

Initial Communications with Extraterrestrial Beings

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[©2015 - Daniel Myers. This paper was originally written around 1988 for ATH 365 - Language and Culture at Miami University. I've corrected a few typos that Dr. James Hamill was kind enough to overlook, but otherwise have left it unchanged. - DM]

Given the situation that a human suddenly comes into contact with alien creatures, the human must find a method by which he can make himself understood. This paper identifies certain barriers to communication with extraterrestrials using scenarios taken from popular science fiction sources. Using the same sources, it then explains a simple method for learning any spoken language, and goes on to illustrate some of the possible difficulties that might be present even after the language has been learned.

One night, as you are strolling across the empty Nevada deserts alone, a sudden wooshing noise surrounds you, and a huge flying-saucer hovers over you, and of course it beams you aboard, or little green men come out and kidnap you, or something of that sort (according to the tabloids in the supermarket checkout line this kind of thing often happens). The space aliens then proceed to examine your body with a scanning ray or whatever, and finally they put you in a doorless, metal walled room and ignore you for a few hours as they fly to their home planet of *Mkrzzippts*. At this point you have just one pressing problem, you must find a way to communicate with these creatures and convince them that you are not merely “a giant truffle.”

What's being described here is a first contact with an alien species, and unless the aliens have had their equivalent to anthropologists studying the earth for some time, the appropriated human could be in serious trouble. Just how bad the situation is is difficult to determine. Since the human race has encountered no other intelligent species, the “hard facts” of science must give way to the creativities of science fiction. Fortunately, many of the authors of science fiction hold degrees in science and math, and research their fields and stories as much as possible. Such authors, like Robert Forward and Arthur C. Clarke, write books that not only tell an entertaining story, but present scientific facts and theories as well.

There are several situations described in science fiction in which the appropriated human, call him Bob, can pretty much be considered to have a cage, dissecting table, or even a stew pot as his destiny. The aliens could be so severely different from human beings that they might not even recognize Bob as being alive. This could have been the case if the aliens were like one described by Arthur C. Clarke in "Crusade" (Clarke 1962). This creature consisted of a planet that became a supercomputer due to the properties of its ice covering and the incredible coldness of outer space. Existing alone, far out in the empty void of space, this being would have a difficult time conceiving of other beings at all, much less beings unlike itself. The Cheela of Robert Forward's book Dragon's Egg are thinking beings, about the size of a sesame seed, who live on the surface of a pulsar, where the pull of gravity is 67 billion times as strong as that of earth. To them humans would seem to be an impossibility, existing where there is relatively no gravity. Fortunately for Bob, such beings are not apt to jump out of a flying saucer to snatch up an unsuspecting human. Just as the planet sized computer-being needs to remain supercooled and can't get any closer to earth than pluto, most of the severely unhuman aliens cannot survive in an earth-like environment.

A little less drastic, and a bit more likely, is that the aliens that are taking Bob on this impromptu cruise use a form of communication that is impossible, or nearly so, for humans to learn. Imagine creatures that "talk" by wiggling tentacles in intricate patterns or by rapidly changing their skin color. One race described by Larry Niven in "Plaything" had "ears" in which sensed heat instead of sound, and "talked" by exposing the hot insides of their mouths in coded pulses (Niven 1979). The Fuzzies of H. Beam Piper's books, while communicating with sound, talk on a frequency well above human hearing (Piper 1962). Admittedly any of these proposed aliens could create a synthetic language just for communicating with humans. Humans have been trying the same thing, with limited success, with dolphins and monkeys for some time.

Chimpanzees and gorillas have been taught sign language, dolphins and chimps taught to use keyboard-like devices, all leaving some room for doubt as to whether it is truly language they're using or just tricks that they were unintentionally taught to perform (Meyers 1980).

For the purposes of this paper it is assumed that the aliens which have "recruited" Bob have not been studying the earth, communicate using sound, communicate using frequencies within the range of human hearing, and are not set on proving that Bob is, or is not, a member of an intelligent race (thus removing motive from the picture). They've only obtained a specimen from earth and will figure out what it's good for later. All of this would seem to put the ball in Bob's court. If he remains passive the aliens might put him in a zoo, or cut him up for research or dinner. Bob must take the first step in communication. In the most common attempts, in both fiction and in real projects like project Ozma (a search for extraterrestrial intelligence using radio

broadcasts to outer space), a picture is presented that is intended to be culturally unbiased, and which hopefully contains some universal concepts from which a common ground of language can be deciphered. Unfortunately, cultural bias is a difficult thing to avoid.

