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On Burst and Burials of Languages: Linguistic Diversity from Ecological Perspective

The history of life is a story of massive removal followed by differentiation within a few surviving stocks, not the conventional tale of steadily increasing excellence, complexity, and diversity.

(Stephen J. Gould 2000: 25)

I. Introduction

The latest 21st edition of *Ethnologue* catalogues over 7,000 languages spoken today.[1] It is interesting that in the past, when many now extinct languages were still in use, the number of languages was estimated to be much lower. At the end of the nineteenth century, linguists suggested a number around one thousand. In the first half of the twentieth century, the total was thought to be somewhere between 1,500 and 3,000, whereas Charles F. Voegelin and Florence M. Voegelin's *Classification and Index of the World's Languages* from 1977 catalogues ca 4,500 languages. The exact number of languages in the contemporary world is still a matter of debate, not only due to the unresolved criteria problem, i.e. what makes a dialect into a separate language, but also because of the sheer fact that there may be languages still undiscovered, waiting for their classification, or reclassification. For example, a fairly recent survey, covering only a few areas in southwestern China, brought the discovery of several previously uncatalogued minority languages.[2] On the other hand, many languages are on the verge of extinction; they are spoken

[1] https://www.ethnologue.com/

[2] See Bradley (2004). Such discoveries of previously unknown (uncatalogued) languages are still possible as Chinese authorities, like governments in many other countries, have for

by very few, usually elderly and bilingual, semi-speakers. In North America alone, a decade ago, there were forty-one such languages (Golla 2007: 3). It is worth remembering that in a situation of language attrition, languages undergo accelerated restructuring and reduction; the lexicon usually shrinks and many grammatical distinctions, which were in use a few generations earlier, may disappear.[3] In such cases, it is hard to assess if a language is still in use or extinct. However, even if the exact number is debatable and in flux, we can safely estimate the total of languages to be well over six thousand.

That number, however, is decreasing, and this is happening at a dramatic rate. Linguists estimate that only 10 percent of all languages spoken today are not threatened by extinction; 90 percent will probably disappear within the next one hundred years.[4] This situation of widespread language attrition is usually described in a regretful tone, similar to reports about global warming, deforestation of the Amazon or endangerment of animal species.[5] Diversity in culture, as in nature, has become a highly appreciated and celebrated quality. Christopher Moseley, the editor of *Encyclopedia of the World's Endangered Languages*, in his Introduction writes:

> … it [i.e. the encyclopedia] does, I hope, make an eloquent case for maintaining the irreplaceable treasure-house of the world's language stocks in all their variety, against all the odds stacked against them and wherever possible. Humankind is the poorer for the loss of even a single language. *Humankind* – not just its speakers, who may themselves be past caring about the fate of their own tongue. (2007: xi)

Undoubtedly, any language death is a sad event because some interesting part of human intellectual heritage is lost forever. Also, viewed from a strictly linguistic perspective, disappearance of a language is always painful to research in, for example, general linguistics, linguistic typology or anthropology because certain knowledge becomes unavailable. In what follows, however, I would like to consider the extinction of languages from a biological perspective; regrettable as it is, it may be viewed as part of a natural and unavoidable process, analogous to the path of evolution in biology.

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long implemented the policy of under-differentiation in the classification of minority groups; hence, many small language populations have been refused an official status.

[3] See the case of Wintu described by D. D. Lee (1938) and H. Pitkin (1984).

[4] Cf. Krauss (1992: 7).

[5] Cf. Grenoble, Whaley (eds.) (1998).

II. Linguistic diversity in the world

There are approximately 6,500-7,000 languages spoken in the contemporary world. For over 7.53 billion people living on Earth in 2017 it gives a mean number of over one million humans per one language. However, it is worth noting that this proportion in the year 1800 with only around one billion humans living on Earth was quite different; it was probably about 140,000 speakers per one language. The number of languages two hundred years ago was not lower than today; the opposite, that number must have been considerably higher as many languages extinct today were still in use. In AD 1000, there lived about 350,000,000 people on Earth, speaking languages whose number was certainly higher than today. With the total of speakers so much lower, most languages had a very limited number of users. Some authors (cf. Pagel 2000; Renfrew 1987) estimate that the peak of linguistic diversity was 12,000 languages worldwide. It may have been just before the development and spread of agriculture about ten thousand years ago when the total human population was approximately 4-5 million. Then, in consequence of demographic success, agricultural tribes spread out rapidly and on their way replaced with their languages many of the languages of hunting and nomadic tribes.[6]

