

# On the question of linguistic universals

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## *Abstract*

*This article offers a general discussion of the concept of universals in linguistics (and in general), spelling out different ways of understanding claims to universality and connecting such claims to other (often familiar) related distinctions, terminology and approaches such as competence and performance or I-language and E-language, evolutionary explanations, deep and surface universals, rationalism and empiricism or nature and nurture, realism and nominalism, parametric variation and tendencies, formal and functional approaches, properties or explanations, historical explanations, modularity and structural analogy, so-called meta patterns and minimalism.*

## **1. Introduction**

In this article<sup>1</sup> I discuss some issues that concern the notion of language universals or linguistic universals. These two phrases *could* be used for different types of universals, namely those that stay closer to the observable surface and those that are more theory dependent, a distinction that, as we will see, is frequently made both in practice and in discussion about kinds of universals (cf. Mairal and Gil 2006). However, even though this distinction itself is an important one (if not *the* crucial one), I will use the phrases *linguistic universal* and *language universal* interchangeable.

On one extreme, which is called *linguistic relativism*, there are no language universals, each language being a specific time and place bound solution to the communicative needs of people in some culture. Linguistic relativism is based on the idea that languages differ from each other in unlimited ways. At best,

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1. I wish to thank Larry Hyman and Nancy Ritter for their comments on this article.

in this approach, which can be found in the tradition of American Anthropology, languages would be admitted to share properties that follow from the fact that any type of human communication must have certain properties (whatever these are), and from the fact that they all use the same apparatus for production and perception (a point that largely ignores the existence of sign languages). However, since that apparatus would be assumed to exist (or have evolved) for independent reasons, the relevant constraints would not be linguistic in nature. In this anthropological tradition, there would be no appeal to *cognitive* constraints of any sort either (whether general or specific to language) because of the general adherence of the ‘blank slate’ view of the human mind. On the other extreme we find the view that *all* of language is universal. Here, the bewildering diversity of languages, that feeds the idea of relativism, is attributed to factors that lie outside the ‘narrow language faculty’ which might be *so* narrow that it only contains the notion of *recursion*. Both these views, one originating at the beginning of the 20th century, the other at the end of it, are extreme indeed. It would seem that most linguists try to find some sort of balance, leaning either to linguistic relativism or to linguistic ‘absolutism’. The trend toward recognizing ‘relative’ universals originates with the work of Joseph Greenberg who showed that when studying the properties of large samples of languages clear tendencies or preferences can be detected. Such tendencies then could be called *relative universals* (although this phrase seems to embody a contradiction). Greenberg’s approach is often referred to as *Typological Linguistics*. The trend toward recognizing ‘absolute’ universals (in a sense to be defined below) was initiated in the 20th century by Noam Chomsky and linguists following his lead like to *state* (in articles, books, talk, classrooms) that language, despite all the ‘superficial differences’ share important characteristics. More often than not, however, such statements are not followed by clear examples of what the alleged universals might be, nor do they seem to be based on the study of large samples of languages. Additionally, whereas relative universals focus on properties of linguistic *utterances* (subjected to a certain amount of ‘surface’ grammatical analysis), absolute universals focus on properties of the mental grammar that underlies such utterances and, as such, be rather dependent on ‘the theory of the day’. Correlated with this difference regarding *where* the universals are located (and realizing that the statement of universals in terms of ‘grammatical analyses’ or in terms of ‘properties of the mental grammar can certainly, at least terminologically, overlap) is the difference in how universals are *explained*. As might be expected, recurrent properties of utterances tend to be anchored in properties of the production and perception mechanisms that language use relies on, whereas properties of mental grammars are likely to be sought in principles of human cognition. Indeed, linguists in the Chomskyan tradition largely ignore matters of production and perception, while, at the same time, they construe the cognitive grounding of grammars in a very specific way:

the universals of language are cognitive and *specific to language*.<sup>2</sup> But, on the other hand, it would be wrong to say that linguists outside the Chomskyan tradition make no appeal to cognitive principles. In fact, there are several schools of thought that appeal to cognitive faculties that drive language use (and language acquisition). Where these differ from Chomsky's approach is that the relevant cognitive faculties are claimed to *not* be specific to language. Nor is it claimed that these general cognitive faculties cause *absolute* language universal because these faculties are claimed to be inherently gradient or 'statistical' in nature. Although there are several different varieties of this approach (which, contrary to Chomsky's rationalist approach, all adopt a variety of empiricism) I will here all group them under the label *Cognitive Linguistics*. Together, typological linguistics and cognitive linguistics (varieties of which many linguists combine in their work) oppose the Chomskyan view point in taking a relative view on language universals, a view that is based on either the fact that language utterances display tendencies rather than absolute laws or on the fact that the human mind is a gradient and statistical processor, or both.

When finding myself in the position of explaining the Chomskyan view on language universals, I always wonder what examples to give, without resorting to typological statements like "almost all language have at least three vowels, namely a variety of 'i', 'u' and 'a' ". For this reason I invited four linguists who adopt a Chomskyan stance to discuss what they consider to be good examples of absolute universals. Since these authors have done such a thorough job (with varying outcomes), my intention in this introductory article is not to summarize or discuss their work. Rather my goal is to offer a general discussion of the concept of universals in linguistics (and in general), spelling out different ways of understanding claims to universality (Section 2 and throughout the whole article) and connecting such claims to other (often familiar) related distinctions, terminology and approaches such as competence and performance or as I-language and E-language (Section 3), evolutionary explanations (Section 4), deep and surface universals (Section 5), rationalism and empiricism or nature and nurture (Section 6), realism and nominalism (Section 7), parametric variation and tendencies (Section 8), formal and functional approaches, properties or explanations (Section 9), historical explanations (Section 10), modularity and structural analogy (Section 11), so-called meta patterns (Section 12) and minimalism (Section 13).

It will be clear that the problem of universals reaches far beyond linguistics and goes to the heart of the most central and ancient philosophical debates. The necessary suppression of many details will, hopefully, not do too much damage to the discussion of how these debates affect or play out in the study of

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2. We would not call this 'language-specific' because that phrase is usually employed for properties that are precisely not universal but only found in some 'specific language'.

language. I refer, in particular, to Armstrong (1989) for a detailed overview of the problem of universals. For discussions of universals specific to linguistics there is a rich literature and I refer here to Greenberg (2005), Odden (2003), Newmeyer (2005), the articles in Mairal and Gil (2006) and, of course, the articles in the Theme Issue of *The Linguistic Review*.

## **2. Specific and general universals that characterize human languages a natural class**

It is intrinsic to any scientific enterprise to pursue the formulation of general laws about some domain of inquiry. The phenomena that constitute such a domain cannot, in advance, or perhaps ever with certainty, be designated as forming a truly unified domain, i.e., a *natural class*. However, apparently, some classes of phenomena strike people, in a pre-theoretical, intuitive sense as forming such a unified domain and the goal of the scientist is to try and ‘reconstruct’ (and justify) this intuition.

As linguists learn in their first phonology course, a ‘natural class’ can be constituted by a unique property, e.g., [coronal] which designates the class of all coronal consonants. The property coronal is ‘universally true’ of all members in that class (in the domain of speech sounds or phonemes) which means that they are unified by uniquely sharing this property which no other segments types have. However, the notation [coronal, stop] also designates a natural class, in this case the intersection of coronal segments and stops. Members of this class are not unified by all having a unique property that is not shared with other segments. Hence this class is *not* characterized by a *class-specific* universal property, but it is still a relevant category. Not every intersection is noteworthy of our attention, though. The class of coronals uttered by male speakers over 65 is of little interest, natural as it may be. Coronal stops are interesting because they function in a larger system, in this case a system of contrasting linguistic (language) sounds. Such participation in a bigger whole is one reason for focusing attention on a natural class; there may be others, less rational reasons, but I will not focus on that issue here.

When targeting a class of phenomena, then, there are, at least, two questions. Do they form a natural class and do the members of this class share a unique property or do they merely belong to an intersection? (Additionally, we are of course also interested in the properties that *distinguish* the members of this class in case the set contains more than one member.)

