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LANGUAGE ORIGINS AND LANGUAGE EVOLUTION RESEARCH: FROM PROHIBITION TO POSSIBLE CONTRIBUTION

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Abstract: The Société de Linguistique de Paris included in its initial statutes an article banning the presentation of papers on language origins. The prohibition was later repealed, but the prevailing attitude remained and misconstrued the twentieth-century conception of language and what linguists should study. This papers examines the historical background of the ban, discusses the ensuing attitude and injunctions, and refutes the anti-evolutionary arguments that are advanced today. Instead, it urges that the study of language focus on the neuro-muscular underpinning of linguistic features and the selective pressures that have guided their evolutionary courses.

Keywords: Evolution, arbitrariness, iconicity, uniformitarianism. cyclical, adaptive, analyticity, word order, agglutination.

1. EXPECTATIONS

Paris had been chosen the venue of the XVIth International Congress of Linguists, because the Permanent International Committee of Linguists wanted to commemorate the fiftieth anniversary of its first postwar meeting, held in the French capital in 1947. Since the conference was in Paris and indeed organized by the Societé de Linguistique de Paris (SLP), some, especially those interested in language origins research, thought it the opportune place and time to reopen the debate on this once taboo subject. It will be recalled that in its original statutes (drafted in 1865 and given ministerial approval in 1866), the SLP had included an article (art. 2) which unequivocally stipulated that "[l]a Société n'admet aucune communication concernant ... l'origine du langage."

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In an *obiter scriptum*, Jean Perrot, the present secretary of the SLP, reports that this controversial article was severely criticized from very early on, and that the society had dropped it from the 1878 version of the statutes, changing the first sentence of art. 1 from "La Société de Linguistique a pour but l'étude des langues ..." to "... l'étude des langues et l'histoire du langage ..." (1964:20). The new wording was a stroke of diplomatic genius — the advocates of the article could interpret the word "histoire" to exclude the study of all prehistorical events, while the opponents of the ban could claim victory by taking "histoire" to mean the sequence of all developmental changes. But, however useful for reaching a compromise, the ambivalent formula was less than felicitous, since the concept behind "l'histoire du langage" remained difficult to grasp. The phrase was finally dropped altogether, and in the 1964 version of the statutes, art. 1 simply reads "... [la] Société ... a pour but l'étude des langues et du langage."

While reason seems to have prevailed as the episode came to a close, one cannot, however, put the matter aside without asking two important questions: (1) Were there reasonable grounds for banning the study of language origins when the unfortunate art. 2 was included in the statutes? and (2) are there specific aspects of "l'étude des langues et du langage" to which a revised approach could make a positive contribution today? The first question is of course of historical interest, but the second one deserves greater emphasis since its consequences would be felt today.

2. THE PROHIBITION

It is difficult to capture the exact prevailing mood when the statutes were drafted by the society's founding fathers. Linguistics was an up-and-coming field of study. Urged on by Schlegel to follow the natural history model (1808:28), linguists, especially in Germany, had done a considerable amount of pioneering work in the comparative study of principally Indo-European languages, the tentative reconstruction of the ancestral prototype, and the general outline of the language family's genealogical tree (cf., *e.g.*, Schleicher, 1850).

This was also the time when the more speculative minds were trying to imagine how language originated. The proposals are well-known. According to one theory, the first words were onomatopoeia; according to another, interjections were the source of the original lexicon; in a third scenario, words were derived from the referred object's acoustic resonance; finally, it was argued that the first words were coined as strenuous collective physical effort was punctuated with orchestrated deep breathing (for a detailed presentation, see Jespersen, 1964:413-16). These scenarios had indeed something fanciful, and they struck the scholars who where toiling with Sanskrit or Old Irish as simply frivolous. The authors of such fable-like accounts were not taken seriously by the learned empiricists, who hastened to condemn their work and deride their scenarios, which came to be known as the bow-wow, pooh-pooh, ding-dong and yo-he-ho theories, respectively.

