fed into the sensorimotor and thought systems respectively. In Chomsky's (2000a: 98) own terms, "we are taking L [i.e., a language] to be the recursive definition of a set of expressions EXP = < PF, LF > ." Here as attested

above, thought construed as a Conceptual-Intensional system is a 'performance system'. However, let us look at Hauser, Chomsky and Fitch (2002: 1578):

> The computational system [which is Chomsky's conception of narrow syntax] must (i) construct an infinite array of internal representations [i.e. PFs and LFs] from the finite resources of the conceptual-intensional system, and (ii) provide the means to externalize and interpret them at the sensory-motor end.

Comparing and contrasting the two sets of quotations above, one is left with a number of intriguing problems. First and foremost, one is to deal with the apparent conflicting nature of the thought, or technically speaking C-I, system; the question here will be whether C-I or thought is a performance system fed by the computational system or a non-performance system feeding the computational system. In the first sense, C-I is an external system which has to deal with an infinite array of discrete expressions; in the latter, it is an internal system of finite resources. The former denies the mediational nature of the architecture of language; the latter, however, requires language to be a mediational system, which will then take Chomsky closer to how Generative Semanticists, and Cognitive Linguists as their present day successors, configured language.

Despite such obvious contradictory remarks detected in his writings and ideas, perhaps due to the rather volatile nature of MP itself as a 'research program' not a 'full-fledged theory,' Chomsky may be assumed to side more with and favor the former as found overtly dismissing the mediational nature of language in his fable account:

> Suppose there was an ancient primate with the whole human mental architecture in place, but no language faculty. The creature shared our modes of perceptual organization, our beliefs and desires, our hopes and fears, ***insofar as these are not formed and mediated by language.*** (Chomsky 1998: 16) [italics mine]

A second problem can be the definition of language itself. There is quite a bit of confusion with regard to what language, especially in its I-language sense, is. Is it a computational system or an infinite set of expressions EXP = < PF, LF > ? The first definition views language as a finite set of processes and means; the latter requires it to be an infinite set of products. If the latter is adopted, as Chomsky has more often than not stated, then one will find a conflict with his arguments in favor of assuming a sentence to be a property and the basic unit of one's 'competence'—the speaker-hearer's knowledge of his language. Also, language will be infinite by definition. I will not go into details here since an answer to this problem is not the aim of this article. I refer the interested reader to Saussure's (1983 [1916]) view of a sentence as a property of parole.

The third issue concerns the instantaneous emergence of FL. Chomsky is equivocal in this regard. In one place—as also illustrated above—he calls upon us to "suppose [that] a mutation took place in the genetic instructions for the brain, which was then reorganized in accord with the laws of physics and chemistry to install a faculty of language" (Chomsky 1998: 17), suggesting an instantaneous emergence. In another, he explicitly states that, "[p]lainly, the faculty of language was not instantaneously inserted into a mind/brain with the rest of architecture fully intact." (Chomsky 1998: 18) I personally believe that at this stage we may assume one or the other since such a matter cannot be tested, and may never render itself to be a testable one.

Forth in place may come the question of "why is FL to satisfy conditions imposed by the external systems in a minimal way" As posited by Chomsky, FL is a biological system; nevertheless, biological systems are known not to be optimal at all. So can we assume that perhaps FL is not a biological system at all? Again, only the test of time may show.

Still a further question: "What motivated this genetic mutation to result in the installation or emergence of FL in the human mind/brain?" If we assume, the way all Chomskyans do, that primeval human beings were capable of thinking without language, one may argue that they must have been able to express their thoughts in other expressive modes, e.g., images and pictures or other formal means. Why were those systems insufficient? Any evolutionary change has been shown to have taken place to satisfy an external need or function. What was that need or function? There has been some answers and justifications in this regard, e.g., exaptation instead of adaptation as discussed by Uriagereka (1998). However, I believe that unless we adopt Chomsky's first version of thought as a performance system, we may not be able to get any close to a possible solution.

It would be interesting to refer to the findings of research conducted by Petitto (2005). To corroborate Chomsky's postulation of an innate linguistic computation system, Petitto (2005: 90) conducted a series of experiments on the language acquisition of profoundly deaf children exposed exclusively to sign languages, hearing bilingual children acquiring a signed and a spoken language concurrently, and those hearing children exposed to no spoken linguistic data. Results indicated that "...despite modality differences, signed and spoken languages are acquired in virtually identical ways" (Petitto 2005: 95). Such findings clearly send us the message that there is deeper, more abstract, set of properties to language that we have already simplistically assumed. Chomsky is correct in asserting that "[t]here are minimalist questions, but no minimalist answers," (2000a: 92) especially since "[w]e do not know enough about the external systems at the interface to draw firm conclusions about conditions they impose" (1995: 222). In fact, Chomsky (1998: 18-19) correctly concedes when confessing with no reservations that:

> 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 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.

