Inference and Reference in Language Evolution

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Reference needs inference

Our cognitive apparatus functions as an inferential machinery extracting or constructing patterns and regularities. Such regularities are a precondition for an "indexical" interpretation of events with respect to possible causes and consequences. The extraction of domain-specific regularities by explorative and hypothesis-testing behaviour has most probably been our great strength long before the emergence of "language" in the narrow sense of the term. Such an inferential machinery is required for anticipating events and for "anticipating" what the other would already know or understand or intend, i.e. for efficient "mind-reading". Thus it is also required to infer the meaning of linguistic utterances (Sperber & Wilson 1986) and, moreover, for the development and acquisition of language and for the extraction and application of particular grammatical rules. Even more basic: "Sensitivity to the frequency with which different sounds follow each other in speech" helps us to break the speech record up into words (Zacks & Hasher 2002). Pattern recognition is inevitable for the identification of any form used as a symbol and/or icon. From all that follows that *indexicality* does not constitute a sign-specific function (Fenk 1998) but should be viewed as a fundamental cognitive principle pervading and transcending referential systems.

Reference "feeds" inference

Our advanced intelligence has "invented" language in order to disclose a new source of information: the experiences, the thoughts, i.e. the "knowledge" of our fellows. The situation-bound signalling system became more differentiated and moreover a medium for the communication and maintenance of "empirical" and "technical" knowledge. Reciprocal access to the thoughts of fellows offers a new basis for decision making and cooperative behaviour.

A second advantage of language was its use for "higher" cognitive activities. With the (respective) language we internalize its ways of structuring the world: its conceptualisations and categorisations as well as the rules appropriate for operating with the respective symbols. Maybe language is efficient in the sense of a corset, too (linguistic relativism); but it is at any rate or at least (Carruthers 2002) a necessary framework for the build up of more complex cognitive constructs.

Co-evolution of language and cognition?

Unlike Terrence Deacon's "brain-language co-evolution" or Susan Blackmore's "meme-gene coevolution" we place cognition as the co-evolutionary partner of language (Fenk-Oczlon & Fenk 2002), i.e. a second behavioural/functional system instead of a common neural, genetic, or otherwise physical substrate: Let us assume that both an efficient cognitive system and an efficient communication system are advantageous for the relevant population as well as for its individual members so that both systems are, more or less, permanently, under selective pressure ("drive 1"). These two systems are coupled: Each step forward in the evolution of language has to allow for the level of cognitive capabilities actually reached at least by the best "cognizers" of the population. This advanced language makes growing demands on the cognitive system, but has a double advantage – as a further developed communication tool and because of its use as a cognitive tool. This means an additional drive ("drive 2") which does not directly come from the environment in the usual sense but from a refined (cultural?) technique. Drive 2 will be doubly forceful because of the double advantage mentioned above. Thus, progress in language will stimulate progress in cognition and vice versa.

The dynamics of this co-evolution will dramatically increase a population's fitness for coping with rapid changing conditions and for conquering new habitats. And it will pull along genetic change and will favour the integration between those subsystems involved in the planning, analysing and control of sound patterns. The system thus evolving is not only able for rehearsal and for short-term retention of linguistic information in an articulatory code (as in Baddeley's phonological loop model). It becomes, moreover, functioning as a self-feeding, symbol-manipulating system. The emergence of our language-bound working memory?

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