Human languages have always struck people as forming a unified domain of inquiry, but this does not mean, as just argued, that they are. It could be that all languages taken together (in as far as we can study them; the class of these phenomena, after all, is open) indeed turn out to have characteristics in

common, not shared with other phenomena that we generally do not call (human) languages. In that case, the intuition that languages form a natural class of phenomena was justified. It is also possible that languages do not display unifying features and that, for example, English and Chinese are members of a larger class, let us say the class of communication systems, where we also find gesturing, Morse code etc. This may seem like an unlikely possibility, but consider that for some linguists grouping English and ASL in the same natural class, called 'human language' may still be an open question (and certainly, not too long ago, it was like that for many), whereas for others they unquestionably do. Of course, within the class of human languages we can make all sorts of *subdivisions* (Romance languages, Caucasian languages etc., or dead languages, living languages, etc.) but for all linguists such finer distinctions would not be 'essential', while, perhaps, the difference between spoken and signed languages, for some linguists, is.

Assuming that all languages have properties in common, and that the combinations of these properties excludes phenomena like gesturing (but presumably include sign languages), the next question is whether some or all of the properties are unique to language or whether some, or perhaps all are shared with broader classes of phenomena. Unique properties could be called language-unique universals, whereas shared properties would be language universals (true of all languages, but also of other some other phenomena).

Most linguists probably agree that there are language universals. For example, allowing *combinations of units* (which occurs many times over in languages, in phonology, semantics and morpho-syntax) is a property that also characterizes the gesture system, or mathematical and musical activities. It is, on the other hand, possible that there are properties that uniquely identify human languages and, indeed, this is perhaps what many linguists expect or hope for because it would elevate the domain of inquiry to a rather special level. Of course, the property '(being) a human language' would not be very helpful in this respect.

In discussing language universals, we need to keep track of the distinction between unique universals (language-unique universals) and shared universals (language universals). Clearly, this distinction is important with respect to the question of there being a language-specific innate 'Universal Grammar', which I will come back to below.

Sometimes, it might appear that certain commonalities among languages only *appear* to be language-specific universals only because linguists have failed to see that the same characteristics appear in a broader class of phenomena. Such an error is understandable and forgivable given that to uncover universal characteristics in any domain requires expertise knowledge, abstraction and reasoning, in short hard work, which means that it is difficult for the specialist in any domain to recognize significant parallels (or even sameness)

between universals in different domains. Few people, after all, are true specialists in more than one domain and we should not expect phenomena to wear their universal characteristics on their sleeves, readily noticeable to the casual observer. This applies in particular to those universals that are claimed to exist at deeper levels of analysis and theorizing. It would, however, be unreasonable (i.e., unscientific) to uphold a *deliberate* narrow scope of universals as a matter of methodological principle. It is not only intrinsic to science to find general laws ('universals') but also to give those universals the widest possible scope. If what appears to be the proper scope exceeds the chosen domain of inquiry this should be recognized and explored in an interdisciplinary setting. Concerning human languages, there is such an interdisciplinary arena called 'Cognitive Science'. It could be argued that there is a certain 'tradition' in generative approaches to conclude too quickly that a certain characteristic of languages is language-unique, but this is clearly not the only way to proceed. The claim that it is unique to a domain P can be falsified by showing its relevance in another domain, while the claim that it is general can also be falsified by showing that it doesn't apply to some other domain. However, the former approach is less 'bold' and therefore less interesting, in principle. It is quite a different matter to limit once attention to one's own domain in order to establish the relevant property beyond a shadow of a doubt before one makes bold claims, and I would agree that there is no point in making sloppy generalizations and sloppy cross-discipline comparisons. My point is simply that, from a methodological point of view, no matter how peculiar and apparently unique a universal looks, it is inherent to scientific reasoning to prefer statements with the widest possible scope.

When it turns out that what appear to be general properties of language are indeed seemingly shared with other domains, several different circumstances might obtain. Ignoring the possibility that the observed parallel is co-incident and in a real sense only apparent, it could be that the shared general properties simply reflect a more general principle (of the mind, let's say). If this is so, 'meaningful parallels' between different domains could be *true analogues*, in the sense of being similar solutions to similar problems but without a common source. Another possibility is that the parallels are *homologous* in the sense of being *phylogenetic* descendants of 'older', more general cognitive principles. This presupposes a view on the development of the human mind from an older, more general device to a set of more specialized devices or modules (cf. Mithen 1993). In fact, it could be that the older, more general device, apart from its offspring in various modules, still lives on in a general, non-module specific mental 'workspace'. A third possibility is that the parallels are *ontogenetic* descendants of a set of general cognitive principles, fine-tuned to a specific task in the course of development from infant to adult (cf. Karmiloff Smith 1992). In this case, one might speculate (or investigate at the neurological level) that

a principle that is observed in different modules, literally is one neurological device, or that the ontogenetic development leads to identical neural copies in different parts of the brain. If we make a distinction between cognitive theories of the mind and neurological theories, it could perhaps be maintained that a device that occurs in multiple neurological instantiations or copies is still cognitively identical.

Given the state of our present knowledge (of evolution, minds and brains), all the above possibilities that speak of universals should be considered as compatible, except for the position that there are no language universals which, obviously, is not compatible with the claim that languages have universal properties (whether unique or shared).

Summarizing, properties shared by all languages may be of three types: (a) universals that are *unique* to language while having or not having analogies in other cognitive systems, but without meaningful homologues, (b) universals that are phylogenetic descendants of more general universals that have other descendants (homologues) in other domains and (c) universals that really take a wider scope than language by itself. As said, (a) can be called language-unique universals and (c) language (or linguistic) universals (but having a wider scope). Type (b) falls in between the two and gains claims to language-specificity to the extent that one can show that the older (and perhaps still operative) general principles have been adapted and specialized (genetically mutated) to the task at hand.

### **3. Linguistic expressions (I-language) and utterances (E-languages)?**

There can be little doubt that human language as we know it (as opposed to how one might think it emerged in an evolutionary sense) is both a communicative system (next to other human communicative systems, such a gesturing) as well as a system to organize thoughts (next to other systems to organize thinking, such as systems based on visual imagery). In fact, in my view, it cannot be denied that languages have many other functions as well, and, who knows, it might develop more in the future. Compare this to the Internet/World Wide Web, systems that were, presumably, invented for some specific reason, but now have a multitude of function, and, most likely, many more to come.

From a phylogenetic (evolutionary) as well as an ontogenetic (developmental) point of view a case could be made for seeing a system for the organization of thought as necessarily coming *before* the development of a system that can be used for the *externalization* of thoughts. But only an exclusive focus on the former function could lead to the statement that languages do not need a phonology (both in the narrow sense that most phonologists take it, as well as in the broader sense which includes syntax to the extent that this module of

the grammar deals with the specific *linearization* of morphemes and words). It would seem to me that a system that would merely serve the role of organizing thought is not a human language, but a *precursor* to language which, presumably, is properly included (with some modifications perhaps) in a broader system that allows thought structures to be externalized in the form of perceptible ‘forms’.

Both ‘syntax’ and ‘phonology’ are in fact *crucial*, if not defining parts of this system of externalization. To place those two systems outside language (or grammar) proper and limit grammar to a system for the representation of thoughts, as is done in Burton-Roberts (2000), is, to me, limiting the notion (universal) grammar to a precursor of human language, a system of meaning (cf. Hurford 2007). Interestingly, for Jackendoff (2002), human language excludes precisely the system that Burton-Roberts wants to limit it to, as he places ‘semantics’ (in his terminology the conceptual system) outside the grammar proper. For Jackendoff, then, the system for externalizing thought (syntax and phonology) is the proper focus of linguistics, whereas for Burton-Roberts the proper focus is the ‘syntax’ of thought.

In the preceding paragraph I have started using the term ‘grammar’ next to ‘language’. We need to be more precise on what these terms stand for if we wish to ask what ‘universals’ refer to. Let the term grammar, or more specifically, *mental grammar* refer to a cognitive system (a module of the human mind) that enables its owners to link thoughts to structures that can be used to externalize these thought and to invoke similar thoughts in the listener. I will refer to these structures, of which there is an infinite number for any given grammar, as *linguistic expressions*, and to the mental grammar plus expressions as I-language (which is more or less like the older notion of linguistic *competence*). The mental grammar is at the same time a mental property of individuals and a partly conventionalized, shared property among speakers of the ‘same’ language. Here I will focus on the former status of the mental grammar and not ponder on the relationship between the individual, psychological property grammar and the shared, social notion of grammar.