Strange as it may sound, this is part and parcel of Chomsky's Galileo-Newtonian style. (cf. Zahedi (2006) or Chomsky 2002).

Last but not least, a question on the system(s) of thought. If thought is not contained in and by language, what is it contained in? In other words, what constitutes the system of thought? Reading Chomsky, one generally finds out that he is silent with regard to such questions. Using Chomsky's own terminology, we do not even know whether these questions are problems—i.e., questions for which we may find answers—or mysteries—that is, questions human beings are capable of asking but not answering.

However the answers or no-answers to these questions may turn out to be, one thing is clear in MP: FL, and its possible substantiations as languages, is bound and determined by the so-called legibility conditions imposed by FL-external performance systems. The repercussion of such minimalistically functional approach is an urgent need to re-define the autonomy of FL, if not to abandon it altogether.

1. 2. Grammaticality as Legibility

Recent minimalist works show quite a bit of confusion and mess in respect to legibility conditions. Different set of terms have been used: full interpretation, convergence/crash and legible/intelligible.

Technically speaking, for a linguistic expression to be grammatical in Chomskyan computational sense, it must converge at both interfaces; that is, at Phonetic Form (PF)—which is the interface to sensorimotor or Articulatory/Perceptual (AP) performance systems—and Logical Form (LF)—which is the interface to conceptual-intensional (CI) performance systems. To converge, PF and LF have to consist of interpretable features only—the so-called principle of Full Interpretation (FI).

Therefore, what is legible is convergent and a convergent derivation comprises of interpretable features only.

Now, can a legible/convergent derivation be interpretable by the performance systems? The answer is surprisingly affirmative. This type of interpretability of linguistic representations is captured by the notion of ***intelligibility***. Quoting Chomsky (2000a: 141):

> [W]e might assume further that there is no (nonarbitrary) bound on the number of legible expressions. Note that FL satisfying this minimal condition [i.e., legibility] might—and the real system in fact does—permit generation of expressions that are unusable…[so] interpretability is not to be confused with intelligibility. A convergent expression may be complete gibberish, or unusable by performance systems for various reasons….And performance systems typically assign interpretation to nonconvergent expressions.

In other words, the computational system of languages, on the one hand, may generate illegible derivations which then can be rendered intelligible by performance systems and on the other hand may generate fully legible derivations not intelligible to performance systems. Using examples in Lasnik and Uriagereka (2005: 105), the following linguistic expressions are illegible at LF but intelligible:

> [[John to play basketball] is fun.
> [John seems [t is nice]]

However, how about a linguistic expression like ***Colorless green ideas sleep furiously***? Is it legible but unintelligible, illegible but intelligible or legible but capable of intelligibility?

So MP postulates that FL is designed to satisfy legibility conditions, but it may not. Also, there are no output conditions within FL and the only output conditions are those of bare output conditions external to FL and imposed by performance systems known as legibility conditions. However, performance systems are also equipped with intelligibility conditions which they do not impose on FL.

Now the question is "What distinguishes legibility from intelligibility conditions?" What motivates FL to allow generation of illegible expressions? What motivates performance systems to have two different sets of conditions, a set to be imposed upon FL and a set to be used by them internally?

Again we find no answers to such questions within MP. However, I would like to suggest that such possibilities may exist for the communicative functions a language is to serve and also as a property which makes diachronic language change possible. This is what I call ***Chomsky's missing link*** as manifested in his own terms:

> The language is embedded in performance systems that enable its expressions to be used for articulating, interpreting, referring, inquiring, reflecting, and other actions… While there is no clear sense to the idea that language is "designed for use" or "well adapted to its functions," we do expect to find connections between the properties of the language and the manner of its use. (Chomsky 1995: 168)

1. 3. Language Variation in MP

The relationship between FL and I-languages as its particular and possible steady states is of two-fold interest to Chomsky: language structure, i.e.

Humboldt's Problem, language acquisition, that is, Plato's Problem. Such an interest has been attended to in different guises, mainly: explanatory vs. descriptive adequacy and linguistic invariants and language variation.

To start, let us begin with Chomsky (2000a: 100) again:

> UG [i.e., Universal Grammar as the theory of initial state or FL] makes available a set ***F*** of features (linguistic properties) and operations C_{HL} (the computational procedure for human language) that access **F** to generate expressions. The language L maps **F** to a particular set of expressions ***Exp***. Operative complexity is reduced if L makes a one-time selection of a subset [F] of **F**, dispensing with further access to **F**. It is reduced further if L includes a one-time operation that assembles elements of [F] into a lexicon ***Lex***...On these (fairly conventional) assumptions, acquiring a language involves at least selection of the features [F], construction of lexical items Lex, and refinement of C_{HL} in one of the possible ways—parameter-setting.

