A MESSAGE FROM AFAR

WHO ARE WE? ARE YOU THERE? WANT TO TALK?

Searching for Ourselves

ET calling…

Imagine we found a signal that appears to have originated from another technologically-advanced civilisation. A civilisation unknown to us and located beyond planet Earth, maybe far away, maybe close by. What difference is this going to make? What are we going to do next? How would human societies all around the planet be affected? What would the contact look like and how would it unfold?

Who are you?

The fact that we understand each other when communicating is to a large extent due to knowing far more about each other than what is conveyed by the messages themselves. Meaning depends much on the wider context, on established cultural and social norms, as well as the historical record. It is difficult to anticipate the intention of strangers, and trust can only be built over time. If somebody approaches you over social media, would you engage in a conversation or rather block any such attempt?

Dealing with signals from extra-terrestrial intelligence requires even more care, given that we do not know anything about the lifeforms that produced them, and not even whether such signals actually were produced by what we would consider 'life'. – Could they come from sophisticated artificial intelligence?

All portrayals of extra-terrestrials and establishing contact in science-fiction are a reflection of our cultural imprint, assuming that intelligent life beyond Earth is just some variation of ourselves. This is not too surprising given that even our imagination is limited by experience.

Who are we?

Our very own existence remains puzzling. Within our experience so far, it remains unique. Unless its presence can be derived from fundamental principles, it cannot be understood, and we are left with having to accept it as a fact. For that reason, the detection of instances of life beyond Earth and more specifically extra-terrestrial intelligence would provide new context to foster further knowledge.

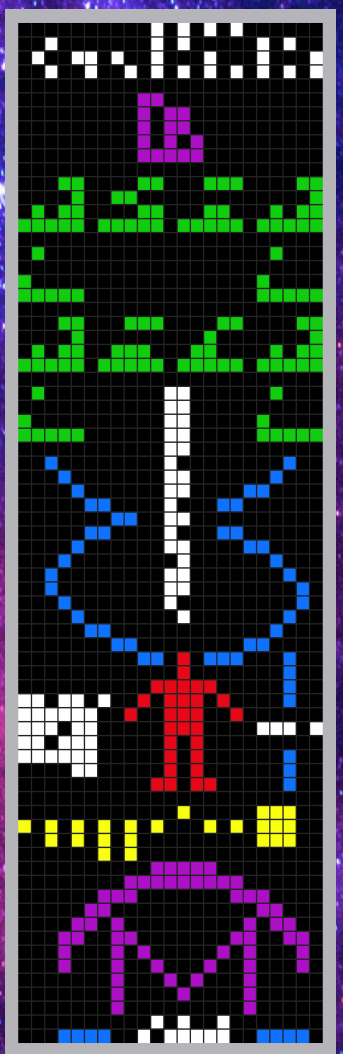
We have established moral, ethical and legal norms, but how would they be challenged by the existence of another intelligent species, potentially more advanced than ourselves? Would there be anything wrong with them treating us the way we treat animals?

We tend to see ourselves as a most advanced outcome of evolution, but we cannot rule out that humans are on an evolutionary branch that will face extinction. We have already realised that we are at serious risk of moving beyond the environmental conditions that are a necessary requirement for supporting our existence. But even an Earth that cannot sustain humans would be a far better place than any other known to us in the Universe. Messing up this planet and going elsewhere is not a viable option.

We are here…

For some time now, we have already been sending 'messages' into space. In 1974, a three-minute interstellar radio message consisting of 1,679 binary digits was sent towards a cluster of stars 25,000 light-years away. The Pioneer 10 space probe, launched in 1972, was to be the earliest human-made object to eventually leave the Solar System. It was decided that it would carry a plaque with a message from humankind, and an identical one would be fitted to its sister probe Pioneer 11.

A larger effort to "portray the diversity of life and culture on Earth" was made for the two Voyager satellites, launched in 1977. Voyager 1 overtook Pioneer 11 in 1983 and Pioneer 10 in 1998, becoming the first human-made object to enter interstellar space in 2012. Both of the Voyager probes carry a "Golden Record" containing a total of 115 images and diagrams about our species and our planet, including basic mathematical, chemical, and physical definitions, as well as spoken greetings from Earth from people in fifty-five modern and ancient languages, selections from different cultures and eras (27 audio recordings of music from around the world); and a large variety of natural sounds such as audio recordings of human activities, machines, and natural phenomena.