How to explain this high level of linguistic diversity? The emergence of so many languages in human societies is equally difficult to account for as the emergence of language capacity itself in humans. If we consider language in functional terms, as a device whose main purpose is to enable rational beings to communicate, it would certainly be more functional and purposeful if the number of languages was more restricted.

Linguistic diversity is even more puzzling if we remember that all languages may have one ancestor, a protolanguage, spoken by a very limited group of speakers. Languages, like humans, probably stem from one place and emerged not so long ago. We do not know exactly when humans started talking. Leaving aside the problem of whether the *ancient homo sapiens*, the Neanderthals, were in possession of some kind of speech, it seems pretty safe to assume that language proper, as we understand the term, with the lexicon and rich syntax allowing for a multitude of thought expression, emerged late, most likely between 150,000 and 100,000 years ago, or even later. Whether it appeared instantaneously and relatively late as a result of some genetic event that rewired the brain of *homo sapiens* (Chomsky 2002, 2006) or evolved gradually and longer (Pinker, Bloom 1990) is open to debate, but whatever

[6] As argued by Renfrew (1987), this may explain why Europe has relatively small number of languages.

the mode of its emergence, language appeared within a small population of people. The number of *homo sapiens* about 100,000 years ago must have been very low, not higher than some 20,000 people living in small groups. Part of that population migrated from Africa and spread over a large territory. The oldest fossils of *homo sapiens* outside of Africa are from around 90,000 years ago in the Middle East. Humans reached Siberia about 35,000-30,000 years ago; Australia and New Guinea were populated earlier, at least 60,000 years ago, whereas in Europe modern humans appeared around 40,000 years ago. As archeological evidence shows, at the time of that rapid population dispersal language must have been with humans. Different composite tools, weapons, game traps, standardization of tool types within a local area, elaborate burials with grave goods, body ornamentation and cave art – all that is evidence of cultural transmission for which a well-developed language is necessary. It is at that time that languages were splitting into more and more unintelligible dialects.

Linguistic diversity is fascinating itself, but no less interesting is the uneven distribution of that diversity around the world and disproportionate numbers of speakers. About 1,500 languages have fewer than 1,000 speakers; almost 500 are spoken by fewer than 100 people (Crystal 2000: 15). What is more, that limited number of speakers found in so many languages is not a recent phenomenon that might be explained by the emergence of globalised economy and culture fostering a few major languages and wiping out the others. For centuries, existence on the edge of extinction has been the fate of many languages.

In North America, where humans were most probably for no longer than 12,500 years (Dillehay 2000), its approximately 312 native languages[7] achieved an extraordinary level of typological diversity and the average number of speakers per one language was hardly ever higher than a few thousand. Some languages (California and Oregon) appear to never have had more than a few hundred native speakers; Navajo and Cherokee are somewhat exceptional, but their large numbers of speakers are artifacts of the 18th and 19th century politics.

The number of Australian aboriginal languages shortly after the time of contact is considered to have been about 400; most of them having no more than several hundred of speakers. Now, as a result of the impact of English, the notorious policies to the Aboriginals, and natural disasters (including the 1789 smallpox epidemic which killed dozens of indigenous tribes), the number of fully functional languages is about 25, with ca 120 endangered

[7] Goddard (1996: 4-8), after Golla (2007: 2-4).

ones, and 170 languages which went extinct recently (Wurm 2007; see also Dixon 2002).

