

Language: A Typological, Functional, Cognitive, Biological and Evolutionary Approach

Pablo I. Kirtchuk-Halevi

1 *Introduction*

The questions I refer to here concern, among other matters, the relationship between *Wörter und Sachen*, between language and thought, between actual speech and language ability. Ever since Plato's well-known discord between Cratylus and Hermogenes (*Cratylus*), then in Aristotle (*Hermeneutics*), through the Middle Ages with the cleavage between Nominalists and Realists, to this very day,¹ these issues haunt the intellectual debate. I shall add the question of the relationship between noun and pronoun, first treated by Apollonius (*Scripta*) and Dionysius (*Grammaire*), then by every scholar of any importance; as for myself, I will consider this question in more accurate terms as the opposition between nouns and deictics. It is my contention that the answers to these questions provided by the main currents of linguistic thought, at least up to the last decade, are not completely satisfactory. I shall proceed to describe them briefly, restraining myself to the pitfalls of the two most important linguistic Schools of the 20th century, Structuralism and Generativism. Thereafter, I shall consider the same questions from a different perspective, which might attain a threefold objective: to give better answers; to restore the legitimacy of some other interrogations; and eventually to raise new ones, which is an important task of scientific work, to quote Hans Jakob Polotsky as quoted by H. Rosén (personal communication).

2 *Structuralism vs. Generativism*

“Saussure est avant tout et toujours l'homme des fondements. Il arrive d'instinct aux caractéristiques primaires gouvernant la diversité des données empiriques”. These are Benveniste's words, written half a century after the death of his master's master ('Saussure'). Indeed, the great achievement of the Master from Geneva, namely the foundation of linguistics as a scientific discipline with a defined object of study, a well-established theoretical framework and a sound

¹ The lecture on which this paper is based was delivered in 2001. In order for this written version to be of some novelty and utility five years later, I deem it necessary to enrich it with the work I have accomplished since that time. The main idea, however, was already there in the original lecture, based on my Ph.D. dissertation (Kirtchuk(-Halevi) *Morphogenèse*), which I have kept testing and developing ever since. Here it is enhanced and further corroborated.

methodology, is both seminal and self-contained. That theoretical work followed a thorough experience of empirical work in comparative Indo-European linguistics. Saussure's work led *to* and consisted *in* a newer and richer analysis of existing data, and to a reconstruction of linguistic facts for which no empirical evidence was as yet available. Above all, it led to a study of language "en elle-même et pour elle-même", as stated in the *Cours* (Saussure, *CLG*). Naturally, in this context I am less interested in Ferdinand de Saussure the great mind than in Saussure's *Vulgata* as transmitted by Bally and Sechehaye and read by Riedlinger. It is this stage of Saussurean thought that marked several generations of linguists, and not the mss. bought by Harvard University in the late sixties and published by Parret in 1993–1994 (*Manoscritti*), nor the mss. found in Geneva in 1996 and published by Bouquet and Engler in 2002 (Saussure *Ecrits*). It is Bally and Sechehaye's version of the *CLG* that eventually yielded Structuralism and the great development of linguistics that it induced, generating also, at the same time, what may be considered the conceptual and methodological pitfalls of this important intellectual movement.

"Generate" is indeed the second key-word of 20th-century linguistics, since it is the main concept of a current born in the United States in the late 1950s that acquired an undeniable importance — justified or not — that lasted for the next thirty years or so. The Generative concept of language is that of a formal system governed by self-contained rules, very much like a computer sign system, which may and indeed should be analysed with quasi-mathematical methods, and which is characterized by the ability to generate all the well-formed sentences in a language and only these. Curiously enough, Chomsky's (*Standard*) main references are the founding fathers of French rationalism: on the one hand Descartes (*Discours*), on the other hand Arnauld and Lancelot, the Jansenist authors of *La Grammaire de Port Royal*. It is not surprising, therefore, that he devotes more attention to grammar, as it is apparently easy to rationalize and formalize, than to discussing semantics or even vocabulary, that he reduces grammar to phonology and syntax, and, finally, that he reduces language to grammar. Indeed, his basic postulate is that at a so-called deep-level grammar is universal, morphological properties being assigned to syntax or excluded altogether from analysis as contingent facts of the surface level. Here, too, I refer to Standard Generative theory and not to the Minimalist Program, for it is the first, not the second, that haunted many a gifted mind in the second half of the 20th century. Anyhow, at some deep level, so to say, both versions share the same postulates.

Many are the differences between Structuralism and Generativism. As for the first, this School has always paid great attention to factual evidence, namely to linguistic data. To mention only a few of its great figures both in Europe and elsewhere, the genius of Meillet (*Linguistique*), Sapir (*Language*), Bloomfield

(*Language*), Hjelmslev (*Prolegómenos*), Benveniste (*Problèmes*), Martinet (*Syntaxe*), Coseriu (*Gramática*) and others produced great theoretical advances without ever losing contact with the linguistic data. Generativism, on the other hand, has always been marked by what I dare not call an aversion for linguistic facts. Let us say that in its very essence, this approach regards linguistics as the ideal study of an ideal reality, which cannot and indeed should not be preoccupied with factual evidence, which is but a pale reflection of the ideal rules. It is the well-known distinction between *competence* and *performance*. Another point that clearly separates the two Schools is that the first is founded upon the notion of *différence*: for Saussure, “la valeur est une entité négative”, since in language everything is defined in opposition to another. Things are not what they are, but what they are not. The fundamental importance attributed to the concept of *différence* and also, by dialectic opposition, to the concept of identity, is the watermark of Structuralism. Classical Generativism’s basic postulate, on the other hand, is Uniformity. In this optic, differences occur only at a surface level, whilst at a deep level all grammar is one.

Those two distinct approaches produced two accordingly different bodies of research. Structuralism enhanced an increasingly subtle analysis of familiar languages and stimulated interest in less familiar and accordingly more interesting ones, thus exposing an ever-growing quantity of descriptive data, whilst Generativism tempted to arrive at an ever-ascending level of abstraction and to complicate rules as much as necessary in order to deal with linguistic evidence, sometimes provoking contradictions and internal as well as external incoherence. Eventually, these contradictory vectors resulted in a decrease of its explicative power as well as of the scope of phenomena treated.

Now in spite of these differences, which should not be underestimated, both approaches seem to have more in common than can be grasped at first glance.

Traditional Structuralism studies the system. True, Benveniste mentions the need for a “linguistique de la parole” or “du discours”, but his own work is devoted mostly to *langue*. Moreover, for Structuralism diachrony is but a succession of synchronic states. In other words, this School considers the system as inherently static rather than dynamic. This is not contradicted by the great work of reconstruction accomplished, first and foremost by Saussure himself in his “Mémoire sur les voyelles primitives en Indo-Européen” (Leipzig 1879), since such a diachronic protocol is based *upon* and tends *towards* a conception of language as constituted by successive static stages. Programmatically and practically, Structuralism is more interested in the system than in the human subject, both in its individual and in its human dimension.

2.1 The Human Dimension

The term *human dimension* includes, among others, anatomy, physiology and psychology, which make the difference between language and other sign systems. Hjelmslev (*Prolegómenos*) claims that language is the sign-system to which all the others can be translated, which implies that language and those systems are reducible to each other, the difference being only one of hierarchy, which is the central concept of his Glossematics. True, there is a sort of underground stream that refers to language as human behaviour both in its subjective and in its biological dimensions, but it has never assumed a protagonistic rôle in our discipline. One could mention Vico (*Scienza*), Leibniz (*Armonia*) and Condillac (*Œuvres*), but they were not linguists and did not exert a major direct influence on modern linguistic thought. The same, however, holds true for a few others, whose interest in language was a closer one, as indeed was the period in which they lived. Bréal (*Sémantique*), Frei (*Fautes*), Bühler (*Sprachtheorie*), Zipf (*Psycho-Biology*), Saussure's own student, editor and successor in Geneva, and Bally (*Linguistique*), all point in one way or another to the central place of both the subjective and the biological factor in the way language works and the nature of what language is. Bühler was no linguist; those who were, like Frei, confined their thought to one particular language or, like Bally, attributed expressivity to *parole*, without seeing its decisive impact on the continuous creation of *langue* itself, including grammar. Moreover, none of them takes into account typological considerations. Yet the greatest handicap of their endeavour was that it is opposed to the *Zeitgeist* (see Kirtchuk-Halevi, 'Origo'), and would become radically so with the emergence of computers and their corollary in language science, namely a Generative Grammar, which, although it claims that linguistics is part of psychology and ultimately of biology, is of clear mathematical inspiration. Now, biology accepts mutations, evolution, unpredictability, context-influence, non-discreteness, and continuum, while mathematics does not (except for the last two, in Brouwer's *Intuitionism*). This difference is most important, because linguistic analysis is much enriched by such concepts as *tendency*, *general trend*, *fuzzy set*, *prototype* and the like, which by definition accept cases that do not correspond to the central pattern and may even contradict it.

2.2 Dichotomies

This leads us to one of the main points that Structuralism and Generativism have in common, and that is an affinity with quasi-mathematical thinking, which departs from abstraction or wishes to attain it. To a certain extent this is the objective of all science, but one must not forget that linguistic phenomena have at one pole a human subject (eliminated from the debate in both Schools, as we have just seen) and at the other pole referential reality. Still, Saussure's

CLG makes practically no reference to *reference*, whereas Classical Generativism considers Syntax to be autonomous.