Every grammar minimally stores a finite set of building blocks (*morphemes as lexical entries*) that combine a ‘chunk of thought’ (a meaning structure), a ‘chunk of form’ (a phonological structure), and a ‘directive’ to some combinatorial system on how it can be combined with other building blocks (a morpho-syntactic ‘category’ label). In addition, then, there is a system for recursively combining these building blocks in larger units and these larger units into still larger units. This combinatorial system is traditionally divided into a system that outputs ‘word structures’ (morphology) and a system that outputs larger units, called ‘phrase structures’ and ‘sentence structures’ (syntax), but whether this distinction is ‘real’ or useful (as I believe it is) is another question, one that I will not be concerned with. By imposing a combinatorial structure on

the building blocks, the combined morpho-syntactic system not only produces a ‘categorical’ ‘or ‘morphosyntactic’ structure’ (having at the bottom the categorical labels, as well as labels attached to higher nodes that are ‘projections’ of the former labels) but also imposes (‘unwillingly’) an isomorphic combinatorial structure on the chunks of meaning and the chunks of form. (In stating things this way, I move away from a conception of morpho-syntax as system that produces categorical structures as such, viewing insertion of phonological and semantic material as separate steps. But even when such a view is adopted, the following still holds.)

Meaning and form are very different from each other and from categorical properties and therefore it comes as no surprise that larger constellations in each of these three ‘dimensions’ are subject to different sets of wellformedness constraints. Semantic structures need to be such that they can be transparently linked to ‘thought stuff’, while phonological structures need to be such that they can be linked to ‘phonetic stuff’. Given the ‘priority’ of the categorical structure it is thus likely to happen that larger meaning constellations and larger form constellations arise that to some extent violate semantic phonological constraints. In other words, a morphosyntactic structure, provided with actual morphemes at the bottom, will, by definition be wellformed morpho-syntactically (because independent constraints pertaining to this dimensions determined the structure) but when this structure is projected onto the semantic and phonological dimension it may be illformed from the semantic and phonological point of view. This is necessarily so, one might say, because the categorical (i.e., morphosyntactic) system seeks a ‘compromise’ between the demands of meaning organization and the demands of form organization.

When a specific categorial organization imposes unacceptable structures in the semantic or phonological domain, additional mechanisms must be conceived that will build acceptable meaning and acceptable form structures from the morpho-syntactic ‘compromise’. In this view, the grammar contains not one, but three constraint systems each characterizing an infinite set of wellformed structures. However, the structures belonging to these three sets are not produced independently and then matched (as portrayed in Jackendoff 2002), but rather, as assumed here (and more generally in generative linguistics), a primary structure is produced by the categorial (morpho-syntactic) system which necessitates two additional *adjustment* systems, one to bridge syntax to semantics and one to bridge syntax to phonology. It seems to me that the Jackendoffian view by-passes the fact that the starting point of linguistic expressions are packages of form, meaning and category, and not, independently, units of form, meaning and category. The reason, as said, for why semantic and phonological structures have such different demands on wellformedness is that both are grounded in very different domains, namely the ‘substance’ of thought processes and the ‘substance’ of perceptible form:



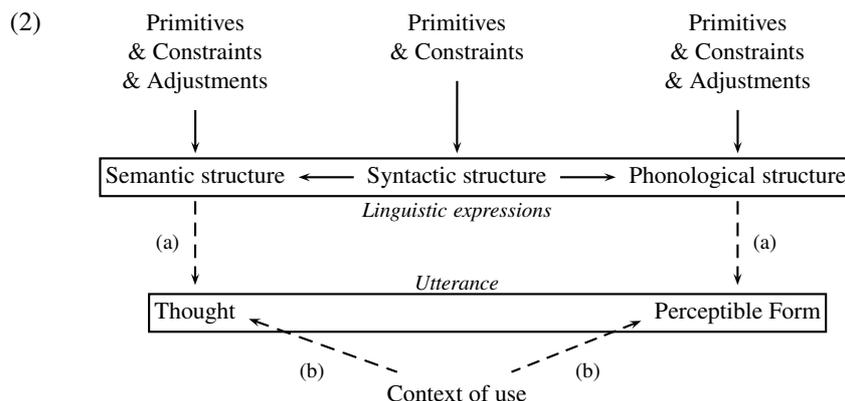
phonology with it. Evidently, this makes syntax a simpler module than semantics and phonology. To minimize the extra work that the latter two inevitably need to do, the goal is to design the syntax such that this extra work is minimal, in other words the goal is to design syntax as the perfect solution to link form and meaning (Chomsky 1995).

Still, generative syntax in its present form has preserved a remnant of the deep – surface structure distinction, and the transformational operations that mediate between these, in that the combinatorial machinery (called ‘merge’) does not simply combine units that are independently given (external merge), but also can combine a unit with a unit that is internal to it (internal merge).

Note, that in this conception of the mental grammar, semantic structure is not seen as identical to thought structure, just as phonological structure is not seen as perceptible form (‘phonetics’) itself; indeed, phonological structure, being cognitive, is not perceptible at all. Semantic structure, rather, is linguistically harnessed ‘thought stuff’, and phonological structure is linguistically harnessed ‘phonetic stuff’. (In the latter case we have the notorious debate as to whether phonological structure encodes production structure or perception structure which I will stay away from here.) In both cases we say that the structures are linked to ‘substance’ in the domains of thought and perceptible form.

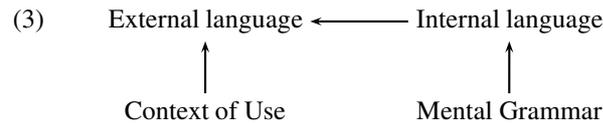
The interpretation/implementation of semantic structure into thought (or, alternatively, a set-theoretical model) and phonological structure into perceptible form can only be taken so far without putting a linguistic expression (a triple semantic-syntactic-phonological structure) to *actual use*. Let us adopt the term linguistic *utterance* to refer to an instance of usage of a linguistic expression. The properties of utterances, if divided into their, broadly speaking, meaning/thought and perceptible form properties, are only *in part* determined by the semantic and phonological structures/representations (called the linguistic expressions). In both dimensions, utterances display properties which are crucially dependent on the context of use, or, as some would say, which ‘emerge’ in use. The properties of utterance meaning that cannot be derived from the semantic structure (as opposed to those that are constituted by semantic interpretation, which is seen as belonging to semantics) are studied under the heading of *pragmatics*, whereas the properties of perceptible form that cannot be derived from phonological representations do not have a special name except perhaps ‘phonetics’. In short, properties of utterances, derive from two sources, from the interpretation of linguistic structures and from the context of use. It is unfortunate to collapse both sources under labels such as ‘interpretation’/‘implementation and in line with an earlier suggestions we might want to differentiate between (a) phonological/semantic *interpretation* and (b) phonological/semantic *implementation* or phonetics and pragmatics, as indicated in (2).

In diagram (2), the arrows with broken shaft refer to how the meaning and form properties of utterances are, in part dependent on (a) non-observable linguistic structures (interpretation) and for the rest on (b) aspects of the context of use (implementation):



Returning now to the use of the term ‘grammar’ and ‘language’, we could say the following. The system that delivers the triplet of semantic, syntactic and phonological structure is the (mental) grammar. As mentioned, both semantics and phonology have to work off the syntactic structure, which means that we must assume that both contain a set of adjustments that ‘repair’ syntactic structures into wellformed semantic and phonological structures. Semantic adjustment rules would come into play where the semantics cannot be read off compositionally from the syntax and the same would apply on the phonological side. The mental grammar delivers semantic-syntactic-phonology triplets which are cognitive expressions (here called *linguistic expressions*) that constitute the *internal language*. These internal expressions can be linked to (a) thought and form substance by linking their primitives and combinations to partial thought structures and *partial* phonetic events (both external to I-language) and, when put to actual use, to (b) *additional* thought structure and phonetic events which encode information that is not derivable from the linguistic expressions, but instead from the context of use. In a pragmatic sense, the extra meaning information is dependent on the specific communicative intentions of the speaker and all sorts of properties of the situations and participants, as well as the broader knowledge that the speaker has of the situation and participants. In a phonetic sense, the extra information is dependent on specific (permanent or temporary) physical, socio-cultural and psychological (mood etc.) properties of the speaker, as well the ‘atmosphere’ of the situation (which determines ‘stylistic aspects of speech’). A collection of actual utterances constitutes an *external language* the ‘grammar’ of which

is much more complex, having the mental grammar as only one of its modules:



The distinction between *internal language* and *external language* (terms borrowed from Chomsky, e.g., 1995) is, of course, very similar the old competence/performance distinction. As is well-known, according to Chomsky, there is little point in trying to study external language which, he argues, is simply too complex if at all a coherent notion to begin with. Not everyone agrees with that assessment and a lot of interesting work has been done in sociolinguistic, pragmatic and phonetic quarters on identifying the determinants of utterances that are not dependent on properties of linguistic expressions.

