EMPIRICAL AND CONCEPTUAL PROBLEMS AND PROTOLANGUAGE

By Joseph Poulshock, Language Evolution and Computation Unit

1 INTRODUCTION

Although the term of protolanguage is attributed to Bickerton (1990), the concept itself can also be traced back to Darwin when he said:

> May not some unusually wise apelike animal have imitated the growl of a beast of prey, and thus told his fellow-monkeys the nature of the expected danger? This would have been a first step in the formation of a language (Darwin, 1871).

In fact, Bickerton's theory for the origin of language explicitly expands on these words from the *Descent of Man*, but it is a theory not without its problems. Hence, this paper summarises Bickerton's idea of protolanguage and its problems, and it discusses how his theory takes us from non-language, to protolanguage (and lastly to what I call plenalanguage). Finally, it evaluates Bickerton's notion of protolanguage as a living fossil, focusing on the empirical and conceptual problems inherent in it.

2 A BICKERTONIAN SCENARIO FOR THE ORIGIN OF LANGUAGE

According to Bickerton, protolanguage, modern or ancient, is "Any form of communication that contains arbitrary meaningful symbols but lacks any kind of syntactic structure" (Calvin and Bickerton, 2000: 257). Moreover, in his evolutionary scenario, Bickerton theorises that "Before you had syntax, all that existed was a kind of protolanguage" (29). For this origin of protolanguage, Bickerton (2000) posits the following outline.

1. Only protolanguage fits the following scenario where single-word tokens about predators or food would have had immediate payoff.
2. Selective uniqueness: Only humans developed language. Initial evolutionary pressures unique to the hominid line selected language in humans. Thus, selection pressure did not stem from social intelligence that is common to all primates.
3. Absence of complexity: Primate life is already complex; hence, complexity is not the cause of protolanguage. Therefore, a higher degree of complexity in human social life comes from language.
4. Hominid ecology: Predators and sparse food supplies limited social life, pressuring pre-humans into foraging and predator detection.
5. Initial functionality: Traits must be functional before becoming fixed. Before pre-humans used language socially, it had to reach a certain level of complexity.
6. Cheapness of tokens: Words are cheap and unreliable for social use where deception and manipulation are commonplace. Hence, they would only thrive in co-operative and confirmable contexts.

2.1 The Problem of Alternate Explanations

Although Bickerton's context for the origin of protolanguage exhibits internal logical consistency, it does face the problem of alternative explanations. First, Wray (2000) develops the concept of 'analytic protolanguage' and suggests it consisted of holistic phrases, later analysed and given atomic meaning. That is, protolanguage did not have atomic meanings. This differs from Bickerton's 'synthetic protolanguage' that in theory consisted of words, later synthesised with other words; that is, Bickerton version starts with atomic meanings and synthesises them.

Moreover, Dunbar (1996) suggests that selection pressure from predators forced human ancestors in to larger groups. Social cohesion, which was maintained by grooming, was placed under stress by the increasing size of primate groups. Larger groups required primates to spend more and more time in grooming to relieve the elevated stress due to more complex social relations and to maintain group cohesion. Thus, protolanguage evolved to replace physical grooming because language or gossip could serve the same purposes that grooming did in a more time-efficient manner. In short, since Dunbar and Wray have come up with alternative explanations to the Bickertonian view, it is important that all these competing views be compared and evaluated on their relative explanatory power.

3 CONCEPTUAL PROBLEMS WITH PROTOLANGUAGE AS A LIVING FOSSIL

A living fossil is a non-extinct organism, like the coelacanth or ginkgo, that is the sole surviving member of an otherwise extinct species group. Regarding language, Bickerton claims: "It… seems only reasonable to suppose that there may exist contemporary phenomena--living linguistic fossils, so to speak that would give us some insight into the processes through which language emerged" (1990: 106). Specifically, Bickerton suggests that living linguistic fossils exist in four subsets: children under two, linguistically deprived individuals, pidgin languages in their early stages, and in linguistically trained apes.

Although on the surface this hypothesis seems interesting and suggestive, there are a number of conceptual problems associated with it. First, the definition of protolanguage, as syntaxless and utterly context bound is too demanding for each of the four subsets. That is, there are degrees of syntactic ordering in all four of the 'living fossils' of protolanguage. Hence, the delimitation of protolanguage as--*words and that is all*--is too narrow and needs redefinition. For example, regarding ape language, Kako (1999) claims Kanzi demonstrates some understanding of discrete combinatorics, category-based rules, and argument structure. Kanzi has successfully comprehended sentences where single word meanings and prior knowledge are insufficient for interpretation and where the roles in a sentence were interchangeable. Thus, Kanzi needed to rely at least partly on syntax to comprehend these utterances.