The central place of binary oppositions in structuralist thought appears in the series of dichotomies we are all familiar with: *langue–parole*, *synchronie–diachronie*, *syntagme–paradigme*. Though the members of these pairs might appear to be equal, there is a clear primacy of the first over the second. In generative theory, when a twofold opposition appears, its terms are not in a relation of equality to begin with, but in a hierarchical relationship, the second member being a mere reflection, by definition imperfect, of the first: competence is superior and prior to performance, as is deep level to surface level. Both Schools work with binary, not scalar oppositions, in which *tertium non datur* and which are of clearly hierarchical cut. Now, a binary approach, even if it is anchored in an inductive method, never mind in a deductive method, is inadequate for cases that are not clear-cut, while a scalar approach can not only deal with them but can also quantify their place on the continuum. In this sense, the scalar approach is not only more adequate than the binary one but also more precise for linguistic analysis. To take an example, let us think about the Subject function in a language like Contemporary Hebrew: *Prototypically*, at the syntactic level it determines the verbal agreement; if it has an independent expression it is placed before the predicate, in addition to the affix, and is prototypically determined; at the pragmatic level it is given information, hence thematic, and at the semantic level it is animate. Now, what of a subject that is inanimate, placed in second position, indeterminate and implies no concord? It is still a subject, but certainly not a prototypical one, hence its thematicity too is affected: In Contemporary Hebrew:²

1. *‘al* *ha-kir* *tmuna*
 on DEF-wall picture
 ‘On the wall [there is a] picture’

tmuna is still subject, but a rhematic one, because it is characterized by many of the properties of a rheme.³ Or take the prototypical second *actant* (Tesnière *Syntaxe*): syntactically it follows the verb but is not linked to it by concord; it can be the subject of the verb in the passive voice and can be pronominalized; semantically it is inanimate; pragmatically it is unknown, hence syntactically undetermined; and since it conveys new information, it is rhematic. Thus, we can understand why in Arabic the *ḥāl* is marked as a second actant, namely as an ad-verbal adjunct, very much like the so-called *accusativus graecus* in Indo-

² As it is not my purpose here to dwell on certain questions concerning the segmental phonology of Contemporary Hebrew as opposed to that of Biblical Hebrew, which are more subtle than is usually thought, the transcription of the first is phonetic and not phonological.

³ Henceforth the terms *focus* and *rheme* will be used interchangeably, and so will the terms *topic* and *theme*.

European but also the ad-verbal *-ta* in Quechua (Kirtchuk(-Halevi), ‘Actanciennes’), etc. In Hebrew:

2. *yašan-ti* *kol* *ha-layla*
sleep:PRET-1SG.M all DEF-night
‘I have been sleeping all night’

kol halayla has some properties of a second actant, but it is very far from being a prototypical one, since it is determined, but it cannot be pronominalized, cannot become the subject of the verb in the passive voice, etc. The scalar approach allows us not only to characterize but also to quantify differences and similarities between elements that otherwise, and especially in a binary framework, can simply not be treated at all.

3 Typological, Functional, Cognitive, Biological and Evolutionary Considerations

In severing linguistics both from the human subject and from the referential world, Structuralism and Generativism eschewed interest in some of the most puzzling questions that even a superficial look at any given language raises, and as a consequence they renounced the knowledge that such an analysis is bound to yield. Both Schools ask *How*: Structuralism has given inductive answers, and pretty good ones, for that matter, while Generativism’s answers are essentially deductive and do not correspond to the object under analysis. Neither asks *Why*, however, which is the oldest and deepest question of them all. By *Why* I mean among other things the correlations between the structure of language and the properties of the speakers, that is to say, their personal and so to speak *animal* properties, for example, the sensory and not only intellectual encoding and decoding of information; the direct, sensory perception of space vs. the indirect, intellectual construction of time, etc. If we contemplate these phenomena, we are bound to adopt, at least to some extent, an evolutionary approach, which may shed new light even on the taboo question of the origin of language (Kirtchuk(-Halevi) *Morphogenèse*). Symptomatically and reasonably, given the state of the art at the end of the 19th century, the Société de Linguistique de Paris explicitly banished communications on that question; this clause was not abolished until now. I expressed my views on the matter in several reviews in the late 1980s and then in my Ph.D. dissertation (1993). A much older phenomenon than the emergence of the language faculty, the radiation produced by the Big Bang, was detected 15 billion years after it took place. The emergence of language is considerably more recent, and there is no reason to suppose that it has left no mark on language at its present stage, or that this mark is undetectable by definition. I can suggest such a mark and, in any case, in my approach, the issue is no longer taboo.

Let us start with what Saussure (*CLG*) called “l’arbitraire du signe”, defended before him, in modern times, by Whitney (*Principles*) and after him by, among others, Bloomfield (*Language*), Benveniste (‘Saussure’) and Jakobson (‘Essence’) who insist on “the basically symbolic character of language”. This remains the mainstream of linguistic thought to our day. Such a conception is justified only if by “signe” one understands roughly words or idioms, which is an internal contradiction, for Saussure himself says that language is not merely “une nomenclature”. Now, if in our conception of the linguistic sign we include all the mechanisms, at all levels of analysis, which have a *signifiant* and a *signifié*, we perceive that, far from being utterly independent of each other and thus arbitrary, there are many correlations between both aspects.

3.1 Iconicity

3.1.1 In other words, language displays *Iconicity* to a high degree, since it is characterized by a clear link between meaning and form, as Jespersen (*Nature*) and Bolinger (‘Intonation’) suggest. To a certain extent one could also mention Peirce (*Philosophy*), but his work is not truly linguistic. In the last two decades there has been some revival of interest in the subject, v. Haiman (*Syntax*), Givón (‘Non-arbitrary’), Simone (‘Aspects’), Landsberg (*Freezes*). Markedness is also important in this respect. To give but a few examples, let us mention the semantic correlates, in phonology, of vowel lengthening and consonant gemination; in morphology, of the differential structuration of vocabulary by morphological vs. lexical derivation and even suppletion within one and the same paradigm; in morphosyntax, the frequent morphologization of the objective relation but not of oblique relations; in syntax, the semantic incidence of direct vs. indirect rection of verbs as well as of element order (morphemes, words or clauses); in pragmatics, the correlates of focalization vs. topicalization at all levels and the expression, incidence and acquisition of space vs. those of time (see also Fonagy, ‘Physeï’).

Thus, in Semitic prototypical grammar, the phonological quantitative reinforcement of the second radical seems to correspond essentially, in diachrony, to a reinforcement at the semantic or syntactic level. In the verbal realm, gemination may express an action carried out with greater intentionality, or implying a more intense result, or a multiple number of times, or involving a bigger number of actants; and in the nominal realm it may express customary rather than occasional activity, and even plurality rather than singularity. An increase in vocalic quantity may represent the same phenomena. In Amharic, M. Cohen (*Amharique*) finds fourteen categories that display such a correlation. The so-called broken plurals should be submitted to such a test as well, the hypothesis being that the short forms are the non-marked ones and represent either the singular of the count nouns or the collective of mass nouns, whereas

the long forms represent plurals or singulatives (in Indo-European, reduplication is characteristic not of the present but of the perfect, in other words of the action seen as a globality, which is a kind of plurality, and one may ask if that is a coincidence; moreover, here one and the same morpheme may mark both perfectiveness and plurality, cf. *machen-gemacht*, *gehen-gegangen* and *Berg-Gebirge*, *Schwester-Geschwister*). Naturally, there is no point in analysing a quantitatively marked form if it has no unmarked counterpart, for example when there is no simple form vis-à-vis a long or geminate form of the same root. Second, it is essential that diachronic considerations be taken into account. There would be no point in taking the opposition between elements marked by vocalic lengthening or consonantal gemination at their simple synchronic value, since the existence, in the same synchronic state, of elements coming from different diachronic layers is a constant at all levels. That in Germanic some plurals are marked by ablaut while most are marked by suffixation does not falsify the fact that ablaut in these cases is but a phonetic result of assimilation and suffix-deletion, and that originally the plural was formed by suffixation here too. Diachronic processes affect all levels of language; therefore to deny iconicity or anything in language on the grounds of synchronic data alone is not sufficient.

An illustration of this is the apparently incongruous behaviour of *'et* in Biblical Hebrew: indeed, a thorough analysis (Kirtchuk(-Halevi), '*'et*') shows that, far from being its only rôle, marking of the definite direct object of the bi- or tri-valent verb is but one of its multiple functions. This apparently messy profusion can be explained only if we understand that originally *'et* had the pragmatic rôle of a focalizer, which, as a result of the loss of case endings in Proto-Hebrew, ended up grammaticalizing as a mark of definite second-actant. In opposition to prototypical first actants of bi-valent verbs, which are syntactically definite and semantically human, prototypical second-actants are non-definite and non-human. The first actant is also, pragmatically, part of the topic, whereas the second actant is part of the focus. When a second-actant is definite, it adopts a topical property. Therefore it should be marked specifically as focus. That was the original rôle of *'et*, but when case endings disappear due to the attrition of final, post-tonic segments, *'et* assumes a syntactic rôle, too, that of the part which has the greatest affinity with the focus, namely, definite second actant. However, in parallel it continues to fulfil its erstwhile pragmatic rôle: co-existence of *'et* as a pragmatic and syntactic mark accounts for its multiple and apparently incoherent functions.

3.1.2 *The Bi-Phonematicity of the Semitic Root*

The 3-P (3 phoneme) structure of the Semitic root conceived by the Arab grammarians and applied to Hebrew by Yehuda Ḥayyūḡ has prevailed since the Middle Ages. It has the advantage of levelling all roots into a single pattern, at the cost of intellectual operations, which necessitate a high degree of abstraction, e.g. positing a third consonant when two or even only one actually appears. The result is a quasi-mechanical description, obliterating the resemblance among many roots at both the semantic and the phonological levels, dismissed by Brockelmann (*Grundriss*) as an effect of analogy:⁴ This view followed the *Zeitgeist* and the principles of the *Junggrammatiker*, and was endorsed by Wright (*Comparative*).

The morphology of Semitic languages is considerably iconic, as it appears from the semantic burden of geminate stems both in the verbal and in the nominal realm and from the so called broken plurals (see *supra*). This alone is enough to refute the neo-grammarians' views. Second, the derived verb stems, especially those seldom used or learnt, obtain synchronically by vowel lengthening, but also by the addition of gemination (consonant lengthening, so to speak) and of sonorants. Moreover, not only derived stems in Semitic are iconically shaped: to some extent, this is the case of the lexical-cum-morphological structure, considered to be the watermark of this language group.