If a distinction between linguistic expressions and utterances is made, it is often claimed that the mathematics is different. Linguistic expressions are held to be categorial, i.e., require a discrete mathematics, whereas utterances have gradient properties and call for a continuous mathematics (cf. Pierrehumbert, Beckmann and Ladd 2000).

If a model as in (2) is accepted, which, as I suspect, is the case within most of linguistics, we should note that there is a one-to-many relationship between expressions and utterances. Any given linguistic expression can be used in an infinite number of situations and each situation determines unique properties for any utterance. E-language is thus doubly potentially infinity. There is an infinite set of expressions and each expression has an infinite number of utterances.

#### 4. Do utterance properties determine properties of expressions?

The question now naturally arises to what extent the semantic and phonological structures (including their primitives and constraints) which are linguistic determinants of certain aspects of the meaning and form of utterances somehow indirectly reflect properties of utterances that are dependent on the context of use. (If there are such properties then the syntactic representation that mediates between them would also, indirectly, reflect usage-based properties.) The reason to expect that this ‘reversed dependency’ is to be expected is simply that where linguistic semantic and phonological representations serve thought and form stuff respectively, there is reason to believe that they will do this optimally, just like the syntax optimally serves semantics and phonology. It is at

this juncture that linguists start defended sharply different views, and issues regarding innateness (the notorious nature/nurture debate) kick in.

I am less qualified to discuss this issue on the semantic side, but on the form side an extreme position would be that the alleged phonological structure is dependent on or determined by the whole gamut of utterance properties to such an extent that what some would call a phonological representation is simply a set of mentally stored copies of actual ‘exemplars’ (of actual utterances), perhaps organized in a prototype-like organization. This view entails that there is no discreteness in phonological systems at all and that all form properties are gradient (Beckman, Ladd and Pierrehumbert 2000). On the semantic side, I presume, an extreme Wittgensteinian ‘meaning-as-use’ approach would count as an exemplar-based approach. A strict usage-based approach tends to deny a phonological organization and thus submorphemic primitives (cf. Silverman 2006) on the premises that such structure is not apparent in the surface form. Likewise, on the semantic side, it would lead to a view of morpheme meanings as ‘holistic’ meanings (as Jerry Fodor assumes) and thus the rejection of smaller semantic building blocks.

The opposite extreme is to assume that semantic and phonological representations (and thus also the syntactic representation that mediates between them) do *not* reflect the utterance properties at all, but primarily properties of a ‘computational sort’. This view entails adopting a substance-free phonology (cf. Hjelmslev 1961; Reiss and Hale 2000) and a semantics that manipulates ‘thoughtless’ concepts (whatever that might be). By adopting a substance free it would not be denied that linguistic units end up being linked to substance, rather the claim is that the number and behavior of these units is not, in any way, determined by these interpretations. Entities like features, segments, syllables etc. exist independently and in an a priori sense and they combine and interact in ways that reflects an a priori, cognitive computational system. This is structuralism in the extreme, the way that linguistics as an autonomous science should go according to Hjelmslev and his modern descendants.

Most linguists take a position in between these two extremes. Firstly, we have linguists who would acknowledge, to take the form side as an example, that entities like phonemes are real, but can be inductively derived from utterance properties through categorization (cf. Taylor 2007). In that view submorphemic phonological structure exists, but is motivated ‘from the outside’ in being completely substance/usage based (modulo principles of categorization which are ‘inside’). Another in-between view is that phonological structure is a priori and thus entirely motivated from ‘the inside’, but that the mental grammar ‘anticipates’ the needs of utterances because over evolutionary times grammars adopt properties which best serve those needs (cf. the so called ‘Baldwin effect’), although it could be argued that language is too recent a phenomenon to have potentially caused such evolutionary effect.

Concluding, when it comes to the notion of ‘phonological structure’, we have four positions:

- (a) ‘Phonological’ structure as such does not exist; there is only phonetic structure (exemplar-based view)
- (b) Phonological structure exists but it is inductively derived from phonetic structure
- (c) Phonological structure exist a priori, not biased toward phonetic structure
- (d) Phonological structure exist a priori and is biased toward phonetic structure

As we will discuss in the next section, (a) and (b) reflects an empiricist viewpoint and (c) and (d) a rationalist viewpoint. Position (a) essentially denies that anything like phonology (as distinct from phonetics) exists.

It is important to see that the idea of a discrete phonological representation (however motivated) and the idea of exemplar based storage are not at all incompatible. I would not be able to recognize people’s voices, or report on a pronunciations of some word that strikes me as odd or novel, if I did not have episodic memories of specific rendering of words (although perhaps not of all of them). At the same time, it would seem that there is ample evidence for the idea that words are structured in terms of syllables and segments. Silverman (2006), who adopts a usage-based approach to phonology, denies the reality of the phoneme (and then also of features) but fills a whole (very interesting) book using IPA symbols for segment-sized units in order to speak about systematic form properties of words that he otherwise could not speak about. Do such units only exist in the conscious mind of the linguist, installed by the invention of alphabetic writing systems (begging the question what stimulated that idea in the first place)? But if that is so, how would one then explain why these analytic methods are so useful and indeed inevitable in trying to make sense of the parallels and differences in the form of words in the languages of the world? Additionally, there are independent arguments for phonemic organization from judgments on the grammaticality of arbitrary forms (*blik* vs. *bnik*), speech errors, word games and allomorphic alternations.

It seems to me that there is no reason to claim that people’s knowledge of the form properties of words could not, at the same time, regard discrete structure and gradient properties of use, up to stored ‘exemplars’. In the domain of sign language phonology it could be argued that both aspects are indispensable because, while displaying clear categorial organization on the one hand, signs need to be stored with form properties (often iconically-motivated) that escape analysis in terms of discrete features (van der Hulst and van der Kooij 2006).

### 5. Deep and surface universals

A conclusion that we can draw from the two preceding sections is that universals of ‘language’ can bear on *linguistic expressions* or on *utterances*, a distinction that matches Newmeyer’s distinction between deep and surface universals (Newmeyer 2008; see also Newmeyer 2005). The reality of deep universals is more theory dependent than that of surface universals although this may be more a matter of degree than an absolute difference. After all, utterances when the subject of linguistic investigation have to be ‘recorded’, often in the form of a notation system. Every notation system involves analysis. On the form side we speak of ‘narrow or broad transcription’ (surface) and ‘phonological analysis’ (deep), but on the syntactic side, and on the semantic side a parallel distinction, in principle, exists as well. Hyman (2008) speaks of *descriptive* and *analytic* statements, which, although different in terminology, seems to refer to the same distinction (and should not be taken to deny, as Hyman says, that descriptive statements also depend on some form of analysis).

We see that some linguists (for example, ‘generativists’) focus on properties of linguistic expressions, while others (for example, ‘typologists’) focus on utterances. Generativists will argue that the study of utterances is too difficult (or impossible) because their properties have many sources (internal and external ones). Typologists on the other hand might argue that the study of linguistic expressions (especially if conceived as being determined by a largely a priori grammar) do not exist and that only utterances exist, either in close to surface, exemplar form or in terms of analytic categories that are inductively derived from the surface, utterance properties.

However, not all linguists fall into these two extremes. For example, as already mentioned, sociolinguists and laboratory phonologists who do not take the extreme position that discrete linguistic representations are ‘useless’ explicitly make attempts to combine results from both sides, which, often, involves asking whether a specific utterance property is determined by the grammatical system or by usage.

On the other hand, sometimes linguists may only seemingly belong to one extreme or the other, or are engaged in both at different times. When surveying a phenomenon from a typological perspective, i.e., cataloging its occurrence in a wide variety of languages, there is an understandable practice of staying closer to utterances, simply because there is no time or resources to extract the underlying linguistic representations from the collected data.