Let us consider one more example of extremely uneven distribution of speakers, the more striking that occurring within two related language groups. In the Malayo-Polynesian group, part of a numerous and widespread Austronesian family, there are two sub-groups of languages: Western Malayo-Polynesian and Central-Eastern Malayo-Polynesian. The first numbers 390 languages, the second 570 languages. While the total of speakers of the 390 Western Malayo-Polynesian languages is about 230 million speakers, the other group (consisting of 570 languages) has only about 3 million speakers. Another group in the Austronesian family is constituted by some 780 Papuan languages spoken by no more than 3 million people, mostly on New Guinea and some neighbouring islands. If we compare these two numbers, it is clear that the average number of speakers of a Papuan language cannot be very high. Actually, only three languages there have more than 100,000 speakers; the largest of these, Enga, boasts 240,000 users. In the case of about 200 languages, the number of speakers is very small, just a few hundred or less (Wurm 2007: 425-63). If we add 780 Papuan languages to over 350 Malayo-Polynesian languages found in the area, the result is that around one fifth of the total number of languages are to be found in this relatively small part of the world. In the north-eastern part of Papua New Guinea covered with coastal rainforest, a new language occurs every few miles; it is rightly described as the tower of Babel.

Such variations in linguistic diversity can be explained by several causes. Firstly, the spread of agriculture was in some areas more advanced than in others. Nomadic and hunting tribes are more dispersed and linguistically more diversified, whereas agriculture, like economic development in general, has always had a homogenizing influence. Also, the emergence of powerful states and their subsequent conquests of other territories made some languages the winners. But perhaps the most important have been natural factors, such as latitude, habitat diversity and proximity to coastlines. Ruth Mace and Mark Pagel (1995) investigated the influence of latitudinal gradients on language diversity in North America and found that the diversity of human language groups (like the diversity of mammals!) has its peak around 40 degrees north latitude (the influence of the shape of the continent excluded). Connected with the latitudinal factor is the diversity of habitat. In general, increasing habitat diversity is accompanied by greater language diversity, even within the same line of latitude. Also, the wetter the area and the closer to the coast, the more ecologically abundant it is and the more self-sufficient ethnic groups are found there. Mountainous terrain and insular location support higher language diversity as well; small population

size of many dispersed groups, the founder effect and geographical isolation contribute to linguistic heterogeneity (see the foregoing case of Malayo-Polynesian and Papuan languages).

III. Language endangerment and extinction rate

Small population languages have always subsisted in a kind of threatened ecology. However, in recent decades, the abundance of small minority languages present with humans for thousands of years has been vanishing at an accelerated rate. What is the scale of the phenomenon? In *Language Death*, David Crystal estimates that 96 percent of the world's languages are spoken by 4 percent of human population (2000: 14). That means that most of the world's languages are under threat of extinction within the next fifty years, and some estimates tell us that within the next one hundred years 90 percent of languages spoken today will be dead.

What does it mean that a language is endangered? Actually, the notion of endangerment denotes a wide range of stages, from being potentially endangered (lack of prestige, pressure from larger languages and discontinuity in passing the language on to children) to seriously endangered, where the youngest fluent speakers are over fifty and we observe loss of linguistic and communicative competence on the level of speech community, to moribund stage, with only a tiny part of the original ethnic group (the oldest generation) still speaking the language, the others having switched to another vernacular. We may declare language death when no speakers of a given language are left in a population that used the language. The endangerment level may be measured according to various criteria, but it is unquestionable that a large number of languages will disappear in the immediate future.[8]

The most important causes of language endangerment and extinction are the economic ones, and they are of varied nature. Firstly, we observe the movement of small linguistic populations from rural areas to remote urban centres in search of better living. Hardly ever is the original language maintained in new urban surroundings if it proves not very useful. As the speech of work immigrants, it will invariably have low social status; moreover, it will usually meet an ill-disposed attitude of the authorities and upper classes. In result, the speakers may feel stigmatized by the language.[9] Another factor responsible for language extinction is economic growth in

[8] For more on the typology of language endangerment, see Grenoble, Whaley (1998: 22-54).

[9] Cf. Portes, Rumbaut (2001, 2006).

developing countries. Connected with it is the need to participate in the global economic exchange and communication network; for these purposes purely local languages are of little use.[10] Also the media and the internet do not help the minority languages to survive. Media typically speak major languages only; this has largely helped to settle the linguistic hegemony of those languages.