The approach presented in this paper refutes Brockelmann's view which is the *communis opinio* to our day.⁵ Quite the opposite, it implies an expansion of the insight of Gesenius (*Grammar*), König (*Lehrgebäude*), Hurwitz (*Determinatives*), Bergsträber (*Grammatik*), Diakonoff (*Semito-Hamitic*) and Bohas (*Matrices*) from diachrony to synchrony, from semantics to cognition and from particular languages to Semitic as a whole. Indeed, a proper analysis of the alleged 3-P roots in Biblical Hebrew allows recasting them into 2-P groups whose number is reduced by a whole order, from 10^3 to 10^2 . Moreover, in this realm lexicon and phonology are linked: the phonemes most frequently used to expand 2-P roots are the gemination of the second phoneme, or of both, or the adjunction of a sonorant of the group: /l, m, n, r, w, j/, or to a lesser extent of an expressive ('guttural') of the group /h, ʔ, ʕ, ḥ/. In all cases there are articulatory and acoustic properties which reflect a physiological and psychological, i.e. biological reality.⁶ In some cases, phonemes constituting 2-P elements share

⁴ "Schon im *Ursemitischen* wiesen diese meisten Wortformen einen festen Grundstock von durchweg drei Konsonanten auf. Est ist ebensogut denkbar dass an dreikonsonantrige Wurzeln durch analogische Neuschöpfung unter dem Einfluss von bereits bestehenden Wörtern verwandter Bedeutung neue Gruppen sich angeschlossen haben".

⁵ His analyses of several other phenomena are wrong too (see Kirtchuk(-Halevi) 'ʔet/').

⁶ "... il y a... quelques faits qui méritent réflexion. Premièrement, il est clair qu'il faut prêter une attention sérieuse à la partie statistique de la phonologie... Et, deuxièmement, il faut se

articulatory features and differ only in one feature, such as voice, emphasis, point of articulation, etc. An expansion is thus obtained by the application of the *loi du moindre effort*: a phoneme is added or changed that demands the least effort as compared with one phoneme of the existing 2-P group. This is also a psycho-physiological process, not in the least arbitrary, coupled with a moderate cognitive-semantic modification as well. It is therefore an iconic process. Expansions are also obtained, in a minority of cases, by the adjunction of an unrestricted 3rd phoneme to a 2-P root.

It is a structuralist game to distinguish roots and *etyma*, especially for roots which are not consistently 3-P even synchronically. What we are interested in is exploring the roots of Semitic, in all senses of the word 'root', and not in establishing circular definitions of the type: 'a root is defined by its relation with a pattern, and as patterns are designed to host 3-P roots, roots are necessarily 3-P'.

Some of the details may be open to discussion, on both comparative and analytical grounds; in some cases, a 3-P group is analysed in more than one way and thus belongs to more than one 2-P root; furthermore I have made no calculation as yet concerning the ratio of 2-P groups existing in the Semitic languages and the number of possible groups, given the overall numbers of phonemes and of phonotactic restrictions, nor concerning the ratio of expansions by a continuant or a guttural on the one hand and by any given consonant on the other. Those caveats having been defined, the data show that it is the addition of a geminate or a sonorant or a guttural, and in some cases of any phoneme, that expands the 2-P groups creating 3-P secondary groups, the actual so-called *roots* of traditional Semitic grammar. All members of such a group of 3-P elements share both a semantic and a phonological core. As at the phonological level those 3-P groups are expansions conditioned by biological factors of 2-P ones, the very structure of the lexicon in Semitic is linked to biological factors. Semantically, expansions result from the consistent application of metaphoric and metonymic processes of a cognitive nature to elementary meanings and the freezing of the results into constant constructs. Indeed, it emerges that from a cognitive point of view, most of the 250-odd 2-P roots belong to well-defined areas: on the one hand location in space (either static or dynamic, namely, position or movement), and metaphorically, location in time as well. On the other hand, bodily or psychic states of the speaker and

familiariser avec la biologie... il est possible qu'entre les lois biologiques de l'évolution et les lois de l'évolution des systèmes de signes il existe une analogie' (Troubetzkoy *Correspondance* 1932, p. 296). Much like Karl Bühler (cf. §3.5), to whom he was attached by a fruitful scientific exchange all through the 1930s as well as by mutual admiration, the author of *Grundzüge der Phonologie* rejects a direct link between language and biology, or between language and evolution. Nevertheless, given on the one hand the intellectual *envergure* of both characters and on the other hand their spatio-temporal *Zeitgeist* (Structuralism, [Logical] Positivism, the Wiener Kreis), even a position as cautious as the one expressed here deserves to be quoted.

by extension of other entities as well. The primitive atoms of meaning, constituted of 2 phonemes and not 3, convey spatial and temporal perception, and also bodily or mental states of the speaker. *Hic*, *nunc* and *ego*: the 3 crucial points of deixis. Expansions of those atomic meanings, which have both a semantic and a phonological aspect, reflect their specialization to specific fields or contexts, mostly by way of metaphor or metonymy. All this confirms Langacker's (*Foundations*) insights concerning the primacy of space perception and encoding in language as well as those of Lakoff & Johnson (*Metaphors*) about the primacy of metaphor in the way language works and expands. It is not unrelated to Pottier's (*Représentations*) noèmes and to Wierzbicka's (*Semantics*) semantic primitives although she poses a few dozen of them, while the 2-phoneme roots in Semitic outnumber them by a whole order. All this also confirms my own views concerning the primacy of communicative needs and sensory perceptions in the formation of language and of grammar.

As for morphology, it follows that the so-called complete verb traditionally presented as the basic form is in fact the most evolved and remote from its origin, while the so-called weak verb, with so-called *infirmæ*, represents the original root-form. Hurwitz (*Determinatives* p. 16) says: "The tendency to form tri-literal bases, strong though it was, could not yet completely dominate the consciousness of people who spoke the living language, but the weak elements were mercilessly dropped, not because they were weak but because they were subordinate". In cognitive, functional, typological and dynamic terms I would say: they are not subordinate but secondary, they are not dropped but simply not added, as they are expansions in the first place, and they are not weak but easy to pronounce and natural to express. They have a highly economical ratio of energy/utility.

Before continuing, let us recall that those roots in Semitic which kept the 2-P structure designate fundamental entities such as body-parts and the extension thereof, namely close biological kinship, cf. *yad* 'hand', *ben* 'son', etc: this is in itself strongly iconic, since central concepts considered to be semantically less composite are construed as being less composite at the morphophonological level as well.

Let me briefly mention some other examples of iconicity: in languages from quite different families and geographical areas, hypocoristics and diminutives contain a front vowel *i*, either as such or in the form of a semi-vowel *y* or as a palatalized consonant (other iconic, sometimes called expressive mechanisms, are used as well). Fonagy (*Voix*) has shown that front vowels and especially *i* are associated with smallness, which on the sphere of affects may be interpreted as either endearment or contempt, while back vowels, especially *u*, are associated with huge size, cavernosity and obscurity, which correspond to power, aggressivity and threat. The reason is the shape adopted by the buccal

channel in order to produce *i* and *u* respectively. The same holds true for *l*, in which there is a continuous flow of air, as compared with *r*, produced by a brutal encounter between organs, which may be simple or multiple. Accordingly, the first is unconsciously associated with tenderness and the second with aggressivity. I established an experimental protocol and the test was applied to Hebrew-speaking subjects. The results obtained were similar to those obtained by Fonagy with Hungarian and French-speaking subjects. True, there are counter-examples as well, but they are few and do not seem to share any common pattern, whereas the overall trend that I have just described does have one. This is *phono-iconicity*.

Phono-iconicity also accounts for the correlation between intonation (form) and pragmatic function (content); I shall dwell on this point later.

Another example of iconicity, in syntax: the order of a string of adjectives in relation to a noun. It has been shown (Posner, *Syntax*), and the tests applied to Hebrew confirm it, that in a non-marked clause, namely when there is no pre-eminence attributed to a given adjective with respect to another, that order is not random but follows an iconic pattern: generally-admitted, absolute, concrete and inherent adjectives are closer to the noun than more arguable, absolute, abstract and non-inherent ones. Thus, the colour adjective is immediately attached to the noun, other adjectives referring to static concrete properties such as size or shape may follow that colour adjective, then come the ones referring to dynamic concrete properties such as movement, and only then do abstract, arguable, relative, non-inherent properties appear. Whether adjectives are post-posed or ante-posed depends on the language analysed; what matters is the absolute value in terms of distance from the noun. That kind of order is iconic since properties grasped by the senses precede those inferred by an intellectual operation, generally-admitted ones precede more arguable ones, absolute ones precede relative ones and inherent ones precede accidental ones. Moreover, as a rule, only adjectives from the first pole of the continuum may be substantivized. Examples:

3. *A new red car* = Fr. *Une nouvelle voiture rouge* = CH *mexonit 'aduma, xadaša*
4. *A red new car* = Fr. *Une voiture rouge neuve* (? *Une voiture nouvelle rouge*) = CH *mexonit xadaša 'aduma*
5. *She's a tall blonde* = Fr. *C'est une grande blonde* = CH *zot blondinit gvoha*
6. ? *She's a blonde tall* = ? *C'est une blonde grande* = ? *zot gvoha blondinit*

(4) is possible only if the novelty refers to the individual car as an object and not to the fact that it is new for its owner (in which case it could be a new second-hand car). French renders this by 'neuve', and Contemporary Hebrew renders it, like English, by inverting the order of the adjectives — and adding a

pause in between! — though they follow the noun, while in English they precede it. What counts is the absolute value in terms of distance from the noun. In French, *Une voiture nouvelle rouge* is impossible, because colour is more inherent to the car than the fact of having changed hands.

As for (5) and (6), only the former is possible in each of the three languages, for the reasons stated above.