This is a too narrow a thesis. In fact, Chomsky (1995: 169-170) identifies other sources of variation; yet he chooses to ignore them as they are not relevant to the computational system:

> UG is concerned with the invariant principles of S_0 and the range of permissible variation. Variation must be determined by what is "visible" to the child acquiring language, that is, by the PLD [i.e., primary linguistic data]. ***It is not surprising, then, to find a degree of variation in the PF component, and in aspects of the lexicon: Saussurean arbitrariness*** (association of concepts with phonological matrices), properties of grammatical formatives (inflection, etc.), and readily detectable properties that hold of lexical items generally (e.g., the head parameter). Variation in the overt syntax or LF component would be more problematic, since evidence could only be quite indirect. ***A narrow conjecture is that there is no such variation: beyond PF options and lexical arbitrariness (which I henceforth ignore), variation is limited to nonsubstantive parts of the lexicon and general properties of lexical items.*** If so, there is only one computational system and one lexicon, apart from this limited kind of variety. [italics mine]

1. 3. 1. Lexicon and Linguistic Variation in MP: Aspects of Linguistic Creativity

Chomskyans, assume that there is a universal set of lexical features and conceptual possibilities at the level of State Zero; hence, a property of FL. Now, when a language is to grow out of FL by the triggering effect of experience data, arbitrary associations are to be made for substantive lexical items between sound and meaning. Although the pool of possibilities are pre-determined, the choices made by the individual are limited to those already made by the speech community of the individual and available in the experience data. Therefore, at the level of a formed language—as a possible Steady State of FL also known as I(nternalized)-language, one will be limited to the choices made.

This in turn will result in a degree of relativity especially in the encapsulation of conceptual structures by lexical items. This does not mean that what can be formulated in one I-language may not be formulated by another; it simply means that to formulate a concept in another I-language, one needs other mechanisms, such as using compound, a phrase, a sentence or an explanation to denote what is encapsulated in a single item in another language. Thus, it is plausible to say that at the level of I-language, different languages may slice, encapsulate and label different already existing lexical/conceptual features differently. They will therefore see the world differently only 'linguistically' and not 'cognitively'.

Let me put it in different words. Cudworth (1688 [1995]), a seventeenth century Platonist, claimed that concepts are 'occasioned' and 'invited' by circumstances. For such circumstances to occasion concepts, the latter are required to be prefigured—his 'prolepsis'—which is possible by an 'innate cognoscitive power'. The same idea is adopted by Chomskyans, that is, they believe that the set of concepts humans can appeal to is pre-determined biologically. Now, what I would like to add is that language—FL—while being 'matured' into a language, encapsulates these pre-determined concepts differently both in terms of the limits of the concepts and in the form of sound associations assigned to them; the associations Chomsky accepts as the Saussurean arbitrariness. However, since "[m]eaning-sound associations are arbitrary" and "there is no biological relationship between them" and are only a matter of social conventions, they are "of no interest to natural scientist" (McGilvray 2005: 206). This property is what I would like to suggest as the 'lexical creativity' of language, which has been ignored by Chomskyans. As a result, language is a human capacity which allows him to develop various social organizations. In other words, culture in the form of various social organizations depends on language.

Now, we have to pay heed to the notion of creativity. If we define creativity as a capacity to use a finite set of means to generate an infinite set of products, we will accept a degree of determinism. The determinism is found in the 'finite set of means'. To me, as far as the substantive lexical items are concerned, this finite set is biologically determined in terms of both the conceptual structure—as the meaning-related aspect of language—and the phonological distinctive features—as the sound-related aspect of language. The latter has been particularly shown in the Generative and related post-Generative phonology relying on the non-Generative universal set of distinctive features offered by Jakobson and developed later in works such as Chomsky and Halle's (1968) ***Sound Pattern of English.*** As far as the former is concerned, to say that concepts are predetermined biologically and independent of language does not go as far as to say that they are readily formed and formulated, assembled with the features constituting a lexical item in an individual's lexicon; it is simply to say that whatever we find in substantive lexical items in any language is derived

from a pool of biologically available to human species, constituting a range of ingredients, not products. Therefore, what makes the infinity of products—i.e., lexical items—possible are the arbitrary nature of the associations established in different languages.

1. 3. 2. Concepts: Linguistic vs. Non-linguistic

A distinction is essential to be made here between what we may term as 'linguistic' and 'non-linguistic' concepts. There are at least two differences, Firstly, although the latter may be packed linguistically, that is in the form of words, they are not intrinsic parts of our language biology and in fact are better formulated by other symbolic systems such as mathematics. Secondly, they do not seem to be biologically anticipated. Illustrative examples of such non-linguistic concepts are scientific concepts and also what philosophers call 'qualia'. Such concepts require efforts on the part of human beings, yet (perhaps) guided by a 'science-forming' capacity:

