Implications of Contact with ETI Far Older than Humankind

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The scenario Allen has set for us—detection of an extraterrestrial intelligence, sufficiently soon that our discussions have any relevance to our own society as it will be then—guarantees that the ETIs (or their robotic emissaries) will be far older than we. This follows from even the simple degenerate form of the Drake Equation ($N \leq L$, where **N** is the number of currently communicative civilizations in the Milky Way and **L** is the longevity of the communication methodology in years). For our primitive technology to succeed in a detection in the near future, **N** must be large, which can happen only if **L** is large. At the SETI Institute, the next 20 years will probably be required to explore systematically a million nearby stars (and indirectly, a number of background stars). Success during the million-star search requires that $N \geq 4 \times 10^5$, or an average longevity $L \geq 4 \times 10^5$ years.

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This longevity has many implications:

- It is possible to survive one's technological infancy. Perhaps they will have a well-developed empirical field of study that can define the critical bottlenecks and elaborate several different ways through them.
- The real challenge is surviving one's star. Perhaps we will learn how they did it.
- However, there are few who do so. This conclusion is consistent with the state of observational astronomy. There have been no detected phenomena in the vicinity of stars about to become red giants, or red giants, novae, or supernovae that might be interpreted as astroengineering. It may be possible to preserve a civilization from the impending death of its star, but it is difficult to understand how this might happen without some observable consequences. It's possible that the consequences could be there, and we've just missed them, but nothing has hit us in the eye yet.
- Their longevity is inconsistent with organized monotheistic religions typical of Earth. Such religions are responsible for the longest lasting warfare and destruction we have witnessed.
- There may be something like a universal religion that integrates the existence of intelligent life forms with a fully developed cosmology. There will be no sects, as religious warfare would be the result, and that is inconsistent with longevity.
- There will be a highly established code of ethics that centers around the perpetuation of individuals (or a colonial entity), and all components of the natural environment.
- They may tell us how it is possible to transition from the "My God vs. Your God" conflicts of 20th century Earth to a more stable universal religion/understanding. Or perhaps humans are the only species that started out on the wrong path.

Extraterrestrials and Objective Knowledge

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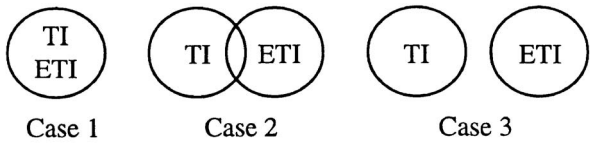
The basic question is, "Do humans and putative extraterrestrials perceive the universe in the same way?"

In the concluding chapter of *The Biological Universe*, I remarked very briefly about the compatibility of extraterrestrial and terrestrial science. "If comparison is possible," I wrote, "one wonders whether the long-sought 'objective knowledge' might be found at last by gleaning the common elements remaining after processing by many sensory and mind systems independently evolved throughout the universe" (Dick, 1996). With few exceptions (Minsky, 1985; Rescher, 1985), no one has taken up the fundamental problem of objective knowledge in the extraterrestrial context. Here I offer a few thoughts for discussion, because this may be one of the major questions that could be answered by extraterrestrial contact in the next millennium, and in fact may significantly affect our chances of contact.

The problem of objective knowledge is one of the oldest problems of philosophy, and forms a branch of that field known as "epistemology," the nature, origin, scope, and limits of human knowledge. Hume, Kant, and many other classical philosophers had much to say about the relation between the mind and external reality, as do modern philosophers. Nor is this an abstruse academic argument; the current "science wars" embody the question in the form of postmodernism and the social constructionism debate, one element of which claims that science, like everything else, is socially constructed, and thus that there is no objective knowledge. While this seems to me absurd in the terrestrial context, the epistemological question takes on new meaning in the context of extraterrestrial biologies and minds.

Contact with extraterrestrial intelligence would provide a major insight into the question of objective knowledge on a universal, not just a terrestrial, scale. The basic question is, "Do humans and putative extraterrestrials perceive the universe in the same way?" There are three cases in comparative terrestrial and extraterrestrial perception: 1) complete overlap, 2) partial overlap, and 3) zero overlap, graphically shown as follows:



On one level, these sets may be taken to represent terrestrial and extraterrestrial knowledge, but more deeply they represent terrestrial and extraterrestrial ways of perceiving. Case 1, in which ETI perceives the same electromagnetic spectrum as we do, processes the information in the same way, and comes to the same conclusions, holds out hope for easy dialogue and objective agreement. Case 2, in which there may be differences to a greater or lesser degree in sensory organs and mental processes, implies some common basis for dialogue. In Case 3, with no senses or mental processes in common, there may be no possibility of dialogue or objective knowledge.

If contact is successful, a major task over the next millennium will be to synthesize the knowledge of many worlds.

The problem of objective knowledge bears on the possibility of communication, on the role of language, and on those aspects of the universe that have the possibility of verification. Knowledge must be distinguished from belief, which may have no basis in the objective world; one would not expect extra-

terrestrial religious belief, for example, to take the same form as on Earth, though the existence of God may be an objective question. If contact is successful, a major task over the next millennium will be to synthesize the knowledge of many worlds. The nature of this task will depend greatly on which of the three cases above turns out to be most common among galactic civilizations.

References

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