This universal tendency overrides another one, itself strongly anchored in cognitive and biological factors: in any string of elements of equal rôle and equivalent semantic and pragmatic importance, the heaviest element, phonologically speaking, is bound to be in the final position while the lightest one is in the initial position, the elements in between being disposed according to their respective phonological weight. Thus, we perceive a clock's sound as *tick-tock* (with the vowel perceived as inherently short in the initial position) and not *tock-tick*; we say *fish, flesh and fowl* (with the shortest element in the initial position) and not *fowl, flesh and fish*, etc. The reason is simple: the last element in a string is the easiest to grasp, memorize and react to, since it is, by definition, the one closest to the moment in which that reaction is expected, i.e. the end of the utterance. On the other hand, the heaviest element in a string is the hardest to grasp, memorize and react to, since it is the most complex one in phonological terms: it contains either a longer vowel and/or an additional phoneme and/or an additional syllable and/or a whole additional element. In other words, a heavier element requires more energy not only in order to be uttered, but also in order to be linguistically perceived. And we biological creatures do not have endless sources of energy at our disposal. If the heaviest element in a string were in the initial position, the utterance would be very difficult to process in terms of comprehension, memory and reaction. Therefore, it sounds more aesthetic to say *Paul and Michael, red and yellow, plums and peaches*, rather than *Michael and Paul, yellow and red, peaches and plums*. That the first version is aesthetic is in fact established by our nature as biological beings, and it is linguistically codified, as we have just seen, though no grammatical rule actually prescribes such an order (see also Friedman, 'Kol').

Contemporary Hebrew provides a striking example of iconicity, in which a different grammatical mechanism, morphological or syntactic (form), is selected on semantic grounds (content). Possession in Colloquial Contemporary Hebrew is expressed by suffixes appended to the particle *šel*, whereas in Biblical Hebrew they were suffixed directly to the noun. When Contemporary Hebrew uses this last mechanism, we are no longer in the colloquial register but in a higher one, literary or otherwise. There is, however, one exception to that rule: nouns whose referents are kith and kin of a very close order, thus:

Noun Unmarked Poss. 1sg	Marked Poss. 1 sg	
<i>xaver(-a)</i> ‘friend’	<i>(ha-)xaver(-a) šel-i</i>	<i>xaver(-t)-i</i>
<i>’em</i> ‘mother’	<i>’im-i</i>	
<i>’ima</i> ‘mama’		<i>(ha-)’ima šel-i</i>
<i>’av</i> ‘father’	<i>’av-i</i>	
<i>’aba</i> ‘dad’		<i>(ha-)’aba šel-i</i>
<i>’ax(-ot)</i> ‘brother/sister’	<i>’ax(-ot)-i</i>	<i>(ha-)’ax(-ot) šel-i</i>
<i>gis(-a)</i> ‘brother/sister-in-law’	<i>gis(-at)-i</i>	<i>(ha-)gis(a) šel-i</i>
<i>xam(-ot)</i> ‘father/mother-in-law’	<i>xam(-ot)-i</i>	<i>(ha-)xam(-ot) šel-i</i>
<i>ben</i> ‘son’	<i>ha-ben šel-i</i>	<i>bn-i</i>
<i>bat</i> ‘daughter’	<i>ha-bat šel-i</i>	<i>bit-i</i>
<i>dod(-a)</i> ‘uncle/aunt’	<i>(ha-)dod(-a) šel-i</i>	<i>dod(-at)-i</i>
<i>telefon</i> ‘telephone’		<i>ha-telefon šel-i</i>
<i>pardes</i> ‘orchard’	<i>(ha-)pardes šel-i</i>	<i>pardes-i</i>

The first item, *xaver(-a)* ‘friend’, represents the behaviour of the prototypical noun in this respect: in Colloquial Contemporary Hebrew, the unmarked possessive form is analytical, and the marked possessive form is synthetic. For the items meaning ‘biological parent’, however, only the synthetic form is possible. Both have hypocoristic forms, in which the suffixed *-a* (formerly the Aramaic definite article) excludes the synthetic form, rendering possible only the analytical one, on purely grammatical grounds.⁷ The words for ‘sibling’, ‘brother/sister-in-law’ and ‘father/mother-in-law’ likewise display inverse behaviour as compared with that of the prototypical noun: their marked possessive form is analytical, whilst the unmarked one is synthetic.⁸ Curiously, for ‘son/daughter’ the pattern is almost inverted, but not totally: in the unmarked analytical construction, the definite article is obligatory. For ‘uncle/aunt’ and terms denoting yet looser kinship, the pattern is that of prototypical nouns, though the synthetic form is rather more frequent than for non-kinship terms. This reflects the high degree of coalescence typical of kinship, a degree whose decrease is reflected in the grammatical constructions that affect it and their marked character. The last two items are quoted to illustrate that loanwords are

⁷ The fact that the words meaning ‘mother’ and ‘father’ and only they in this group have an affective variant is in itself iconic, of course. Rosén (*Ivrit*) noticed that when the possessive form of terms denoting kinship or body parts was synthetic it could refer only to a biologically inalienable reality, while the analytical form could apply to those terms when used as alienable concepts as well. He did not link this to iconicity, let alone to the other phenomena treated in this paper and the approach they suggest.

⁸ The younger generation sometimes uses the marked form *’ax(-ot) šeli* in the colloquial register. True, but they use it only in a substandard colloquial, only in the vocative, without the definite article, and when speaking to a very close friend, i.e. a non-biological ‘sibling’! Hence, this analytical form is not the syntactic, semantic or pragmatic equivalent of the analytical possessive forms of the prototypical noun. QED.

excluded altogether from the synthetic pattern, unless they were borrowed in pre-Contemporary epochs. This, too, is iconic, since a recent foreign origin is reflected in the impossibility of the word establishing a morphologically synthetic relationship with a genuinely Hebrew element as far as possession is concerned.

Let us consider one more example of iconicity. Language uses spatial terms to refer to temporal entities also: spatial prepositions and spatial verbs, often originating in body parts, can represent a movement or a position in time as well, but not the other way round. I am actually *facing* my audience (and the word *face* is not a coincidence, see Matsumoto, *Differentiation*), but I can only infer that I am facing another day. Space is a direct perception, while time is an intellectual construct: cognitively speaking, in the space-time pair, time is the marked term. Now if I go back to the corresponding linguistic statement, in language, as in cognition, time is the marked member in the pair it forms with space: one can say *at this point in time*, but not *at this moment in space*; *the time axis*, but not *the space clock*; spatial prepositions such as *around/until/from* apply to temporal realities such as *ten o'clock*. Linguistic elements, which refer primarily to space, can be applied to time as well, whereas the converse does not hold.

An example of iconicity in the structure of vocabulary: insofar as an entity is more central in the language and bears a greater cultural burden, it is lexical morphemes that reflect this functional richness. Thus, in Semitic, the *donkey* (*Equus asinus asinus*) is represented by several roots, and the same holds true — and not only metaphorically or metonymically, by substantivized adjectives, etc. — for the *horse* (*Equus equus caballus*) in Indo-European. Conversely, when the concept is less central, its categorial variations are expressed by morphological derivation, by a syntactic adjunct, or not at all, as becomes apparent when the same concepts are expressed in the other linguistic family. It follows that richness of semantic functions is expressed by richness of vocabulary, at the cost of charging memory, while automatic derivation, which demands no effort of memory but just calculus, is reserved for functionally low value oppositions (see also Bybee *Morphology*). This also means that grammatical derivation and lexical creation, i.e. grammar and lexicon, are two poles of one and the same continuum. I call this *morpho-iconicity*. This is all the more striking since in this regard, a Semitic language like Hebrew, relatively rich in morphology and poor in vocabulary, and one like English, with opposite features, behave in a similar way. Iconicity establishes a link between meaning and form. It does not pretend to be the only principle in language.

Let me put it this way: if there were no iconicity, we could pronounce *little* [lɪ?l] with a phonetically long vowel and *large* [la:(ɪ)ɫ] with a short one, or award the same length, either long or short, to both. Now it seems that a

spontaneous phonetically long vowel in the first case is improbable, while it is quite common in the second, simply because there it reflects large size, and in the first case it does not. Iconicity is an extension of this principle to the construction of the language system itself, as a result of personal manifestations in context, which eventually grammaticalize.⁹ *Parole* becomes *langue* through grammaticalization, and since iconicity is one of the principles that control *Parole*, eventually it ends up controlling *Langue* as well.

It follows that cognitive and functional factors are part and parcel of linguistic reality. Let us now look at some phenomena that find a new explanation if we take those factors into account.

3.2 Agreement, Concord and Multiple Encoding

Agreement and concord reflect the formal effect of one or more properties of the nucleus on other members of the clause or sentence, which in a structural perspective is sheer redundancy. In my view, the fact that the same data are encoded in several places in the clause or sentence is not a waste of time or energy. Quite the opposite; it facilitates comprehension, memorization and reaction, and at the same time allows for other mechanisms such as word-order to express pragmatic functions. This is closely related to what I have called *multiple encoding*. Traffic lights are characterized by their colours, but at the same time by their respective positions. In language too, messages are encoded at several levels simultaneously, viz.

— morphological-cum-phonological, e.g., imperative forms are prototypically pronounced with a clear-cut energetic descending intonational contour, as in Quechua (Kirtchuk(-Halevi), ‘Actancielles’):

7. *nuqa-wan miku-q amu-y wawqi-yki-ta pusa-mu-y*
 1SG-COM eat-PART come-IMV brother-2SG.POSS-ACC bring-REFL-IMV
 ‘Come to eat with me! And bring your brother along!’

— syntactic-cum-pragmatic, e.g., violation of syntactic concord corresponds to pragmatic markedness, as in Contemporary Hebrew:

8. *ʔaz b-a-sof ma haya ↑↑ haya makot ↓]*
 then at-DEF-end what be:pret.3SG.M hit:PL.F

‘so how did it end? in the end there was a fight (*lit.* ‘there was punches’), instead of the morpho-syntactically normative *hayu makot*;

— syntactic-cum-phonological, e.g., inversion of order with an interrogative intonative contour, as in French:

9. *Viens-tu?*
 come:2SG-2SG
 ‘Are you coming?’

⁹ “Plebs autem linguas facit, eamque et eruditi sequuntur” (Leibniz *Armonia*).

— syntactic-cum-pragmatic-cum-lexical, e.g., register being simultaneously marked at more than just one level, as in Contemporary Hebrew:

10. *ha-nasi* *ve-ra'ay-at-o* *šav-u* *'arts-ah* ↓
 DEF-president CONJ-spouse-F-3SG.POSS.M return:PRET-3PL country-DIR
 'The president and his spouse returned to Israel',
 against the more common (in all senses)

11. *david* *ve-ʔišt-o* *xazr-u* *l-a-ʔarets* ↓
 D. CONJ-woman:F-3SG.POSS.M return:PRET-3PL to-DEF-country
 'David and his wife came back to Israel' etc.