The blame for language attrition is sometimes laid on the colonial past and the resulting dominance of some European languages on the global map. However, this is only partly true; the competition has always been going on among indigenous languages, with a few winners eradicating other local languages. Let us mention the position of Yoruba or Hausa in Nigeria, or the role of Guaraní in Paraguay, which relegated smaller local languages and is spoken now by almost the entire population of the country, next to Spanish. In the past, the spread of Quechua over the territory of the former Inca empire also led to the attrition of a number of smaller local languages. Another thing is that many African, Latin American and Asian countries, mostly multilingual, have never been particularly interested in supporting small local languages. On the contrary, one dominant language is usually fostered in education, administration or in the media in order to enforce a single-nation identity and the cohesion of the state.[11]

Among the causes of language attrition there are also natural forces. Disasters may affect whole speech communities, as it happened on the Andaman and Nicobar islands were a number of aboriginal tribes speaking distinct languages were decimated by the 2004 tsunami wave. Wars, ethnic cleansing, drought, soil erosion or epidemic diseases may force whole populations to abandon their place of living, and with the dispersion of a speech community comes the extinction of their language.

Language endangerment and extinction have not affected uniformly different parts of the world. Indigenous languages are more endangered in North America than in Latin America; they are more endangered in Americas, Australia and Siberia than in Africa and Asia. To account for that unequal endangerment level in Americas and Australia on the one hand, and in Africa on the other, Mufwene (2004: 211) refers to a distinction between exploitation colonies, in which Europeans did not aim to settle permanently, and settlement colonies, to which European settlers migrated to stay for good, and where they tried to create anew their old homelands

[10] Cf. Kulick (1997).

[11] That another solution is possible was proved by the Thailand example, where the court-centered language used for administrative purposes, a symbol of national unity, did not replace the multiple local languages of the kingdom.

with one dominant language. That, in turn, was connected with ecological factors. The Amazon rainforest, to take an example, was not very accessible and hospitable to colonizers, and that is why today we can observe there the highest concentration of native American languages. Also high mountains and islands with their inaccessibility and remoteness have provided a protective shield against ethnic assimilation and consequent language extinction.

The median number of speakers at which a language enters a danger-zone is estimated to be 20,000 (Crystal 2000: 13); however, as shown above, many languages have never approached that number of speakers and managed to survive for long. The sheer number of native speakers cannot be regarded *prima facie* as an indicator of language endangerment or safety. There are instances of languages spoken by small populations of several thousand or even several hundred native speakers, which are deemed relatively safe (e.g. Tshabon Nama in Botswana with hardly 200 speakers, or Piraha in the Amazon with about 300 speakers, both showing vitality), and, on the other hand, there are languages with millions of users which are classified as potentially endangered.

In French sociolinguistic literature, there is a useful distinction between *langue minoritaire* ('minority language') and *langue minorée* ('undervalued/marginalized language'). A marginalized language does not have to be used by a minority group; Creoles exemplify languages which, despite being spoken by large populations, lack the prestige of 'high' varieties and are constantly threatened by decreolization. The above-mentioned Quechua is another example of a marginalized language, which is potentially threatened despite having almost 10 million speakers.[12] It has kept disappearing from many areas in Peru and the neighbouring countries where in the past it formed a continuous Quechua-speaking area. Since the language is associated with lack of social opportunities, its transmission from one generation to the next is disrupted. Even though the older generation may still be attached to the language, its culture and long tradition, people are aware of its being undervalued and want their children to speak Spanish and abandon the socially disadvantaging vernacular.

The situation of some small European languages is in that respect exceptional. Though many of them are spoken by relatively low numbers of speakers, they are supported by nation-states, and consequently, they are safe. On the other hand, the same policy of supporting one language as a symbol of national unity caused the attrition of Europe's minority languages, to the effect that the continent has become a pretty homogeneous area with a very

[12] Cf. Adelaar (1977, 2007); Weber (1989).

low level of linguistic diversity. Only 3-4% of the world languages are spoken in Europe today.