The low esteem in which the authors of language origins theories were held was pungently described by William Whitney, who observed that "the greater part of what is said and written upon it is mere windy talk; the assertion of subjective views which commend themselves to no mind except the one that produces them ... This has given the whole question a bad repute among sober-minded philologists" (1873:279). With the lines so drawn, it was only logical that the "sober-minded philologists" would refuse the company of men who dealt with matters of such "bad repute." Hence, the decision to ban papers on language origins. But fairness compels us to show understanding for both parties.

2. 1 Understanding the founding fathers

Banning papers on language origins was unquestionably an act of censure, and, though dogmatic behavior is by no means a rarity within schools of thought today, scientists would readily agree

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in principle that no anathema should be cast on any type of research leading to a better understanding of the observational data. In such a principled mood, one would be ready to condemn the decision to draft art. 2. and include it in the statutes. Such stricture is hardly worthy of a learned society, and much less propitious for the advancement of knowledge.

Yet, if the procedure was unquestionably wrong, the underlying concern was not spurious. The fundamental question that the decision makers were asking themselves was whether, on the strength of their expertise and on the basis of the empirical data from known or reconstructed languages, linguists could propose scientifically acceptable hypotheses on the origins of language. This was a responsible question to ask, and experience had convinced them that the answer should be "no." Thence, the ban.

2.2 Understanding the authors of nineteenth-century language origins scenarios

Accustomed to the modern, power-equipped, smooth-riding, dependable, and comfortable automobiles, one may find the initial self-propelled vehicles indeed very primitive, and, when they were first introduced, they were no doubt derided by those who were accustomed to the now modest, but then superior efficiency of horse carriages. We all still have in our entourage friends and colleagues who find it "nobler for the soul" to struggle with an archaic typewriter than harness the diabolic forces of modern computers and their daedalic text processors.

The proponents of the bow-wow and the like theories, had by no means solved the language origins riddle, but, whereas the eighteenth-century authors had advocated that language is a gift of God, a God-given faculty triggered into use by emotions (Rousseau), or the product of the human soul (Herder), *they* offered the first phenomenological explanations of language. They were no doubt groping, and it is easy to ridicule someone who is groping, but they had initiated a new course, and they were groping in the right direction. Today, we still have not found the answer, but we are also looking in the same general direction, not among the marvels of a generous god, or in the mysterious recesses of the human soul. Just like the nineteenth-century inventors were trying to replace animal energy with chemically-derived power, so were the much-criticized authors of language origins scenarios shifting the pursuit of knowledge from the transcendental realms of metaphysics and philosophy to the concrete field of direct observation and logical inference.

2.3 The failure to adopt a developmental perspective

That the more pragmatically oriented would choose to concentrate on concrete linguistic data, and not engage in speculative hypotheses was of course a perfectly legitimate decision, but it was incumbent upon them to guard themselves against the danger of concluding that one's individual selection is coterminous with the science itself. One may choose to be a primatologist, but such a choice cannot warrant the claim that biology be reduced to the study of primates, and yet comparable abusive thinking took place in linguistics when art. 2 was included in the statutes. The prevailing attitude emerges in a statement made much later by Saussure when, in line with Whitney's assessment, he proclaimed that: "le seul objet réel de la linguistique, c'est la vie normale et régulière d'*un idiome déjà constitué*" (1931:105; emphasis added). This, tragically enough, is the unfortunate premise that would sustain much of the work done in linguistics throughout the twentieth-century.