Moreover, those mechanisms are correlated with each other: it is the *intonational prominent part*, not its flat part, that is correlated with the *informational prominent part*. This is why in English you can cliticize the verb *be* when it functions as a copula, but not when it is a full verb, and focalized: "it's true!" is a sentence, but *"it's!" is not, because the pragmatically prominent part should correspond to the intonationally prominent part. To focalize "is", one must give it its whole phonological value: "it is!".

It follows that agreement and concord are not restricted to morphosyntax or, for that matter, to grammar. They exist in language as a whole, although they are not explicitly codified.

If language were independent of functional and cognitive factors, such a profusion of superimposed encoding devices would be a waste. Without going as far as Langacker (*Foundations*), who claims that language reproduces cognitive processes, I maintain that it is not completely independent of them. It is for this reason that not only intellectual but also sensorial channels are used to facilitate understanding, response and storage of data. Not to employ them would be anti-economical, since it would forego using some cognitive faculties of the human being, who is more than just a calculating machine.¹⁰ This is the purpose of redundancy in language.

This point is narrowly linked to another property of language, which originates in cognitive, functional and communicative factors.

3.3 *The Bipartite Organization of the Message into [Topic]-Focus*

The conventional twin terms 'topicalization' and 'dislocation' imply the pre-existence of a canonical syntactic structure: the speaker, wishing to modify the informative equilibrium of its components, would change their order. Thus, in order to obtain the pragmatic goal of 'topicalization', the speaker would use the syntactic mechanism of 'dislocation'.

¹⁰ The only exception perhaps being Sherlock Holmes, who was "An automaton — a calculating machine... all emotions were abhorrent to his odd, precise yet admirably balanced mind". This being Dr Watson's judgement, however, one can doubt its accuracy.

Here again, however, iconicity will prove crucial in falsifying that opinion: communicatively, given (= topical, thematic) information is known, whilst new (= focal, rhematic) information is not. When the speaker begins an utterance with the topic, he does nothing but pose the basis upon which the rest of the utterance will be constructed, namely its focal part, which is, from a communicative viewpoint, the new element. The Arab grammarians of the first centuries of the Hegira intuited this; they parsed the nominal sentence into *mubtada* ‘beginning’ and *xabar* ‘[new] information’. This iconic link between given information and first position, new information and non-first position, shows that an utterance built according to this pattern follows a natural order, just as the foundations upon which the house will be constructed are established before the building itself. Therefore, when the utterance begins with the topic, whatever its syntactic function, it does not result from the dislocation of a previously established syntactic order.

The following examples illustrate this cross-linguistically. Intonation contours are indicated by arrows (upwards and downwards); pauses (short or long) by (one or two) closing brackets.

French (Blanche-Benveniste, *Conférence*):

12. *Chaque client* ↑] *on fait quelque chose de particulier* ↓]
 ‘Each client, we do something special’
 (Hirst and Di Cristo, *Intonation*)
13. *Mon voisin* ↑] *il est toujours malade* ↓]
 ‘My neighbour, he’s always ill’
14. *Mon voisin?* (↑↑) *Il est toujours malade* ↓ ↓]]
 ‘My neighbour? He’s always ill’.

Contemporary Hebrew:

15. *pe^ʕul-ot* *še-y-it-bats^ʕ-u* *be-yom vav* ↑
 operation-PL.F REL-FUT-REFL-do-3PL.FUT in-day 6

ha-tipul *b-a-hen* *yi-dax-e* ↓]
 DEF-deal in-DEF-3F.PL 3FUT.postpone

‘Operations carried out on Friday, the treatment thereof will be postponed’

Arabic (Classical; Wright *Grammar* II 256):

16. *zayd-u-n* ↑] *ğī^ʔ-a* *ʾilay-h-i* *bi-kitāb-i-n*]]
 Zayd-NOM-DEF arrive:PASS.PF-3SG.M to-3SG.M-GEN INST-letter-GEN-INDF

‘Zayd, a letter was brought to him’

(not as Wright translates: ‘A letter was brought to Z.’)

Quichua (Quechua dialect of Santiago del Estero, Argentina; Kirtchuk-Halevi *Etnotextos*):

17. *trincheras* ↑], *yayku-q ka-ra-nku caballu-s-pi* ↓] *punchaw-an*].
 Country-festival arrive-PART be-PRET-3PL horse-PL-LOC day-COM
 ‘The countryside festival, you got there on horseback, early in the morning’

Spanish (Argentina; Kirtchuk-Halevi, native speaker):

18. *Vos* ↑, *dec-i-le lo que quier-a-s* ↓]
 2SG say-IMV.2SG-3SG.3act N.PR REL wish-SUBJ-2SG
 ‘You, tell him whatever you wish’

In all these examples, the topic is placed at the absolute beginning of the utterance. It may bear an ascending intonation contour (noted by an upward arrow) and be followed by a pause (noted by a closing bracket). Only then does the rest of the utterance follow.

The utterances with so-called ‘topicalization by dislocation’ belong to a primary, spontaneous, immediate, emotive, spoken-language mode of expression; they are especially frequent in child language. It would not make sense for such a mode to require more, and more complex intellectual operations than the sophisticated, rational, mediate, adult-like, written-language mode. An utterance beginning with the topic, then, does not result from the modification of a canonical syntactic order, but quite the opposite: it precedes it. Intonation and prosody support this claim inasmuch as the element supposedly dislocated is at the basis of an ascending curve and followed by a pause, which separates it from the rest of the utterance. As can be seen from the last two French examples above (13–14), the construction is close to that of the interrogative mood, with a question (topic) and answer (focus), which does not imply the dislocation of a pre-existing declarative utterance. There is an iconic relationship between the first position of the topical element and its function as basis, or to use Pottier’s (*Représentations*) felicitous term, ‘support’.

In accusative languages like German, Arabic, Quechua, etc., the only actant of the monovalent verb (let it be Z) is marked as the first actant of the bivalent verb (X), and both are in what is commonly called the nominative case. It is the second actant of the bi-valent verb (Y) that has a differential mark, commonly called the accusative case. Thus, in German *Ich bin da* ‘I’m here’ and *Ich habe einen Mann gesehen* ‘I have seen a man’, Z and X are marked in the same way, and there is no positive morphological evidence to conclude that either is a topic as well; it is Y, either directly or in an adjunct, that is marked differentially (*cf.* German *einen Mann*). In ergative languages, on the other hand, the only actant of the monovalent verb (Z) is marked as the *second* actant of the bi-valent verb (Y), and both are in what is commonly called the absolutive case. It is the first actant of the bi-valent verb (X) which has a differential mark, commonly called the ergative case. Thus, the Basque equivalents of the above German sentences are:

19. *Ni-∅* *hemen* *naiž*
 1SG-ABS this:LOC be:1SG
 ‘I am here’
20. *Ni-k* *bat* *gizon-∅* *ikusi* *dut*
 1SG-ERG one man-ABS see 1SG.1ACT-AUX-3SG.2ACT
 ‘I have seen a man’

The subject *ni* ‘I’ is marked differently when it is agentive (*ni-k*) or non-agentive (*ni-∅*), and the object is marked like the non-agentive subject (*gizon-∅*). To schematize:

	Accusative languages	Ergative languages
Monovalent verb	Z _{nom} Vb _z	Z _{abs} Vb _z
Bivalent verb	X _{nom} Vb _x Y _{acc}	X _{erg} Vb _y Y _{abs}
Identity of mark	Z = X ≠ Y	Z = Y ≠ X

If we find an X in initial position but not marked by the ergative case, we shall have positive morphological evidence that X is not a syntactic subject but a pragmatic topic. It cannot be the result of dislocation; otherwise we would have to suppose a morphological mark added and then deleted: this would be inconsistent with the communicative aim as well as with the types of contexts, registers and speakers that abound in initial-topic utterances, cf.

Esquimau (Tunumisuut dialect; Mennecier ‘Esquimau’):

21. *piniaqtu-p* *iqni-ni* *pitaatta-mi* *tuni-va-a*
 hunter-ERG son-ABS knife-INSTR give-2ACT-he>him
 ‘The hunter gratifies his son with a knife’
22. *piniaqtu-p* *iqni-mii* *pitaatta-q* *tuni-ip-pa-a*
 hunter-ERG son-ALL knife-ABS give-DER-2ACT-he>him
 ‘The hunter gratifies his son with the knife’
23. *piniaqtu-q* *iqni-mii* *pitaatta-mi* *tuni-si-vu-q*
 hunter-ABS son-ALL knife-INSTR give-SUBJ-2ACT-he>him
 ‘The hunter, he gratifies his son with a knife’
 (not as Mennecier translates: the hunter gives a knife to his son)

Basque (dialect of Soule, France; Coyos, ‘Basque’):

24. *Haurr-e-k* *zopa-∅* *jan-ik* *d-u-e*
 child-PL.DEF-ERG soup-ABS eat-PF. AUX (ukan=have)
 ‘The children have already eaten the soup’
25. *Zopa-∅* *haurr-e-k* *jan-ik* *d-u-e*
 soup-ABS child-PL.DEF-ERG EAT-PF AUX (ukan=have)
 ‘The soup, the children have already eaten it’
26. *Haurr-ak* *zopa* *jan-ik* *d-i-ra*
 child-PL.DEF. ABS soup:ABS eat-PF AUX (izan=be)
 ‘The children, the soup, they have already eaten it’

27. *Pette-k* *libru-a-φ* *eman* *d-u* *Maddi-ri*
 Peter-ERG book-DEF-ABS give AUX (=have) Mary-DAT
 ‘Peter has given the book to Mary’
28. *Pette-φ* *libru-a-φ* *eman-ik* *d-a* *Maddi-ri*
 Peter-ABS book-DEF-ABS give-PF AUX (izan=be) Mary-DAT
 ‘Peter, he has given the book to Mary’
29. *Pette-φ* *hemen* *d-a*
 Peter-ABS here AUX (izan=be)
 ‘Peter is here’