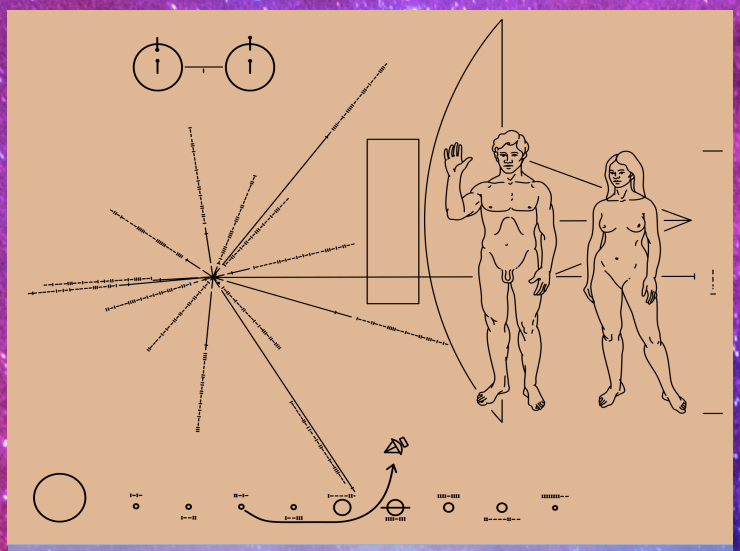
The "Arecibo Message" sent to Outer Space on 16 Nov 1974 from the Arecibo radio telescope in Puerto Rico, which has a single dish of 305 m diameter. Its 1679 binary digits, arranging in 73 rows and 23 columns, were transmitted with a power of 450 kW at 10 bits/seconds at a frequency of 2,380 Mhz modulated by 10 Hz (in order to represent '0' and '1'). The figure adds colour to distinguish the different parts of the message, including the structure and chemical composition of the DNA molecule, carrying our genetic information.

Chatting with ET

If we receive a message of extra-terrestrial origin, should we reply? Should we proactively seek contact, or rather keep a low profile? Some argue that communicating with extra-terrestrial civilisations would be a great thing to do, while others think that it is the last thing that we should do, or might even be the last thing that we will do.

Besides deliberate messages to other civilisations, some part of our radio signals leaks out into space, which could make us detectable, without this being intended or desired.

However, if we were to communicate, what should we say? Is there any universal description that would entail humankind as a whole? A description that would capture the variety of cultures and civilisations that live or ever lived on Earth? A message that would represent us all? What sort of message would we like to receive?



The "Pioneer Plaque" as placed on the Pioneer 10 and Pioneer 11 spacecraft, launched in 1972 and 1973, respectively, showing a nude human male and female along with information about it originating from planet Earth.

Both sides of the "Golden Records" attached to the two Voyager probes, which were launched in 1977 and have now entered interstellar space. Each record is encased in a protective jacket, together with a cartridge and a needle. Instructions, in symbolic language, explain the origin of the spacecraft and indicate how the record is to be played. At 16 ⅔ revolutions per minute, sound is delivered properly, but images are encoded as sonified TV signals.

Facing a mirror

The search for extra-terrestrial intelligence acts as a mirror in which we present and see ourselves, adopting new perspectives on our existence. We are not guaranteed to find definitive answers, but we come across many questions that guide our further understanding. Exploring the Universe in the search for ourselves means reflecting on what it means to be human.

Absence of regulation

On 4 Oct 1957, we entered the space age with the successful launch of Sputnik, the first artificial satellite. In response, the Committee on the Peaceful Uses of Outer Space (COPUOS) was established by the UN General Assembly in 1959 to govern the exploration and use of space for the benefit of all humanity: for peace, security and development. This committee provides a platform for member countries and is technically supported by the United Nations Office for Outer Space Affairs (UNOOSA).

In 1967, the United Nations adopted the "Outer Space Treaty" (officially the "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies"). While procedures to deal with "Near-Earth Objects" that might impact our planet have been firmly established in 2014, the topic of extra-terrestrial life fell off the UN agenda, after having been given initial consideration in 1977.

Moreover, the International Telecommunication Union (ITU) (originally formed in 1865 as International Radiotelegraph Union, and a UN agency since 1947) holds responsibility for issues that concern information and communication technologies, and in particular coordinates the shared global use of the spectrum of radio frequencies.

However, dealing with a signal or message from extra-terrestrial intelligence does not have a precedent, and there are no procedures on Supra-Earth affairs to follow enshrined in international law. Who is going to speak on behalf of humankind?

Bust of Yuri Gagarin, the first human in space, with UN emblem at the United Nations Office for Outer Space Affairs in Vienna (Austria).
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