> Scientific concepts ... unlike those that appear in our natural languages, are not virtually built into our biology. They are ***not*** easily acquired in the way the concepts of natural languages are, but instead require sophisticated understanding of a theory, and typically, a lot of preparation and work. They seem to be created, or invented, by people who construct sciences. Chomsky holds that people have some innate aid in constructing such theories: our "science forming capacity" (1975, 1988b) provides a kind of guidance. But the particle physicist's concept PION is ***not*** somehow anticipated in us at birth. If it were, the child would readily acquire it. (McGilvray 2005: 208)

It is exactly such a distinction and the nature of linguistic concepts that Saussure implies by his 'arbitrary nature of linguistic signs.' Can't we then say that it is such arbitrariness that imposes a linguistic limit on lexicalization to result naturally in linguistic relativity and determinism which point to how differently each language deals with the world? To me, the answer is affirmative. What Saussure basically refers to as arbitrariness may be compared to what McGilvray (2005: 214)—a Chomskyan—identifies as 'fine-grained (FG) features or distinctions':

> [H]uman interests, tasks, and intentions are somehow reflected in the fine-grained features that distinguish lexical items. ... The distinctions can be subtle. To go to a couple's house is not necessarily to go to their home (this distinction is not always "lexicalized" in other languages. ... So virtually any natural language lexical item (not scientific term) is a rich source of fine-grained distinctions that can be used by a person ***because*** they are a part of that person's ***linguistic knowledge***.

1. 3. 3. Unlimited Perspective Creativity: SEM in MP

As we know, in MP, through a very limited number of syntactic operations—basically taken to be 'Select', 'Merge' and 'Agree/Move'—lexical items as bearers of atomic and/or complex concepts are joined together to express 'human thought'. LFs, recently called SEMs, for "syntactically defined meanings," then constitute an interface to Conceptual-Intensional Performance System to guide language use. In more simple terms, SEMs are what Chomsky (2000b: 150, 180) informally identifies as 'perspectives,' which are unlimited in range and may be used by performance systems of thought to serve various purposes.

SEMs, construed as such, suggest to yet another creative capacity peculiar to language, that is, the human language property of 'discrete infinity':

> Without this capacity, it might have been impossible to think thoughts of a certain restricted character, but with the capacity in place, the same conceptual apparatus would be freed for the construction of new thoughts and operations such as inference involving them, and it would be possible to express and interchange these thoughts. (Chomsky 1988: 170)

McGilvray (2005: 214-215) can be seen as expanding on what Chomsky puts forward in his 1988 Managua Lectures when stating:

> The richness and detail of specific lexical items is greatly enhanced and refined when several are put together to compose a phrase or sentence. In sentences, but not lexical items, themes [i.e. thematic roles] ... are assigned, tenses specified, scope and specificity indicated, "agreements" fixed, etc. Ambiguities can arise: ***They are flying planes***. Details and focus of many possible sorts become possible... Co-reference comes to be specified... Mood ... is specified... More room is provided for imagination and speculation... [And] [a] potential for metaphor and other figures of speech arises: Tom the wolf... Phrases and sentential expressions provide at SEM ***extremely*** rich and detailed perspectives.

However, emanating from the above discussions are two important issues which require some serious qualifications. One is the so-called property of discrete infinity. Chomsky (1988: 70) considers 'discrete infinity' as a property of not human language capacity only but as a property of his capacity for arithmetic and mathematics. What he finds in both such capacities is recursiveness. Accepting Chomsky's argument, I cannot help but assume that 'discrete infinity' is not a 'property' but a consequence of 'the property of recursiveness of computational operations' found in both linguistic and mathematical systems.

The other qualification concerns Chomsky's views of the theoretical status of 'sentence' and linguistic 'creativity.' I find his views inaccurate and

misleading. Chomsky considers a sentence, a derived expression of the form EXP = < PF, LF > , to be a feature of competence/I-language and creativity as a property of recursiveness of the language computational system. Nevertheless, in view of the previous arguments, it seems that as for the sentence, it is neither an aspect of use nor a proper unit of I-language; it is a 'product' of the computational system derived or generated by computational operations when accessing lexical items and in the form of 'instructions' to be made available to the performance systems for externalization/use. With regard to creativity, it has been argued that it would be an oversimplification if it were restricted to one type, level, component or module.

1. 4. Qualms on Modularity of FL

Recently, Chomsky (2005a: 9ff and b: 1-4), and Hauser, Chomsky and Fitch (2002: 1573, 1578) make a distinction between Language Faculty (FL) and Narrow Language Faculty (FL_N) The former includes syntax, phonology/morphology and semantics, whereas the latter comprises of syntax only, hence known as the computational system exclusively. They further suggest that many mechanisms of the FL may be shared with non-human animals, firstly keeping recursion/recursiveness as peculiar to FL_N and later even speculating on possibility that even recursion may have an origin external to FL_N.