This definitive morphological evidence found in ergative languages is but the overt expression of a situation prevailing in accusative languages, too, where it is morphologically covert, given the equal marking of agentive and non-agentive subject.¹¹

3.4 Focus Intonation

The focus or rheme (Pottier [*Représentations*] ‘apport’) is the most important part of the utterance from the communicative point of view. In other words, it is at the prominent part of the informative contour. It tends to be in final position, which is the cognitively privileged one as it is closer to the point where speech stops. Thus, the item that occupies it is more likely than those in non-final position to be stored in memory, processed and reacted to in real time. Iconically, the focus tends also to be at the salient part of the intonative contour; it follows that it cannot be clitic, cf. in English

30. A. *It’s none of my business...* [ˈtsnɔnəvmajbɪznəs ↓]
 B. *It is none of your business* [ˈti:znɔnəvjɔ:bɪznəs ↓↓]
31. A. John: *We’ve already done that, right?*
 B. Mary: *We have.*
32. A. John: *Gosh!*

¹¹ Rebuschi (‘Diathèse’) confirms that in Basque, the bivalent verb is in final position and, *ceteris paribus*, thematicity rests upon the actant in initial position, be it subject or object. In Pari, a West Nilotic language from southern Sudan with transitive order OVA, cf. *jòbì á-kèel ùbùr-ì* buffalo CMPL-shoot Ubur-ERG ‘Ubur shot a buffalo’, if the agent is topical, it takes the initial position and is not marked by the ergative *-i*, cf. *ùbùr jòbì á-kèel-é* Ubur buffalo CMPL-shoot-3SG.ABS (Dixon *Ergativity*). Unfortunately, Dixon’s translation to both versions is identical, which is inconsistent with his own accurate analysis and all the more with mine: like Wright for the Arabic and Mennecier for the Esquimau, he pays tribute to pragmatic-discursive perspective only to dismiss it right afterwards. Indeed, the translation of the latter utterance should be: ‘Ubur — he shot a buffalo’. Mennecier agrees with my analysis too, although he does not apply it ‘manifestement, les termes mis en valeur le sont à l’absolutif, par le choix des formes subjectives et objectives’ (*ibid.*, p. 24). None transcribes intonation, while both intonation and prosody in these cases are of crucial importance; field linguists are strongly encouraged to transcribe them, and the others to be aware of their actual or of their erstwhile presence.

33. A. John: *Did Lucy eat the cake?*
B. Mary: *I did!*
34. JD: *You live here, don't you?* [julāvhi.....r > dontju]
NW: *Who lives...?!* [hulı::vz ↓]

(30) is a piece of dialogue by R. H. Davis ('Deserter', p. 542). In (30A) the focus is *none of my business*. It is this part that is informatively most important, therefore, it is at the salient part of the intonation contour as well. The verb *is* only fulfils the syntactic rôle of copula; therefore, it can be abridged and cliticized. In (30B), however, the focus is the nexus itself, i.e. the fact that it *is none of his business*. The verb *is* no longer plays the rôle of a copula: it is the focus, the important information, and therefore it is also, iconically, at the intonation salient part; its vowel is not contracted but expanded: that is why it is not clitic. The same holds for (31). (32) is not a sentence but a monosyllabic one-element utterance: its only element is the focus, thus it is at the salient part of the intonation contour; since this contour has no ascending or descending slopes, its salient part stands alone; this is what is commonly called an exclamation. Albeit syntactically non-analysable, it has prominent communicative, pragmatic and intonative values, all of which are iconically linked. In (33), B begins with the subject, which is in the position normally devoted to the topic. It occupies, however, the salient part of the intonation contour: therefore, despite its syntactic rôle and position, it is interpreted as the focus of the utterance. This is even clearer in (34), a piece of dialogue from *Rebel without a Cause*. In James Dean's question, the topic is *you* and the focus is *here*, the verb 'live' being little more than a copula. In Natalie Wood's response, however, 'lives' is placed at the intonationally prominent part by the length of its vowel: all of a sudden, it gets communicative primacy as well, and becomes the semantically and pragmatically charged focus of the utterance.

To be yet more explicit, let us think of an utterance such as: *how clever*. If uttered with a mocking intonation, it means the opposite of its face value. The same goes for *you idiot* with a cherishing intonation, and so on.

All this shows, too, that in communicative and pragmatic factors, expressed primarily by intonation, prosody and pragmatic constituent order, form and content are narrowly interwoven, and that those factors and their linguistic expressions override and determine morphosyntactic forms and rôles, not the other way round.

Further evidence is provided by Akkadian: this Semitic language, which does not possess suffixed verbal forms, shows the emergence of this prototypical characteristic of Semitic morphology for the perfective aspect out of the coalescence of a nominal stem (stative or permansive, iconically marked by a long vowel) and a personal deictic. The rheme-theme relation, first

expressed by pragmatic and phonological means (the thematic deictic was probably facultative, initially), became a predicative one, expressed by a frozen order of both terms, which ended up morphologizing into a new part of speech called ‘verb’ that spread to the whole of Semitic. This is the diachronic process at the basis of the synchronic ‘verbal nexus’, as Jespersen (*Philosophy*) calls it.¹² Another very interesting datum provided by Akkadian is the suffix known as ‘enclitic *mem*’, to my mind a deictic element in rhematic function akin to the *ma* which provides both the indefinite/interrogative and the rhematic/predicative (‘accusative’) suffix, the first of which is grammaticalized later, via the mirative function and the exclamative intonation, into a negative marker as in Arabic and occasionally in Hebrew too (see Kirtchuk-Halevi, ‘LUIT’). The ‘enclitic *mem*’ of Akkadian is at the exact confluence of pragmatics, syntax, morphology and phonology.

Both the morphologization of the verbal nexus as a single form and the cliticization of the focalizing element, in which erstwhile independent deictic morphemes become bound, could not have happened if a strong phonological, viz. prosodic and intonational coalescence had not occurred in the first place.

The Nature of Intonation

This leads to some thought on the nature of intonation, generally included among the supra-segmental features of the linguistic sound (in both senses of the word) component. Supra-segmental it is, like pitch accent and tone, strictly and only on graphic grounds. When pitch accent is not deducible from the position of the syllable in the word, or when a monosyllable is non-clitic, some languages, like Spanish, indicate it by an orthographic sign over the accentuated vocalic segment. Likewise, the alphabetical systems have added an extremely restrained and relatively recent set of punctuation marks, mainly for interrogation, exclamation, a shorter pause and a longer pause. The study of written languages preceded that of oral ones, and so pitch accent and, by extension,

¹² A similar though not identical process takes place in colloquial French, where the erstwhile thematic, non-emphatic personal deictics often anteposed to the verb become clitic and prefixed to it save in spelling, while their erstwhile emphatic counterparts become independent and thematic but non-emphatic, so that *Pierre il-pense que...* means simply ‘Peter thinks that...’. It is in this fashion that colloquial French re-morphologizes the predicative relation characteristic of the verbal nexus it once lost, as a result of phonological processes affecting the system as a whole, the personal endings inherited from Latin (erstwhile independent personal deictics as well, which coalesced with the nominal element). Let me recount here the following personal experience: my son Teo Samuel, aged 30 months, acquiring both Hebrew and French as a native speaker, utters sentences such as [ʔani zvoε maʔak], namely ‘I want soup’, with the nominal parts in Hebrew and the verbal part in French. Now, the French verb is accompanied by a prefixed personal mark which agrees with the subject: for the language acquirer, at least in this particular case, the morpheme ‘je’ is a bound one. For the sake of accuracy: [maʔak] ‘soup’ in this context actually designates ‘meat sauce’...

intonation and prosody as well, were treated, as they are in written systems, as little more than superfluous matter. Linguistically speaking, though, this is sheer nonsense: intonation, as I have just shown, overrides other formal properties of the utterance; incidentally, it is intonation, too, that allows for elementary communication with infants,¹³ with foreign-language speakers and even with animals. All this tends to prove that intonation is not supra-segmental in any true linguistic sense: just as vowels are not additional linguistic features in languages whose writing systems note only the consonants, and just as vowels and consonants are not additional linguistic features in languages whose writing systems do not note either, intonation is not an additional linguistic feature but at least a co-segmental one and even, in my contention, a sub-segmental phoneme, in the sense that it is prior to and more important, from the communicative point of view, than the segmental part of the utterance. There are intonations that constitute utterances even though they are carried by mere phones not phonemically relevant, while no segmentally expressed utterance is deprived of intonation. Every syntactically constituted sentence has an intonation, but there are communicatively relevant intonations without sentences. Even languages that we only know through written documents had an oral expression, which preceded their pictorial, ideographic, syllabic or alphabetical representation; nowadays too, most languages are not written but only spoken. To put it boldly, all people communicate by talking, but not all people communicate by writing, and that is all the more true as one goes back in time diachronically, ontogenically and phylogenically. The relation of intonational phonemes and segmental phonemes, whatever their representation by current orthographies or by IPA, is therefore akin to that of deictics and nouns: quite the opposite of what has been assumed until now¹⁴ (for Deicticity, v. *infra*).

¹³ 'Les nourrices... entendent tout ce que dissent leurs nourrissons; elles leur répondent, elles ont avec eux des dialogues très bien suivis; et quoiqu'elles prononcent des mots, ces mots sont parfaitement inutiles; ce n'est point le sens du mot qu'ils entendent, mais l'accent dont il est accompagné... le ton qu'elle(s) y met(tent)' (Rousseau *Emile*, pp. 74, 81). Though the practical side of children's education repelled him to the point of abandoning all of his own five children one after another as soon as they were born, the author of *Le Contrat social* was an excellent observer of child behaviour.