To see the problem and the corollary misconceptions, let us transpose this statement into biology. What sense would it make to say that "the sole and real object of biology is the study of an already fully-constituted organism." One is immediately left to wonder what a fully-constituted organism can be. Are amoebas fully constituted? or must the organisms be pluricellular? What about invertebrates, do they qualify? or must they have a spine? And that spine, is it enough for it to be cartilaginous? or nothing less than solid bone will do? How about body temperature, is warm-

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bloodedness a requirement? One is also puzzled about mammary glands — can an organism be fully-constituted without them, and above all can it qualify without a cortex? The same series of questions can be asked for the ontogenetic "constitution." Is the embryo a fully constituted organism? or must we wait until it has become a fetus or a neonate? or should we rather wait until he has his permanent teeth? or, better yet, his secondary sex features? These are all idle questions, the object of biology is obviously the study of the entire continuum on both the phylogenetic and ontogenetic axes.

Let us now return to linguistics and ask comparable questions. Is a language fully-formed when it does not have adjectives? or when the subject function is missing as in active and ergative languages? Would Indo-European, which hardly had fricatives, which hardly had a temporal system and no verbal auxiliaries, which did not have a system of grammatical voice, which certainly in an earlier period could not produce embedded sentences, qualify as an already constituted language? These again are idle questions. Just as the object of biology is the study of the entire continuum from unicellular organisms to humans and from the production of gametes to the cessation of life, so is the object of linguistics the study of the continuum that stretches from the most rudimentary to the most advanced system of vocal communication, including writing and alternate modes, such as sign language.

If such a comprehensive view had been taken, the unsustainable caesura between "already constituted languages" and whatever may precede would not have been introduced, and linguistic features would have been presented in their developmental perspective and not as foreordained absolutes. A case in point is what Saussure labels "the arbitrariness principle" (1931:100). Arbitrariness is what Saussure says it is, but why should it be a "principle"? Is the presence of service stations along today's highways a matter of principle? The development of the internal combustion engine and the expansion of mobility has made it necessary to refuel vehicles underway, and this need has been met with the construction of roadside service stations. Arbitrariness has come about the same way. When communication was in a state of development comparable to a child's having to name only a cow, a pig and a turkey, *moo, oink-oink,* and *gobble-gobble*, or the like were perfectly adequate, but as the lexicon increased and abstractions begged labeling, the onomatopoeic process proved much too confining, while, on the other hand, arbitrariness provided the productivity that was needed. A comparable situation arose in verbal morphology, where Ablaut was an elegant way of marking distinctions. But unfortunately it was also a restrictive process because, if a vowel was earmarked for a given distinction, it no longer was available for the base form of the verb. Instead, suffixation provided greater productivity, and with that significant advantage it prevailed over vowel alternation. Arbitrariness is therefore the answer to a developmental need, but speakers have other needs — they also want words to be suggestive; so, while being economically ideal, arbitrariness has to be tempered with iconic considerations. It is therefore neither an absolute nor is it foreordained, it is the answer to an important need which sometimes must work with answers that must assuage other needs or wishes.

2.4 The overall picture

The situation surrounding the Paris prohibition is not black and white. There were no absolute villains, no indisputable heroes. If the authors of speculative scenarios about the origins of speech sinned by an excess of imagination, and pursued much too elusive goals, they deserve credit for having chosen to look for answers in the world of facts, not, as their predecessors had done, in the celestial heights of a supernatural power or in the unfathomable depths of the human soul. The self-appointed guardians of the temple, also deserve credit for the impressive amount of empirical work they did, often with a keen analytical mind (cf., *e.g.*, Saussure's *Mémoire,* which remains a model of insightful thinking), but they should also take the responsibility for their failure to see

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language in a developmental perspective and the misconceptions that were generated by their static view.

3. A POSSIBLE CONTRIBUTION

Today, while the ban has long been lifted, the fundamental question is still there. Can linguists contribute to language origins research? The answer is an unequivocal "yes," but we have to be careful not to overreach. Reconstructing Proto-World as scholars reconstructed Proto-Indo-European is not one of the options. We can however, in cooperation with population geneticists, draw the ultimate genealogical tree of the world's languages. This is already done with reasonable success. But we could make a far more meaningful contribution by tracing the development of linguistic features and by inferring the principles that have guided the evolution of languages. But this is where mainstream linguistics is showing resistance, hanging on instead to the cherished but elsewhere long-refuted uniformitarian scenario.