Marginalized languages are languages which lack social prestige; thus, the speakers find themselves in a socially disadvantaged position. What is prestigious for a given community is normally determined by the trend-setting upper classes, and then it emerges in the values, attitudes and (linguistic) behaviour of other social groups as well.[13] However, the problem of prestige is more complex, and when considering the influence of prestige on people's values, attitudes and linguistic behaviour, one cannot ignore the phenomenon of the so-called 'covert prestige'. Covert prestige reflects the norms and values of the less influential, typically lower-status, groups. It is connected with the wish on the part of group members to integrate within their social network and emphasize their in-group placement. These lower-class norms may not be expressed explicitly, but group members adhere to them and evaluate them very favourably. That is reflected in their very positive attitude to linguistic variants characteristic of the speech of that particular group. Hence, low-status unwritten vernaculars may show a considerable degree of vitality if they symbolize a highly valued group membership and solidarity for their speakers.

As shown by sociolinguistic studies,[14] vitality and resilience of a vernacular is largely determined by the degree of density and multiplexity of social networks found in a given speech community. In a *dense* social network, if the speaker refers to any third party, it will probably be known to the hearer as well; *multiplexity* means that community members interact in many social domains: they work for the same employer, socialize as neighbours, go to one church, meet as parents at the local school, etc. Members of well-integrated, very dense and multiplex social networks are more susceptible to peer pressure and covert prestige; they will more strictly observe the norms of their community, even though these norms may conflict with the overtly prestigious norms set by the upper classes. Thus, dense and multiplex social networks, with strong interpersonal ties, will support the maintenance of a local vernacular, whereas loose-knit networks will facilitate changes in a language or a language shift. The type of social network in a given speech community and the strength of covert prestige may account for the differences in the endangerment level of particular languages and dialects. It may explain why some low-status unwritten vernaculars, like Gullah or

[13] As argued by William Labov, 'a speech community cannot be conceived as a group of speakers who all use the same forms; it is best defined as a group who share the same norms in regard to language' (1972: 158).

[14] Cf. Milroy L. (1987); Milroy J. (1992).

African-American English, or some small indigenous languages in Papua New Guinea, prove quite resistant to outside influence, whereas in other speech communities the shift from a marginalized vernacular towards a higher valued speech will proceed more rapidly.

IV. Linguistic diversity from ecological perspective

Anthropologists usually regard linguistic and cultural diversity as something desirable, similar to biological diversity in the ecosystem of the natural world. Hence, various initiatives and bodies have emerged whose aim is preserving endangered languages and recovering extinct ones, as well as enhancing the awareness of language loss: the UNESCO Red Book (1993), the Tokyo University Clearing House (1995), the Endangered Languages Fund (1995) in America, the Foundation for Endangered Languages in Britain, to name just a few.[15]

In his Introduction to *Encyclopedia of the World's Endangered Languages* (2007: xii), Christopher Moseley enumerates the reasons why language extinction should be considered an irretrievable loss and prevented wherever possible. The main arguments might be summed up as follows: with the death of an indigenous language, a unique world-view vanishes as well, together with its cosmology, culture, customs, human relations and specific knowledge of the natural world incorporated in it. David Crystal's arguments are similar (2000: 27-66); minority languages and multilingualism are valuable since diversity itself, in its own right, is valuable. Also, any language is a repository of ethnic identity, history and part of human knowledge. Finally, every language is valuable since it is an interesting and unique object for scientific investigation.[16]

Are these arguments strong enough to convince speakers of thousands of threatened languages to maintain their mother tongues? This is doubtful; the causes of language endangerment and extinction may be diverse, but the major and immediate cause is invariably one: the low retention rate of the mother tongue. A language becomes limited in its function when it is no longer passed from the older generation to the next one as a means of everyday communication.[17]

However, to survive, a minority language requires more than a 'safe' number of young speakers; the key factor in its retention is the speakers'

[15] Cf. Puppel (ed.) (2007); see also Grenoble, Whaley (eds.) (1998).

[16] See also: Mithun (1998); Hale (1998).

[17] Cf. Kulick (1997); Portes, Rumbaut (2001, 2006).

favourable attitude to their language. Covert prestige and tight-knit social networks are one part of the story, possibly slowing down language extinction, but the other is usefulness of the language in the communication network and the set of values assigned to it. We cannot lose the focus on speakers as the *agents* of language shift (i.e. language death). The more speakers of a minority language wish to interact and integrate within a larger whole, the more endangered their language turns to be. Language shift is an adaptive response on the speakers' part to socioeconomic conditions; if an indigenous language is marginalized and the dominant language offers participation in a more promising social and economic network, the indigenous vernacular will be abandoned. The need to communicate fluently and effectively prevails, and minority languages spoken and understood within small populations only have little chances of retention.