¹⁴ Tones are a different matter. Hombert ('Development'; 'Post-vocalic'; *Tonogenesis*) has shown that they emerge following the attrition of segmental phonemes, and that no language is tonal to begin with. An example of this can be found in Contemporary Hebrew, where the neutralization of the opposition between Classical *qâmaš* and *patah*, *segol* and *šere*, along with the attrition of the fricative pharyngeal, led to a re-phonologization of those oppositions between identical vowels in terms of tone. Thus, *pa'ar* (oxytone) 'to open wide' — PRET.3SG.M, *pa'ar* (paroxytone) 'a gap', and *par* 'a bull' are now distinguished, by a growing number of speakers, by an ascending tone, a descending tone and a mono-tone respectively, as are all words of the same pattern. The neutralization of the opposition between the unvoiced dorso-alveolar and the unvoiced fricative-lateral, as well as the de-phonologization of emphasis, are also partially

To claim that an utterance is ambiguous on the grounds that its intonation is not transcribed is tantamount to claiming that a depicted horse is ambiguous on the grounds that the organs whose absence or presence affect its sex one way or the other are not represented. The real animal is either a horse or a mare, and the real utterance often means one thing or another (or another, etc.) depending on intonation. Doing linguistics on the basis of deficient transcriptions is equivalent to doing zoology on the basis of animal images, instead of on the basis of the living animals themselves. When dealing with ancient tongues, one has no choice, but one has nevertheless to remember that intonation was there, even if it is not transcribed.¹⁵ It is utterly wrong, in any case, to deal in the same way with real utterances in living tongues.

3.5 Deicticity

Traditional grammar considers the pronoun as a pro-noun, a substitute for the noun, and that harkens back to Apollonius (*Scripta*) and Dionysius (*Grammaire*), who call it ἀντωνυμία, namely a *substitute* for a noun, and thus it went into Latin grammar, as pro-nomen; through *La Grammaire de Port Royal*, Hjelmslev (*Animé*), Jakobson (*Essence*), Benveniste (*Pronoms*) and Lyons (*Introduction*) — to mention only some of the important opinions on the subject — to our day. This issue is by no means subsidiary, even though practically no controversy is attested, since all of those authors fall right into the etymological trap and consider the so-called pronoun to be a pro-noun. Only Bréal has a different opinion,¹⁶ but it is not based on sound linguistic evidence, typologically or otherwise; likewise Bühler, who nonetheless continues this thought when establishing the distinction between ‘Symbolfeld’ and ‘Zeigfeld’.¹⁷ True,

compensated by this phenomenon: *ta’an* (oxytone) ‘to argue’-PRET.3SG.M, *tan* ‘jackal’; *sa’ar* (oxytone) ‘to storm’-PRET.3SG.M, *sa’ar* (paroxytone), ‘a tempest’, *sar* ‘a minister / to be removed’-PRET, 3SG.M’ display the same phonological distinction. I thank my student A. Yuditcki for an observation that led me to these conclusions. They apply as well to Santiago del Estero Quichua (this dialect as well as Ecuador’s preserve the original *i* vowel in the language’s name), where the attrition of *w* between identical vowels induces the emergence of tonal distinctions (Kirtchuk, ‘Particularités’). All this tends to prove that the so-called supra-segmental phonemes are not of one and the same nature. Quite the opposite: this part of phonology — and perhaps phonology as a whole — must be re-founded, especially when one bears in mind that, contrary to structuralist dogma, phonemes *do* carry meanings, albeit subconsciously (Fonagy *Voix*.)

¹⁵ The Hebrew Bible cantillation marks do reflect prosody, and to some extent, intonation.

¹⁶ “L’espèce de mot qui a du se distinguer de tous les autres c’est, selon nous, le pronom. Je crois cette catégorie plus primitive que celle du substantif parce qu’elle demande moins d’invention, parce qu’elle est plus instinctive, plus facilement commandée par le geste” (Bréal *Sémantique*, ch. XIX, p. 207).

¹⁷ “... alles sprachlich Deiktische zusammengehört, weil es nicht im Symbolfeld, sondern im Zeigfeld der Sprache die Bedeutungserfüllung und Bedeutungspräzision von Fall zu Fall erfährt; und nur in ihm erfahren werden kann... Die Modi des Zeigens sind verschieden; ich kann ad oculos demonstrieren und in der situationfernen Rede dieselben Zeigwörter anaphorisch ge-

he quotes (only) Indo-European data studied by Brugmann (*Bildungen*), influenced by Erdmann,¹⁸ but he explicitly rejects any evolutionary implications, namely the inevitable conclusion that deixis is at the origin of language.¹⁹

A thorough analysis of demonstratives in a variety of languages from different families and types, which I carried out after noticing, in 1987, the importance of deictics in Pilagá, an Amerind language spoken in North-Eastern Argentina, led me to some unexpected conclusions: demonstratives are the only universal category, both in diatopy and in diachrony, and they have little in common with nouns at any level — phonology, morphology, syntax, semantics, pragmatics, acquisition, dia-glottics (borrowing). Deictics are extremely frequent, hence prototypically mono-syllabic; as they are of supreme importance, they have an overall tendency to form conglomerates *even* in such non-compounding languages as Semitic: Ar. *hā-dā*, *hā-dī-hī*, Hebr. *hal-lā-ze*, *ze-hu*, *ha-ze-hu*, *zot-i*, *ha-zot-i*; but also in others: Fr. *ce-ci*, *celui-ci*, Lat. *hi-c*, *nun-c* (cf. gr. *vuv*, all. *nun.*), Guarani *ko-a-va*, Basque *hu-n* “*celui-ci*”. All these constitute conglomerates of deictics (for a more complete survey, cf. Kirtchuk (-Halevi) ‘Phenomena’); morphologically they are not analysable — into root + scheme, for example — even in languages like Semitic, in which that is the very basis of nominal and verbal morphology; neither are they categorically transferable by derivation or subject to declination; paradigmatically, they constitute a specific, rather closed paradigm, expanding only within itself, whilst syntagmatically they often behave differently from both nouns and noun determiners. This, incidentally, leads me to consider them otherwise than as noun determiners: in a deictic-noun (the order depending on the language) phrase, e.g. *this book*, the head may be the deictic. Syntactically, deictic demonstratives are determined by nature and are even the source of definite articles in all languages that possess them. Semantically they are quasi-void.

brauchen. Es gibt noch einen dritten Modus, den wir als Deixis am Phantasma charakterisieren werden. Phänomenologisch aber gilt der Satz, daß der Ziegefingern, das natürliche Werkzeug der demonstratio ad oculos zwar ersetzt wird durch andere Zeighilfen; ersetzt schon in der rede von präsenten Dingen... demonstrare necesse est, stare pro nominibus non est necesse” (Bühler *Sprachtheorie*, p. 80).

¹⁸ “Die sprachgeschichtliche Betrachtung mag dazu führen, die primitiven Sätze als eingliedrig anzusehen, d. i. eine demonstrativer Bedeutung zum Ausgangspunkte zu nehmen” (Erdmann *Logik* I, p. 435).

¹⁹ Indeed, on the one hand he rejects it, saying “Man begegnet da und dort einem Modernen Mythos über den Sprachursprung der sich entweder ausgesprochen oder unausgesprochen auf die Denkweise Brugmanns und anderer stützt und das Thema von den Zeigwörtern so aufnimmt und weiterspinnt, daß sie als die Urwörter der Menschensprache schlechthin erscheinen”, only to add right afterwards: “Mythen müssen nicht falsch sein” and even “Die hypothese von der zeitlichen Priorität eines nennungs-freien Hinweises, ist an sich eine widerspruchsfreie Annahme, die man machen kann” (Bühler *Sprachtheorie* pp. 86–87, see Kirtchuk-Halevi ‘Origo’).

Pragmatically they are vital. Synchronically they are universal and exist independently of grammatical constraints. Diachronically they are primary. Di-glotically, i.e. borrowing-wise, they are practically never borrowed. Functionally they primarily and essentially refer to extra-linguistic (+ discursive) entities. In each and every realm, prototypical deictics differ from prototypical nouns.

Those two categories are by no means reducible to each other. Indeed, deictic demonstratives reflect monstration, whereas nouns reflect conceptualization. The former necessitates practically no memory and no calculating power, i.e. very reduced brain capacities, whereas the latter implies both. Deictics allow communication in context, where the referential center of both speaker and hearer is *ego*, *hic* and *nunc*, which links it to both phylogeny and ontogeny; conceptualisation, on the other hand, allows communication out of context and reflects a much more advanced stage of brain capacity. This means not only that deicticity is an essential property of language, but also that deictics probably preceded nouns in the history of language diachronically and are more central in the body of language in synchrony. An analogy would be the reptilian brain, which is both more ancient and more vital, but also anatomically deeper in the skull than other parts of the brain, yet it is occulted by those more recent and less vital structures, e.g. the cortex, the neo-cortex and the neo-neo-cortex. It is nouns that are pro-pronouns, and not the other way round, except in anaphora, which is a particular case of deixis: intra-discursive deixis. It is a confusion between the general and the particular case that generated the traditional view, reflected in the etymology of the term “pronoun”. The ultimate consequences of this analysis point to deixis as the primordial and first linguistic function: deixis is at the origin of language faculty (Kirtchuk(-Halevi), *Morphogènèse*; ‘Phenomena’; ‘Copernican’, ‘Origo’).