3.1 The rise and fall of uniformitarianism

Uniformitarianism was abandoned so long ago by biologists and geologists that only historians of evolutionary theories are familiar with it. In the eighteenth and nineteenth centuries, when physicists were inhabited by the quixotic belief that free energy was possible and could be produced with perpetual machines (cf. Angrist, 1968), the Scottish geologist James Hutton (1726-1797) saw the earth as one of those circular contraptions. He posited a three-step cycle. First, rivers and sea waves would erode the existing rocky structures and carry away the debris, producing the soil of continents and the sediments resting on the ocean floor; second, as the layers of alluvia accumulate under the surface of the sea, the increasing pressure of the upper strata would heat and melt the lower ones; third, the expansive force generated by the high temperature would propel the accumulated strata upward and out of the water, producing mountains where there were oceans, and oceans where there were continents. The newly emerged structures would then provide the input of the erosion process and trigger the operation of the next cycle, which would then go on repeating itself endlessly. Having thus conceived the earth as a natural perpetual motion machine, Hutton could logically report in his oft-quoted conclusion "that we find no vestige of a beginning, no prospect of an end" (cf. Gould 1987:61 *et sq.*).

The nineteenth century British geologist and naturalist Charles Lyell (1797-1875), who became the leading exponent of uniformitarianism, extended Hutton's view to the history of species and claimed that today's living organisms would become extinct, and those that are now extinct would return to populate the earth.

> Then might those genera of animals return, of which the memorials are preserved in the ancient rocks of our continents. The huge iguanodon might reappear in the woods, and the ichthyosaur in the sea, while the pterodactyle might flit again through umbrageous groves of tree ferns (Lyell, 1830-33:I,123).

But the theories of Lamarck, redefined by Darwin, and combined with the evidence from molecular biology soon proved that the cyclical account was a complete fallacy in biology. In geology, it was the theory of the big bang and its supporting evidence that dealt a fatal blow to the cyclical dream. "Ce n'est que dans la période moderne avec la découverte du big bang et de la chronologie radioactive, que le temps géologique devient à nouveau orienté et irréversible. ... Certes, il existe des phénomènes cycliques ... [mais] il semble que ces évolutions cycliques se superposent à une tendance lourde, une évolution forte qui, elle, est irréversible, orientée, vectorielle" (Allègre 1992:372-73). Today, in geology and biology, Hutton's and Lyell's uniformitarianism is completely rejected, and Claude Allègre, an internationally known French earth scientist, sides with Ernst Mayr, who

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considers that Plato's introduction of uniformitarian-type ideas was "un véritable désastre pour la pensée occidentale" (1992:372).

3.2 Linguists hanging on to the circular scenario

The "disaster" that Mayr and Allègre were referring to can be plainly observed in mainstream linguistics, which, with its uniformitarian thinking, is lagging far behind geology and biology. Linguists cling on to the cyclical idea, which they illustrate with periodic changes, but without uncovering the underlying developmental process.

The history of the French future provides a good illustration of how cyclical changes should not detract from seeing the developmental processes. Indo-European did not have a future, but Latin reorganized the ancestral modal system by conflating the subjunctive and the optative into a single mood, and by using, whenever possible, the thematic morpheme of the subjunctive to create a future tense. For the first and second conjugations, this was morphologically impossible; so, instead, a periphrase was used, meaning approximately 'I am (about) to ...' This periphrastic form fused into a synthetic item, and standard Classical Latin had such forms as *laudabo* 'I shall praise.' But, probably in part because of the allomorphy between this once periphrastic future and the one using the old subjunctive marker, a new periphrastic future was invented in the twilight of the Classical period — *laudare habeo*, meaning originally 'I have to praise.' Again, the words fused together, yielding such forms as the French *tu loueras*. Today, that item is receding before another periphrase *tu vas louer* 'you are going to praise.' The successive steps in the evolution of the French future are recapitualted below.