But a typologist might subsequently be a generativist and engage in a deep analysis of observed tendencies and appeal to a priori principles of the mental grammar.

Finally, it must be mentioned that when linguists develop theories of representations they necessarily have to study utterances. It is standard in generative

grammar to say that the data for theories of representations are grammaticality judgments which supposedly are more or less direct reflections of the hidden mental grammar. However, it is well-known that such judgments, if indeed reflecting hidden knowledge, also are influenced by knowledge of utterances, of frequency and peculiarities of use.

## **6. Empiricism and rationalism**

The preceding discussion distinguished between linguistic expressions (not directly observable) and utterances ('observable'). In this connection I mentioned the dichotomy between empiricism and rationalism. Extreme empiricism leads to the position that linguists can only make statements about observable things like utterances, which, in order to say anything interesting at all, must of course be subjected to a degree of analysis so that the general statements really bear on 'minimal' analyses of utterances and not on the utterances themselves. The crucial point is that these minimal analyses are taken to not display properties that cannot be inductively derived from what we can observe in the utterances. Of course, these properties cannot *only* reflect what is inherent to utterances but also the methods of analysis or induction (principles of categorization and pattern recognition). To the extent that these methods are held to exist not just in the conscious mind of the linguist but also in the subconscious mind of the language learning child, it is claimed that they are *general* devices of cognition which, apparently, can operate both consciously and subconsciously. There is, thus, an inevitable 'rationalist' aspect to 'extreme' empiricism as was always recognized by the 17th and 18th century British empiricists who set the tone for view points that continue to this day. The bottom line is that the primes and combinatorial mechanism that figure in the 'mildly edited' utterances are not a priori given but result from constructing them in the process of analysis (for the linguist) or learning (for the child).

Since every language learner has to arrive at the categories and patterns on his own, with no other help than the form and meaning of the utterances and principles of categorization and pattern recognition, this view entails that there are no universal categories (word classes, semantic concepts, phonological features), nor universal structural properties that are shared by all languages since there is nothing to guarantee that every individual will come up with the exact same categorizations, not even those that are exposed to the same languages, but certainly those that are exposed to different languages. Still, even in an empiricist world view cross-linguistic resemblances are to be expected since utterances in all languages are shaped by substance and usage-driven forces that shape their properties. These forces would conspire to give utterances those properties that would allow them to optimally serve the various functions that

languages have, communication being perhaps being the most important function.

The question then arises why these universal forces do not lead to the same categories in all languages (and indeed, ultimately to a universal language). The usual answer is this. Since it takes two to communicate conflicts might arise from forces that serve the interest of speakers and forces that serve the interest of hearers. Additionally, there may be forces that serve the learner. Then, there are also substance-driven forces which regard the inevitable consequences of the form side being based on properties of articulation, perception and the meaning side on the mental conceptual/thought apparatus (as well as the perceptual systems). Therefore, even though it is acknowledged that there are general forces, different resolutions of conflicts can lead very different results, which further undermines the hope of finding cross-linguistic universals.

Contrasting with inductive empiricism, we find the deductive rationalist approach which, on one view, simply differs from inductive empiricism in postulating a much more specific array of cognitive tools up to a point where the tools are self-sufficient in needing no ‘empirical fuel’ to make a contribution to mental life. On this view, which always would accept the distinction between linguistic expressions and utterances (the latter reflecting the former and much else, a distinction that the empiricist does not necessary buy into), the semantic, syntactic and phonological primes could be argued to be entirely *innately* given and so would the combinatorial apparatus. Since languages do seem to differ in ways which, according to the rationalist, cannot be explained from different context of usage, it would have to be accepted that the innate sets of primes and combinatorial constraints, while universal in the sense of being available to each member of the human species, constitute a ‘tool shed’ from which language learners *select* the appropriate materials and tools on the basis of surrounding input. Ignoring for the moment what it means to say that something is universal if, in fact, it need not be present in all cases (which this approach shares with the empiricist view), the usual rationalist stance includes postulating ‘principles’ which are claimed to be omnipresent.

Those linguists who have grown up within the generative area (and stayed faithful to it), but perhaps other linguists as well, are fond of impressing students and friends by saying that all languages, despite ‘superficial’ differences, have many properties in common. In fact, they like to say that these properties are not only true of all languages, but also true only of language. In short, they are language-unique universals. But when asked what these universals are a problem usually arises.

- (4) At the level of primes:  
 “all languages have vowels and consonants” (... but what about sign languages)

“all languages have nouns and verbs”

“all languages have words that mean NOT/NEGATIVE”

At the level of combinations:

“all languages have syllables, complex words, sentences, complex word meanings”

“all languages have means to produce an infinite array of sentences/utterances”

These statements are shared by all theories on the market, because they are not ‘opaque’ (i.e., they are surface-true), but they strike many as trivial. In a sense, these properties are close to being true of utterances rather than linguistic expressions.

The generative linguist will often claim that more specific statements can be made, but those are less obvious to the novice because they rely on ‘theoretical assumptions’. Indeed, it would seem that more interesting universals that go below the immediate surface of utterances are heavily *theory dependent*, or *theory-driven*. However, having accepted that they are, what are some good examples of such deeper, language-unique universals? This is what I asked the authors of the other articles in this theme of *The Linguistic Review*. I leave it to the reader to conclude from these articles, what is universal in these various domains.

I did not invite representatives of the empiricist school because in this tradition it is often claimed that there are no universals (beyond perhaps the same trivial ones) and that primes are language-specific categorizations and combinations display statistical *tendencies*. In this approach, languages fall in different types for a wide array of broad, directly more or less observable properties (Comrie 2002 for a discussion of this ‘typological approach’). The question was not: are there universals? but: what are they? Whether the presupposition of the latter question is warranted will become clear.

## 7. Parametric ‘universals’, tendencies and markedness

In the preceding section, I mentioned the idea of a universal, innate tool shed from which grammars can pick and choose. What does it mean to say that something is universal, yet need not be present in all languages, and how is this different from the empiricist view that properties can differ from language from language because nothing is innate (which is not to deny that there are no tendencies). The tool shed idea was introduced by the introduction of the notion of parameters in Chomsky (1981). Parameters can be thought of as values that make some function specific or, more commonly in generative grammar, as constraints that contain a variable. In the latter interpretation parameters are

‘perimeters’ (perhaps people even confuse these terms) in that they define a ‘space’ within which various options are available. Thus parameters, taken to be innate, state constraints on grammars and if, in addition, we also assume that the possible values are innate (and thus finite), parameters constraint the amount of variation in the domain that the parameters takes scope over.

We can contrast this with the empiricist notion of non-universality which does not embody obvious constraints on variation beyond constraints on categorization and pattern recognition and constraints on what are expected to be emergent properties of utterances that form the target of such mechanisms.

It would seem, though, that the tool shed metaphor aims at a middle ground between the idea of a priori parameters with attached possible values and the empiricist view which rejects a priori categories and rules (while recognizing tendencies). It shares with the parametric view that there are hard-wired options, but, like the empiricists view it seems more open-ended, leaving room for a more heterogeneous set of options. Optimality Theory seems to fall in this open-ended category, allowing an almost endless array of constraints (either thought to be innate, or inductively derived from utterance properties), and replacing the notion of constraint selection by a mechanism of constraint ranking. Additionally, OT gravitates to a surface oriented approach by stating that constraints make reference to outputs which, apparently, invites reference to what others might call utterance properties that are not driven by the mental grammar (cf. Newmeyer 2005: Chapter 5.6).

While non-parametric universals could be called ‘absolute’, parametric universals are to be distinguished from implicational universals. Both parametric universals and implicational universals are, in a sense, non-absolute, but the latter category is much more specific:

- (5)      Implicational universal:    If A then B  
             Parametric universals:        (In domain P) A or B

Parametric universals (which are thus ‘disjunctive universals’) can be controlled if it would be claimed that always only two choices are available. If not, the mechanism allows, in principle, an open-ended list and deteriorates into the tool shed approach.

