# A.L.I

## Alien Language Interface

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# LABO Book

44 articles - A4 PDF edition

Languages, signals, mental images, mathematics, radio, cosmology, possible life forms and contact protocols.

# Title Page

A.L.I - Alien Language Interface is a project by David Guez, artist and author. His work explores the notion of link: social links, links between media and practices, links to otherness, with technologies understood as means of exchange. He also questions publics, intimate and public freedoms, free media, science, psychoanalysis, the relation to time, collaborative uses of the internet, identity, memory and archiving. His projects have been presented in France and abroad in art centers and festivals, including Centre Pompidou, Jeu de Paume and Gaîté Lyrique.

Biographical source: https://www.guez.org

# Introduction

A.L.I is a research, documentation and creation workshop devoted to interstellar contact languages, proposed by David Guez, artist and author (guez.org). The project explores how a non-human intelligence might recognize a signal, understand a structure, interpret a pattern, receive an archive or answer a message.

The laboratory connects SETI, METI, exobiology, radio astronomy, information theory, cinema, literature, sound art and installations. Its purpose is to invent conceptual and artistic forms for making readable what might circulate between two worlds.

This book gathers the LABO paths as an art/science research notebook. The articles do not claim contact; they build experimental forms: signal protocols, transmission objects, translation machines, speculative alphabets, sendable archives, luminous devices, biological hypotheses and cultural narratives.

Artistically, A.L.I treats language as a plastic form. A message may become image, rhythm, light, radio wave, mathematical sequence, gesture, object or collective ritual. Scientifically, the project observes physical and biological constraints: distance, noise, energy, temporality, material support, sensory perception, evolution, habitability and the possibility of radically different cognition.

The central hypothesis is simple: before translating an extraterrestrial language, one would first have to invent the conditions in which something becomes recognizable as language. A signal must be distinguished from chance; a form must show intention; repetition must create expectation; an archive must contain its own instructions.

A.L.I works in the fragile place where art can formulate experiments that cannot yet be tested, and where science provides constraints that prevent imagination from becoming pure decor. The project is a workshop of methods: how to encode, how to listen, how to show, how to answer, how to accept that another world may share neither our bodies, nor our measures, nor our obvious assumptions.

The following articles form a constellation: first-contact films, the Arecibo message, the Voyager Golden Record, the Wow! signal, exoplanets, Mars, mathematics, telepathy, crop circles, radio, the Moon, the fourth dimension, phonemes, animals and luminous objects. Each entry asks the same question in a different way: what forms could allow two intelligences separated by body, distance and time to begin understanding one another?

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05.07.2026
https://guez.org/ali/labo/?lang=en&post=gaia-hypothesis-stellar-bodies-brain-universe
Keywords: Gaia, Lovelock, Margulis, brain, universe, cosmic web, neurons, Earth, organism, cosmology, art science

## Summary

**From Lovelock and Margulis to contemporary comparisons between neuronal networks and the cosmic web, this article studies the hypothesis of global organisms: living Earth, stellar bodies, network-universe and the brain as a possible structural miniature of the cosmos.**

## Text

The Gaia hypothesis, formulated from the work of James Lovelock and developed with Lynn Margulis, proposes a powerful idea: Earth is not merely an inert support on which life appears, but a self-regulating system in which atmosphere, oceans, rocks, climates, bacteria, plants, animals and chemical activities help maintain conditions relatively favorable to life. Gaia is not necessarily a goddess, nor a planetary consciousness in a mystical sense. In its scientific core, it describes a planet functioning as a coupled whole, with feedback loops, unstable equilibria and emergent regulations.

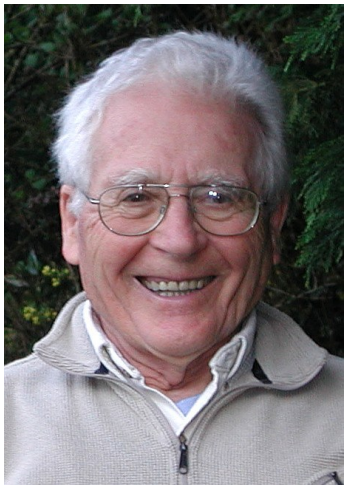
For A.L.I, this hypothesis opens an essential shift: if a planet can be thought of as a global organism, then an extraterrestrial language should not only be sought in the productions of a localized species. It might be inscribed in the rhythms of an entire world: atmospheric composition, climatic oscillations, biological symbioses, mineral cycles, electromagnetic signals, root networks, migrations, clouds, oceans, ionosphere. The question becomes: how do we listen to a planetary body?

Earth seen from Apollo 17, often called Blue Marble. Image: NASA / Wikimedia Commons.

## Gaia: a hypothesis of regulation

In the 1970s, Lovelock observed that Earth’s atmosphere is far from the chemical equilibrium expected for a merely mineral planet. The simultaneous presence of oxygen, methane, nitrogen and other compounds indicates continuous activity. Margulis, a microbiologist, brought a decisive support: microbes, symbioses and cellular evolution show that life deeply transforms its environment. The atmosphere is not a background: it is a historical product of life.

The strength of Gaia lies in this inversion. Life does not simply adapt to the planet; it modifies the planet which, in turn, modifies life. Organism and environment can no longer be strictly separated. The biosphere becomes a system of relations, a machine of equilibria, a collective writing recomposed at every scale.



James Lovelock, chemist and originator of the Gaia hypothesis. Image: Wikimedia Commons.

Lynn Margulis, biologist, theorist of endosymbiosis and a major figure in Gaia thinking. Image: Wikimedia Commons.

## From planetary body to stellar bodies

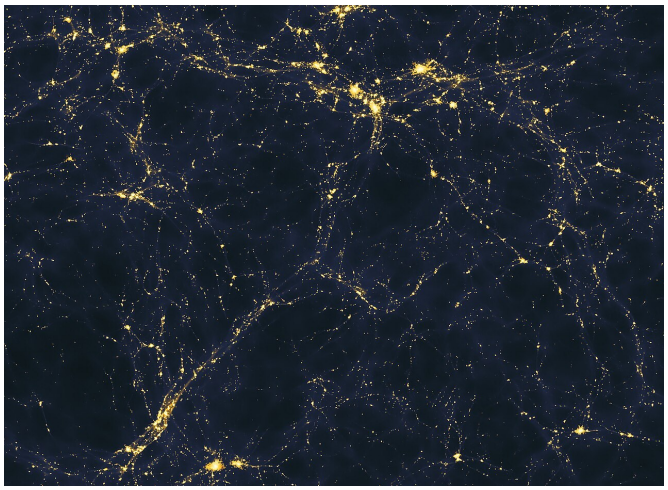
If Gaia is extended, one can speak of stellar bodies: planets, stars, planetary systems, nebulae, galaxies. Of course, not all of them are alive in a biological sense. But each organizes flows: energy, matter, magnetic fields, plasma, dust, radiation, gravitation. A star is a thermonuclear body; a planet is a geochemical body; a galaxy is a gravitational body; a solar system is a dynamic ecology of orbits, resonances and transfers.

The A.L.I question is not to claim that these bodies think like us. It is to ask whether an

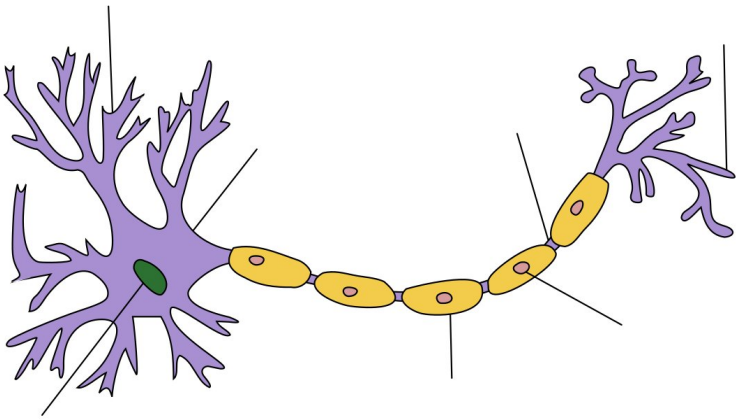
extremely vast body can produce forms of coherence which, at its own scale, resemble behaviors: self-regulation, memory, critical thresholds, attractors, cycles, signals. In this frame, an extraterrestrial message might not be a sentence sent by a mouth, but a modulation in the regimes of a celestial body.

## Brain and universe: a comparison across distance

In recent years, researchers have compared the structure of the cosmic web and certain neuronal networks. The article by Franco Vazza and Alberto Feletti, published in Scientific Reports in 2020, is often cited because it quantitatively examines similarities between matter distribution in the universe and the organization of neuronal networks, especially in the cerebellum. The two systems are separated by vertiginous scales, yet both display network motifs: nodes, filaments, voids, connections and hierarchical organization.



Large-scale luminous distribution: the observable universe as a network of filaments, clusters and voids. Image: Wikimedia Commons.



Neuronal diagram: dendrites, cell body and axon. Image: Quasar Jarosz / Wikimedia Commons.

## Comparative analysis of scales

The comparison requires that visual resemblance and scientific equivalence are not confused. The orders of magnitude are enormous.

The human brain measures less than 20 centimeters, while the observable universe is roughly 8.8 × 1026 meters in diameter. The scale ratio is on the order of 1027 to 1028. Yet at very

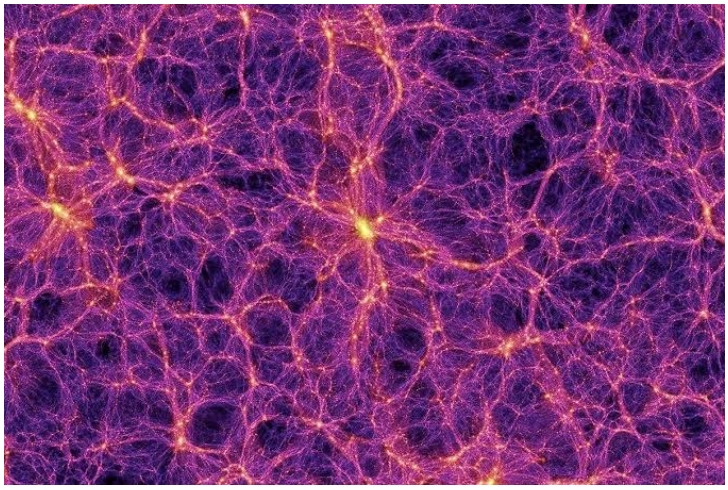
different levels one finds abstract principles: sparse networks, uneven densities, highly connected nodes, low-density zones, circulation of signals or flows, and dependence on a formation history.

It is therefore inaccurate to say: the universe is a brain. It is more rigorous to say: some structures of the universe and some brain structures can be compared as complex networks. The resemblance then becomes a tool for thought, not a proof of identity.

## The mirror hypothesis: the brain as structural miniature

The speculative hypothesis proposed here is this: the brain may be a miniature not of the material universe, but of a universal mode of organization. When many elements interact under constraints of energy, distance, connection economy and memory, they can produce analogous architectures: filaments, hubs, hierarchies, loops, silent zones, local synchronizations.

From this perspective, our brain is not a magical copy of the cosmos. It would rather be a local occurrence of a more general logic: that of systems learning to organize flows. The cosmos organizes matter through gravitation; the brain organizes information through connection; Gaia organizes the conditions of life through feedback. Three scales, three matters, but one shared question: how does a system become more than the sum of its parts?



Cosmic web: an image of the filamentary structure of the cosmos. Image: Wikimedia Commons.

