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### LARGE-SIZE MESSAGE CONSTRUCTION FOR ETI: INDUCTIVE SELF-INTERPRETATION

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Starting hypothesis: large-size messages for Extra Terrestrial Intelligent Societies, written in a terrestrial natural language, are unintelligible for receivers unfamiliar with the language employed. Grammatical and phonemic structures underlying the host language cannot be supposed to be universally valid. Consequently: if textual linguistic messages for ETI are constructed they should be supplemented with annotations based on universal concepts, admitting simple formal notation and easily interpretable.

The present author advocates the use of a *Lingua Cosmica* based on logic for the purpose of describing the logical contents of textual messages. It is reasonable to assume the universal validity of logic - even though the modes preferred by technologically advanced societies in the universe may vary. Constructive logic is employed in the suggested *lingua* because of its simplicity, perspicuous notation and large expressive power. In addition it has the remarkable property that it can be used to explain itself. This is partly due to the fact that ordinary propositional and predicate calculi are embedded into it *ab initio*. In the embedding the concept of truthity is represented by constructions of valid assertions, while falsity is absent (a false conclusion cannot be reached by a finite sequence of valid steps). In addition to this the constructive mode employed uses self-reference, in fact (mathematical) *induction*.

Inductive descriptions in the *lingua* mentioned can be used to formulate guaranteed correct conclusions over relations in textual messages for ETI. Recipients of linguistic messages formally annotated in this way are thus supplied with strong aids for interpretation of the logic contents. However, in case that the mode of the logic employed is not easily recognised, additional instruments for the interpretation of expressions in the formal language are needed. The present contribution explains in some detail how the induction concept as implemented in constructive logic can be used for self-interpretation.