Interestingly, non-human primates have found to possess surprising abilities in numerical computation (Carey 1998: Wynn 1998). As cited in Hinzen (2006: 21):

> Sulkowski and Hauser (2001) report on experiments demonstrating the capacity of rhesus monkeys to spontaneously compute (in single trials, without training) the outcomes of subtraction events. Since it would be very surprising if such abilities were entirely absent in humans, and for many other reasons cited in these words, we should question whether the capacity to represent numerals is a 'cultural construction'.

Hinzen (2006: 93) also mentions:

> It seems by now an established fact that mathematical patterns in plant geometry (such as Fibonacci patterns), while possibly being adaptive, have no adaptationist significance or rationale, reinforced by natural selection. Plants grow such patterns by mathematical rules of the physical world, working hand in hand with the plant's genes of course, but sparing them much of the work in generation of natural order, and actually restricting their power: apparently, genetic tinkering cannot simply change the number of petals that some flower is bound to have by virtue of these constrains. Cell-division processes as well as the overall shape of cells do not seem to have to be coded in genes either: cell division just works by itself, so to speak (Stewart 1998: 85-7). Here as elsewhere, nature has built on simple physical

> processes of a very general kind-processes provided free of charge by mathematical design and physical design of the universe. Put differently, cell division is not particularly 'life-like': it exploits given possibilities afforded by physical law.

He further adds:

> In Kauffman's case, morphological laws of self-organization in complex systems are not unique to the organic world-aiming as they do at a general theory of life:
> Ontogeny, the development of a fertilized egg into an adult, is controlled by networks of genes and their products in each all of the body. If this unfolding depends on every small detail of the network, then understanding the order of organism would require knowing all those details. Instead, I shall give strong grounds (...) to think that much of the order seen in development arises almost without regard for how the network of interacting genes is strung together. Such order is robust and emergent, a kind of collective crystallization of spontaneous structure. (...) [L]ife is not located in the property of any single molecule-in the details-but is a collective property of systems of interacting molecules. Life, in this view, emerged whole, (...), not to be located in its parts, but in the collective emergent properties of the whole they create. (...) The collective system is alive. Its parts are just chemicals (Kauffman 1995a: 18, 24).
>
> Hinzen 2006: 94

Such accounts show that although language is a human capacity, it is guided, limited and driven by general external-to-FL "principles" not necessarily specified for language.

1. 5. Eliminables

Following the discussions above, let us have a look at the most recent minimalist developments—i.e., mechanisms or concepts purged and eliminated by MP recently—I will not go into the ones earlier eliminated, e.g., D-Structure, S-Structure, and Government—or attributable to other non-linguistic (cognitive) systems of mind/brain:

1. There is no X-bar syntax—cf. Chomsky's (1994) ***Bare Phrase Structure.***
2. PF and LF levels may be eliminable—cf. Epstein's (1999) ***Un-Principled Syntax.***
2. PRO may be argued to be non-construal, and justified by Move (Merge + Agree) rather than a separate ***Control*** module—cf. Hornstein (1999, 2003).
3. Move (or Merge + Agree), generally known to be responsible for the displacement property of language, is due to BOCs—cf. Chomsky (2002).

4. Recursion is possibly not peculiar to language. cf. Chomsky (2004, 2005a and b) and Hauser, Chomsky and Fitch (2002)

2. Variation: Can Parameters Be All FL_N Encompasses?

Based on the critical review of recent minimalist attempts I presented above, I shall focus in this part on parameters and their relation to principles.

P & P since its formal formulation and introduction into generative enterprise has encountered quite a substantial number of twists and turns resulting in MP in 1992. Looking at the evolution of the P & P approach from 1981 until now, one can identify and locate a number of quite significant developments following efforts to specify what constitutes parametric variation in languages. I would like to divide them into two interdependent currents: grammar-led and acquisition-led streams. The former were directed by linguists; the latter by language-acquisition researchers or linguists interested in and conducting language-acquisition research.

Major developments in the grammar-led stream may be summarized as follows: parameters as grammatical properties—i.e., constituting a part of the computational system (Chomsky 1981)—parameters reducible to lexical properties, starting with Borer (1984), leading to Wexler and Manzini 'Lexical Parameterization Hypothesis' (1987); and later to Fukui's (1988) 'Functional Parameterization Hypothesis,' immediately adopted by Chomsky (1989) to the effect that substantive elements are selected from an invariable universal vocabulary and therefore assigning the functional categories with the task of parameterization. MP, in its Chomskyan version, naturally adheres to such postulation—i.e., recognizing functional categories as the prime locus of parameterization—with the attempt to re-locate the burden of parametric choice from the computational syntax to lexicon. Such a desire was not foreseen but set as a target by Chomsky (1991: 51):

> The language faculty is based on fixed principles with limited options of parametric variation as the system is "tuned" to a specific environment, yielding a finite number of core languages apart from lexicon, also sharply constrained; it may be that these principles yield only one core language, apart from properties of lexicon. Some days, I presume, we will reach the point of understanding that the notion of "core language" is eliminable, and we will not distinguish I-language from core language. That is that systems found in the world will not be regarded as languages in the strict sense, but as more complex systems, much less interesting for the study of human nature and human language, just as most of what we find around us in the world of ordinary experience is unhelpful for determining the real properties of the natural world.

