EDWARD SAPIR AND THE ORIGIN OF LANGUAGE

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The field of Language Evolution is at a stage where its speed of growth and diversification is blurring the image of the origin of language, the "prime problem" at its heart. To help focus on this central issue, we take a step back in time and look at the logical analysis of it that Edward Sapir presented nearly a century ago. Starting with Sapir's early involvement with the problem of language origin, we establish that his analysis of language is still congruent with today's thinking, and then show that his insights into the origin of language still carry diagnostic and heuristic value today.

1. Introduction

The origin of language is a challenging problem to focus upon. Language, like mind and intelligence, is a phenomenon that "we find intuitive but hard to define" (Floridi, 2013, p. 601), and a century of progress in Linguistics has only heightened our awareness of the protean nature of language while exacerbating the fuzziness of its definition. Meanwhile, research in the field of Language Evolution is blooming and the sheer variety of available approaches, though highly promising, has blurred, momentarily at least, our perception of the issue at the core of the field: the origin of language.

We do not propose a solution to this problem, just an attempt to put it in perspective by looking at it through the writings of a researcher who had nearly no data with which to tackle the issue and could only rely on his analytical abilities. Published in 1921, Edward Sapir's "Language. An introduction to the study of speech" is still in print and regularly studied and quoted, even in the field of Language Evolution (see Carstair-McCarthy, 2012; Hurford, 2011; Mufwene, 2003). The claim here is that Sapir's insights on the nature of language and its origin still offers diagnostic and heuristic clues to today's researchers, in addition to the pleasure of glimpses at a keen mind at work.

We start by looking at Sapir's early involvement with the problem of language origin, then establish that his analysis of language is still congruent

with today's thinking on the subject, and then review Sapir's insights into the nature and origin of language, those that have already been recognized by researchers in the field of Language Evolution, as well as those still challenging the field with their heuristic clues for future research.

2. From the origin to the nature of language

Edward Sapir, a student of Franz Boas, wrote his Master's thesis on Herder's 1781 "Essay on the Origin of Language," and published his work in 1907. In this paper, Sapir identified Herder's "epoch making" contribution as of having replaced the age-old perspectives on language, either as "given or revealed to man by God" or as invented, by a new perspective that looked at language as a faculty that had undergone a gradual evolution (1907, p. 4). Sapir also assessed that progress in Linguistics during the 19th century had "speedily relegated Herder's treatise to the limbo of things that were" (1907, p. 32). He concluded his paper by writing that "it seems to me that the path for future work on the prime problems, more especially the origin, of language lies in the direction pointed out by evolution," and, still upbeat and with impressive insight, the 23 years-old scholar proposed as main elements of such a research program "the careful and scientific study of sound-reflexes in higher animals," and "a very extended study of all the various existing stocks of languages, in order to determine the most fundamental properties of language" (1907, p. 34).

By 1921, when he published "Language," Sapir had operated a "Turing-type" shift in level of analysis (Floridi, 2013), that is, he had moved his attention away from the ill-defined problem of language origin and focused it on the more tractable problems of language change and variation. Still, in the "Introductory: Language Defined" chapter, and while analyzing the nature of language, Sapir briefly outlined some cardinal issues about language origin, issues he had identified through a logical analysis.

Sapir started by dismissing, as he had done in 1907, the then-current interjectional and onomatopoetic theories about the origin of speech, showing "how little the essential nature of speech is concerned with the mere imitation of things" (1921, p. 7 -page references are to the 2004 "Dover Books on Language" edition). Having thus cleared the way, Sapir then defined language as "a purely human and noninstinctive method of communicating ideas, emotions, and desires by means of a system of voluntarily produced symbols" (p. 7).

Sapir qualified this definition as "serviceable." How does it stand today, especially as seen from the field of Language Evolution? Though there is no orthodoxy in the field, a case can be made that Tallerman and Gibson's

"Oxford Handbook of Language Evolution" (2012), which represents the *zeitgeist* of a core group of researchers, could be used as a benchmark. In their general introduction, which shows the uniqueness of language among animal communication systems and reviews the various approaches being pursued in studying the subject, Tallerman and Gibson do not present a definition of language *per se*, but nothing they say conflicts with Sapir's definition.

