A SOCIAL DIMENSION OF LANGUAGE EVOLUTION

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1. Context and claim

The field of Language Evolution has not paid much attention to the social dimension of its object of study. Yet, even those who reject "language as communication" and look at language as strictly "a computational cognitive mechanism that has hierarchical syntactic structure at its core" (Bolhuis et al, 2014), cannot but agree that, ever since this mechanism started being implemented among the groups making up the genus *Homo*, the specific realizations of the basic syntactic elements have varied between these groups, and that the same must have held when syntactic rules emerged.

This is still the case today, and "the linguistic system in the traditional sense is a description of the linguistic structures used in a speech community" (Blythe & Croft, 2009, p. 48). Since it emerged, the linguistic computational cognitive mechanism has not only been embodied and encultured, but also socially embedded in "speech communities."

In this exercise I will try to take advantage of the paleo-archaeological database, both empirical and analytical, to sketch the historical evolution of the size of "speech communities" within the *Homo* species. No claim is made here about a hypothesis or theory of language origin and evolution. All that is claimed is to highlight, within the tapestry of human evolution, one basic thread of the history of the social dimension of linguistic communication.

2. Size matters

What is attempted here is to track the historical changes of one aspect of the social dimension of language evolution, specifically, that of the size of the "speech communities" in which language has been practiced since it emerged. Although its implementation has varied throughout the history of language use, and its definition is still debated (Patrick, 2002), the speech community is a core concept in empirical linguistics, and size, the most basic of its markers, provides a realistic target for investigation over the long-time span. This is because the size of speech communities throughout the history of *Homo* can be estimated by inferences drawn from the presently available empirical databases provided by archaeology, using a set of explicit assumptions.

The first database we used is that of the estimates of the size of the global *Homo* population since its emergence ~2M years ago, estimates which are

available in the literature (Biraben, 2003; Hawks, 2008; Weiss, 1984, etc.). These estimates cover the whole historical stretch of our exploration, from the emergence of language till today, and provide us, for every period, with the sum of the populations of all the primary (first-language speakers) speech communities that existed at that time. This is uncontroversially true for all the period preceding the Neolithic, when it is fair to assume that only primary speech communities existed, even if some traders were bi or multilinguals.

The second database is the "distribution of world languages by number of first-language speakers" (Lewis, Simons & Fennig, 2015), which gives us today's estimate and is also used as a base from which to project a Late Upper-Paleolithic estimate. The present-day distribution has a long tail consisting of a small number of languages with large numbers of speakers, languages that developed since the Neolithic under the influence of known historical and socio-cultural processes. Once these languages are subtracted from the distribution, the remaining core part and bulk of today's distribution provides us with a good template from which to project a similarly shaped distribution that would have held 15,000 years ago, when we can confidently assume that the distribution was normal, and when the total world population was ~6M people and the largest speech communities numbered less than 5,000 people (Ong, 1977).

The third database consists in estimates of group size (Grove, 2010) and of range and/or density of occupation during the Paleolithic era. Given some conservative assumptions, these data can be used to estimate the size distribution of speech communities at the few points in the Paleolithic for which there is evidence of a change in group size and/or range or density. For instance, if we know the maximum group size and the population density at a given period, the maximum size for speech communities at that time can be inferred at the cost of some explicit assumptions. It is then straightforward to correlate this maximum size to the total population at the same period to derive the normal distribution of speech communities at that time. Available group size estimates allowed us to do this exercise at three dates in the Paleolithic. Even if the estimates are subject to a greater margin of error the further back in time we go, they are enough to plot the evolution of the average size of speech communities, a basic social dimension of language, over the history of *Homo*, from its origin till the "historical" period, for which data are much more easily derived.

The main aim of the present exercise was to produce this plot sketching the evolution of one characteristic of the human linguistic behavior throughout *Homo*'s history. As an indication of the heuristic potential of the resulting curve, just consider its main inflection points. Clearly, the inflection points must mark stages in the social development of the human linguistic communication system. But the stages are also suggestive of steps in the elaboration of the syntactic structures at the core of linguistic behavior. In my concluding remarks I will, both briefly, characterize these stages in social development and offer a potential scenario of the accretion of the syntactic structures.

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