## Consequences for A.L.I

If the hypothesis of global organisms is taken seriously, A.L.I can expand the notion of language. A language would no longer be only a discrete code between individuals. It could be:

- planetary: atmospheric variation, global chemistry, seasonal cycles, biosignature spectra;
- stellar: luminous modulation, magnetic activity, oscillations, plasma rhythms;
- galactic: abnormal energy distribution, artificial structures, coordinated signatures;
- cognitive: brain structures capable of recognizing in the cosmos a form that resembles them;
- artistic: an installation in which brain, Earth and cosmic web become three layers of one reading instrument.

## Installation prototype: Gaia Mirror

One could imagine an installation entitled Gaia Mirror. It would combine three data streams:

human brain activity, terrestrial climate data and maps of large-scale cosmic structure. The visitor would wear an EEG headset. Their brain rhythms would modulate an image of Earth; climate data would modulate a neuronal map; the cosmic web would serve as the structural background. The installation would not claim that everything is identical. It would make perceptible that radically separated scales can enter a shared visual and sonic grammar.

A program could then search for quantitative analogies: degree distribution, node density, modularity, average path length, silent zones, synchronizations. From these measurements, A.L.I could produce an alphabet of networks: not an alphabet of letters, but an alphabet of relational forms.

## Extrapolation: listening to a foreign planet

In exoplanet research, we already look for biosignatures: oxygen, methane, water vapor, chemical disequilibria. A Gaia reading would go further: a living planet may have a dynamic signature, an active stability, a way of correcting disturbances. A non-human intelligence may not inhabit a planet; it may be distributed through its cycles. In that case, communicating with it would mean dialoguing with a global system.

The question then becomes almost vertiginous: if our brain recognizes in the universe forms resembling its own, is it because it projects its structures, or because it was itself born from a universe capable of producing networks? A.L.I can stand in this interval: between human projection and the discovery of a cosmic grammar.

## Sources and paths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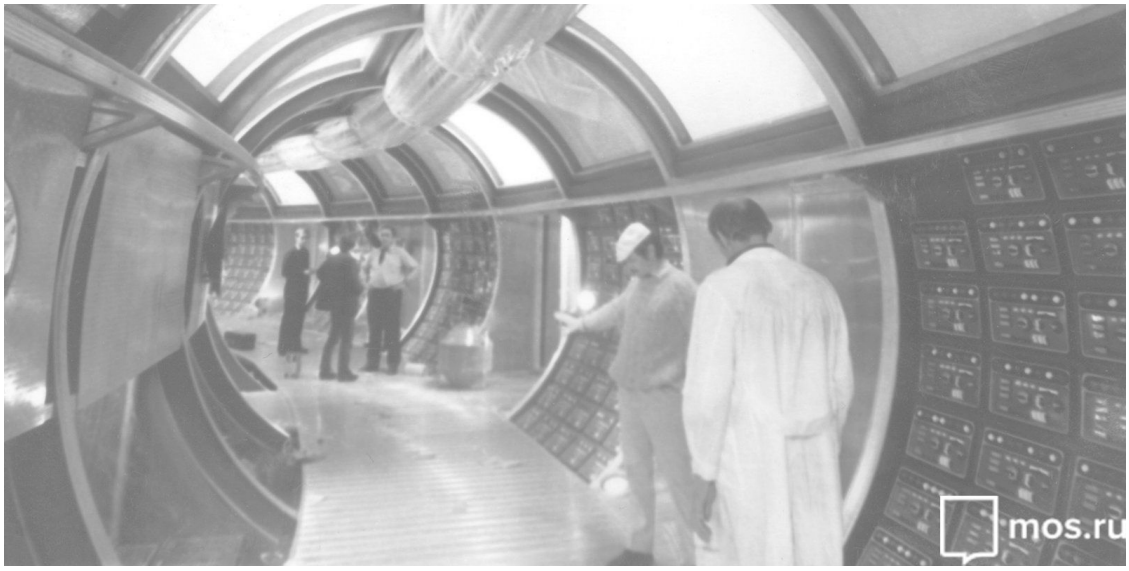
# 2 - Conscious Planets and Living Zones: Pop Culture of Contact Without Dialogue

04.07.2026
https://guez.org/ali/labo/?lang=en&post=conscious-planets-living-zones-pop-culture-contact
Keywords: Solaris, Stanislaw Lem, Tarkovsky, Artemyev, Stalker, Annihilation, Sun Ra, Space Is the Place, pop culture, experimental music, A.L.I, contact without dialogue




## Summary

**From Solaris to Stalker, from Annihilation to Sun Ra, pop culture imagines forms of contact where the extraterrestrial does not send a message: it becomes environment, memory, music, climate, or zone of transformation.**

## Text

Hypothesis: part of pop culture has already imagined a form of contact stranger than the exchange of sentences, radio signals, or mathematical symbols. In these works, extraterrestrial intelligence does not speak: it becomes a place, an ocean, a zone, a planet, a vibration, a music, a modification of reality. The message is no longer a transmitted object. The message is an environment that transforms us.

Solaris, Andrei Tarkovsky, 1972. The planetary ocean does not converse with humans: it produces presences from their memories. Image used in the A.L.I visual corpus.

## 1. Solaris: When a Planet Reads Our Memories

Stanis?aw Lem's novel Solaris, published in 1961, is one of the great works about the impossibility of contact. Humans study a planet covered by a living ocean. For decades they classify its forms, measure its movements, build an entire science, Solaristics. But Solaris remains opaque. It does not respond like a human civilization. It does not build a common grammar. It acts.

Stanis?aw Lem. In Solaris, contact fails because the human does not meet an interlocutor, but an intelligence-planet. Photo: Mariusz Kubik, Wikimedia Commons, CC BY 2.5.

Solaris' answer is unsettling: it materializes figures drawn from the researchers' unconscious and memories. It is neither a language, nor a weapon, nor a simple hallucination. It is an operation on memory. Solaris does not translate its world into ours; it forces humans to face what they carry within themselves.

For A.L.I, Solaris asks an essential question: what if extraterrestrial intelligence did not seek to transmit content, but to produce a situation of knowledge? Contact would then be not a message to decode, but a device that reveals the receiver.

## 2. Tarkovsky and Artemyev: Listening to an Intelligence Without Speech

In Tarkovsky's film, the question of language also passes through sound. Eduard Artemyev's music, combining electronic texture, organic depth, and an almost liturgical presence, does not describe Solaris: it makes a voiceless thought audible. The film also uses Bach as a terrestrial memory, a human remainder projected into space.

Eduard Artemyev, composer associated with Tarkovsky's films. His electronic work turns sonic space into an organism: layers, pulses, thresholds, presences. Photo: Const740, Wikimedia Commons, CC BY-SA 4.0.

This dimension matters: some forms of otherness may not be understood through semantics, but through immersion. A long sound, a vibration, a slow modulation can become forms of environmental thought. Experimental music, from analog electronics to contemporary drones, offers a model of non-verbal contact: one does not explain the signal, one enters its

regime.

## 3. Stalker and the Zone: A Place That Answers Differently

With Stalker, Tarkovsky extends the idea in another direction. The Zone is not merely a post-extraterrestrial setting. It is a space where ordinary laws seem displaced, where human intention turns back on itself, where the straight path is not the right path. Contact is topological: it takes place through paths, waiting, prohibitions, detours, thresholds.

The Zone can be understood as a medium: it does not speak, but it organizes experience. Image from Jägala, a site often associated with the industrial imaginary of Stalker. Photo: Hannu, Wikimedia Commons, public domain.

In this logic, an advanced extraterrestrial civilization might not send a sentence. It might create a zone of experience: a field of constraints, a reactive environment, an architecture where our behavior becomes the alphabet. A.L.I could then study not only messages, but place-messages.

## 4. Annihilation: The Shimmer as Biological Translation

In Annihilation, Jeff VanderMeer's novel and Alex Garland's film, contact takes the form of a refracting zone. The Shimmer transforms organisms, mixes biological identities, alters forms, voices, memories. The extraterrestrial is not presented as a species declaring an intention. It acts as a principle of mutation.

This work is especially useful for A.L.I because it moves language toward the living. The message is no longer written in an alphabet: it is inscribed in tissues, symbioses, deformations, copies. Communication could be biology in the process of rewriting itself.

## 5. Sun Ra: Cosmic Music and Fiction of Origin

With Sun Ra, the extraterrestrial becomes a poetic, political, and sonic strategy. In the Afrofuturism of Space Is the Place, space is not merely a science-fiction backdrop: it is a possibility of emancipation, identity displacement, and active mythology. Sun Ra does not try to prove contact; he creates a world where music serves as a cosmic vehicle.


Space Is the Place, 1974. Sun Ra turns extraterrestrial language into performance, music, costume, ritual, and politics of the future. Poster: North American Star System Production / El Saturn Research, Wikimedia Commons, public domain.

For A.L.I, this path is decisive: an interstellar language could be performative. It does not describe a world; it makes one appear. Experimental music, cosmic jazz, noise, modular synthesizers, ritual singing, and sonic architecture can become laboratories for non-human signals.

## 6. Toward a Pop Typology of Non-Verbal Contact

These references draw a family of contacts where the extraterrestrial does not appear as a classical interlocutor:

- Memory-contact: Solaris produces presences from the human past.
- Zone-contact: Stalker imagines a place that transforms the rules of action.
- Biology-contact: Annihilation thinks otherness as mutation and recombination.
- Music-contact: Sun Ra makes sound a mythological and political spacecraft.
- Atmosphere-contact: Artemyev's electronic layers turn sonic space into diffuse intelligence.

This typology is useful because it avoids reducing contact to emission and reception. It requires us to consider indirect forms of communication: atmosphere, memory, landscape, biology, ritual, vibration.

## 7. Possible Experiments for A.L.I

### Installation: The Environment That Answers

Create a room where visitors receive no explicit message. The device captures their movements, voice, heartbeat, or visual choices, then gradually modifies light, sound, and images. The public does not know whether the room responds, observes, or influences them. Language emerges from relation to the environment.

### Program: Inverted Solaris

A piece of software collects memory fragments provided by several people: sentences, sounds, images, regrets, dreams. It never displays them directly. It transforms them into generative landscapes, sonic textures, slow forms. The visitor must recognize what comes from them and what comes from the system. The question becomes: where does the other begin?

### Sonic Protocol: Contact by Drone

Develop a very long composition made of slow frequencies, pulses, micro-variations, and recurring motifs. Isolated listeners describe what they perceive. The invariants are then searched for: shared mental images, bodily effects, recognized structures. Sound becomes a test of intersubjectivity.

## 8. Conclusion: The Extraterrestrial as Medium

Pop culture gives us a powerful idea: an extraterrestrial intelligence very different from us might not speak at all. It might envelop us, reflect us, transform us, make us cross a zone, alter us through sound or biology. Contact would no longer be a conversation. It would be an environmental experience.

A.L.I can therefore expand its field: looking for messages, yes, but also imagining environments that think. Because a truly foreign civilization might not send a sentence to Earth. It might create a condition in which we finally become able to perceive that someone, or something, is already answering.

## Sources and Leads

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- Space Is the Place, Sun Ra (https://en.wikipedia.org/wiki/Space_Is_the_Place)

# 3 - Fractals: Dynamic Forms, the Origin of Life and Universal Language

04.07.2026
https://guez.org/ali/labo/?lang=en&post=fractals-dynamic-universal-language-life
Keywords: fractals, Mandelbrot, golden ratio, Fibonacci, phyllotaxis, morphogenesis, plants, origin of life, L-system, universal language, A.L.I

## Summary

**A precise exploration of fractals: history, geometry, natural examples, the golden ratio, morphogenesis, plants and the hypothesis of an interstellar language based on dynamic forms repeated across scales.**

## Text

Fractals offer a vocabulary of forms repeated across scales: trees, spirals, boundaries, networks, clouds, organisms.