3.6 High Fidelity

Another linguistic property that results from the primacy and precedence of sensory over intellectual perception is what I have called fixity, on the grounds of language being what Hagège (*Paroles*) calls “le musée de la connaissance”, meaning that when we say “the sun also rises” we reflect a stage of knowledge prior to Copernicus. Indeed, but what we reflect in reality is that, though rationally we know that proposition to be false, except in a metaphoric way, we keep using it because that is what our eyes actually see and because our sensory perception is prior to the intellectual/rational one and overrides it. From a strictly sensitive point of view, the sun does rise, and that is exactly what we say, with a high fidelity (hence the more recent term to name it). Language is full of such sense-oriented phenomena, which are also at the basis of many semantic and grammatical shifts, and of many metaphors. This goes for metaphor as for other phenomena in this perspective: it is not some deviant or

creative use of language, but a part of its hard core. “Metaphors we live by”, as Lakoff & Johnson (*Metaphors*) put it, go from concrete to abstract and from sensory to intellectual, as Clauberg put it (*ap. Leibniz, Collectanea Etymologica*).²⁰ We get an interesting insight if we apply it to Biblical Hebrew, for example to Gen. iii 6:

35. *kī tōb hā-ēṣ lə-maʾāḱāl wə-kī taʾāwā hū l-ā-ēnayim*
 that good DEF-tree to-eat and-that passion it to-DEF-eye.DU
wə-neḥmād hā-ēṣ lə-haškīl
 and-desired DEF-tree to look

‘for the tree [was] good to eat, and [it was a] passion for the eyes, and desirable [was] the tree to look at’

In Contemporary Hebrew, *√skl* means ‘grasp with one’s mind’, whereas it is clear from this verse that it also means grasping not with the eyes of the spirit but with the eyes of flesh. The overall sense of metaphors from concrete to abstract shows that in Gen. iii 6 it is the original meaning of the root that we have, and not the other way round. This corresponds to the general atmosphere of the verse, highly sensual and even carnal: *ḥmd* ‘to desire’, *taʾāwā* ‘lust, passion’, *maʾāḱāl* ‘eat’, *ēnayim* ‘eyes’. This vocabulary expresses the obvious link between satisfying one’s alimentary and sexual appetites, which also appears in the name of the tree of knowledge: *yd* denotes the absolute knowledge a man acquires about a woman by possessing her, cf. Gen. iv 1. The usual interpretation of *daʿat* in this context as *moral* knowledge — justified by the complements *tōb wā-rā* ‘good and bad’ — obtains through the vocabulary of *carnal* knowledge; moreover the first thing Adam and Eve perceive after having eaten the forbidden fruit is not some intellectual or moral construct but their nudity, viz. their own bodies as well as each other’s. Likewise, the interpretation of the Song of Songs as a love story between God and his people is grounded in an erotic scene between a woman and her lover. Be the interpretation as it may, in all of these cases (Gen. iii, Gen. iv and Cant.), vocabulary as such is crystal clear: there is hardly anything moral, intellectual or abstract about it. Which allows me to pass to the next section.

3.7 *Taboo*

The last phenomenon I shall mention is taboo. This is a linguistic universal, in apparent contradiction of the principle of economy: there are elements in language whose utility by definition tends to zero, since they are to be used only

²⁰ “Nota insuper, quod inter omnes humanae mentis actus primus sit percipere seu intelligere. Antequam enim quicquam velis cupiendo, aut aversando nolis, antequam iudices quicquam affirmando aut negando, necesse est, ut rem percipias... De nullo quippe negotio opinari vel dicere cogitatione animi interiore vel externo verbo quicquam possumus, nisi primo illud percipiamus” (Clauberg ‘Etymologica’).

in extremely marked contexts. They refer to clear-cut anatomical, physiological and psychic domains, in which verbs and nouns, cross-linguistically, have several variants each, in conditioned distribution depending on register: one (often reduplicative, hence of ‘expressive’, i.e. affective, spontaneous, primary origin and structure) to be used with children; one to be used in medical parlance; sometimes a colloquial one; and [more often than not] a slang form. For the sake of illustration, *a table* is *a table* and *a hand* is *a hand* in all of these contexts, while the region below the chest is *tummy*, *belly* or *abdomen* (to give an innocuous example) and the divinity is the *Almighty*, *the Lord*, *God*, *Gosh*, *Goodness*, Hebrew *ha-šem* ‘the Name’ (cf. French ‘*Nom de Dieu*’), etc., according to register and context. The only explanation is also biological, evolutionary, cognitive and functional, since language treats in a distinct fashion certain entities that are psychologically distinct from all others because of their heavy emotional value, at the sexual-reproductive, scatological-digestive or mystical-superstitious level. Moreover, here again, psycho-physiological context marking corresponds to register marking which is reflected, eventually, in lexical marking. The recent use of the word *gender* in American English to denote a person’s sex belongs here too: in a puritanical culture, even the word *sex* is too connotative to be used in everyday parlance, let alone in official formularies; it is therefore a partially taboo word reserved to denote not appurtenance but activity, i.e. not a permanent and inherent state but a punctual action, accordingly collocated with ‘have’ and not with ‘be’.

The lexical phenomenon of taboo words seems to be just as universal as the fact that languages possess items to designate numbers up to (at least) four, body-parts and the extension thereof, namely close biological kinship, and omnipresent natural entities including major celestial bodies and their effects.

4 Conclusion

The relationship between Saussurean — let alone Chomskyan — linguistics and mine is akin to the relationship between Newtonian physics and quantum physics. If we assume particular conditions in which there is such an entity as *langue*, with a clear-cut grammar and lexicon and a proficient community of speakers, who are in possession of calculation capacities and memory and who consistently apply the rules of the system, there might be a point in the Saussurean view. If, however, we generalize and look at language as it really is, through its particular manifestations, including, among others, infant speech, spontaneous adult speech and Creoles; if we listen to intonation at least as consciously as we listen to the so-called segmental parts of the utterance; if we look at the communicatively, expressively and pragmatically salient elements of language with at least as much attention as that usually devoted to the conceptually important ones; if we think of diachrony not as historicity but as

dynamism; if we think of human beings not as rational animals but as animals capable of reason, as Jonathan Swift would have it; if indeed we are ready to grasp all the information that linguistic data and speaking people generously offer us, and to ask all the questions they keep replying to, then we are bound to conclude that language is part and parcel of human evolution, i.e. of evolution *tout court*, both in phylogeny and in ontogeny. It follows that it is part and parcel of human nature, i.e. of nature *tout court*, which includes many more elements than just calculation capacities and memory.

Doing scientific research can be likened to assembling a jigsaw puzzle, with three differences. First, the pieces of the scientific jigsaw puzzle are not pre-established: it is the researcher who has to determine which piece of evidence belongs to the jigsaw puzzle and in which form. Second, the researcher does not have a model of the picture he is striving to obtain. Finally — and this is perhaps the most exciting difference of them all — this puzzle itself is but another piece of a jigsaw puzzle of a higher order, which is itself another piece of a jigsaw puzzle of a higher order and so on. It is here that the greatest advantage of my approach to language resides, as I see it.

This approach, based as it is on the observation of linguistic data and on reflection thereupon, offers several benefits: (1) it enriches the linguistic scene with data that until now were at best treated as merely ‘expressive’ (Bally [1932] 1965) or — at worst — deliberately left out of it; (2) it establishes clear links between linguistic facts and phenomena that until now seemed unrelated to each other; (3) it does so by an inversion of perspectives between *cause* and *effect*; *central* and *peripheral*, *prior* and *later*, and in this sense it is a Copernican revolution in linguistics; (4) it allows the development of language to be explored not only from the present-day *backwards*, but also from its evolutionary beginning *forwards*, *towards* the present: digging the tunnel in both directions, so to speak, which is bound to yield faster and better results; (5) it links language to other phenomena characteristic of the form of life known as *Homo sapiens sapiens* (see also Kirtchuk-Halevi ‘Refutation’). Indeed, taken individually, the phenomena I have shown so far may seem anecdotal or ‘expressive’, which is the term that for a long time allowed them to be accounted for without being integrated into serious analysis. However, their omnipresence in all realms and at all levels of language, any language, at any stage, necessarily leads to seeing them not as accidents but as manifestations of the very core and nature of language and its speakers. The nature of language reflects the nature of its speakers, which is why all these phenomena are not radically different; rather, they are but different manifestations of the same reality. I am explicitly referring to language, of which grammar is only a part. The latter has perhaps nothing to teach us concerning the brain, but the former can certainly teach us quite a lot about both brain *and* mind.

“Today’s morphology is yesterday’s syntax”, says Givón (‘Topic’), and I add: Yesterday’s syntax is the previous day’s pragmatics, and *Homo sapiens sapiens*’ language is the descendant of hominid vocal-cum-gestural communication. In other words, *Parole* is the laboratory of *Langue*, and that is true also in ontogeny and phylogeny. Language is comparable not to a mountain but rather to an iceberg, of which grammar, with syntax at its summit, is but the apparent part.

Indeed, I hope to have shown that a study of language “en elle-même et pour elle-même” is a very good beginning for the study of language but definitely not the end of it, and that ‘performance’ is by no means ancillary to ‘competence’; that is, that the puzzle of language is not self-contained and autonomous as Structuralists and Generativists respectively would have it. Saussurean oppositions should be maintained on methodological grounds, but not as inherent to language itself; synchrony is but a tool of analysis: as a matter of fact, language is intrinsically dynamic and not just diachronic (Kirtchuk(-Halevi) *Morphogenèse*). “Le trésor de la langue”, to quote Saussure (*CLG*), is one not simply of signs, but of sign-uses. The origin of language is a perfectly licit scientific question and not in the least a false problem: language is an object as concrete as life or the universe, and science does investigate the origin of both. The origin of language too can be retrieved, since it has left reflexes in present-day languages; in my mind, that origin is deixis, and the reflexes are the deictic elements present in each and every language to this day. Pragmatics is the source of grammar, and the grammaticalization processes are, to some extent, founded on Iconicity. One of the principles that govern communication is the *loi du moindre effort*, but a complementary principle is that of multiple encoding in order to obtain a better memorization, comprehension and reaction. This does not mean that grammaticalization is predictable: nothing in evolution is — mutations least of all.

It is not mathematics that language and linguistics are related to, but biology. In other words, the jigsaw puzzle of higher order immediately superior to the linguistic one is the biological one, and the natural phenomenon immediately superior to language is life as displayed in our species. One of several corollaries is that the concept ‘natural language’ is a pleonasm.

Abbreviations

ABS — absolutive; ACT — actant; ALL — allative; AUX — auxiliary verb; COM — comitative; Cmpl — complete; CONJ — conjunction; DAT — dative; DEF — definite article; DER — derivative; DIR — directive; DU — dual; ERG — ergative; F — feminine; FUT — future; GEN — genitive; he>him — first actant to third actant; IMV — imperative; INSTR — instrumental; IPF — imperfect; LOC — locative; M — masculine; NOM — nominative; PART — participle; PASS — passive; PF — perfect; PL — plural; POSS — possessive; PRET — preterit; N.PR — neuter pronoun; REFL — reflexive; REL — relative; SUB — subjunctive; SUBJ — subjective conjugation; SG — singular

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