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ON THE CONCRETE SIGNATURE OF LINCOS

Abstract

In the present paper we discuss some linguistic aspects of the LINCOS system not treated before. LINCOS is a Lingua Cosmica developed by the second author in a number of essays [1] and has been devised as an aid in interstellar communication between intelligent mutually alien societies. The system is based on type theory and constructive logic and is particularly useful for describing logic relations in various contexts. Its terms are expressed essentially in the formalism of the lambda calculus and partly due to this LINCOS texts have a distinct abstract signature. This aspect has been investigated in some detail by the second author. From that work [2] we quote:

and the signature .... [The paper] reveals the important role of abstractions preceded by , used in definitions and verifications. Note: in a LINCOS text there may be many other abstractions, representations of something in reality, but these are ad hoc. The symbol is used whenever an implicit type abstraction is in order. Variables, local ones, introduced in this manner have a restricted scope, but can be used repeatedly, thus much more freely than the global ones. One can also say that their lives are restricted to the bodies of the -abstractions but they can lead a second life elsewhere. Global variables range over large sections but cannot be redefined. Because of these aspects and the power of -abstractions, these significant tokens together with their bodies form grosso modo the abstract signature of LINCOS. Next in significance is the semi colon concept in type designations. An important role is evidently played by the mapping operator (not the implication connective) as well. The interpretation of these symbols by alien cultures is of course far from trivial.

In the present paper, complementary to the essay mentioned above, we consider LINCOS texts from a more linguistic point of view. Our aim is to describe a measure, a concrete signature, which characterizes these texts and differentiates them from texts in a natural language. Previous work by the first author [3] documents extensive investigations into the generic attributes of terrestrial languages, at varying levels of abstraction, and methods by which non-linguistic phenomena is separable from natural language. The discovered distinctive parameters that comprise this signature of natural language, produced by our Lingua ex Machina, provide a robust platform for this investigation; however, like music, human authorship underpins core constructs and constraints in logic construction. Nevertheless, distinctive measures are discernable across the structural hierarchy and in this paper we present our initial findings for a concrete signature for LINCOS.

1 Alexander Ollongren, Logic Design of a Linguistic System for Interstellar Communication (unvollendet), monograph in preparation, 2008

2 Alexander Ollongren, On the signature of LINCOS, Paper for the 1st IAA Symposium on Searching for Life Signatures, Paris, September 22 – 26, 2008

3 Elliott, J. Detecting the Signature of Intelligent Life: Paper for the 1st IAA Symposium on Searching for Life Signatures, Paris, September 22 – 26, 2008