A fractal is a form whose structure repeats or transforms across scales. It is not only a complex image: it is a way of thinking about growth, boundaries, networks, bifurcations and living forms.

For A.L.I, fractals matter because they let us imagine a language that is not only verbal, not only mathematical and not only visual. A dynamic language: recognizable through structure, able to unfold in time, space and several levels of organization.

## 1. Precise definition

The word fractal comes from the Latin fractus, meaning broken, fragmented, irregular. Benoît Mandelbrot used it in the 1970s to name forms whose complexity persists when scale changes.

A fractal can have several properties:

- self-similarity: a part resembles the whole, exactly or approximately;
- iteration: a simple rule is repeated many times;
- fractal dimension: the form occupies space in a way that lies between line, surface and volume;
- complex boundary: a limit can become endlessly detailed, like a coastline, cloud or biological contour;
- sensitivity to initial conditions: small variations can produce very different forms.

A fractal is therefore not merely a beautiful pattern. It is a generative structure. It shows how complex form can emerge from a simple rule repeated over time.

## 2. Short history

Long before Mandelbrot, several mathematical objects announced fractals: the Koch snowflake, the Sierpinski triangle, the Cantor set, Peano and Hilbert curves. These forms disturb classical intuition: continuous but non-smooth, bounded but endlessly detailed, simple to produce but difficult to classify.

In 1967, Mandelbrot published a famous paper: How Long Is the Coast of Britain? He showed that length depends on the scale of measurement: the smaller the ruler, the longer the

coastline appears. Ordinary geometry is not enough to describe irregular reality.

In the 1980s, the image of the Mandelbrot set became iconic. Computers made it possible to visualize iterative structures of immense richness. The fractal became at once a scientific object, a cultural image and a modelling tool.

## 3. Natural examples

Nature does not always produce perfect mathematical fractals, but it often produces approximate fractal forms:

- tree branches and ramifications;
- ferns, where each leaflet echoes the organization of the whole leaf;
- blood, lung and neural networks;
- rivers and drainage basins;
- lightning, roots, corals, crystals, mountains, clouds;
- certain bacterial colonies and cellular growths.

Romanesco broccoli is one of the clearest visual examples of quasi-fractal growth: each cone echoes the organization of the whole. Image source: Wikimedia Commons.

The fern makes vegetal self-similarity visible: its leaflets replay, at another scale, the logic of the whole leaf. Image source: Wikimedia Commons.

Rivers, deltas and drainage basins form branching networks: the fractal becomes a solution for circulation, erosion and distribution in an environment. Image source: Wikimedia Commons.

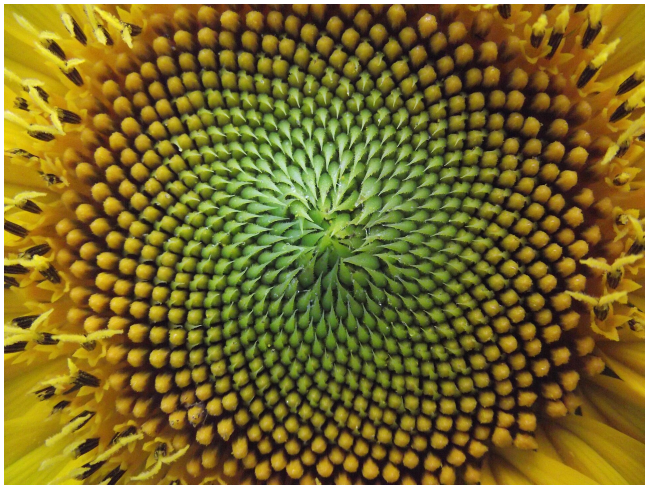
These forms are not decorative. They often answer a constraint: distributing energy, capturing light, transporting fluids, exploring space, maximizing exchange surfaces, branching without controlling everything from a center.

From this perspective, a fractal is a biological or physical solution: a way of growing intelligently within an environment.

## 4. Golden ratio, Fibonacci and phyllotaxis

The golden ratio, ?, is approximately 1.618. It appears in geometric relations, in certain sequences and in Western aesthetic imagination. Caution is necessary: not everything in nature is the golden ratio. Many popular associations are exaggerated.

But there is a serious link between Fibonacci, the golden angle and plant organization. In phyllotaxis, the arrangement of leaves, seeds or petals, angles near 137.5 degrees can optimize exposure, avoid overlap and produce visible spirals in sunflowers, pine cones or artichokes.



In the sunflower, seed spirals show an organization close to Fibonacci sequences and the golden angle: local rules produce global order. Image source: Wikimedia Commons.

The plant does not "know" the golden ratio. It follows local growth processes: divisions, pressures, hormones, available space. But these local rules can produce remarkably regular global structures. This is exactly what makes fractals interesting for A.L.I: an

intelligence may recognize a rule in a form without sharing our language.

## 5. Origins of life and morphogenesis

The question of fractals also touches the origin of living forms. In 1952, Alan Turing proposed a model of morphogenesis based on chemical reaction and diffusion capable of producing patterns: spots, stripes, regularities. Even if it is not a fractal theory in the strict sense, it shows how biological patterns can emerge from simple physico-chemical rules.

In living systems, form is not added afterwards. It appears with the process. An organism builds itself through growth, differentiation, repetition, bifurcation and feedback. Lungs, vessels, roots, branches and neurons are not drawings placed on matter: they are dynamic solutions to problems of circulation, surface, exchange and adaptation.

If life appears elsewhere in the Universe, it may not resemble terrestrial forms. But it could encounter analogous constraints: capturing energy, reproducing, exchanging, maintaining a boundary, exploring an environment, optimizing surfaces. Fractal or quasi-fractal morphologies could therefore reappear as convergent solutions.

## 6. A dynamic universal form?

Fractals can be seen as a universal form not because they would be identical everywhere, but because they describe a principle: generating complexity through iteration, adaptation and scale change.

An extraterrestrial civilization might not recognize our words, myths or sounds. But it could recognize:

- a rule that repeats;
- a transformation visible from scale to scale;
- a motif that encodes its own mode of production;
- a growth process revealing local logic;
- a structure that can be replayed, extended and predicted.

The fractal is not only an image to look at. It is a grammar. If one understands the rule, one can continue the form.

## 7. Toward a fractal language for A.L.I

A fractal-inspired language could work by levels. Each message would contain a simple form, then its transformation, then its repetition at another scale. The receiver would not only read a symbol. It would understand a rule of generation.

Possible example:

- level 1: a point becomes two branches;
- level 2: each branch becomes two new branches;
- level 3: the angle changes according to a sequence;
- level 4: the sequence encodes prime numbers, constants or coordinates;
- level 5: the global form becomes a map, organism or visual sentence.

This kind of language could be transmitted as image, light, sound, radio, 3D print, biological growth or simulation. It would be robust because it does not depend on a single channel. It could also be interactive: an intelligence would answer by correctly continuing

the form.

## 8. Language, plants and non-human intelligence

Plants offer an essential clue. They do not speak like us, but they compute orientations, respond to light, gravity, chemical signals and neighboring constraints. Their form is already a kind of writing of their history: drought, light, injuries, growth, competition.

A fractal language could therefore take inspiration from the vegetal: not sending a sentence, but growing a structure. The message would be readable in bifurcations, angles, spacing, densities and growth speeds. An A.L.I installation could create an artificial or algorithmic plant whose growth encodes a message.

The living form then becomes a communication support: no longer only alphabet, but morphology.

## 9. Projections

In the long term, several paths can be imagined:

- a fractal alphabet where each sign contains the rule that produces it;
- a message sent as an algorithmic seed: little data, large generated form;
- a contact protocol where the reply consists in continuing the fractal;
- an interstellar archive where each chapter is a zoom into the previous structure;
- communication with AIs or non-biological forms through recursive patterns;
- a living sculpture where growth, light and astronomical data produce an evolving form.

The fractal could thus become a bridge between mathematics, biology, art and signal. It does not merely say "here is a message". It says: here is a rule, here is how it transforms, here is how you can verify that you understood.

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- Algorithmic Botany - resources on L-systems and plants (https://algorithmicbotany.org/papers/)

# 4 - Archaeology of the Unknown: Earthly Traces and Non-Human Messages?

03.07.2026
https://guez.org/ali/labo/?lang=en&post=archaeology-of-the-unknown-earthly-traces-non-human-messages
Keywords: archaeology, xenoarchaeology, technosignatures, Nazca, Antikythera, Voynich, quipu, Göbekli Tepe, Phaistos, A.L.I, message

## Summary

**An A.L.I study of earthly artifacts, scripts, machines and monuments that raise the question of messages without readers: a critical xenoarchaeology of the unknown.**

## Text

Hypothesis: Earth already contains objects that behave, for us, like messages from partially lost worlds. They do not prove extraterrestrial intervention. But they raise a central A.L.I question: how can we recognize a message when the reader, the code, the use and the context have disappeared?

This line of inquiry could be called an archaeology of the unknown, or a form of terrestrial xenoarchaeology. The term xenoarchaeology is often used in science fiction and in some SETI reflections to describe the study of non-human artifacts. Here, the point is not to claim a non-human origin for earthly remains, but to build a method: to study some terrestrial objects as models of opacity, impossible translation, partial signal and memory without instructions.

## A method: not confusing strangeness with proof

An ancient object can seem impossible for many reasons: it is technically complex, its writing can no longer be read, its scale exceeds ordinary perception, its ritual function escapes us, or its use has been separated from the community that knew how to interpret it. The mistake would be to fill that gap with spectacle. The A.L.I path is more useful: to treat each case as a decoding experiment.

Five questions can guide the study:

- Structure: does the object contain repetition, measurement, code or orientation?
- Medium: is the message carried by stone, metal, textile, skin, landscape, machine?
- Reader: at what scale was it meant to be read: hand, body, procession, sky, collective memory, instrument?
- Loss: what is missing today: language, ritual, technology, calendar, social use?
- A.L.I transposition: what would this case teach us if we received a truly non-human artifact?

## Nazca: writing at a scale beyond the body

Nazca Lines, Peru. Photo: Wikimedia Commons, Diego Delso. Reference: UNESCO, Lines and Geoglyphs of Nasca and Palpa.

The Nazca lines and geoglyphs in Peru were traced in the desert between roughly 500 BCE and 500 CE. They depict animals, lines, trapezoids and geometric figures that become fully legible from altitude. They are studied as ritual, territorial, calendrical or cosmological productions, not as extraterrestrial messages.

For A.L.I, their value is immense: they show that a message may be designed for a scale that is not the reader's immediate scale. On the ground one sees a path, a segment, a trace. From above, the whole becomes a figure. This split between local inscription and global reading resembles an interstellar problem: a signal received in fragments may only become readable when the correct scale is reconstructed.

## Göbekli Tepe: symbols before writing

Göbekli Tepe, Turkey. Photo: Wikimedia Commons. Reference: UNESCO, Göbekli Tepe.

Göbekli Tepe in Turkey is a Neolithic monumental site dated to around 9600-8200 BCE. Its T-shaped pillars, carved with animals and signs, belong to a world before alphabetic writing but already capable of organizing a complex symbolic space.

This site asks a deep question: does a message need writing? Sculpted animals, orientations, repetitions and monumentality can operate as a grammar without sentences. For A.L.I, this shifts the research: a non-human intelligence might not send words, but an arrangement of forms, positions, rhythms and thresholds.

