IAA-03-IAA.9.2

FROM MATHS TO CULTURE
TOWARDS AN EFFECTIVE MESSAGE

Paolo Musso
Pontifical University of the Holy Cross
V. Montevideo 2A/5-6, 16129 Genova, Italy
Tel: +39/010/3623559; Fax: +39/010/312042; musso@nous.unige.it

1) Purpose - The aim of my paper is to sketch a possible methodology to communicate cultural concepts in a hypothetical SETI communication.

Methodology and Content – As I have already proposed in a previous paper presented at the *IAC* of Toulouse 2001, the main tool for achieve such a result could be analogy. Then, in a further paper presented at *Bioastronomy 2002* in Hamilton Island, I analyzed the general structure that such a message should have: starting from the common knowledge shared by both civilizations, i.e. scientific, logical and mathematical one, first we should provide a wide vocabulary about our material world, then try to use some of those concept in an analogical way in order to represent more abstract ideas, related with our culture. In the present paper I'll begin to discuss in a more detailed way which concepts coming from both logic and mathematics could be useful for this aim and which of them have been already encoded in the main previous attempts, especially in Yvan Dutil's one. A possible way to communicate the meaning of abstract actions (as, e.g., thinking) by a combination of both formal language and picture is also sketched.

Results and Conclusions – At a first sight this seem to be a very promising way. Not less than 34 logical and mathematical concepts currently used also in common language have been detected, which could be easily encoded. Furthermore, it is argued that others might come from an Italian team of philosophers, who are currently working on a particular version of the so-called "formal ontology", that is a logical formalism able to encode many different kinds of metaphysics. Finally. the need of an integrated language (i.e. both formal and pictorial) in SETI seems to be confirmed once more.

2) The idea of communicating our culture to extraterrestrials is not new in itself, but, since the main efforts have always focused only on science and/or mathematics, very few attempt to sketch a way to do it actually have been done until now. Out of them, the only systematical one was Freudenthal's *Lincos*. But *Lincos* was a completely formal language, while my approach is based on a) analogy and b) integration between formalism and pictures. Furthermore, the use of the approach of "formal ontology" in SETI is also new.

3) Finally, as requested, I certify that this paper was not presented at any previous meeting and that my attendance in Bremen is assured.