The notions of parameters and tendencies cannot be reviewed without mentioning the notion of *markedness*. Allowing parameters opens the door to recognizing general properties of languages which are nonetheless not present in all languages. What is lost in this approach, or could be lost, is that the distribution of the values of a parameter across languages is typically not symmetrical. As the empiricists acknowledge, there are *tendencies*. If languages can display option A or B, we note that A occurs more often. Greenberg (2005) adopted the Prague School notion *marked* for what is less frequent and *un-*

*marked* for what is more frequent (even though the Prague School linguists would not go along with that; cf. Haspelmath (2005: xvi, Note 1). Here, I cannot go into the issue of markedness. It is wellknown that markedness has been said to correlate with other factors than frequency (which itself can be calculated in many different, not necessarily incompatible ways). It may well be that complexity is the most important correlate of this notion. But I will point to the important question whether an account of asymmetries between options that, apparently, are possible (either across languages or within one language in different contexts) should fall within the domain of the mental grammar or usage/substance. Newmeyer (2005) offers a broad discussion of this issue suggesting that whereas a theory of the mental grammar accounts for what is *possible* or not, theories of usage and substance should be responsible for what is *probable* or not. My comment on this position is that, as suggested before (cf. Section 2), it is by no means impossible that the mental grammar is biased toward usage and substance as a result of evolutionary adaptation. Moreover, if markedness is primarily a matter of complexity, that notion can quite easily be understood as an inherent part of the mental grammar. If, for example, mid vowels presuppose that the presence of high and low vowels, one could say that this suggests the former being formally more complex (more marked, in the original Praguean sense) than the latter. The alternative is, of course, to specify all vowels as equally complex in the formal sense, and account for the just mentioned fact in terms of a usage based theory based on maximal perceptual contrast and dispersion.

## 8. Nominalism and realism

The debate between empiricists and rationalists has its roots in an older, and still ongoing, debate, namely that between *nominalism* and *realism*. In this debate the question is whether resemblances between individual observable entities are due to the existence of universals (the realist stance) or not. The latter view characterizes the nominalist who says that resemblances are objective but unanalyzable facts, for which there is no explanation as such and for which we use words as labels; see Armstrong (1989) for a broad overview of different forms of realism and nominalism that have emerged over the last 2500 years.

According to the realist position, properties of observable entities are ‘reflections’ or ‘instantiations’ of entities of a different (non-observable, yet ‘knowable’) sort called *universals*. The exact relationship between the universal and the individual property can be different for different realists and may ultimately have to remain a mystery. Nonetheless, universals are the *explanation* for why we refer to a class of entities as being red or being a table. For Plato, the first explicit proponent of realism, universals exist in some other world, a world

that humans have knowledge of because they have been exposed to it before they were born. There must be many universals, since, ultimately entities can be exhaustively seen as collections of properties, including for, say, elephants, the property of being an elephant (in addition to be bigness, greyness and so on). Thus, in a sense, there are universals for both properties (which seemingly do not have an independent existence in the observable world, such as redness, bigness) and entities which (as collections of properties) constitute independent things (or substances), such as elephants, tables and, linguistics entities like the noun table, the verb swim, syllables like 'ba', and so on. (Thus, the distinction between property and entity is, in itself problematic, but both raise the problem of universals.)

The nominalist position is that words like 'red', 'big', 'elephant' or 'noun' are only names or labels for observed resemblances. Thus, according to the nominalist universals do not exist. Resemblances need or have no explanation.

It is easy to see that nominalism and empiricism go hand in hand. Both views lead to the conclusion that so-called universals (which in this context is another word for resemblances, shared properties) are due to an inductive mental process that allows humans to register resemblances and then label the result of this process with a word. It is hard to see how the result of noting a resemblance across many different individual entities would not first lead to the formation of a *concept*, but in the empiricist view such concepts, if recognized, are posteriori. They do not explain the resemblances, they are derived from them.

We have seen, however, that concepts are not the prerogative of empiricists. Rationalists also speak of concepts, the crucial difference being that the concepts for them are a priori (innate). It would seem, then, that two sorts of *conceptualism* (which is recognized as a compromise between realism and nominalism) need to be distinguished. An empiricist allows concepts that arise from lumping things that resemble each other into categories. The concept is a mental record of the category, which can be linked to a phonological form so that we can have a word for the category. This word is just a label for the category and the concept, as mentioned, is critically not used as an explanation for the relevant resemblance. Then, we also have the rationalist conceptualist who postulates concepts as given prior to experience. In this view, which therefore sides with realism, the concept explains the observed resemblances. As Koster (2005) states, rationalist conceptualism constitutes the epistemologization of Plato's version of realism. Indeed, innate concepts are comparable to Plato's ideal forms, and even more precisely, to the knowledge that humans have of these forms. One could bring these two versions of realism even closer by noting that the source of universals modern style, while not being our own prior life (as Plato thought), is the lives of our ancestors, whose experiences and environments have been imprinted in the human genome (as evolutionary

psychologists think). But an important difference remains. Modern rationalism claims that the universals *are* innate concepts and thus, ultimately states of the brain as caused by genetic specifications. This makes universals, in a sense, observable entities that can be studied in the way that physics and biology studies its subject. Applied to linguistics, Koster (2005) refers to this position as *linguistic naturalism*. He questions the coherence of this naturalist conception of linguistics arguing that the whole point of recognizing universals is to transcend the world of observables, rather than to assign individual entities and universals the same ontological status.

Let me conclude this section with a brief look at how the realism/nominalism debate can be applied to linguistics. Leaving aside the important question of what the ontological status of universals is (cf. above), let us note that according to the realist stance, universals in the domain of language, do not need to be present in all languages. Some resemblance between a subset of the languages would in itself motivate postulating a universal which, then, explains the resemblance. In line with this, parametric options (which by definitions are only displayed in a subset of languages) qualify as bona fide universals. But, to push this, further, realism would also allow universals to be specific to one language. If speakers of some language note a resemblance in a class of words, then there is, by definition, a universal that unifies this class of words. Plato's version of realism would have no problem with a universal of this sort. However, generativists would not be happy with it. They are only interested in universals that apply to all languages, or, in the case of parametric variation, sets of universals that are in some sense in complementary distribution. They are driven to this position because they believe that the universals are, a priori, located in the human mind as innate concepts and as such are expected to manifest themselves in all languages because languages are products of the human mind (and, ultimately, the human genome).

Linguists who are nominalists *note* resemblances but they do not postulate universals to explain them. As empiricists, they assume that the human mind has a device to note and record resemblances, i.e. the faculty of categorization which leads to the formation of concepts of sorts ('fuzzy' concepts or prototypes). Thus, while the realist position comprises an explanation (albeit one of a stipulative sort), nominalism explains nothing and in fact embodies the claim that there is nothing to explain. In this connection, Haspelmath in his introduction to Greenberg (2005) makes the following remark:

[...] Greenberg's main interest was in the language universals. He did not shy away from the deeper explanatory questions, raised them and attempted answers (from the present perspective, deeply insightful answers). But he did not see his main task in providing these answers. His unique contribution to linguistics was the truly global perspective, the empirically based search for universals of human language, whatever the ultimate explanation. (2005: ix)

Typically, indeed, empiricist linguists (who in a sense, take the nominalist stance) are primarily interested in finding the universal properties, in the sense of resemblances. But most of them (like Greenberg) are not *uninterested* in explanations and this why they are not orthodox nominalists, just like modern rationalist linguists, as we have just seen, are not orthodox realists. In addition, both kinds of linguists, when speaking of universals, deviate from the classical realist/nominalist position. Rationalist linguists believe in universals, but they are reluctant to assign to them an ontological status that is different from the individual entities that express them (at least this appears to be Chomsky's position). Empiricists do not believe in universals, but they still speak of them (as Greenberg did, although he and other will stress that universals are 'general tendencies') and, moreover, they think of them as things that can, and ultimately must be explained.

This brings us to a further exploration of the notion explanation in linguistics.

## 9. Formal and functional

The literature speaks of 'formal' and 'functional' universals and of 'formal' and 'functional' explanations. The first dichotomy is often taken to refer to the difference between *architectural* aspects of the mental grammar, as well as the structural aspects of the expressions that it generates (all formal) and the inventory of primitives (functional). The latter are presumably called functional because they are linked to grammar external substance (although this applies, strictly speaking, only to semantic and phonological primitives, since morpho-syntactic category labels are completely autonomous; cf. Section 3).