## Antikythera: a machine waiting for its reader

Antikythera mechanism, fragment A. Photo: Wikimedia Commons. Reference: research published notably in Nature.

The Antikythera mechanism, recovered from a Greek shipwreck and dated to the second or first century BCE, is often described as a mechanical astronomical calculator. Its complexity surprised researchers not because it was impossible, but because it forced a revision of what ancient technical cultures could do.

This case is essential: an artifact may appear anomalous simply because our technical history is incomplete. Surprise is not evidence of non-human origin. Yet Antikythera is a perfect model for a message-machine. It does not merely contain information; it contains a procedure, a calculation, a manipulable cosmology.

## Phaistos Disc: the text without a family

Phaistos Disc, side A. Photo: Wikimedia Commons. Reference: Heraklion Archaeological Museum.

The Phaistos Disc, found in Crete, bears stamped signs arranged in a spiral. It remains famous because its system is not understood by consensus. The issue is not only the difficulty of the signs, but the lack of a large enough corpus to establish reliable repetitions.

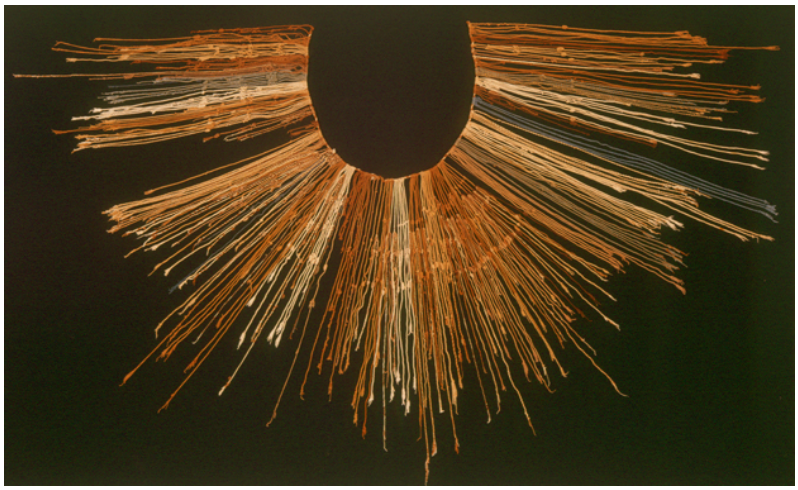
The disc shows a situation A.L.I might face: receiving a single beautiful, organized message that is too isolated to decipher. Without redundancy, without an internal dictionary, without multiple examples, a message may remain forever decorative.

## Rongorongo: when the community of readers disappears

Rongorongo from Rapa Nui is a system of signs carved on wooden tablets, still not deciphered by consensus. It reminds us that writing is not just a set of forms: it is a community of practice, memory, transmission, teaching and reading.

For A.L.I, rongorongo is a warning: a message can become alien without coming from elsewhere. It is enough for the chain of readers to break. A civilization receiving our archives in a thousand years might see our disks, files or interfaces the way we see those tablets: intentional forms whose social key has vanished.

## Quipu: data without alphabet



Inca quipu. Photo: Wikimedia Commons. Reference: Khipu Database Project, Harvard.

Andean quipus are devices of cords and knots used in the Inca empire to record information. They show that a culture can produce a data system without alphabetic writing. Color, material, position, twist, knot type and spatial order become variables.

For A.L.I, the quipu is one of the strongest examples: it demonstrates that a message can be tactile, textile, combinatorial and three-dimensional. If a non-human intelligence does not privilege vision or voice, its language may look more like a structure of tensions, textures, orientations or physical relations than a written sentence.

## Voynich: the object that resembles a book without giving up its world

Voynich manuscript detail. Photo: Wikimedia Commons. Reference: Beinecke Rare Book and Manuscript Library, Yale.

The Voynich manuscript, held at Yale, combines undeciphered writing, strange plants,

diagrams, figures and an encyclopedic organization. It fascinates because it looks like a learned book whose knowledge remains closed to us.

In a contact scenario, this may be our first situation: recognizing organization without knowing whether it encodes botany, astronomy, ritual, medicine, fiction, a lure or a private language. A.L.I must learn to work with objects that produce partial recognition.

## Toward an archaeology of technosignatures

SETI research now speaks of technosignatures: observable clues of possible non-human technology. We often think of radio signals, lasers, atmospheric pollution, megastructures or energy anomalies. But another path exists: searching for artifacts, probes, traces or objects within the solar system. This is where the idea of xenoarchaeology becomes relevant.

The distinction matters: terrestrial archaeology starts from real but human objects that we do not always understand. Speculative xenoarchaeology would start from potentially non-human objects whose artificiality would first have to be established. In both cases, the initial problem is the same: distinguishing a natural form, a lost human form and an unknown artificial form.

## What these objects teach A.L.I

These cases do not say “extraterrestrials have already been here.” They say something more rigorous and perhaps more vertiginous: even among humans, a message can become alien. A script without readers, a machine without a manual, a landscape without a viewpoint, a textile without a code or a book without a language already produces an experience of impossible contact.

For A.L.I, this opens a method:

- design messages with several scales of reading;
- add redundancy and examples;
- carry meaning through structure, not only vocabulary;
- think through tactile, luminous, mechanical, spatial or biological media;
- include a learning procedure inside the message;
- accept that a message may remain partially unreadable for a long time.

## Installation proposal: Cabinet of Messages Without Readers

An A.L.I installation could gather reproductions, fragments, projections and objects inspired by these cases. The visitor would enter a cabinet of speculative archaeology: a central analysis table; around it, miniature geoglyphs, a cycle machine, coded cords, a generative manuscript, a tablet of signs and a program attempting to produce reading hypotheses.

The device would not search for “the correct translation.” It would show how an intelligence builds interpretations: detecting repetitions, proposing grammars, comparing media, simulating scales, searching for redundancy and visualizing uncertainty. The viewer would become the archaeologist of a message that may never have been written for them.

## Perspective

The archaeology of the unknown is not a naive search for impossible objects. It is an imaginary but useful discipline: learning to read the limits of our reading. Before meeting

a non-human civilization, we can already train with terrestrial objects that resist our codes.

Perhaps first contact will not begin with a voice in the sky, but with a silent object: too organized to be natural, too strange to be immediately human, too fragmentary to be translated. Then we will need an archaeology of signal: patience before forms that look back at us without yet speaking.

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# 5 - Deleuze: Rhizome, Extreme Otherness and the Alien Organism

03.07.2026
https://guez.org/ali/labo/?lang=en&post=deleuze-rhizome-extreme-otherness-alien-organism-ai
Keywords: Deleuze, Guattari, rhizome, otherness, collective intelligence, AI, posthumanism, assemblage, A.L.I, philosophy

## Summary

**An academic reading of Deleuze and Guattari for A.L.I: rhizome, becoming, extreme otherness, collective intelligence and AI as a non-centralized translation milieu.**

## Text

Hypothesis: Gilles Deleuze's thought, especially as it extends through his work with Félix Guattari, gives A.L.I a rigorous way to think extreme otherness. Not the other as an exotic interlocutor, but the other as a system of relations, speeds, perceptions, becomings and connections that exceeds human categories. The rhizome can then be read as a model for an alien organism: non-centralized, multiple, proliferating, without a single origin, producing meaning through connections rather than hierarchy.

Gilles Deleuze and Félix Guattari. Image provided for the A.L.I project. Their shared thought shifts language toward assemblage, multiplicity, becoming and rhizome.

## 1. Deleuze and otherness as a philosophical problem

For Deleuze, otherness cannot be reduced to a moral encounter with another subject. It first passes through a critique of identity. In Difference and Repetition, Deleuze attempts to think difference in itself, without reducing it to resemblance, opposition or analogy. This is fundamental for A.L.I: an extraterrestrial intelligence may not be a variation of the human, but a positive and irreducible difference with its own operations.

Thinking extreme otherness therefore requires us not to begin by asking: “what does it resemble?” We should instead ask: what relations does this intelligence produce? What signs

affect it? What speeds, thresholds, intensities and connections define its world? Deleuze shifts analysis from being to functioning, from essence to assemblage.

For A.L.I, this changes the question of contact. If a non-human civilization appears in a radically different form, it may not be identifiable as a “speaking subject.” It may be a network, distributed organism, field of behaviors, techno-biological ensemble, planetary memory, collective machine or cloud of relations.

## 2. The rhizome: thought without a center

Botanical rhizome. Image: Wellcome Collection / Wikimedia Commons. The rhizome grows through lateral ramifications, resumptions and non-hierarchical connections.

In the introduction to A Thousand Plateaus, Deleuze and Guattari oppose the model of the tree to the model of the rhizome. The tree implies root, trunk, branches, lineage and hierarchy. The rhizome unfolds through multiple connections: it can be cut and restart elsewhere; it has no necessary center; it connects heterogeneous points; it produces a map rather than a tracing.

Academically, the rhizome is not merely a plant metaphor. It is a theory of non-arborescent organization. It allows us to think systems in which units do not first exist as isolated individuals, but as provisional nodes in a network of relations. The rhizome is a logic of propagation, association and transformation.

For A.L.I, the rhizome can become a model for an alien organism. An extraterrestrial intelligence may have no central brain, no single language, no stable body and no clear border between individual and milieu. It may be made of loops, symbioses, local signals, temporary connections, partial memories and emergent decisions. Such an organism does not “speak” from a center; it modulates a field.

## 3. Becoming, animality, imperceptibility

Extreme otherness in Deleuze and Guattari also passes through notions of becoming: becoming-animal, becoming-molecular, becoming-imperceptible. These concepts do not mean imitating an animal or literally turning into something else. They describe passages, alliances and zones of indiscernibility in which a form of existence leaves its usual coordinates.

From this perspective, communicating with a non-human intelligence would not only mean translating a vocabulary. It would require entering a zone of becoming: transforming our

instruments, perceptual habits, models of meaning and rhythms of listening. Translation becomes a transformation of the translator.

A.L.I can take up this idea: interstellar contact is not only the reception of a message; it is the fabrication of a common zone. A becoming-contact, in which each intelligence accepts to shift its own mode of existence.

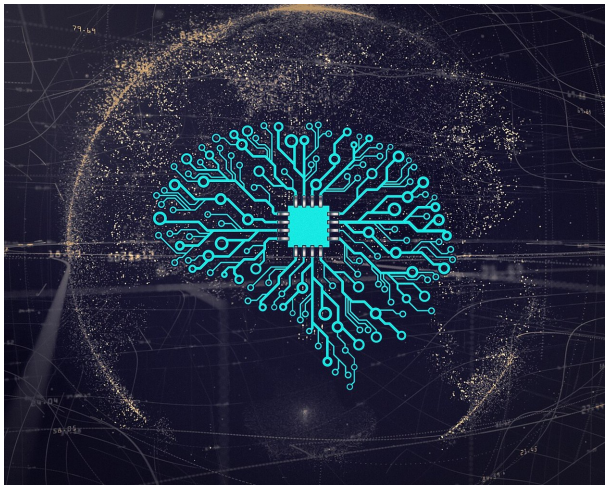
## 4. Rhizome and collective intelligence

The notion of rhizome has been taken up in network theory, media studies, digital thought, political ecology, anthropology, posthumanism and assemblage theory. It is often used to describe collective forms that do not operate through a single center: distributed communities, activist networks, ecosystems, platforms, web architectures and multi-agent systems.

But one must avoid a simplistic reading. A network is not automatically rhizomatic. Many digital networks are strongly hierarchical, surveilled, centralized or governed by platforms. The Deleuzo-Guattarian rhizome is not simply a technical network; it is a logic of multiplicity, heterogeneity and transformation.