Meanwhile, adopting and/or adapting such hypotheses, language acquisition-oriented linguists and researchers have primarily been concerned

with parameter setting/re-setting hypotheses and maturational vs. internal ordering constraints on parameters.

Parameter theory as a research program outlined above points to a very significant direction: the computational system must be invariant. And this is what MP intends to do. In fact, MP has had two drives which have been eloquently summarized by Martin and Uriagereka's (2000: 2) as ***methodological*** and ***ontological*** minimalism. The former is what we have known for years as 'Occam's Razor'. The latter is, however, related to the design specification problem of FL and introduced by Chomsky, at least as of 1998, as the leading minimalist inquiry and the ultimate minimalist goal; it is expressed in the form of the Strong Minimalist Thesis, claiming that language is an optimal solution to legibility conditions. Therefore, to keep the computational system invariant would be an ontological achievement in the above sense.

In line with this aspiration—which looks quite similar to, if not identical with, that of Einstein's dream of an 'elegant universe,' at least to me—I suggest that a new line of inquiry may be not only feasible but necessary: Can principles be reduced to parameters? I will discuss this issue below and refer to a number of specific works by Chomsky (1994), Boskovic (2000) and Aronoff (2007).

Firstly, within the framework of P & P, all parameters are related to certain principles, whether overtly stated or covertly posited. To provide some examples, let us take a quick look at pro-drop, head (or direction) and what is happening to them. I abstract from details and technicalities here. ***pro***-drop is related to the principle stating that all sentences must have a syntactic subject. This principle is commonly known as the Extended Projection Principle or EPP. Head parameter is related to the principle of phrasal endocentricity: all phrases must have a head of their own type or in more recent terminology a phrase is a projection of its own head.

Now, following the claim that parameters reflect properties of functional categories, linguists have been trying to reduce them somehow, with the consequence of almost eliminating the relevant principles. EPP has been attributed to the property of T(ense) and directionality to the properties of the functional categories with which an item merges. So endocentricity is an epiphenomenon of the projectional properties. In fact, with regard to the architecture of phrases, Chomsky (1994) abandons X-bar Syntax altogether in favor of a 'bare' phrase structure.

Another piece of evidence for the possible eliminability of principles can be based on Boskovic's analysis of wh-word sentences in French. Boskovic's findings relevant to my argument here is that it is not necessary to insert lexical items or features before Spell-Out. Items may be added to PF and LF provided the ones added to PF lack semantic content and the ones added to LF be void of phonological matrix. The newly added, or inserted, items must be

immediately checked for any of their (syntactic) –interpretable features. Why do they have to eliminate –interpretable features? Simply because a convergent derivation at LF or PF is the one that comprises only +interpretable features in accordance with the Principle of Full Interpretation (FI). However, the so-called principle is not required to be posited as a property of FL; in fact, it is a requirement imposed by performance systems, which we know as 'legibility' conditions.

Therefore, Universal Grammar, as a theory of FL, makes available a handful of computational operations—e.g. Select, Merge, Agree—and a set of universal features incorporating parametric possibilities. All the so-called principles—whether positively stated or in the form of constraints—are aspects either of parameters or legibility conditions.

In this regard, there are two issues that I should like to discuss. One is on the nature of morphology. Since 1970, and in particular Chomsky's 'Remarks on Nominalization', we have had different theories of morphology assuming 'radically lexicalist, lexicalist and anti-lexicalist assumptions. Also, we have had decompositional and anti-decompositional approaches to word analysis. There has been quite a lot of fusion and confusion as a result. In his recent article, Aronoff discusses a sign language called Al-Sayyid Bedouin Sign Language (ABSL) which is 'completely compositional down to its smallest pieces.... with little if any structure below the level of the lexeme .... which thus provides an unusual type of evidence for both compositionality and the lexicalist hypothesis" (Aronoff 2007: 805), most probably close to Chomsky's perfect language design. It seems that if the hypothesis put forward here turns out to be correct, morphology is a language-particular phenomenon, and part of how a language is set to be. Interested readers may refer to Uriagereka (1998: 456-457). Therefore, how morphology is and where it is located—e.g., in lexicon, in syntax, in the phonological component or 'distributed' be it morpheme-based or lexeme-based—will be a by-product of how parameters come to be fixed in a language. This will lead me to the second issue, which is the possibility of valuation of parameters, that is, the so-called issue of parameter-setting.