Not only that, but consider the following two quotes. Sapir writes: "Speech is not a simple activity that is carried on by one or more organs biologically adapted to the purpose. It is an extremely complex and ever-shifting network of adjustments—in the brain, in the nervous system, and in the articulating and auditory organs—tending towards the desired end of communication… Physiologically, speech is an overlaid function, or, to be more precise, a group of overlaid functions. It gets what service it can out of organs and functions, nervous and muscular, that have come into being and are maintained for very different ends than its own" (1921, p. 7). While Tallerman and Gibson write: "'language' is not a monolithic entity, but rather a complex bundle of traits that must have evolved over a significant time frame, some features doubtless appearing in species that preceded our own. Moreover, language crucially draws on aspects of cognition that are long established in the primate lineage, such as memory: the language faculty as a whole comprises more than just the uniquely linguistic features." (2012, p. 2). The similarity in the analysis of the complex nature of language displayed by the two texts, written 91 years apart, is clear.

It would be easy to multiply Sapir's quotes that are modern in spirit, if not terminology, but space prevents us from doing so. The following quotes, selected to show that Sapir's insightful characterizations of the nature of language can still provide fruitful guidelines to the research program of Language Evolution, will also have to serve to show that his analysis withstood the test of time.

3. Sapir's insights on the nature of language

After pointing out that "the essence of language consists in the assigning of conventional, voluntarily articulated, sounds, or of their equivalents, to the diverse elements of experience," Sapir engaged in an analysis of the symbolic associations of words, and wrote that: "The elements of language, the symbols that ticket off experience, must therefore be associated with whole groups, delimited classes, of experience rather than with the single experiences themselves. Only so is communication possible, for the single experience lodges

in an individual consciousness and is, strictly speaking, incommunicable. To be communicated it needs to be referred to a class which is tacitly accepted by the community as an identity" (p. 9). Sapir and his generation of "anthropological linguists" were pioneers in the scientific analysis of the social aspect of language, which had long been ignored even though Zhuangzi had already written in the 3rd Cent. BC that, "like a path is formed by constant treading on the ground, things are called by their names through the constant application of the names to them" (Book II, 4, my phrasing based on Legge's and Wieger's translations). Still, even today, the social dimension of language is not wholeheartedly endorsed by linguists, nor fully exploited in Language Evolution (Gibson & Tallerman, 2012, p. 248-9). What gives Sapir's analysis its enduring heuristic value is that he focused it on the elements of experience shared by the community. In doing so, he directs us to search for the social and techno-cultural settings of the hominin groups in which language emerged, a task in which the field has, as yet, barely engaged.

Language not only depends on a social consensus to function as a communication device, it also shapes what it makes common. Sapir wrote: "It is, indeed, in the highest degree likely that language is an instrument originally put to uses lower than the conceptual plane and that thought arises as a refined interpretation of its content. The product grows, in other words, with the instrument, and thought may be no more conceivable, in its genesis and daily practice, without speech than is mathematical reasoning practicable without the lever of an appropriate mathematical symbolism" (p. 10). Hurford refers to Sapir's insight that "the product grows with the instrument" as a positive feedback loop leading to "the significant effect on individual thought that possession of publicly shared symbols can have, even as yet without any syntax to combine them" (2012, p. 172), adding "Humans have evolved a unique type of complex system for expressing their thoughts. (And their thoughts have become more complex as a result.)" (2012, p. 175). Of course, "the co-evolution of language and the human brain is not a new idea. Darwin (1871) himself proposed a co-evolutionary spiral of language and brain" (Számadó & Száthmary, 2012, p.165). Still, Sapir's analysis should help us remember that the linguistic communication that first emerged was not language as we know it now, and also that we have to account not only for language-brain but also for language-culture co-evolution.