1. Indo-European **synthetic** subjunctive
2. Pre-Classical Latin **analytic** future in the 1st and 2nd conjugations
3. Classical Latin **synthetic** future in the 1st and 2nd conjugations
4. Post-Classical Latin **analytic** future in all conjugations
5. **Synthetic** Romance future
6. **Analytic** modern future

The cyclical alternation of analytic and synthetic forms is obvious, and those who wish to show that changes are circular have no doubt a sure example.

But there is more to the development of the Romance future than a pendular movement shifting back and forth between analytic and synthetic forms.

1. The modal system of the ancestral language was reduced, while the derived language saw the development of a new tense, and, with the ongoing recession of the subjunctive, the process of eliminating modal distinctions is still going on.
2. When the first analytic future was formed, the auxiliary was *be* and it was added to the imperfective stem, but when the second periphrase was assembled it was using the infinitive and the auxiliary *have*. These two changes denote a shift from an aspect-dominated to a tense-dominated system. And while today aspects are used, mainly in the past tense, tense-dominated systems do not normally shift back to an aspect-dominated set of distinctions. Taken together, the changes 1 and 2 show a steady one-way shift from a modo-aspectual to a temporal system (cf. Meillet, 1952:xii).
3. There is also a difference between the Romance analytic future and the one that is developing in modern times. The former was a head-last structure, the latter a head-first. This too is a one-way shift in the normal evolution of languages (see Bichakjian, 1992 for a less cursory discussion).

This two-prong assessment of the changes that mark the history of the Romance future shows that, while cyclical changes do exist, they ride, as Allègre pointed out for geology, the crest of heavy tendencies, and strong evolutionary processes, which for their part have directionality and

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vectorial character. It should be acknowledged, however, that the evolutionary processes that mark the development of languages can in specific contingencies undergo isolated reversals. Armenian, for instance, which was becoming more and more head-first, reversed its course and acquired a strong head-last character when political, *i.e.* extra-linguistic, events compelled their speakers to become bilingual and add to the mastery of their vernacular that of an overwhelmingly head-last language (cf. Adjarian, 1909:8 quoted in Nichanian 1989:56; and see Bichakjian *forthcoming* for a discussion). But in every science there are regular processes and exceptional occurrences, and it is the task of the scientist to recognize the former without being detracted by the latter.

3.3 Raising aimless objections.

In addition to claiming on the basis of an incomplete assessment of the data that all linguistic changes are cyclical and thereby saving their preconceived uniformitarian representation of language, linguists who reject the idea of evolution raise at least two objections. Changes cannot be adaptive, because what is replaced here is maintained there; and there is no directionality because what took place here is allegedly being reversed there.

Extant occurrences of ancestral features. Arguing that changes cannot be adaptive because what is supplanted in one language survives in another displays a total lack of understanding of what evolution is about. As we look at the situation in biology, we see a whole array of extant species which illustrate and, with domain-confined modifications (I shall return to this point later), represent the successive evolutionary steps leading from unicellular organisms to humans. But would any biologist ever claim that because there are fishes and reptilians today, the mammalian features have no selective value? or that a placental reproductive system does not have selective advantages because marsupials live perfectly happily in Australia, or that the cerebral cortex has no selective advantage because an overwhelming majority of animal species manage adequately without it?

Head-last and head-first languages are a case in point. Though this is not a black and white situation, there are roughly as many languages that are predominantly head-last as there are languages that are head-first, but the survival of the ancestral type, which was head-last (cf. Givón 1979:275-6), and their equal number does not constitute evidence against the advantageous character of head-first structures (cf. Bach, Brown and Malslen-Wilson 1986; and Kempen 1996 for direct psycholinguistic evidence). There are fishes today, and in greater number than mammals or even all other vertebrates put together, and yet mammalian features developed because they had selective advantages, and so is the case of head-first features. Just as the survival of ancestral species does not belie the selective advantages of their descendants and thereby the evolutionary process itself, so does the existence of ancestral linguistic features in extant languages fail to constitute a valid argument against the adaptive character of language change and against language evolution as a process.