It would seem that, correspondingly, formal and functional explanations refer to these two kinds of properties and for some linguists that may be how it is. It seems to me that there is also a different understanding of the difference between formal and functional universals in which formal universals are taken to be universals that come from the inside and functional universals that come from the outside. Taken in this sense, primitives are subject to a formal explanation if it is claimed that they are innate, whereas just about everything can be explained functionally if an extreme empiricist view point is adopted.

The generative approach which claims that, in addition to the architecture of grammar being innate, primes and combinatorial mechanisms are also innate (and merely need activation and de-activation on the basis of exposure to the environment of utterances) is indeed often called 'formal' and so are its explanations. This, then, contrasts with 'functional' explanations which go far in attributing all properties of languages to usage and substance, although we have seen that functional approaches also rely on innate cognitive mechanisms

(involving categorization and concept formation, pattern recognition, as well as combinatorial abilities). The difference between formal and functional explanations is therefore twofold (and the terms should perhaps be abandoned). Firstly, the formal approach chooses to focus exclusively on explanations that can be deductively derived from innate, cognitive apparatus, whereas functionalists tend to focus on explanations that are rooted in usage and substance, although not to the exclusion of innate, (albeit general) cognitive forces. Secondly, since formalists rely so much more on innate cognitive apparatus, they necessarily postulate much more of it and, importantly, much that is claimed to be unique to language. Functionalist, relying much less on cognitive apparatus can get away with postulating fewer cognitive tools which, thus, appear to be non-specific to language, apparently applicable in other areas of human cognition. It must be added that several strands of 'cognitive linguistics' (e.g., Langacker 1993), also often called 'functional', attribute a rather large role to the general cognitive apparatus in accounting for the way languages work, while other approaches, that rely more on emergent structure in substance and usage-based aspects of utterances see a much smaller role for innate general cognitive tools which not so much structure language, but merely register the structure that comes from elsewhere. Exemplar-based approaches, for example, fall in this second category and only need a mechanism for storing instances of utterances and perhaps a measure of 'density' to locate more and less common variants, but whatever structure can be detected due to principles that lie beyond the organization of the human mind (i.e. general principles of variation, competition and selection that govern the 'jungle' of linguistic utterances). Human minds merely need to be capable of storing, 'grasping' and learning these patterns (cf. Kirby 1999).

It would seem that the so called 'cognitive approach' lies halfway between an approach that almost exclusive reliance on the emergence of organization outside the human mind (and minimal innate cognitive abilities that enable human to store and reproduce patterns) and the generative approach, which, traditionally, postulates a set of highly language-unique innate capabilities. Both the emergence, exemplar-based and the cognitive approach reject the idea of innate language-unique capacities, but the latter rely much more on a priori, innate capacities that shape languages, then the former, and in this sense they are much like the generativists. The difference here lies in the question as to whether the cognitive apparatus is specific to language. We might add that the generative approach is just as cognitive as 'cognitive linguistics', although with its appeal to general cognitive principles, the latter seems more accessible within the cognitive science community at large.

In conclusion, if explanations of universals that are based on innate cognitive principles are 'formal', then both cognitive linguistics and generative linguistics are formal. Functional explanations would then be explanations that appeal

to mind-external factors, being based on substance and usage, and ‘structure’ that emerges from these domains. Primitives (features etc.) fall half-way between being formal and functional in that on the one hand they presumably reflect a system subject to cognitive constraints (‘binarity’ could be such a cognitive constraint) while on the other hand they are the formal elements that are most directly linked to substance.

Finally, it should be mentioned that the formal (i.e. cognitive) explanations could be turned into functional explanations if one would argue that they are ultimately grounded in the substance and working of the brain. It would, indeed, be unreasonable to off-hand ignore the possibility that language universals (in the sense of properties shared by *all* languages) could be due to constraints imposed on or by the hardware, although one would perhaps expect that such universals would not be language-unique but shared with other cognitive system that share the same (type of) hardware. In short, functional substance-based explanations do not need to be limited to constraints that are imposed by the ‘peripheral’ perception and production systems, but should go ‘deeper’ and involve the neural mechanisms that drive these peripheral systems. A physicalist view on the human world would demand no less.

## 10. Historical explanations

I have so far not mentioned one alternative mode of explanation for universal properties. It could be argued that all (or many) languages have certain properties in common because they have developed from one language (sometimes called proto-World) that was spoken far in the past. Let us call this the *historical explanation*. According to this idea, resemblances among languages are *homologies* (as, in biology, the resemblances between the bone structure of our hands and the bone structure of the wings of bats). The universal properties in question could have been accidental properties of the first language and as such might not have either a formal or functional rationale.

The problem with this explanation is that languages seem to change so profoundly through time that it doesn’t seem clear why certain properties should have remained constant, with the exception of those that are broadly architectural, and necessarily or logically follow from the fact that grammar must be a link between sound and meaning. We would need a theory of language change that could explain why certain apparently arbitrary properties of language (word order, morphology, sounds, and syllable structure) are subject to change, whereas other properties remain constant.

A flaw in this line of explanation is that one would expect to find that the homologies in the languages of the world are not shared with many of the African languages since, presumably, only a single African languages underlies

the languages outside Africa which are all descendants of the language spoken by the group that left Africa to populate the rest of the world. I don't think that there is evidence for making such a sharp distinction between the majority of African languages and all other languages.

In this context, I also mention the controversial claim that languages actually develop in grammatical complexity in line with the needs and wants of the people that use them. An old idea is, for example, that languages that employ writing systems tend to have more complex sentence structure (cf. Raible 2002: 5 ff. and Newmeyer 2005 for discussion of this point.). Deutscher (2005) even argues that the full attested complexity in the world's language could have developed from a proto-language à la Bickerton (e.g., 1990) simply due to grammaticalization processes that can shown to still play an active role in the recent, documented past or even 'as we speak'. No genetic changes required. It is often pointed out in this context that pidgin and early creole languages may miss properties that are otherwise held to be universal. Needless to say that these kinds of ideas about possible diachronic changes project a rather different perspective on the issue of universals, making properties of language even more strongly dependent on usage than empiricist, usage-based approaches.

## **11. Modularity and structural analogy**

In this section I return to the issue of universals being specific (to some cognitive module) or not. The generative idea that there exists language-unique innate properties is closely tied with the idea (advocated by Fodor, 1983, and the evolutionary psychologists) that the mind is modular, meaning that each module has a highly specific design, appropriate to the task at hand. It would seem that cognitivists refrain from too much modular thinking and instead appeal to mind-general mechanisms which find instantiations in various mental domains (cf. Section 2).

Within generative approaches modularity has been extended inside the grammar module. Phonology, semantics and (morpho-)syntax are different modules of the grammar which in this case too is taken to mean these modules have their own highly specific organization. Parallels between modules are not to be expected. But, of course, there are striking parallels (cf. Greenberg 2005: Chapter 4). Interestingly, the original design of the syntactic module was, by Chomsky's own wording, based on a perceived parallelism between phonology and syntax. The nature of the parallelism between these two modules has received much attention, at least outside mainstream generative phonology. Both Dependency (Anderson and Ewen 1987) and Government Phonology (Kay, Lowenstamm and Vergnaud 1985, 1990) capitalize on the importance of such parallels (cf. van der Hulst 2000, 2005). Anderson states his *Structural Ana-*

*logy Assumption* (Anderson 1990) which has it that the organization of different modules is expected to be analogous (parallel) save for requirements due to their interfaces and the specific grounding of their primes. He does not specify this, but nothing excludes the idea that structural analogy exceeds the grammar and takes scope over all mental modules. In fact, Anderson's notion of structural analogy is identical to Lakoff's 'cognitive assumption' (Lakoff 1990) which states the broad cognitive scope of parallelism explicitly, feeding into the basic premise of the cognitive approach which refrains from postulating language-specific cognitive apparatus.

If different modules are indeed analogous because they instantiate the same apparatus in different domains, the parallels are not just analogous; they are *homologues* in that they descend from a common source, either phylogenetically or ontogenetically (cf. Section 2).

These issues bear on the question of universals in the following way. Are there any universal properties of *specific* modules (apart from those that can be derived from interface requirements and the grounding of primitives)? Is it true, for example, that phonology differs from syntax in having extrinsically ordered rules (as is claimed in Bromberger and Halle 1989)?