In pursuing such attempts, we can again take advantage of Sapir's insights: "We may assume that language arose pre-rationally—just how and on what precise level of mental activity we do not know—but we must not imagine that a highly developed system of speech symbols worked itself out before the

genesis of distinct concepts and of thinking, the handling of concepts. We must rather imagine that thought processes set in, as a kind of psychic overflow, almost at the beginning of linguistic expression; further, that the concept, once defined, necessarily reacted on the life of its linguistic symbol, encouraging further linguistic growth" (p. 10). Schoenemann suggested one such "Sapirian" scenario in which "syntax is more properly understood as an emergent characteristic of the explosion of semantic complexity that occurred during hominid evolution" (1999). Hurford reached, on a theoretical basis, a conclusion similar to that of Sapir, writing that "the human capacity for syntax evolved ... Plausible evolutionary accounts should conform to general evolutionary theory, and this consideration tends strongly to recommend a gradual trajectory" (p. 180). All attempts to reconstruct the trajectory from words to sentences, or from proto-language to language, would benefit from incorporating Sapir's analysis of the "beginning of linguistic expression" as a positive feedback system.

What Sapir wrote next has important implications: "communication, which is the very object of speech, is successfully effected only when the hearer's auditory perceptions are translated into the appropriate and intended flow of imagery or thought or both combined. … The concordance between the initial auditory imagery and the final auditory perceptions is the social seal or warrant of the successful issue of the process" (p. 11). A review of verbal interaction, "the prime ecological niche for language, the context in which language is learned, in which the cultural forms of language have evolved" (Levinson & Torreira, 2015, p. 1), confirms this insight. The "social seal" provided by shared experience is required to make prediction possible and insure successful conversation. This social aspect of linguistic communication should be reflected in all scenarios of language emergence and accretion.

4. Sapir's challenges on the origin of language

Sapir concluding thought in the introductory chapter is very challenging to the field: "The universality and the diversity of speech lead to a significant inference. We are forced to believe that language is an immensely ancient heritage of the human race, whether or not all forms of speech are the historical outgrowth of a single pristine form. It is doubtful if any other cultural asset of man, be it the art of drilling for fire or of chipping stone, may lay claim to a greater age. I am inclined to believe that it antedated even the lowliest developments of material culture, that these developments, in fact, were not strictly possible until language, the tool of significant expression, had itself taken

shape" (p. 13). Hurford writes that "it is quite possible that *Homo erectus*, perhaps for over a million years, had symbolic pre-syntactic communicative behaviour. They may have had inventories of learned conventional 'words' referring to things and events" (2012, p. 483), and Tallerman reports that "many proposals link the *Homo* genus with the first protolanguage, perhaps 2 million years ago (mya)" (2012, p. 479). Still, this insight is probably the hardest to fit within the present models of language evolution (Gibson & Tallerman, 2012), even with those proposing the earliest emergence (such as Naccache, 2012). There was already a problem with the 2.6 million-year-old lithics found in Gona, Ethiopia, which predated by more than half a million years the earliest *Homo*. And now the problem is compounded by the recently found 3.3 million-year-old stone tools uncovered at Lomekwi 3, in Kenya (Harmand, 2015). Addressing this issue is one of the biggest challenges facing Language Evolution. We can already state confidently that it will require abandoning saltational scenarios of recent (50 to 100,000 years ago) language emergence with *H. sapiens*. It will also require facing up to the fact that, though cultural evolution today is explosive, and has been so since the end of the Paleolithic, at its origin it was excruciatingly slow, and this because it lacked the appropriate ratchetting mechanisms that had yet to be socially and culturally implemented.

All Sapir's previously mentioned analytical insights into the origin of language appeared in the introductory chapter. In the penultimate chapter, "Language, Race and Culture," Sapir provides us with hints at two potential research avenues that might gain us access to material correlates of the origin and evolution of language.