Another issue is that efforts to preserve linguistic diversity may raise certain questions, or even doubts. Successful preservation of minority languages means preserving the indigenous cultures and social networks in which the languages have existed and played their role as tools of everyday communication. Should we aim to preserve those cultures and social networks if they are connected with economic underdevelopment and lack of opportunities to live better?

Connected therewith is another dilemma: who is entitled to make the effort to preserve a local minority language which is on its path to extinction? Can the efforts be stimulated from the outside if members of the speech community do not care? In fact, trying to make people speak again a dying language of their ancestors is doomed to fail; in most cases it does not go beyond the starting point as Native American revitalization programmes have shown. Hebrew is an exceptional case, but it enjoyed a dedicated political support on the state level and persistent following of the adopted policy by the whole nation.

Furthermore, one should keep in mind that linguistic diversity in the world is usually accompanied by ethnic, social and class boundaries with their unwelcome side effects. One of the chief reasons why in South Asia the extreme linguistic diversity has remained relatively unthreatened for so long is the caste system, which for centuries highlighted and fossilized the differences between ethnic/class groups. In such circumstances, linguistic boundaries have been maintained as well. Let us recall John Gumperz and Robert Wilson's illuminating study of multilingualism on the Indo-Aryan and Dravidian border in India (1971). The case of the Kupwar village that they describe is extremely interesting as it shows how four distinct languages (Kannada, Urdu, Marathi and Telugu) managed to coexist, side by side, for a couple of centuries in a village inhabited by about three thousand people,

without any of the varieties being endangered. The villagers have always been bilingual or multilingual, so there have been no communication problems among them. However, the obvious question that arises is the following: why has multilingualism in that village survived for so long? Normally, one would expect one of the languages to dominate and displace the others. In fact, all Kupwar languages underwent some phonological and syntactic convergence to the effect that, as described by Gumperz and Wilson (1971), they have acquired a common syntax (although syntactic structures of standard Kannada, Telugu, Urdu and Marathi are markedly different). However, all languages spoken in Kupwar have maintained their distinct vocabulary and inflectional morphemes, thus allowing their users to speak what they (rightly) perceive as different languages. The key to understand that centuries-long multilingualism in a village whose inhabitants communicate with one another on a daily basis is the caste system. Inhabitants of the village have always belonged to different castes, each group speaking its own language. They have strictly separated the public domain, where they do not use their own language when addressing a member of another group, from private life, where the native tongue is used when speaking to family or members of the same caste. Using one's native language in a conversation with someone means that the interlocutor is regarded as a potential member of one's home, family or friendship group. Therefore, a Kannada-speaking member of land-owners Jain caste would avoid addressing his Marathi- or Urdu-speaking co-residents in the Kannada language, though they would most probably understand him. In consequence, in such caste-based communities, particular languages remain the determinants and the guarantee of caste boundaries; as long as those divisions are valued, distinct languages are bound to coexist.

That phenomenon of social and, in consequence, linguistic segregation can be observed in many other places in the world. The ethnic groups which are isolated from the dominant language community can maintain their linguistic separateness intact; that was the case of Jews in *shtetls*, Romani communities in eastern Europe, or the tribes living in mountainous New Guinea. Such groups manage to maintain their languages because of being isolated, socially or geographically, not because of the value ascribed to multilingualism.

The accelerated extinction of North American native languages may be regarded as an indicator of the economic and political integration of Native Americans into the general American social and economic network. As Mufwene points out, 'the less marginalized the Natives are from the local global economy system, the more likely they are to lose their heritage' (2004: 211). The ideal of a multicultural social paradise – a 'salad bowl' – in

which members of diverse linguistic and ethnic groups speak their native languages and maintain their distinct cultures while being part of a larger integrated social system is hardly ever achieved in practice. Much more frequently that ideal proves to be either an ethnic segregation system or, more desirably, the opposite – it becomes a regular American-style melting pot.[18] In the latter case, we can observe the reversal of the story of Babel. Thus, language shift (i.e. language death) may have a positive aspect; it does not guarantee better communication among social groups, but it may facilitate this goal.