One example of the troubled attempts at overcoming this bias is the six by nine inch plate fixed to the Pioneer spacecraft. This plate carries an etching designed by Frank Drake and Carl Sagan which they hoped would be interpretable by an intelligent alien. Assuming that an alien that encounters the plate has the prerequisite sense organs, it supposedly should be able to determine the place and time of the Pioneer 10 launching using “common” knowledge of hydrogen and pulsars. The human figures, however (see diagram), would probably be quite an enigma.

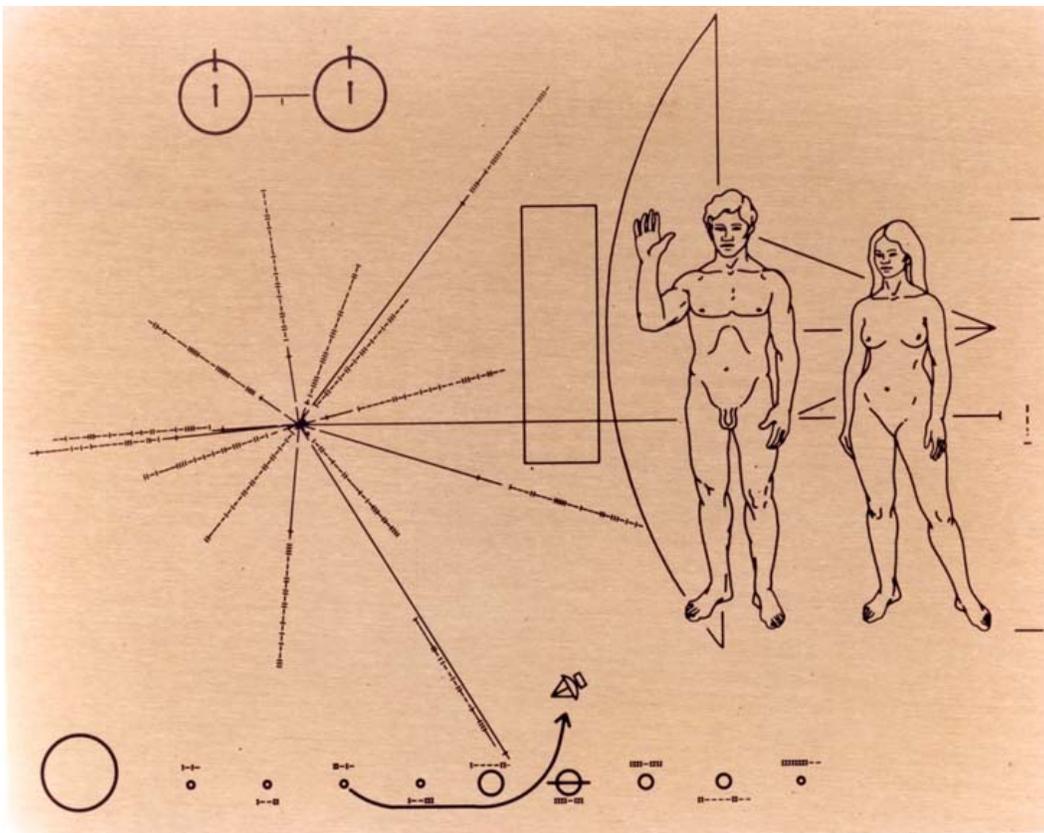


Image courtesy of NASA

Critics of the drawing state that our understanding of it is partly due to our bias. "Because we, looking at the plaque, know what humans look like, we can sort out the various lines and dots.... But an alien, looking at the plaque, has no way of telling that some dots are eyes, some nipples, and some belly-buttons." (Meyers 1980).

Another example, in which man plays a more active part in the communication attempt, was presented by Chad Oliver in his book The Winds Of Time. In this book, Oliver has his main character, Wes, attempt to overcome the language barrier by drawing a diagram of his home, but does not meet with much success.

Wes borrowed the man's tablet and the writing instrument. "Let's see now," he thought. "how do they do it in the movies?"

He started with the sun, drawing a circle in the center of the page. So far, so good. But what came between the sun and the Earth? Wes had never had time to bother with a course in astronomy, and he was neither more nor less ignorant of such matters than the bulk of his fellow citizens.

Well, eliminate some of the outer planets. Pluto, that was the little one way out on the edge; throw that one away. But what else? How many planets were there, anyhow? Eight? Nine? Ten? He shook his head. Mars was the one he was after; that was where aliens always came from in the movies, so there must be some reason behind the choice. But which side of the Earth was Mars on? Toward the sun or in the direction of Pluto?

"Hell," he said.

