THE SETI GAME

Marc-Etienne Schlumberger
SETI Institute
2035 Landings Drive
Mountain View, CA 94043 USA
Tel: +1-650-473-6535
Fax: +1-650-968-5830

Kent Cullers
SETI Institute
2035 Landings Drive
Mountain View, CA 94043 USA
Tel: +1-650-960-4559
Fax: +1-650-968-5830
Email: kent@seti.org

Whether one considers detection of, or communication with, Extraterrestrial Technology, resources are limited and the universe is vast. Often, the character of our search depends strongly on assumptions about the technologies we seek. It seems plausible to discuss search strategies using models drawn from game theory. We and the other putative ETs are the players. Resources are technological capabilities, which may be extraordinary for some advanced civilizations. Difficulties arise when one tries to formulate well-defined rules and utility functions for the SETI game. Does one optimize the probability of at least one contact, the expected number of contacts, or the pay-off of the best contact? Given that one knows how to optimize the value of contact, what is the most useful contact strategy? Is it best to put some resources into all plausible strategies or vast resources into the most likely path for success? One can rank SETI strategies in various ways, depending on how such questions are answered. This flexibility in arguing the plausibility of diverse strategies leads to an ultimate and difficult question. Is SETI methodology a complete enough system to comprise a game, and, if not, what elements are still needed to fit our searches into such a context?