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Author: Prof. Douglas Vakoch
SETI Institute and California Institute of Integral Studies, United States, dvakoch@seti.org

MUSIC AS AN ANALOGUE FOR INTERSTELLAR MESSAGE COMPOSITION

Abstract

Since the outset of the first search for extraterrestrial intelligence over a half century ago, most proposals for designing interstellar messages have emphasized one or more of the following subjects for communication: mathematics, science, logic, or images. All of these alternatives have been advanced because they are viewed as likely to provide a foundation for communication with an independently evolved civilization with whom we share no natural language. Mathematics and science are prerequisites for creating the technologies that make interstellar communication, it has been argued. Similarly, certain logical principles hold true throughout the galaxy, and may be recognized by extraterrestrial intelligence as well. Finally, the independent origin of vision multiple times on Earth has been offered as a reason we can also expect to find it widely in intelligent species on other planets.

This paper considers another analogue for interstellar message design: music. To the extent that mathematics, science, logic, and images are universal, they can each help introduce concepts related to music. The relationships between the frequencies of notes within scales and chords can be described in mathematical and physical terms and can be represented through images, as well as through the direct transmission of signals, the frequencies of which can be structured to bear the same relationships to one another as do musical notes. Moreover, the structure of music may provide extraterrestrial recipients with insights into the ways that humans logically order their experiences of the world. In the same way that previous messages have introduced mathematical and physical concepts in a graded manner, through tutorials that begin with basic concepts and build to more advanced concepts, so too can the components of music be introduced through tutorials that introduce such underlying concepts as rhythm and meter in an incremental manner.