If fishes have not moved on the evolutionary scale leading to amphibians, reptilians, etc., it would be mistaken to assume that they have stood still since the appearance of amphibians 400 million years ago. They too, and again some groups more than others, have undergone evolutionary changes that within their general body plan have made them better adapted and indeed quite successful in their environments (cf. Gould, 1996:64). The situation is again similar in linguistics, where the shift from head-last to head-first structures constitutes a major evolutionary step, but, while remaining within the general confines of the ancestral pattern, extant head-last languages have undergone adaptive changes. This can be seen especially in the array of hypotactic constructions that head-last languages have developed to convey hierarchically organized thoughts, while remaining within the SOV pattern. Latin and Armenian, for instance, developed, next to their standard use of participial constructions, personally organized demonstratives and pressed them into service

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in the cases where SVO languages would use head-first relatives, provided however that modality did not have to be expressed. Cf. the example below, where *ista omnia* (lit. 'all those things referring to you') stand for an entire relative clause:

Ego ista sum omnia dimensus (Cic., *Cat.* 59).

I am the one who drew the plans of all the things you are admiring.

Later, as Latin evolved into a head-first language, the personal demonstratives gave way to a proximal *vs.* distal dichotomy, while Armenian, which kept and later, under bilingual conditions, reinforced its head-last character, continues to use the personal system (see Bichakjian, *forthcoming* for a detailed discussion; for examples of alternative subordinating strategies showing their uses and their restrictions in non-Indo-European languages, see Kornfilt, 1997:45-77 and Hakulinen, 1961:358-61).

Agglutination is also an important adaptive feature of the head-last languages, since it facilitates the processing of grammatical markers, while producing structures that remain within the canonical pattern.

Therefore, just as fishes have undergone adaptive changes since the emergence of amphibians, so have languages that have not become head-first developed features that present selective advantages. That is the framework in which Collinder's oft-mentioned, but seldom properly assessed objections should be placed. Responding to Jespersen, who had stressed the tendency of Indo-European, Hamito-Semitic, and Sino-Tibetan languages to become analytical, Collinder had argued that such a trend is not universal, and that Hungarian had moved in the opposite direction and created case markers out of nouns (1936:58-59 and 1956:120). The actual process can be understood by looking at the history of the Fr. *chez*. The Latin noun *casa*, meaning 'house' and appearing in constructions such as *casā Petri* 'in the house of Peter,' developed into a preposition in French and is used in such phrases as *chez Pierre* 'at Peter's.' Through a comparable process, once full-fledged lexical items developed into grammatical morphemes and became case markers in Hungarian. One may want to stress that in one case a noun became a preposition and in the other a case marker, but the contradiction is only apparent, and, on closer look, the existing consistency becomes manifest. Such differential behavior is also that of any animal feeder who would nurse a kitten with milk and feed egg crumbs to a chick, because the former is a mammal, and the latter a member of an egg-laying species. When the Latin noun became a preposition, the host language was head-first, so it is only normal that the emerging item would a preposition and not a case marker, and conversely since Hungarian was a head-last language, it is also normal that the newcomer be integrated in the dominant pattern and develop into a case marker. In both cases the changes are adaptive within the existing systems, and that was the spirit of Jespersen's claim (1964: 364).