Parameters so far have been assumed to be universals of binary-value, which need to be specified one way or another when exposed to linguistic data. However, is it possible for a parameter to remain under-specified, i.e., unvalued, or with both values set? I believe that the answer is affirmative, with the result of abandoning the 'switch' metaphor for a parameter. For instance, Modern Persian, also called Farsi, shows properties of both head-initial and head-final languages; it has both prepositions and postpositions. Also, French, for quite a considerable period of time exhibited properties of pro-drop and non-pro-drop languages. Even now, it shows a mix of both English type and Japanese type characteristics with respect to wh-phrases in multiple questions as discussed by Boskovic (2000). These 'mixes' will seem chaotic unless we assume that it is possible for parameters to be bi-valued. On the other hand, as

Fukui (1986) implies, Japanese seems to lack complementizer, determiner and AGR systems altogether. Contrary to Radford (1995: 497) who suggests that "...then one type of functionality parameter will relate to the range of functional heads in a given language", I offer the possibility of no-valuation for a parameter. Therefore, not only may we account for morphological differences between and within languages, but we can explain the ontogenetic and historical aspects of languages as well. So parameters play an essential role to explain cross-linguistic, morphological and historical variations. Also, adopting such a view, I dispense with Chomsky's notion of 'periphery', which consists of historical residues, apparent violations of certain principles and exceptions to parameters, etc, to be required as an isolated part of I-language to exist alongside 'core grammar' within an individual's competence.

Therefore, UG as a ***Unified Theory of Parameters (UTP)*** or ***Un-Principled UG (UPUG)*** in pursuit of minimalist (i.e., optimal) elegance and efficiency, informally stated as 'Less is More,' or 'to organize frugally to maximize resources,' the so-called 'invariant principles' of S_0 is no more than a set of parameters as the expressions of the human genome, constituting the human linguistic genotype, to be valuated in the growth or maturation process of its phenotypes, i.e., I-languages or the steady states.

2. 1. Ongoing Research

Relevant to my discussions above, there is a strand of research I have been involved in, actually supervising, in the past 14 months.

The research project is on universals. What has been being undertaken is to show that contrary to the standard P & P assumptions, there may be no invariant principles and all language universals are parameters of some kind. I have already provided some examples, e.g., one regarding EPP and endocentricity of phrases and another with respect to FI. The results of the research are expected to be released in August 2008 in the form of a manuscript first, to be later published some time between late 2008 and early 2009. If on the right track, as I assume they are, the results will offer a new minimalist horizon suggesting (1) the elimination of principles on account of being redundant and non-minimalist (2) relegating such invariant principles to BOCs along with keeping methodological economy measures on the one hand and limiting substantive economy measures in the sense of Epstein and Hornstein (1999: xi) to linguistic parameters only and (3) a mechanism to account for diachronic change and the 'periphery' component of I-language: bi-/no-valuation possibilities for parameters besides the general possibilities of fixing one or the other valuation options postulated for a parameter.

3. Conclusion

In this article, I entertained the possibility of eliminating linguistic principles altogether. Firstly, I argued that in view of Chomsky's recent strong minimalist

thesis—that is, claiming that language must be an optimal solution to legibility conditions imposed by performance systems upon language—'autonomy of syntax' or 'modularity of form' seems to lose power and reduce in effect, opening a new horizon in linguistic explanation: Minimalist Functionalism, which although still adopting an internalist approach to language, suggests that language is determined by performance systems external to it.

Secondly, I suggested that the so-called universal invariant principles of language may be ascribed to the general properties of cognitive systems external to FL_N; that is, the performance systems and general architecture of the human mind/brain.

Thirdly, I showed that with the elimination of invariant principles as language universals, we will have parameters constituting the FL_N. I provided preliminary evidence that corroborate such a hypothesis, recognizing it as a new model or research program to be known as the Unified Theory of Parameters (UTP) or Un-Principled UG (UPUG) to replace the P & P model.

References

Aronoff, Mark. 2007. In the Beginning was the Word. ***Language,*** Vol. 83, No. 4: 803-830.

Borer, Hagit. 1984. ***Parametric Syntax.*** Dordrecht: Foris.

Boskovic, Zeljko. 2000. Sometimes in [Spec, CP], Sometimes in Situ. 2000. In Roger Martin, David Michaels and Juan Uriagereka (eds.) ***Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik***. Cambridge, MA: MIT Press. 53-87

Chomsky, Noam. 1968. ***Language and Mind.*** New York: Harcourt, Brace and World.

_____. 1981. ***Lectures on Government and Binding.*** Dordrecht: Foris.

_____. 1988. ***Language and Problems of Knowledge: The Managua Lectures.*** Cambridge, MA: MIT Press.

_____. 1989. Some Notes on Economy of Derivation and Representation. In I. Laka and A. Mahajan (eds.) ***Functional Heads and Clause Structure.*** Cambridge, MA: MIT Working Papers in Linguistics, 10: 43-74.