Finally, I would like to point to certain parallels between the path of language evolution and the pattern observed in speciation and extinction of biological organisms. The human language, as we understand the term, with its full syntactic and lexical resources emerged relatively late and suddenly, most likely sometime between 150,000 and 100,000 years ago, or even later (Chomsky 2002). For hundreds of thousands of years hominids had existed without much progress in that respect; let us remember that the oldest *homo erectus* fossil records are from about 1.8 million years ago. Whatever way it happened, when the language capacity was already in place, a burst of evolutionary creativity generated a multitude of vastly different language families, without any apparent reason for that abundance. Similarly, life had existed in single-celled form in the biosphere for roughly 3 billion years without much happening. About 800 million years ago, first multicellular organisms appeared, and then, in the Cambrian explosion about 550 million years ago, there emerged, as if overnight, almost all the phyla existing today. In fact, there were many more of them. In today's world there are thirty major phyla, whereas after the Cambrian explosion there may have been about one hundred; the majority of them became later extinct (Gould 2000: 23-52). What is most puzzling, in that sudden Cambrian burst of life forms, the chart was filled as if from the top down. To quote the paleontologist, Stephen J. Gould:

> The sweep of anatomical variety reached a maximum right after the initial diversification of multicellular animals. The later history of life proceeded by elimination, not expansion. The current earth may hold more species than ever before, but most are iterations upon a few basic anatomical designs. (Taxonomists have described more than a half million species of beetles, but nearly all are minimally altered Xeroxes of a single ground plan.) Compared with the Burgess seas [= of the Cambrian period], today's oceans

[18] Cf. Portes, Rumbaut (2001, 2006); Rumbaut (2004); Rumbaut, Massey, Bean (2006); but see Huntington (2004) on the linguistic retention among persons of Latin American origin in the U.S.

> contain many more species based upon many fewer anatomical plans. ... The maximum range of anatomical possibilities arises with the first rush of diversification. Later history is a tale of restriction, as most of these early experiments succumb and life settles down to generating endless variants upon a few surviving models. (2000: 47)

Also Stuart Kauffman (1995: 149-206) presents that top-down quality as typical of biological evolution. At the early stages of an adaptive process, major innovations appear and are followed by rapid and dramatic improvements heading in widely different directions. Those variations on the new theme become less and less dramatic as most of the improvements have been tried. When fitness improves, the range of modifications is limited to playing with details upon the existing themes; no more major variants are added.

The evolution of language may have reflected that scheme well known from the biological world. After a long uneventful period it took 'protolanguage' to turn into the language proper, in a sudden and inexplicable burst, language evolution created an abundant diversity of languages, as if exploring various directions and possibilities, only to allow the 'fittest' of them to survive; the final stages of that process we are witnessing now.

The paleontologist Stephen J. Gould (2000: 47) depicts the history of life on Earth as 'decimation', in which chances for death, applying randomly and equally to all, are rather high: about 90 percent. That death rate of paleontological lineages strikingly corresponds to the aforementioned 90 percent language extinction rate predicted to take place within the next century. In that respect, the history of language is like the history of life on Earth: 'a story of massive removal followed by differentiation within a few surviving stocks' (Gould 2000: 25); neither resembles the cone of steadily increasing diversity and complexity known from conventional iconography.

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On Burst and Burials of Languages: Linguistic Diversity from Ecological Perspective

Abstract

At present, we can observe a rapid decrease in the number of the world's languages. The vast majority of them are threatened by extinction, and many have become extinct. In the literature on the subject, that loss of linguistic diversity in the world is compared to the loss of biological diversity; various initiatives have emerged with the aim of preserving endangered languages and recovering extinct ones. Having discussed, first, the phenomenon of linguistic diversity and, second, the causes and scale of language endangerment, the paper aims to view the problem of languages death from a biological perspective. Regrettable as it undoubtedly is, the extinction of many minority languages can be viewed biologically as a process revealing many parallels with the evolution of biological organisms.

Keywords: linguistic diversity, language death, endangered languages, retention rate, language evolution.