Seeing trends where there are none. Another aimless objection is raised when anti-evolutionary linguists point out to trends that do not exist. When it is argued that the shift from Indo-European glottalized consonants to voiced stops is an adaptive change and, as such, not likely to reverse itself, critics will point out that glottal stops are heard in some dialectal pronunciations of words such as *bottle*. Such sounds may very well be heard, but producing a glottal stop instead of a flapped *t* is one thing, replacing a whole set of voiced stops with their glottalized voiceless counterparts is another. In biology, where the number of offsprings per birth was drastically reduced during the phylogeny of primates, no one would venture to pretend that the recent birth of septuplets marks the reversal of the observed evolutionary trend. There are definite selective advantages that explain the reduction of the litter size and such a process cannot be reversed without going against those advantages. Likewise the shift from glottalized consonants to voiced stops cannot under normal circumstances be reversed without forsaking distinct selective advantages. Similar reasons and the attendant analysis also explain why the claim that Mandarin Chinese was shifting from SVO to

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SOV was highly suspicious and was shown to be one of those trends that do not exist (cf. Li and Thompson, 1974 for the claim and Sun and Givón, 1985 for the refutation).

3.4 Lagging linguistics

Nearly two centuries after Schlegel had called on linguists to draw their inspiration from natural history, one must sadly conclude that, while considerable work has been in comparative grammar and other branches, linguists have remained far behind their colleagues in biology and geology. The latter have long come to realize that the uniformitarian scenarios are untenable, and that evolution is not in the main cyclical, but linear. Linguists, unfortunately cling on to the cyclical scenario and raise aimless objections against the evolutionary model, either because their analysis has not been probing enough to uncover the underlying linearity (cf. the study of the French future), or because the uniformitarian assumption must be maintained no matter what, since without it cultural relativism would be considerably weakened. It will be recalled that in the days of Galileo, it was felt that the geocentricity of the universe had to be maintained no matter what, lest the teachings of the Church would be compromised. Whatever the exact motive, the failure to uncover or recognize the existence of evolutionary processes has serious consequences — it bars the understanding of the developmental history of language and, by so doing, the true understanding of language itself.

4. A GAP TO CLOSE

As a vector of literature and philosophy ,language has of course an undeniable cultural dimension, but the linguistic implement is also just that, an implement with a biological dimension of its own. It is therefore imperative for linguists to examine the neuromuscular underpinnings and assess the selection pressures that weigh upon them in order to understand the nature and the developmental history of the linguistic features they support (cf. Bichakjian 1996 and 1997). This is the task that awaits today's linguists. If they should accept to carry it out, they will be able to outline the developmental steps of the linguistic implement and uncover the process that has guided its evolution. Such an endeavor will not reveal the features of the ultimate protolanguage, anymore than the phylogenetic survey of primates would yield the blueprint of invertebrates, but it would help us understand the developmental process and guard us against embarrassing assumptions about the ancestral vernacular. This new approach would be the contemporary linguist's contribution to language origins research, but above all to the understanding of the true nature of language, which unfortunately was misconstrued as a result of the ill-starred art. 2 and the ensuing attitude about what the study of linguistics should be.

REFERENCES

Adjarian, Hratchia H. (1909). *La Classification des dialectes arméniens*. Paris: Champion.
Allègre, Claude (1992). *Introduction à une Histoire naturelle*. Paris: Fayard.
Angrist, Stanley W. (1968). Perpetual Motion Machines. *Scientific American* **218**(1), 114-122.
Bichakjian, Bernard H. (1992). Genealogical Linguistics: Progress and Pitfalls. *Word* **43**., 85-96.
----- (1996) Evolution: From Biology to Language. In: *Four Million Years of Hominid Evolution in Africa: Papers in Honour of Dr. Mary Douglas Leakey's Outstanding Contribution in Palaeoanthropology* (C.C. Magori, C.B. Saanane, and F. Schrenk (Eds)). KAUPIA Darmstaedter Beitraege zur Naturgeschichte **6**, 153-163.
----- (1997). Evolution and the Biological Correlates of Linguistic Features. In: *Achaeology and Language I. Theoretical and Methodological Orientations* (Roger Blench and Matthew Spriggs (Eds)), pp. 31-42. London and New York: Routledge.

ISBN: 0 08 043 438X

 Copyright © Elsevier Science Ltd.