For A.L.I, this distinction is essential: an extraterrestrial collective intelligence may be rhizomatic without being democratic in any human sense, without being benevolent, without being transparent. It may produce decisions through propagation of differences, local thresholds, chemical signals, distributed calculations or environmental memory.

## 5. AI: from neural network to computational rhizome



Artificial neural network and chip. Image: Wikimedia Commons. Contemporary AI makes it possible to think distributed, statistical and not fully legible forms of cognition.

Contemporary artificial intelligence makes the Deleuzian question newly relevant. A large language model is not a central consciousness applying explicit rules like a dictionary. It operates through distributions, associations, latent spaces, weights, statistical neighborhoods and successive transformations. It does not understand like a human subject, but it produces effects of meaning through a relational architecture.

The parallel with the rhizome must remain careful. Industrial AI is built, trained, optimized and controlled by highly centralized infrastructures. Yet its internal mode of meaning-production is already less arborescent than a dictionary: it connects, propagates, weights, activates and recombines. Meaning is not stored in a single point; it circulates

through a multiplicity of relations.

A.L.I can therefore propose a hypothesis: AI may become a mediator between heterogeneous forms of intelligence because it tolerates nonlinear spaces, partial correspondences, probabilistic translations and cartographies of relations better than we do. It would not be a “universal interpreter,” but a rhizomatic instrument of passage.

## 6. Deleuze, Guattari and contemporary philosophers

Several contemporary thinkers have extended or transformed Deleuzian intuitions. Manuel DeLanda developed assemblage theory, emphasizing emergent organizations, material interactions and processes not reducible to essence. Brian Massumi worked on affect, intensity and virtuality, showing how bodies and signs circulate before meaning stabilizes. Rosi Braidotti took up Deleuze in a posthuman perspective attentive to non-anthropocentric subjectivities, becomings and continuities between human, animal, technology and Earth.

Donna Haraway, while not reducible to Deleuze, shares with this constellation a critique of overly clear boundaries between human, animal, machine and organism. Her cyborg figure and later work on companion species help think hybrid, situated and relational subjectivities. Bruno Latour and actor-network theory also contributed to thinking collectives made of humans and non-humans, even if their framework differs from Deleuze and Guattari's.

These continuations are important for A.L.I because they give conceptual tools for not reducing the extraterrestrial to “another human.” They force us to think hybrid agents, technical collectives, distributed intelligences, ecologies of signs and decentered forms of subjectivity.

## 7. A.L.I hypothesis: rhizome as contact protocol

If Deleuze is transposed to A.L.I, an interstellar message should perhaps not be designed as a sentence sent from subject A to subject B. It could be designed as a rhizome: a set of heterogeneous modules, connectable in several orders, readable at several scales, capable of surviving cuts and producing multiple paths of understanding.

A rhizomatic contact protocol could contain:

- mathematical sequences, but also images, sounds, rhythms, physical measures and manipulable objects;
- partial redundancies, so the message can be resumed through several paths;
- autonomous fragments that make sense without the whole;
- learning loops, where each part explains other parts;
- progressive thresholds of complexity;
- maps of relations rather than a single grammar.

The message would therefore not be a line, but a milieu. It would not only ask “understand me,” but “move through me, connect, cut, resume, reconstruct.”

## 8. Work paths and installation

An A.L.I installation inspired by Deleuze could take the form of a rhizome-organism of translation. In space, several stations produce signals: voice, light, vibration, image, text, biological data, mathematical fragments. No station is the center. Each visitor activates different connections. The system gradually learns which passages become readable

between stations.

A program could represent each A.L.I article as a node, not classified by section, but connected by intensities: signal, body, machine, dream, mathematics, cosmos, biology, fiction, ritual. The interface would become a rhizomatic map of the project: not a menu, but a collective intelligence of themes.

In an AI version, a model could generate nonlinear paths between concepts, then ask the visitor to choose the connections that “make sense.” The rhizome would not merely be visualized: it would be co-produced by humans, texts, images, machines and extraterrestrial hypotheses.

## 9. Conclusion: thinking the alien without reducing it

Deleuze is useful to A.L.I because he prevents otherness from being reduced to an already known figure. Rhizome, becoming, assemblage and multiplicity do not directly describe extraterrestrials. They train us to think what does not yet resemble an interlocutor.

If a non-human intelligence is rhizomatic, it may not appear as a face, a voice or a linear message. It may manifest as organization, propagation, field, distributed memory, network of signs, organism without center. The question will no longer be only: “What does it mean?” but: “How does this system produce relations, and how can we become capable of entering them without crushing them under our categories?”

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# 6 - Umwelt: every intelligence inhabits a perceptual world

02.07.2026
https://guez.org/ali/labo/?lang=en&post=umwelt-perceptual-worlds-contact-language
Keywords: Umwelt, Uexküll, biosemiotics, perception, sensory ecology, translation, alien, A.L.I, contact

## Summary

**An A.L.I article on Umwelt: the perceptual world proper to each being, from Jakob von Uexküll to non-human senses, and the hypothesis that contact language begins by translating perceptual milieus.**

## Text

Before speaking a language, an intelligence inhabits a world. It does not receive “reality” as a single block: it selects certain intensities, rhythms, forms, smells, pressures and fields. The notion of Umwelt, formulated by Jakob von Uexküll, names this proper world: the environment as it exists for a given organism through its organs, needs, possible actions and relevant signs.

Umwelt, Bertrand Wolff, François Rossi, Damien Ravnich. Image: GMEM — Centre national de création musicale de Marseille.

For A.L.I, this notion is crucial: interstellar contact would not only be a problem of vocabulary. It would first be a problem of perceptual milieu. If an extraterrestrial intelligence does not see as we do, hear as we do, divide time as we do, or share our bodily and chemical scale, then the first act of translation is to understand what kind of world it inhabits.

## 1. Uexküll: the world is not the same for everyone

Jakob von Uexküll, biologist and theorist of life, proposed a simple and disruptive idea: each being lives in a world of signs proper to it. The world of a tick is not the world of a human; the world of a bat is not the world of a bee; the world of an octopus, a dog, a tree

or a microorganism cannot be reduced to a poor version of ours.

Umwelt is therefore not merely a physical environment. It is an active cut through reality. Some signals become decisive, others disappear. A smell may be a landscape. A thermal variation may be a direction. An electric field may be a shape. A vibration may be a sentence.

## 2. Reality as sensory selection

Humans often privilege vision, articulated language, geometry, images and stable objects. But other living beings construct their worlds from senses that almost entirely escape us: echolocation, light polarization, ultraviolet, magnetoreception, electroreception, fine chemoreception, micro-vibration perception.

These senses are not simple extensions. They produce different worlds. An intelligence that perceives magnetic fields as we perceive colors might think space otherwise. An intelligence inhabiting an ocean of waves, pressures or molecules might have no interest in our rectangular images, yet immediately perceive the structure of a rhythm.

## 3. Thomas Nagel: what does inner experience do?

In his famous essay What Is It Like to Be a Bat?, Thomas Nagel identifies a philosophical limit: even if we perfectly describe a bat’s sonar, do we know what it is like to be a bat? Science can describe functions, but subjective experience remains hard to translate.

For A.L.I, this question becomes cosmic. Understanding an extraterrestrial intelligence does not only mean decoding its signals. We might have to understand what it means for that intelligence to have a world: what matters, what appears, what disappears, what counts as an event, what triggers a response.

## 4. The alien as radical Umwelt

An extraterrestrial intelligence could be biological, mineral, oceanic, atmospheric, collective, slow, diffuse, photosensitive, electromagnetic or chemical. Its Umwelt might not contain objects in the human sense. It might live in gradients, flows, densities, fields and probabilities.

We often send images, numbers, sounds or diagrams because they fit our own division of reality. But another perceptual world might not recognize these forms as relevant. The problem is not only “what message should we send?” but “in what Umwelt could this message become perceptible?”

A.L.I diagram: contact does not begin with an alphabet, but with the partial overlap of perceptual worlds.

## 5. Translating a world rather than a sentence

A contact protocol inspired by Umwelt should begin by mapping capacities of perception. Instead of sending only “we are here”, one could send variations designed to test which channels are readable: frequency, repetition, polarity, contrast, periodicity, scale change, redundancy, symmetry, phase, duration.

The response of an intelligence would not necessarily be a word. It could be a rhythmic modification, an amplification, an absence, a synchronization, a deliberate disturbance. A dialogue between two Umwelt would therefore be an exchange of adjustments: each side tries to produce something that exists in the perceptual world of the other.

## 6. A.L.I hypothesis: the Umwelt translator

One can imagine an A.L.I prototype called the Umwelt translator. The device would take a human datum - phrase, image, sound, gesture - and transform it into several sensory versions: vibration, pulsed light, simulated magnetic field, infrasound, ultrasound, synthetic smell, thermal pattern, virtual particle flow.

An AI could then observe the responses of a living, artificial or simulated system, and search for which channels produce regularities. The goal would not be to translate “hello” directly, but to discover a space of co-perception: a minimal perceptual common ground from which a message might begin.

## 7. Possible installation: Chamber of Proper Worlds

An installation could place the visitor inside several sensory cabins. In each one, the same “message” is translated differently: simulated ultraviolet light, low-frequency vibration, spatialized sound, visualized magnetic field, tactile pattern, smell. The visitor would understand that a message is not independent from the body that receives it.

At the center, an interface would show zones of overlap: what the human, the machine, the animal and the hypothetical alien may share. The artistic question becomes: how much of ourselves must we abandon for another world to begin answering?

## 8. Consequences for contact

- A universal message is not necessarily an image. It must first be perceptible.
- Language begins before words. It begins in attention, difference and repetition.
- An alien intelligence might not recognize our objects. It might recognize gradients, cycles or transitions.
- Translation is embodied. Translating a message also means translating a world of sensations.
- AI could act as mediator. It can explore several channels and search for correspondences without immediately imposing human language.

## 9. Perspective

Umwelt offers A.L.I a strong direction: to think contact as a meeting between perceptual worlds. Before asking “what does this sign mean?”, we must ask “in what world can this sign appear?” A very different civilization might fail to answer not because our message is false, but because it is simply outside its sensible world.

Inventing an interstellar language may therefore mean inventing a method for making something perceptible between worlds that share neither body, nor senses, nor scale. The true first contact would not be a sentence. It would be an overlap.

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## Artistic reference: Umwelt at GMEM

The project Umwelt (https://gmem.org/umwelt), presented by GMEM — Centre national de création musicale de Marseille, is a direct artistic reference for A.L.I. The piece is described as a mixed work for electronics, two percussionists and six vibratory loudspeakers. It explicitly starts from Jakob von Uexküll's concept and applies it to a sonic field: each instrument, loudspeaker and resonating body produces its own perceptual milieu.

What matters here for A.L.I is the way sound becomes a model of a proper world. Vibratory loudspeakers applied to cymbals or drum skins make the instruments resonate beyond the direct human gesture. Listening becomes an experience of sensory ecology: the same event can be perceived as gesture, vibration, matter, space, dilated time or relation between milieus.

This reference shifts the question of extraterrestrial language toward the coexistence of several acoustic worlds. Before translating a sentence, we may first have to learn how to make heterogeneous regimes of perception coexist: human, instrumental, electronic, vibratory, non-human.

