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# THE ART AND SCIENCE OF INTERSTELLAR MESSAGE COMPOSITION

**Abstract**

There has long been hope that contact with an extraterrestrial civilization might result in "the discovery of new aesthetic forms and endeavors that lead to a richer life." [1] Until recently, however, little attention has been given to the concrete ways that aesthetic sensibilities might be conveyed across interstellar space. Should we some day nd intelligence beyond Earth, we may want to establish contact. And we might well want to convey something about our sense of beauty. But how? While we could certainly include visual art, or other images that we nd aesthetically pleasing, in messages to other worlds, would our intent be understood? What sort of physical signals can we send and what information can we communicate through messages encoded into these signals?

Scientists involved in the Search for Extraterrestrial Intelligence (SETI) scan the electromagnetic spectrum in search of signals that stand out as clearly articial, radically different from the naturally produced cosmic static. Electromagnetic waves, however, pose a special challenge for interstellar communication: They may arrive in a form that cannot be apprehended directly by the recipient's senses. The electromagnetic signals that carry our television broadcasts, for example, travel outside the range of human vision. Thanks to standardization within the telecommunications industry, "decoding" such Earth-based signals is as simple as turning on our TV sets and unconsciously making sense of the images. Extraterrestrials, though, would not have it so easy.

As we craft interstellar messages to be transmitted at radio frequencies, we should strive to exploit the characteristics of this medium. We should use the form of the signal itself to encode directly the concepts we wish to convey: for example, if we want to communicate something about rhythm, we should rhythmically vary the signal itself.

The result would be messages that cannot be apprehended directly by human senses, but can be imagined in their physical reality as they silently move beyond Earth. Though radio waves themselves are invisible, inaudible and intangible, through our scientic understanding we can appreciate the physical form of these waves as it would be detected by any civilization receiving our signals. Ironically, by attempting to convey our meanings directly through signals that are themselves imperceptible without technological mediation, we might render our messages more comprehensible—and perhaps even more aesthetically pleasing—to intelligent beings on other worlds.

[1] B.M. Oliver and J. Billingham, Project Cyclops(NASA, 1971) p. 31.