-----. *Forthcoming*. L'importance syntaxique des démonstratifs personnels du latin et de l'arménien. *Festschrift Edmund Schütz*. Ed. Alice Sárközy.

Bach, E., C. Brown and W. Marslen-Wilson (1986). Crossed and Nested Dependencies in German and Dutch: A Psycholinguistic Study. *Languages and Cognitive Processes*. **4**, 249-62.

Collinder, Björn (1936). Analytische Sprachentwicklung und linguistische Teleologie. *Nyelvtudományi Közlemények* **50**, 51-63.

----- (1956). Die Entstehung der Sprache. *Ural-Altaische Jahrbücher* **28**, 116-27.

Givón, Talmy. 1979. *On Understanding Grammar*. New York: Academic Press.

Gould, Stephen J. (1987). *Time's Arrow, Time's Cycle. Myth and Metaphor in the Discovery of Geological Time*. Cambridge, MA: Harvard Univ. Press.

----- (1996). *Full House. The Spread of Excellence from Plato to Darwin*. New York: Harmony Books.

Hakulinen, Lauri (1961). *The Structure and Development of the Finnish Language*. Tr. John Atkinson. Bloomington, IN: Indiana Univ. Press.

Kempen, G. (1996). Computational Models of Syntactic Processing in Human Language Comprehension. In: *Computational Psycholinguistics: Symbolic and Subsymbolic Models of Language Processing*. (A. Dijkstra and K. de Smedt, (Ed.)). London: Taylor & Francis.

Herder, Johann Gottfried von (1772). *Abhandlung über den Ursprung der Sprache*. Berlin: C. F. Voss.

Jespersen, Otto (1964). *Language: Its Nature, Development, and Origin*. New York: Norton [first published in 1922. London: Allen and Unwin; New York: Holt].

Kornfilt, Jaklin (1997). *Turkish*. London: Routledge.

Li, Charles N. and Sandra A. Thompson. 1974. Historical Change of Word Order: A Case Study in Chinese and its Implications.In: *Historical Linguistics*. Proceedings of the First International Conference on Historical Linguistics. (John M. Anderson and Charles Jones, (Eds.)). I, 199-217. Amsterdam: North-Holland.

Lyell, Charles (1830-33). *Principles of Geology, being an attempt to explain the changes of the earth, by reference to causes now in operation*. 3 vols. London: Murray.

Meillet, Antoine (1952). *Esquisse d'une histoire de la langue latine*. 6th ed. Paris: Hachette [rpt. of the 3rd ed. 1933].

Nichanian, Marc (1989). *Ages et usages de la langue arménienne*. Paris: Entente.

Perrot, Jean (1964). Review of *Les grands courants de la linguistique* by Maurice Leroy. *Bulletin de la Société de Linguistique de Paris* **59**, 19-22.

Rousseau, Jean-Jacques (1974). *Essai sur l'origine des langues*. Ed. Angèle Kremer-Marietti. Paris: Aubier Montaigne [written *ca.* 1755 and first publ. in 1781].

Saussure, Ferdinand de (1931). *Cours de linguistique générale*. 3rd ed. Paris: Payot [first published in 1916].

Schlegel, Friedrich (1808). *Über die Sprache und Weisheit der Indier. Ein Beitrag zur Begründung der Alterthumskunde*. Heidelberg: Mohr und Zimmer.

Schleicher, August (1850). *Die Sprachen Europas in systematischer Übersicht*. Bonn: König [French tr. *Les langues de l'Europe moderne*. Tr. Hermann Ewerbeck. Paris: Ladrange et Garnier, 1852].

Sun, Chao-fen and Talmy Givón (1985). On the So-called SOV order in Mandarin Chinese: A Quantified Text Study and its Implications. *Language* **61**, 329-51.

Whitney, William D. (1873-74). *Oriental and Linguistic Studies*. 2 vol. New York, Scribner, Armstrong, & Co.

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