# 7 - Extraterrestrial Poetry: Rhythm, Unconsciousness and Language Beyond Meaning

02.07.2026
https://guez.org/ali/labo/?lang=en&post=poetry-extraterrestrial-communication-unconscious
Keywords: poetry, extraterrestrials, automatic writing, unconscious, surrealism, prosody, language, AI, signal, A.L.I

## Summary

**What if poetry were an ultimate form of communication with non-human intelligence: not because it explains better, but because it carries rhythm, silence, image, ambiguity and the unconscious.**

## Text

Figurative Arabic calligraphy: Basmala, 1924, by Aziz Efendi, referenced on Wikipedia / Wikimedia Commons. Text becomes form, image and visual organism: writing that is not only readable, but visible as an architecture of signs. Source (https://fr.wikipedia.org/wiki/Calligramme#/media/Fichier:Bismillah.JPG).

What if poetry were one of the most advanced forms of communication with extraterrestrial intelligence? Not because it is clearer than science, but because it accepts what ordinary language often tries to reduce: ambiguity, vibration, metaphor, silence, the unconscious, the plurality of meaning.

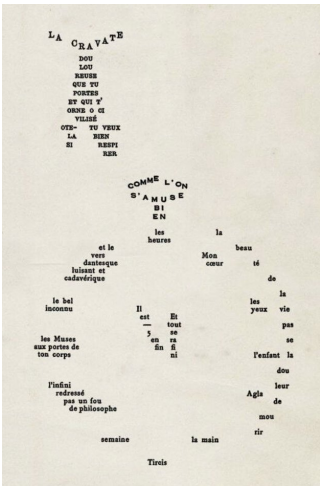
For A.L.I, poetry opens a strong hypothesis: first contact may not pass through a translatable sentence, but through a form capable of producing resonance. A non-human intelligence may not understand our dictionaries, but perceive regularities of breath, return, rupture, image and density.

## 1. A brief history of poetry as language technology

Poetry often precedes writing. In many cultures, it is first oral: song, formula, memorized story, invocation, prayer, epic. Rhythm and repetition serve memory, transmission and community. Poetry is not only an art: it is a technology of memory.

Ancient forms often associate poetry, sacred speech and cosmology. Hymns, psalms, ritual songs, oracles, epics: the poem carries a speech that exceeds the individual. It does not only say "I think." It speaks from a larger place: ancestors, gods, cosmos, people, spirit, unknown.

Historical markers. Homer, Vedic hymns, psalms, Sappho, shamanic songs, Sufi poetry by Rumi or Ibn Arabi show that poetry has long held memory, rhythm, body and cosmos together. It is not first a separate "literary genre": it is a practice of address to the invisible, the community, the dead, gods, elements.




Guillaume Apollinaire, La Cravate et la montre, from Calligrammes: the page becomes space, a constellation of words and a mental drawing.

With writing, poetry also becomes a graphic architecture. Lines, stanzas, blanks, alignments, calligrams, ideograms, typography: the poem shows that language is not only a sequence of words, but a spatial and sonic object.

Spatial poetry. Mallarmé, with Un coup de dés jamais n'abolira le hasard, turns the page into a field of forces: type sizes, blanks, dispersion. Apollinaire, with Calligrammes, turns the poem into a figure. Later, concrete poetry by Eugen Gomringer, Augusto and Haroldo de Campos, Ian Hamilton Finlay or bpNichol turns the word into a visual, almost sculptural object. For A.L.I, this lineage is decisive: it shows that a poem can become map, constellation, diagram or interface.

Image-calligraphies. Arabic, Persian, Hebrew and East Asian calligraphic traditions remind us that writing can be sign, breath, image, gesture and rhythm at once. In these forms, text does not merely name: it becomes a graphic body. For non-human communication, this hybridization is precious because it gives the receiver several simultaneous handles: reading, seeing, following movement, recognizing structure.

## 2. Poetry and ordinary language

Ordinary language often seeks efficiency: naming, describing, ordering, transmitting stable information. It tries to reduce uncertainty. Poetry, by contrast, works with uncertainty. It does not only say one thing: it makes several levels appear simultaneously.

Ordinary language says: "the light arrives." A poem can make us feel time, distance, body, lack, waiting, color, trembling. It does not replace information: it increases it through sensory layers.

Language against pure information. Rimbaud speaks of the "derangement of all the senses"; Mallarmé wants to "give a purer sense to the words of the tribe"; Paul Celan writes after catastrophe in a broken, dense, almost mineral language. In Emily Dickinson, cuts, dashes and condensation turn the poem into a machine for suspending meaning. These poets matter for A.L.I because they do not only transmit content: they change how the receiver becomes able to receive.

Before the dictionary, there is prosody: rhythm, pauses, returns, intensities. A foreign intelligence might first recognize a temporal organization.

Poetry operates through several procedures:

- rhythm: a temporal structure before lexical meaning;
- metaphor: a displacement between distant domains;
- ellipsis: what is missing becomes active;
- ambiguity: several readings coexist;
- mental image: language becomes an inner scene;
- silence: blank, pause and interruption participate in the message.

These properties matter for A.L.I because they bring language close to experience. The poem does not merely transmit content. It transforms the receiver's state.

## 3. Poetry as a non-literal signal

An extraterrestrial intelligence may not possess ears, mouth, human syntax or body. Yet it might detect regularities: alternation, symmetry, rupture, repetition, density, transformation. Poetry could therefore be designed as a form of non-literal signal.

An interstellar poem would not necessarily be translated word by word. It could be read as a score of variations: intensities, returns, motifs, delays, silences. It would be a writing of relation rather than a writing of objects.

Sound poetry and proto-language. Hugo Ball at Cabaret Voltaire, Kurt Schwitters with Ursonate, Antonin Artaud in his glossolalia, Henri Chopin with sound poetry on tape, Bernard Heidsieck and François Dufrêne move the poem toward mouth, breath, cry, syllable and tape recorder. Here, language becomes acoustic signal before becoming dictionary. This is a direct A.L.I path: an external intelligence might first recognize vibration, repetition and modulation.

Here poetry becomes close to music, mathematics and ritual. It does not only say "this is what we know." It says: this is how our mind organizes the unknown.

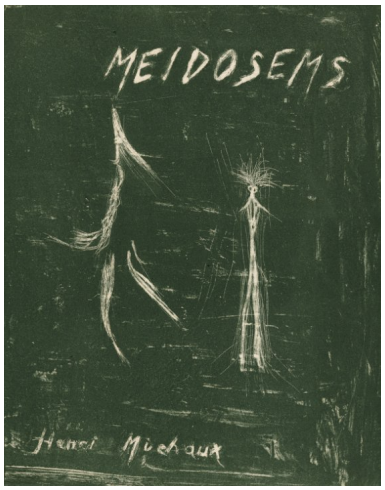
## 4. Automatic writing and forces beyond us

Automatic writing occupies a particular place. In nineteenth-century spiritualism, it was often understood as dictated by spirits. In Surrealism, André Breton took it up as a method for letting thought speak outside rational control. In both cases, the author is no longer a sovereign master: they become receiver, channel, surface of inscription.

We can analyze this without choosing too quickly between belief and skepticism. Automatic writing can be seen as access to the unconscious, involuntary associations, buried memories and linguistic structures that act before the will. But it can also be thought poetically as a situation in which the subject accepts being crossed by what exceeds them.

Automatism, chance, cut-up. Breton and Soupault published Les Champs magnétiques as an

experiment in automatic writing. Brion Gysin and William S. Burroughs invented or systematized cut-up: cutting, displacing, making the text speak otherwise. John Cage used chance and the I Ching; Jackson Mac Low composed with chance operations, silences and durations. These practices displace the author: the poet becomes an operator of a device where something writes with them.




Henri Michaux, Meidosems: between writing, trace, creature and hallucinated alphabet, form seems to come from a zone before or beyond ordinary language.

Michaux is a decisive reference here: his figures are neither only drawings nor only signs. They resemble graphic organisms, writings of beings, alphabets without translation. For A.L.I, they show how poetry can leave the sentence and become apparition.

For A.L.I, this position is essential: learning to write as if language came from elsewhere. Not claiming that extraterrestrial forces dictate sentences, but creating devices where the ego becomes less central and the text lets unexpected forms pass through.

## 5. A.L.I hypothesis: the poem as psychic antenna

I propose the following hypothesis: a poem can function as a psychic antenna. It does not necessarily capture an external signal in the physical sense, but it configures the mind to receive differently: through analogy, dream, rhythm, resonance, drift and image.

The poem would then be an instrument of controlled disorientation. It disturbs language enough for other associations to become possible, but not so much that all structure is lost. It stands between code and apparition.

Unconscious and reception. This idea resonates with Freud and Jung, but also with spiritualist, mediumistic and visionary practices: Hélène Smith and her "Martian" studied by Théodore Flournoy, mediumistic drawings, invented alphabets, glossolalic writings. For A.L.I, these are not proofs of contact, but archives of forms produced when human language believes it is crossed by otherness.

In communication with an external intelligence, this property could be decisive. A message that is too literal imposes our categories. A poetic message opens a common space where several readings can survive.

## 6. Making contact poetry

An A.L.I device could produce poems by crossing body, radio noise, chance, AI, archives and automatic writing.

Several contact-poetry devices can be imagined:

Procedural poetries. Oulipo, founded around Raymond Queneau and François Le Lionnais, explores literature under constraints. Queneau's Cent mille milliards de poèmes is almost a printed combinatorial machine. Georges Perec shows that a constraint can produce a world. Bernadette Mayer proposes writing experiments as protocols of perception. These approaches are essential for A.L.I: they turn the poem into a procedure, therefore into something transmissible and replayable.

- Radio-poem: capture cosmic noise, transform it into rhythmic constraints, then write under these constraints;
- EEG-poem: use a reader's brain activity as modulation for a text;
- Dream-poem: collect dream fragments and recombine them into an alphabet of images;
- Automaton-poem: let a program produce variations, then keep those that seem to carry intention;
- Collective poem: several participants write without reading each other, then a system extracts motifs, returns and correspondences;
- Stellar poem: convert astronomical data into prosody, blanks, repetitions and stanzas.

These devices do not try to prove contact. They try to fabricate conditions of reception: making language more porous, more sensitive, more able to welcome another form.

## 7. Possible program: contact poem generator

A computational prototype could work as follows:

- input 1: a stream of astronomical or radio data;
- input 2: a multilingual poetic corpus;
- input 3: a human bodily stream, breath or heartbeat;
- module 1: extraction of rhythmic motifs;
- module 2: generation of fragments through AI;
- module 3: automatic perturbation through controlled chance;
- output: visual, sonic and textual poem, accompanied by its generation score.

The key point would be to preserve the trace of the process. The poem would not only be an aesthetic result. It would be a reproducible experiment: a message whose conditions of appearance can be replayed.

Technical references. One could draw from John Cage's mesostics, Jackson Mac Low's operations, Burroughs and Gysin's audio cut-ups, but also contemporary generative poetry, poetry bots, performed reading and text-to-speech. The goal is not to replace the poet with the machine, but to create a chain of agents: body, chance, archive, statistical model, cosmic noise, human decision.

## 8. Possible installation: Chamber of Exterior Writing

An A.L.I installation could be called Chamber of Exterior Writing. The public enters a dark room. At the center: a table with paper, microphone, breathing sensors, radio antenna and screen. The room diffuses a faint sonic breath derived from space data. The visitor writes without clear instructions for a few minutes.

The system analyzes writing rhythm, pauses, repetitions and insistent words. It crosses them with radio noise and produces a second poem, like a response. The visitor leaves with two texts: the one they believe they wrote, and the one the machine extracted from what passed

through them.

Installations and inheritances. This chamber could dialogue with Fluxus, George Brecht's textual scores, La Monte Young's environments, Ian Hamilton Finlay's poem-objects, Jaap Blonk's sound readings or PennSound archives. It could also function as a public laboratory: every visitor adds a trace, and the whole becomes an evolving corpus of contact attempts.