_____. 1991. Linguistics and Cognitive Science. In Asa Kasher (ed.) ***The Chomskyan Turn.*** Oxford: Blackwell. 26-53

_____. 1994. Bare Phrase Structure. ***MIT Occasional Papers in Linguistics 5.*** Cambridge, MA: MITWPL. [Reprinted in G. Webelhuth (ed.) 1995 ***Government and Binding Theory and the Minimalist Program***. Cambridge, MA: MIT Press. 383-439]

_____. 1995. ***The Minimalist Program.*** Cambridge, MA: MIT Press.

_____. 1998. Linguagem e mente: pensamentos atuais sobre antigos problemas [Language and Mind: Current Thoughts on Ancient Problems.] ***Lectures presented at the University of Brazil.*** Brasilia: Universidade de Brasilia.

_____. 2000a. The Minimalist Inquiries. In Roger Martin, David Michaels and Juan Uriagereka (eds.) ***Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik***. Cambridge, MA: MIT Press. 89-155.

_____. 2000b. ***New Horizons in the Study of Language and Mind.*** (ed.) Neil Smith. Cambridge: Cambridge University Press.

_____. 2002. ***On Nature and Language***. Cambridge: Cambridge University Press.

_____. 2004. Beyond Explanatory Adequacy. In Adriana Belletti (ed.) ***Structures and Beyond: The Cartography of Syntactic Structures, Vol 3***. Oxford: Oxford University Press. 104-31.

_____. 2005a. Three Factors in Linguistic Design. ***Linguistic Inquiry***, 36: 1-22.

_____. 2005b. Biolinguistics and the Human Capacity. Lecture given at MTA, Budapest, 17 May 2004. In Noam Chomsky 2006 ***Language and Mind***, 3rd Edition. Cambridge: Cambridge University Press. 173-85.

Chomsky, Noam and Morris Halle. 1968. ***Sound Pattern of English.*** New York: Harper and Row.

Cudworth, Ralph. 1995 [1688]. ***A Treatise Concerning Eternal and Immutable Morality.*** (ed.) C. M. Hutton. Cambridge: Cambridge University Press.

Epstein, Samuel David and Norbert Hornstein. 1999. Introduction. In Samuel David Epstein and Norbert Hornstein (eds.) ***Working Minimalism.*** Cambridge, MA: MIT Press. ix-xviii.

Fukui, Naoki. 1986. ***A Theory of Category Projection and its Applications.*** PhD dissertation. MIT.

_____. 1988. Deriving the Differences between English and Japanese: A Case Study in Parametric Syntax. ***English Linguistics***, 5. 249-70.

Hauser, Marc D., Noam Chomsky and W. Tecumseh Fitch. 2002. The faculty of Language: What is it, Who has it, and How did it Evolve? ***Science*** 298: 1569-1579.

Hinzen, Wolfram. 2006. ***Mind Design and Minimal Syntax***. Oxford: Oxford University Press.

Hornstein, Norbert. 1999. Movement and Control. ***Linguistic Inquiry***, 30. 69-96

_____. 2003. On Control. In Randall Hendrick (ed.) ***Minimalist Syntax***. Oxford: Blackwell Publishing. 6-81.

Lasnik, Howard and Juan Uriagereka with Cedric Boeckx. 2005. ***A Course in Minimalist Syntax: Foundations and Prospects.*** Cambridge, MA: Blackwell Publishing.

Martin, Roger and Juan Uriagereka. 2000. Some Possible Foundations of the Minimalist Progam. In Roger Martin, David Michaels and Juan Uriagereka (eds.) ***Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik***. Cambridge, MA: MIT Press. 1-29

McGilvray, James. 2005. Meaning and Creativity. In J. McGilvray (ed.) ***The Cambridge Companion to Chomsky.*** Cambridge: Cambridge University Press. 204-222.

Petitto, Laura-Ann. 2005. How the Brain Begets Language. In J. McGilvray (ed.) ***The Cambridge Companion to Chomsky.*** Cambridge: Cambridge University Press. 84-101.

Radford, Andrew. 1995. Phrase Structure and Functional Categories. In Paul Fletcher and Bran MacWhinney (eds.) ***The Handbook of Child Language.*** Cambridge, MA: Blackwell Publishing.483-507.

Saussure, Ferdinand de. 1983 [1916]. ***A Course in General Linguistics [Cours de linguistique generale].*** Roy Harris (tr.). London: Duckworth.

Uriagereka, Juan. 1998. ***Rhyme and Reason: An Introduction to Minimalist Syntax.*** Cambridge, MA: MIT Press.

Wexler, K and M. R. Manzini. 1987. Parameters and Learnability in Binding Theory. In T. Roeper and E. Williams (eds.) ***Parameter Setting.*** Dordrecht: Reidel. 41-76.

Zahedi, Keivan. 2006 [1385]. Chomskyan Linguistics. J***ournal of Human Sciences***, 50: 191-214.

_____. 2007 [1386]. Grammaticality in the Minimalist Program: A New Horizon towards Minimalist Functionalism. J***ournal of Human Sciences***, 55: 79- 88.