He drew ten planets in a straight line out from the sun and handed the tablet to Arvon. Arvon looked at it with blank incomprehension. After all, it was just a series of circles on a piece of paper. Arvon studied it solemnly, and finally folded it up and put it in his pocket.

So much for that. (Oliver 1957:41-42)

All of this hasn't helped much with the problem of Bob and his space aliens. It would seem that Bob's best course of action would be to learn the alien language and learn it "... in the same way that missionaries have learned unwritten and unexamined tongues, and in the same way that modern linguists compiled grammars and dictionaries and pronunciation guides for unwritten (at least, unwritten in English) languages for the Army Intensive Training Courses at the beginning of the Korean War, ..." (Barnes 1974). This method, while being surprisingly simple, is also rather dull, and thus it is skipped over in most novels and classrooms. One description of this

method was written by Charles F. Hockett for *Astounding* magazine, and can be easily summarized as follows. (Hockett 1955)

The person wishing to learn Martian (or whatever) sits down with a friendly alien, a notebook, and a pencil. He then points at just about anything and tries to evoke a vocal response from the alien. Upon receiving a response, he writes the sounds made down as a single utterance in some kind of phonetic notation. It doesn't matter whether the alien has just said "That's a rock" or "What's wrong with your hand?" sooner or later the alien will catch on and all the words will get sorted out in the end. When a few of these utterances have been recorded, with luck, it will be possible to start breaking them down into morphemes, or units of meaning.

Let's say Bob sits down with an alien. He points to a rock and the alien says, "*schtollzag*", then Bob points at a Martian wine tree and the alien responds with, "*schtollkleesk*". From these two utterances Bob could possibly infer that "*zag*" means rock, and "*kleesk*" means wine tree. One could imagine the length of time it might take to gain even a small working vocabulary. If Bob doesn't have paper and such it could take much longer as he'd have to memorize many utterances before he was able to draw any conclusions. With this method, though, it is only a matter of time before Bob, or anyone, could speak the language well enough to make himself understood.

Now Bob runs into a new problem, that of proving his intelligence to the aliens. This may not seem very hard at the onset but there are some interesting possibilities that should be entertained. The first is that the aliens might have come across a non-intelligent species, on their home world or elsewhere, that can mimic the sounds made around them. We have parrots and mockingbirds on earth, there's no reason they couldn't have an equivalent. This could lead them to think that a human's attempt at their language was simply a case of unintelligent mimicry. In Little Fuzzy, H. Beam Piper had humanity encounter a race of very small aliens who happen to be exceedingly cute and furry. These creatures seemed intelligent to their discoverers, but since the only sound they ever made was "yeek", they were judged by many to be non-sapient, or non-intelligent. Eventually the whole matter wound up in court, with various scientists all trying to find a useable definition of sapience. They finally conclude that while the non-sapient mind deals only with present sense information, "The sapient mind translates sense impressions into ideas, and then forms ideas of ideas, in ascending orders of abstraction, almost without limit." They then go on to conclude that sapient beings are symbol users, which overtly manifests itself in the use of language (Piper 1961). As Bob learns the aliens' language they should be able to note his ability to generalize, and to form abstractions, especially if bob is taking a very active role in the language lessons.

Of course the ability to generalize is just one definition of sapience, or intelligence. It can be noted that in our own world's history there have been groups of people who were thought to be, and were treated, no better than animals. While being unlikely, it is possible that the aliens' definition of intelligence involves building a starship drive from a heap of scrap aluminum.

Even if we assume that, by their definitions, the aliens will find Bob to be the fine, thinking being that he is, he's still not quite free from worry. The idea that Bob should enjoy certain rights as a thinking being is a very human one. The two following examples from science fiction clearly illustrate the point that being a thinking creature does not equal personal safety. The first is a story by Larry Niven, "Assimilating Our Culture, That's What They're Doing!", which tells of the glistith(click)optok, a race of carnivores who see doing business with humans and eating humans for dinner to be on about the same ethical level. The "bugs" of Robert Heinlein's Starship Troopers share a collective consciousness, and therefore see all other thinking beings as mere extensions of a collective whole. The loss of a single unit, and the loss of a single human, is of no more importance to them than the loss of a fingernail is to us. The aliens might see a human as a thinking being, but this might not be an important factor in the decision of what to do with the human.

Overall, my last words to Bob as he flies off in a spaceship to the planet of *Mkrzzippts* or wherever, would be; as long as they think you're alive, communicate with sounds that are within the range of the human hearing and voice, feel that all creatures are sapient until proven otherwise, and are vegetarians, then you've just about got it made. Keep your paper and pencil nearby and write down everything they say.

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