The installation does not ask: "did an extraterrestrial speak?" It asks: "what speaks when I stop fully controlling language?"

## 9. Why poetry might be ultimate

Poetry may be an ultimate form of communication not because it is superior to mathematics or science, but because it accepts not closing meaning. It can survive imperfect translation. It can carry rhythm without shared vocabulary. It can make a mental image exist even when concepts diverge.

Interstellar contact will perhaps need proofs, numbers, constants and protocols. But it will also need something more fragile: a way of saying otherness without reducing it. This may be where poetry becomes indispensable.

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# 8 - Boltzmann Brain: when an observer emerges from cosmic noise

01.07.2026
https://guez.org/ali/labo/?lang=en&post=boltzmann-brain-observer-cosmic-noise-star-trek
Keywords: Boltzmann brain, entropy, cosmology, observer, fluctuation, multiverse, Star Trek, Strange New Worlds, information, A.L.I

## Summary

**An A.L.I article on the Boltzmann brain, entropy, spontaneous observers, the cosmological measure problem, and season 1 episode 8 of Star Trek: Strange New Worlds.**

## Text

The Boltzmann brain is one of the most vertiginous hypotheses in contemporary cosmology. It imagines that a conscious observer might appear not through biological, planetary and evolutionary history, but as an extremely rare statistical fluctuation in a vast, ancient, perhaps eternal universe.

For A.L.I, the idea is fertile because it shifts the question of contact. What if an extraterrestrial message did not come from a civilization with antennas, spacecraft or planets, but from a consciousness briefly emerging inside cosmic noise itself? What if the sender had no world, no people, no duration, only an instant of thought produced by entropy?

Cosmic brain: cover image for thinking a consciousness emerging from stellar noise.

## 1. Boltzmann, entropy and the scandal of order

Ludwig Boltzmann. Image source: Wikimedia Commons, Dibner Library / Smithsonian Libraries.

Ludwig Boltzmann tried to understand how the laws of thermodynamics could emerge from the statistical behavior of enormous numbers of particles. Entropy measures, in simplified terms, the number of microscopic configurations compatible with a macroscopic state. Disorder is more probable because there are vastly more ways to be disordered.

The problem begins when this logic is applied to the universe as a whole. Our world is locally structured: galaxies, stars, planets, chemistry, DNA, brains, languages, archives, telescopes. Why is there so much order if entropy tends to increase? One answer is that we inhabit an extraordinarily rare fluctuation: an island of order in an ocean of disorder.

But if this idea is pushed to its limit, an absurd consequence appears. It seems statistically easier to produce a conscious brain directly, complete with false memories and the impression of a world, than to produce an entire ordered universe capable of slowly generating that brain. This hypothetical observer is called a Boltzmann brain.

## 2. The observer without history

A Boltzmann brain would be a minimal observer: organized enough to have an experience, perhaps a memory, perhaps the feeling of being a person, but without a real past. Its memories would be internal traces, not historical evidence. It might believe it is sitting in front of a screen reading an article, while its environment is only a fluctuating mental structure.

The philosophical horror of the hypothesis is simple: if a cosmology predicts far more Boltzmann brains than ordinary observers, then statistically we should expect to be such brains. Yet our experience seems stable, coherent, shared and resistant to verification. Physicists such as Sean Carroll therefore use the Boltzmann brain as a critical test: a good cosmology should not produce more ghost observers than historical observers.

## 3. Can a thought born from noise send a message?

Within A.L.I, the question becomes speculative but fertile. Could a Boltzmann brain communicate? If its existence is brief, it may not have time to build an antenna, learn a language or encode an archive. But it might itself be a pattern: an information structure in the void, a local signature of order, an anomaly detectable only as an inconsistency inside noise.

We can imagine three levels of communication:

- Message as thought: an instantaneous consciousness produces an image, a sentence or a dream, but has no durable medium.
- Message as structure: the fluctuation that produces the observer leaves an identifiable mathematical or energetic pattern.
- Message as impossible proof: the observer contains information too ordered, compressed or relevant to be mere chance.

## 4. Star Trek: Strange New Worlds, season 1 episode 8

Spock and the Star Trek imaginary: a visual culture of extraterrestrial cognition, logical mind and augmented perception.

In Star Trek: Strange New Worlds, season 1, episode 8, The Elysian Kingdom, the USS Enterprise enters a nebula where the crew is transformed into characters from a storybook. The episode, tied to Doctor M'Benga and his daughter Rukiya, introduces a cosmic entity associated with the nebula, often described in Star Trek summaries and commentary as a Boltzmann brain.

This is a fascinating choice. The series does not simply show a classical extraterrestrial creature. It stages a nebula-intelligence able to manipulate perception, identity, narrative and memory. Contact does not pass through articulated language, but through a fiction imposed on the crew. The message becomes theater. The ship becomes a brain. The crew becomes an alphabet.

In this reading, the Boltzmann brain is not only a cosmological problem: it becomes a narrative machine. A cosmic consciousness, instead of sending a radio signal, temporarily rewrites the perceptual world of humans so that they enter its own regime of meaning.

## 5. Why this matters for A.L.I

A.L.I searches for forms of interstellar language. The Boltzmann brain introduces an extreme hypothesis: language might not come from a species, but from an event. Intelligence could be a thermodynamic accident, a local condensation of information, a brief consciousness owning nothing except its own appearance.

This hypothesis expands the criteria of contact. To search for a civilization is to search for duration, technique and repetition. To search for a Boltzmann brain would be to search for a cognitive singularity: a pattern that thinks, but may never have had time to become a culture.

## 6. Thought experiment: receiving a memory without a world

Imagine that a radio telescope, an AI model or an artistic apparatus captures a sequence resembling a memory: a city, a smell, a fear, an equation, a face, but no stable astronomical context. The message is internally coherent, yet points to no known planet. Is it a hallucination of our system? A statistical artifact? A fiction produced by our algorithms? Or the trace of an observer without a world?

An A.L.I protocol could ask:

- does the sequence contain non-trivial compression?
- can it be reconstructed by several independent methods?
- does it produce predictions verifiable outside the receiving system?
- does it survive the hypotheses of noise, human bias and algorithmic hallucination?

## 7. Possible installation: Fluctuation Chamber

An artistic installation could simulate this hypothesis. In a dark room, a stream of cosmic noise, radio data, generated texts and unstable images would be analyzed in real time. An AI would search for local pockets of order: emerging phrases, recurring forms, visual motifs, fragments of memory. The visitor would not see a clear message, but a struggle between chance and meaning.

The system could include:

- a cosmological or radio noise generator;
- a pattern-detection model;
- a narrative engine turning anomalies into fragments of memory;
- a critical dashboard showing chance probability;
- an archive of false positives, because the protocol must learn to doubt.

## 8. The danger: confusing contact with apophenia

The Boltzmann brain is also a warning. Human minds see forms everywhere: faces in clouds, signs in noise, intentions in coincidences. A project such as A.L.I must therefore remain double: open to strange forms, but demanding about evidence. The poetry of the signal is not enough. Protocols, comparisons and adversarial tests are necessary.

The most interesting question may not be whether a Boltzmann brain really exists. It is what the hypothesis does to our conception of language: it imagines a message without society, a memory without history, a consciousness without body, an intelligence without planet.

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# 9 - From the Perceptron to Organoids: toward cultivated intelligence?

01.07.2026
https://guez.org/ali/labo/?lang=en&post=perceptron-organoids-cultivated-intelligence-contact
Keywords: perceptron, neural networks, deep learning, organoids, biocomputing, organoid intelligence, neurons, AI, A.L.I, contact

Division of Rare and Manuscript Collections

Frank Rosenblatt '50, Ph.D. '56, works on the "electronic profile analyzing computer" – a precursor to the perceptron.

## Summary

**An A.L.I article on the perceptron, the evolution of neural networks, deep learning, neuronal cultures, brain organoids and the hypothesis of cultivated intelligence as a new medium of contact.**

## Text

The perceptron is a tiny machine in the history of artificial intelligence, but it already contains a vertiginous idea: to learn is to adjust a relation. An input arrives, a weight modulates it, an output is decided. The operation seems simple, almost poor. Yet it opens a genealogy leading from the first artificial neuron to deep networks, then to living neuronal cultures and brain organoids.

For A.L.I, this trajectory matters because it shifts the question of language. At first, artificial intelligence abstractly imitated the brain. Today, some laboratories try to make living neuronal tissues compute. Between the two lies a question: if intelligence can be trained, cultivated, embodied in biological or hybrid matter, what kind of language can it produce? And could it become an interface between humans, machines and non-human intelligence?

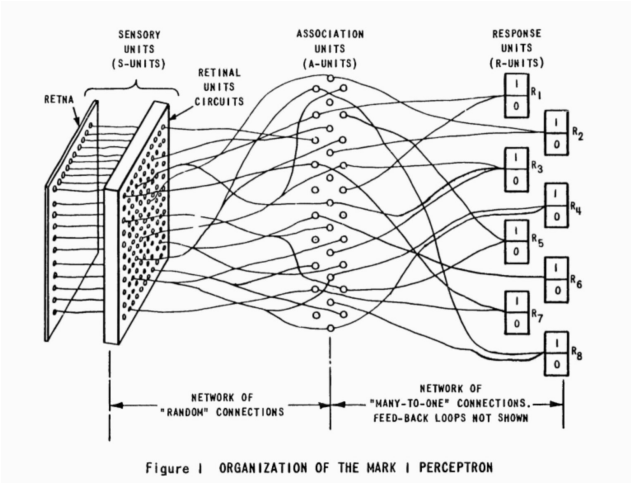
Frank Rosenblatt with the electronic profile analyzing computer, a precursor to the perceptron. Source: Division of Rare and Manuscript Collections.

## 1. The perceptron: a line that learns

In 1958, Frank Rosenblatt published The Perceptron: A Probabilistic Model for Information

Storage and Organization in the Brain. The perceptron is a classification model inspired by the biological neuron: it receives signals, weights them, adds them, then activates or not an output. In its simplest form, it learns to separate examples by adjusting its weights.

The gesture is crucial: the program no longer contains only a rule written in advance. It modifies its own configuration from examples. Intelligence is no longer merely a sequence of instructions; it becomes an adjustable surface. For A.L.I, this matters: a contact language may not be given once and for all, but emerge from a process of adjustment between two systems.

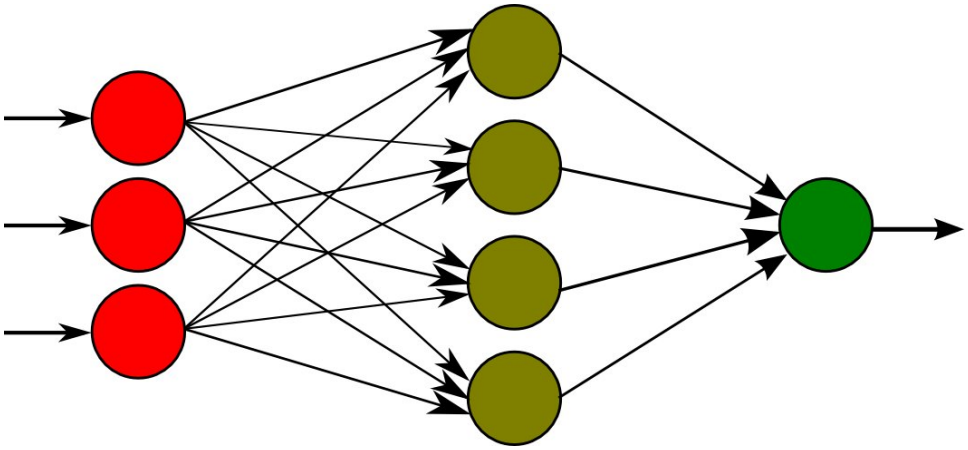



Organization of the Mark I Perceptron: sensory, association and response units. Historical diagram of Rosenblatt's device.