The first approach is inspired by Sapir's characterization of language as "a collective *art* of thought," and/or "a particular *how* of thought" (p. 104). Looking on language as an art of thought is heuristically fruitful because, while it is true that language and/or thought do not fossilize, thoughts have material realizations that do. Once recovered by archaeology these thought realizations can be used to infer back to the thought processes that made them possible. For example, it is clear today that the syntactic operation of predication is one of "the most fundamental property of language" (Sapir, 1907), distinguishing language from all other animal communication systems, and this independently of the evolutionary role that Bolhuis et al. postulate for syntactic predication, which they refer to as "*merge*" (2014). Since we can identify the cognitive operations that need to be deployed for predication, or *merge*, to be possible (Bogdan, 2009), and since we can find reflections of the same cognitive operations in the lithic record (Stout et al., 2015), we have a way of estimating the date at which

our ancestors would have had the cognitive potential to include *merge* in their communicative behavior (Naccache, 2014).

Sapir's second clue to potential material correlates of language evolution is presented quite clearly as a challenge by Sapir himself: "The drift of culture, another way of saying history, is a complex series of changes in society's selected inventory—additions, losses, changes of emphasis and relation. The drift of language is not properly concerned with changes of content at all, merely with changes in formal expression ... If it can be shown that culture has an innate form, a series of contours, quite apart from subject matter of any description whatsoever, we have a something in culture that may serve as a term of comparison with and possibly a means of relating it to language. But until such purely formal patterns of culture are discovered and laid bare, we shall do well to hold the drifts of language and of culture to be non-comparable and unrelated processes. From this it follows that all attempts to connect particular types of linguistic morphology with certain correlated stages of cultural development are vain" (p. 104).

Nearly a century after the publication of "Language" we are still far from having discovered the "formal patterns of culture" that would allow us to correlate them to "particular types of linguistic morphology." However, such goal now seems to be nearly within sights of researchers. For an example from the collateral field of the emergence of rituals, Marcus & Flannery have documented in Oaxaca, Mexico, "changes in religious ritual that accompanied the evolution of society from hunting and gathering to the archaic state" (2004, p. 18257), thus relating the evolution of patterns of culture with those of ritual performances. In a previous Evolang contribution, I have correlated between, on the one hand, social relationships and collective memory and on the other, not linguistic morphology, but the progressive attainment of Hockett's "design features" of the human linguistic communication system, and this over the last 2M years (Naccache, 2012). And Lupyan and Dale, based on a large scale statistical analysis of structural language properties, have documented that, today, "language structures appear to adapt to the environment (niche) in which they are being learned and used" (2010), a finding which opens up the potential of extending such analysis to the whole of the historical period, and eventually to the Neolithic and Paleolithic periods.

In view of these developments, the academic goal of differentially characterizing the linguistic morphology, or the *how* of thought, available to Plato and the headhunter of Assam on the one hand from that which had been available to *H. heidelbergensis*—or even to *H. ergaster*, should not seem

anymore impossibly out of reach for the coming generations of researchers in the field of Language Evolution.

5. Conclusion

Hopefully, this brief review of the insights of Edward Sapir on what he termed the "prime problem" of language, that is, the problem of the origin of language, has shown that Sapir was able to achieve a solid characterization of the nature of language while identifying some important conditions that must have held to make the emergence of language possible. What is worth pondering for the researchers in the field of Language Evolution today is that Sapir was able to achieve these characterizations and identifications nearly a hundred years ago, when the empirical database at his disposal was extremely limited, if not to say inexistent. Sapir succeeded in achieving enduring characterizations of the conditions necessary for the human linguistic communication system to emerge and accrete, purely by relying on a logical analysis of the problem of language seen as a whole in its communicative context.

Today, it is very encouraging to see the field of Language Evolution luxuriating in mining its highly multidisciplinary databases and studying all aspects of the linguistic phenomenon, formal, embodied, socialized and encultured. But, in addition, and no matter how hard it is to do, it cannot do any harm to try to look at the problem of language origin and evolution through an overarching logical analysis. No doubt, Edward Sapir is hard to emulate, but he has proved that such an approach is fruitful, and therefore worth attempting.

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