Moreover, regarding children under two, Aitchison (1989) summarises research stating that two-word-stage utterances are syntactic, so that the actor-action relationship is consistently actor first. Besides this, syntax in pidgin and feral languages also express varying degrees of syntax. For example, Bickerton himself cites the following example from Genie. "Genie have yellow material at school" (1990:117), and he says that in this case she is simply using formulaic speech, so this is not an example of syntax. However, it seems obvious that this is an example of a syntactic utterance, or at least it is very easy to interpret this utterance as having syntax. Thus, Bickerton, in this example, is rather tendentious in trying to shore up his claim that feral languages are living fossils of protolanguage by his strict definition. In sum then, it seems clear that each subset is actually different, at least in some small ways and may actually differ from each other in grammatical and lexical complexity. Therefore, it is even possible to group these putative protolanguages as less complex (children and ape languages) and more complex (feral and pidgin languages).

Besides the main problem of syntax in the living fossils of protolanguage, there are other conceptual limitations inherent in the Bickertonian notion. First, the under-two category is arbitrary, for it varies with children, and thus it should possibly be changed to the two-word stage category. Moreover, protolanguage as living fossil is allegory--not actuality. That is, each subset is not a sole surviving member of what would be an extinct and less complex linguistic species. In reality, the fact that real fossils of primitive languages do not exist (not to mention that linguists consider no human language existing today to be Stone Age or primitive) is one of the most serious problems facing evolutionary linguistics. In addition, as mentioned above, there are alternative versions of protolanguage, so besides being allegorical, it is not yet clear which version of the concept is most salient. Lastly, the lurch between protolanguage and plenalanguage is still rather large, so it seems that more intermediate stages need to be proposed.

4 EMPIRICAL PROBLEMS WITH PROTOLANGUAGE AS A LIVING FOSSIL

In addition to the conceptual problems mentioned above, a number of empirical problems overlap with these notional issues. One problem for evolutionary explanations is that modern biological structures (and in our case linguistic structures) may vary extensively from their original structure, and thus "are often not very informative about their origin" (Stearns and Hoekstra 2000: 281). Since this is a basic problem in evolutionary biology, it needs further exploration in evolutionary linguistics also. Moreover, Bickerton's use of the principle of *recapitulating phylogeny from ontogeny* may provide speculative insights; e.g., the way children learn languages may provide insights into language origins, but this is rather unreliable method for those seeking more forceful explanations.

Besides these issues, it is a frustrating fact that no true language fossils exist, and this minimises our ability to make inferences about protolanguage from the fossil record. Nevertheless, the high physical and biochemical homology between chimps and humans should allow us to make some comparison-based inferences. Moreover, another problem relates to the fact that repeating linguistic evolutionary events in experiments is difficult because "we do not know, or cannot create, the appropriate starting conditions" (Stearns and Hoekstra 2000: 281). Nevertheless, despite this difficulty, hunter-gather cultures and primate social life still may offer us suggestive correlations into the origins of language and culture.

5 CONCLUSION

In sum, protolanguage is an important concept in evolution of language because it is a serious attempt to rigorously answer the age-old question regarding language origins, what Darwin called "the first step in the formation of language." It is also a research endeavour fraught with many difficulties, for example, the lack of a true linguistic fossil record. However, just as the fact that the "rarity of transitional forms in the fossil record [which] persists as the trade secret of palaeontology" (Gould 1980: 150) does not stop palaeontologists in their quest, neither should similar problems stop evolutionary linguists in theirs. The fundamental truth is that many evolutionary explanations are exercises in arduously constrained speculation, and in this way Bickerton's articulation of protolanguage offers some explanatory power for language origins. However, scholars still need to resolve and counterbalance the aforementioned conceptual and empirical problems in the Bickertonian scenario for linguistic genesis in order for research on the subject to progress.

References

Aitchison, J. 1996. *The seeds of speech: Language origin and evolution.* Cambridge University Press.

Bickerton, D. 2000. *Foraging versus Social Intelligence in the Evolution of Protolanguage.* Paper given at the Evolution of Language, 3rd Conference, April 3rd--6th, 2000

Bickerton, D. 1990. *Language and Species.* The University of Chicago Press.
Calvin, W & D. Bickerton. 2000. *Lingua ex Machina: Reconciling Darwin and Chomsky with the Human Brain.* MIT Press.
Darwin, C. 1901. *The Descent of Man and Selection in Relation to Sex.* New Edition. London: John Murray, Albemarle Street.
Dunbar, R. 1996. *Grooming, Gossip and the Evolution of Language.* Faber and Faber
Kako, E. 1999. Elements of syntax in the systems of three language-trained animals. *Animal Learning and Behavior*, (Vol. 27 (1), 1-14)
Gould. S. 1980. *The Panda's Thumb.* New York: Norton.
Stearns, S.C. & R.F. Hoekstra. 2000. *Evolution: An Introduction.* Oxford University Press.
Wray, A. 2000. *A Protolanguage with No Declaratives and No Names.* Paper given at the Evolution of Language, 3rd Conference, April 3rd--6th, 2000