One might, finally, ask which one is to be expected: module-specificity or homologues. The basic claim of *evolutionary psychologists* is to expect 'specialization' because each module is designed to solve a specific problem. But this expectation must be counterbalanced by a major idea within *evolutionary developmental biology* ('Evo-Devo') which promotes the idea that biological variation results from different usage of a small array of means. With 'so few' genes to work with it, is to be expected that a highly complex organism like the human brain (and mind) must display multiple use of the same 'tricks'.

I conclude this section with a remark that concerns sign languages. With those languages being included in the natural class of human languages (cf. section 2), we are likely to find that language-specific, non-parametric universals are likely to be more general than thus far assumed. This may be especially true in the domain of phonology perhaps not at all in the domain of semantics and at least in part within the domain of morpho-syntax. In the domain of phonology, for example, it is now unlikely that we can maintain that 'the' phonological features are innate. Rather, what might be innate is a cognitive tool that allows language learners to construct a set of features (cf. van der Hulst 2002). Increasing the generality of universals in this manner so that both modalities of language (speech and sign) are covered leads to a greater likelihood of discovering universals that are not unique to language.

## 12. Metapatterns

If analogies (or homologies) between different modules exist, both inside the grammar and the mind at large, the question arises whether their scope goes 'beyond the mind'. Volk (1995) investigates what he calls 'metapatterns' and this is just one example of a line of work that seeks to find general patterns in 'everything'. Generativists do not deny that general laws may help shaping language and they frequently refer to D'Arcy Thompson's *On Growth and Form* (1942) as well as Alan Turing (e.g., 1952) who both argued that such laws are at play in the biological world, thus constraining biological variation. In a more general sense it can be said that finding the principles of design of what appear to be perfect forms and shapes that occur in the universe (from large to small) is the deepest goal of mathematics (cf. Hildebrandt and Tromba 1985). Chomsky seems to allude to similar general laws in his speculation that the language organ (the mental grammar) might be a perfect solution to providing a bridge between form and meaning. Indeed, generativists now commonly include such general principle among the forces that shape the 'language' (Chomsky 2004), the other forces being the language-specific organ (with its fixed principles and variable, i.e., parametric primes and constraints) and the environmental input.

What remains to be shown is how it is possible that principles that govern the form and shape of physical entities (in both the biological and non-biological world) also can govern the mental world. It would seem that a generalization over both Cartesian 'substances' suggests or requires a rejection of this very distinction, either in the form of a materialist (physicalist) stance or of a view that collapses the physical and mental domains in some other way (cf. Chomsky 2000; and Koster 2005 for a criticism of the naturalistic interpretation of linguistics).

## 13. Minimalism and the content of the 'language organ'

Asking, as I did to the authors in this issue, what the fixed principles and variable properties of Universal Grammar (UG) are, might seem an outdated questions in the light of the tenets of the Minimalist Program (Chomsky 1995), as well as Chomsky, Hauser and Fitch (2002). It would be an understatement to say that the claims concerning the organization of UG have not changed since Chomsky introduced the rationalist stance and, specifically, the idea of a language-unique, richly articulated innate language capacity. Claims like: *the differences between languages are superficial, most of language is innate, there is essentially only one human language with mild dialectal variation*, have been made and often repeated to novice audiences. The rationalist stance

has been maintained throughout the last 50 years, while being challenged by (neo-)empiricists of various colors. Another claim that still applies is that mental grammars are categorial, non-gradient systems, consisting of discrete units and rules/constraints and compositional, non-blending structures. This claim too has been challenged usually from the same neo-empiricist quarters (Beckmann, Ladd and Pierrehumbert 2000). At a slightly more specific level, it has also been maintained that morpho-syntax constitutes a pivotal role in linking representations of form and meaning, although this can hardly be regarded as a controversial claim (but see Jackendoff 2002 and a response in Marantz 2005). Beyond these aspects of the generative approach *nothing* has remained constant. The content of UG was, at first, very rich and specific (and largely based on the analysis of English syntax and phonology), but the natural tendency to generalize and simplify lead to more constrained and streamlined systems (using simpler principles, fewer primitives, one general transformation instead of a multitude of very specific transformations), but this was counterbalanced by extending the empirical scope to other languages and a concomitant increase in principles, primitives and, importantly, the introduction of parameters (in Chomsky 1981), which rapidly grew in number. The Minimalist Program's aim was to ask whether all that apparatus is really necessary. Boeckx (2006) regards raising this question as a typical contribution of the MP, whereas others (myself included) might be inclined to say that every scientist wakes up with that question every morning. By reducing the apparatus (rather dramatically, creating the problem of how to account for most of the data that had hitherto been analyzed), again according to Boeckx (2006: 149) it became possible to ask which properties of grammars are unique to grammars and which are shared with other cognitive systems. According the Hauser, Chomsky and Fitch (2002) the only language-unique property that remains is *recursion*, but than they point out that the same principle would appear to be relevant to other cognitive domains as well. This is a rather radical difference from the way things started out. Doesn't this mean that *nothing* is unique to language and that, in the end, this specific generative position is that the language organ is exhaustively characterized as the intersection of independently motivated cognitive apparatus. Doesn't that sound a lot like 'cognitive linguistics'.

According to one reading of Hauser, Chomsky and Fitch, then, there are no language-unique universals, even though the article has become notorious for claiming that only recursion is specific to human language. It seems to me that the claim that these authors make is that human language is perhaps unique in being the only *communication system* in the animal world that uses (a particular type of) recursion and that, perhaps, recursion is unique to the human mind as opposed to the minds of other animals.

Again, it seems to me that the question as to whether there are universals that are specific to language is rather pertinent.

#### **14. Universals are in the air**

An interest in universals is, as stated in section 2, inherent to any form of scientific inquiry, which, after checking whether a given domain is characterized by exclusively universals, tries to see whether the domain constitutes a specific intersection of more general universals that serve some specific function. The generative approach, at least in origin, set out to show that there are domain-specific universals and depending on who you talk to (cf. Pinker and Jackendoff's (2005) reply to Chomsky, Hauser and Fitch) it is still the major belief or claim that there indeed are such universals beyond recursion (which may not even be one). Another characteristic of this approach is, as we have seen, that these universals are 'deep' (or 'analytic'), forming part of theoretical models that characterize non-observable linguistic expressions that are characterized by discreteness and compositionality, and consequently opaque due to performance factors (utterance properties that derive from usage and substance). Finally, the claim is that the source of these universals is, ultimately, the genes. (This approach is often called 'formal', but this may not be a useful label, as I pointed out.) Contrasting with this approach is a 'functional' approach which primarily focuses on the whole gamut of utterance properties, held to be gradient and makes general statistical/stochastic statements with reference to utterances (or mildly edited versions of those), while seeing the systematic properties of these utterance as emergent and, once emerged, apparently memorizable and/or learnable using general inductive methods of pattern recognition and fuzzy categorization.

It has often been pointed out (Mairal and Gil 2006; Newmeyer 2008) that both approaches while honorably old on the one hand (going back as far as we can trace the empiricist/rationalist or 'nurture/nature debate) find their recent statements within modern linguistics in two conferences, one held in 1961 which featured a paper by Joseph Greenberg in which he launched his typological approach (Greenberg 1963) and another, held in 1967 which focused on the generative approach to language (cf. Mairal and Gil 2006: 8). Recently, two other events (one, a conference in Bologna, Italy, held in January 2007, the other, a workshop in Bamberg, Germany, in August 2007) focus on universals, the first trying to take stock of what has been achieved over the last 40 years (roughly the generative era) in harvesting linguistic universals, the other on properties of language that can be derived from general 'human constraints', following the idea that there are indeed human universals that characterize general properties of human activities and achievements (cf. Brown 1991).

Indeed, the just quoted detailed overview article by Mairal and Gil appears in a collection of articles (edited by these authors) on the subject of linguistic universals.

The TLR theme issue on linguistic universals is another manifestation of the fact that the search, status of and explanation for apparent universal properties of language, whether at the level of linguistic expressions or utterances, is, and perhaps always has been, ‘in the air’.

## 15. Conclusions

It will be clear that debates on language universals are complicated because of all the above-mentioned views and possibilities, all of which find proponents in the linguistic or broader cognitive science community. It is also clear that the debate will not be over anytime soon. I hope this article helps clarifying some of the issue involved or, at least, awaken issues in the mind of readers. In any event, I am sure that the four articles in the present issue of *The Linguistic Review* go a long way toward surveying the state of the art in the areas of phonology, morphology, syntax and semantics.

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