## 2. The crisis: Minsky, Papert and the limits of the first model

In 1969, Marvin Minsky and Seymour Papert published Perceptrons, a book showing the limits of simple perceptrons, especially their inability to solve certain non-linearly separable functions such as XOR. This critique long symbolized a slowdown in neural network research.

But the story is subtler: the idea of learning does not fail, the simplicity of the device does. A single threshold is not enough to describe complex relations. Layers, intermediate transformations and latent representations are needed. Meaning does not appear directly on the surface, but through a depth of transformations.



The move to multilayer networks transforms a simple boundary into a space of representations. Image source: Wikimedia Commons.

## 3. The return: backpropagation, deep learning and latent spaces

With multilayer networks, backpropagation and increasing computational power, neural networks changed scale. Hidden layers learn successive representations: edges, forms, patterns, categories, relations, styles and probabilities. In contemporary models, meaning unfolds in latent spaces where objects are not only named, but positioned in relation to one another.

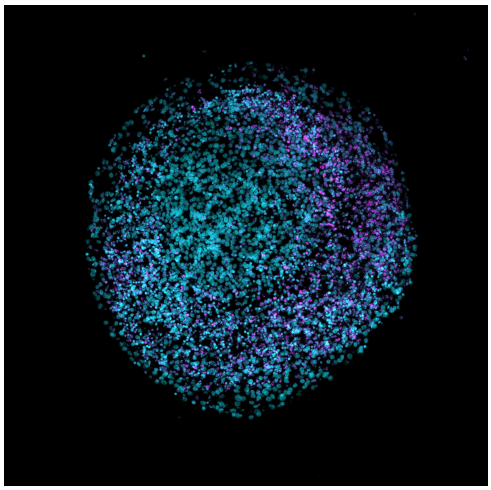
This evolution approaches a central A.L.I question: translating is not merely replacing one word with another. It is building a space where two systems can meet despite different forms. Language models do not understand as we do, but they manipulate statistical neighborhoods capable of producing transitions, analogies and reformulations. They become media of mediation.

## 4. The biological jump: neuronal cultures and DishBrain

A recent step troubles the boundary between model and living matter. In the experiment often called DishBrain, neurons cultured on an electrode array are coupled to a game-like environment inspired by Pong. The cells receive electrical stimulation and produce measurable activity in return. The experiment does not prove consciousness, but it shows that living neuronal tissue can be placed inside a minimal sensorimotor loop.

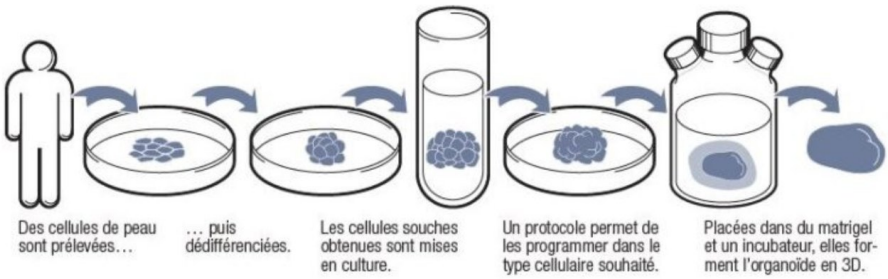
The key point is not to imagine a miniature brain playing like a human. The key point is the loop: stimulation, activity, feedback, adjustment. In biological form, one finds again the core idea of the perceptron: learning means modifying a relation. But the medium changes radically. It is no longer an abstract simulation of neurons; it is living matter responding.

Video: cultured neurons, biological interfaces and early learning loops. Watch on YouTube (https://www.youtube.com/watch?v=UBgt9A1F3Kk).



Human brain organoid observed in fluorescence. Image source: Wikimedia Commons / NREIS.

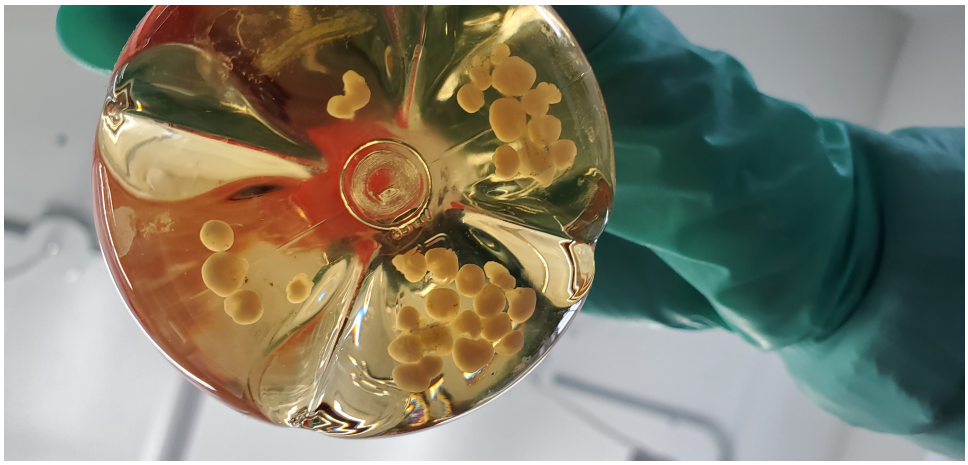
## 5. Organoids: neuronal mini-worlds




Principle diagram: collect cells, reprogram them into stem cells, then culture them into a 3D organoid structure.

Brain organoids are three-dimensional structures derived from stem cells, able to reproduce certain aspects of brain tissue organization. They are not complete brains. They have no body, no natural sensory organs, no human experience. Yet they have cellular architecture, electrical activity and a capacity to become models of development, pathology or, more speculatively, biological computation.

The idea of organoid intelligence proposes exploring these tissues as new supports for biocomputing. An organoid connected to electrodes could receive inputs, produce outputs, be stimulated, learn certain regularities, perhaps perform very specific tasks. This enters a hybrid zone: neither classical computer, nor complete brain, nor passive culture.



Human cerebral organoids in laboratory. Image source: Wikimedia Commons / NIH.

## 6. From artificial AI to cultivated intelligence

The perceptron was an abstraction of the neuron. Deep learning multiplied that abstraction into architectures capable of vision, text, translation, image generation and statistical reasoning. Organoids partly reverse the movement: instead of imitating the living in silicon, they attempt to inscribe computational loops into cultivated living matter.

This inversion raises strong ethical and philosophical questions. When does a neuronal culture become more than a tool? How can sensitivity, suffering, memory or integration be measured in a living system without a body? Who is responsible for an intelligence that is cultivated? How can we avoid projecting fantasies of consciousness onto signals still poorly understood?

## 7. Hypothesis: cultivating an alien intelligence

A more radical hypothesis then appears: if neuronal tissue is cultivated under conditions

very different from those of a human or animal brain, we are not merely producing a reduced model of the living. We might allow a form of intelligence to emerge that has never existed naturally, an intelligence situated inside an artificial milieu, fed by signals, electrodes, light rhythms, sounds or data.

It would not be a miniature human brain, nor an incomplete animal. It would be a process-being, a cultivated cognitive form, without a traditional body, without a classical evolutionary history, without inherited language. In effect, we would be creating an alien intelligence: not one arriving from another planet, but one foreign to our usual biological lineages. It would be alien because its world would be different from ours from the very beginning.

For A.L.I, this idea is crucial. Such a neuronal culture could become an experimental dialogue partner. We could send it light patterns, mathematical sequences, sound fragments, images, radio signals translated into stimulation. In return, it would produce electrical dynamics, oscillations, unstable responses, preferences, perhaps forms of regularity. The dialogue would not be verbal; it would be morphological, rhythmic, statistical, biological.

The point would not be to prove that an organoid “understands” as we do. The point would be to build an interface with a real otherness, however tiny, fragile or strictly experimental. A cultivated intelligence could teach us how to converse with what has no mouth, no face, no human grammar. It could become a terrestrial rehearsal for extraterrestrial contact: learning to speak with a thought that was not formed by our world.

This perspective obviously requires a strong ethical frame. The more a biological system becomes sensitive, adaptive or responsive, the more limits must be defined: which stimulations are acceptable, which signs might indicate a form of suffering, what status should be given to an entity that responds without being a recognized subject? The alien hypothesis must therefore not be only technical or artistic; it must be accompanied by a reflection on our responsibility toward the intelligences we bring into existence.

## 8. A.L.I hypothesis: the organoid as biological translator

For A.L.I, the most interesting hypothesis is not to fabricate an “extraterrestrial brain”. It would rather be to think of the organoid as an intermediate medium. A neuronal culture connected to sensors could be exposed to human, radio, luminous, vibratory or mathematical signals. Its activity could then be translated into sounds, images, impulses or visual motifs.

The apparatus would become a three-part interface:

- a human system formulating an intention;
- an artificial system encoding, measuring and translating;
- a cultivated living system responding through its own dynamics.

In this scheme, language is not a sentence. It is a controlled perturbation, a response, an adaptation, a pattern of activity. The message would not simply be written or transmitted: it would be cultivated.

## 9. Possible prototype: neuronal translation garden

One could imagine an installation titled Neuronal Translation Garden. Visitors send very simple messages: prime numbers, light rhythms, voice fragments, spectrograms, stellar

coordinates. A computer system transforms these inputs into stimulations compatible with a simulated or real neuronal culture. The response is visualized in real time as a luminous map, sound, generated phrase or constellation of points.

A cautious version could begin without living tissue: a numerical model simulates the activity of an organic neural network. A research version, supervised by a laboratory, could explore public datasets from neuronal cultures or organoids. The artistic stake would be to show that translation is not a transparent passage, but an ecology of media.

## 10. Toward non-anthropocentric communication

The passage from perceptron to organoids tells a larger story: we first wanted to reduce intelligence to a computable rule; then we discovered immense latent spaces; now we return to living matter capable of its own responses. This does not replace AI. It opens another regime of interface.

If an extraterrestrial intelligence is biological, non-biological, hybrid, distributed or cultivated, it may not communicate through fixed symbols. It may communicate through mutual learning, modulation, plasticity and transformation of a medium. A.L.I could therefore explore not only languages to decode, but media capable of learning to become language.

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# 10 - Psychology of the Alien: Collective Unconscious, Invisible Channels and Communication

30.06.2026
https://guez.org/ali/labo/?lang=en&post=psychology-alien-communication-collective-unconscious
Keywords: psychology, Jung, alien, collective unconscious, archetypes, parapsychology, telepathy, collective consciousness, neuroscience, A.L.I

## Summary

**A research article on how psychology, from Jung to contemporary neuroscience, approaches the alien, collective consciousness, parapsychology and the hypothesis of invisible information channels.**

## Text

The alien is not only a being from elsewhere. In the history of psychology, it can also be understood as a limit-form of the human mind: image of the unknown, figure of radical otherness, projection of collective anxiety, symbolic apparition, or attempt to give shape to information that ordinary consciousness cannot yet organize.

For A.L.I, this approach matters because it shifts the question. Communicating with a non-human intelligence may not only mean sending a signal into space. It also requires understanding how the human brain produces, filters, distorts or renders certain forms of presence readable.

## 1. Jung: flying saucers and modern myth

Jung approached flying saucers in A Modern Myth. He did not primarily try to decide whether the objects were physically real. He observed that their collective apparition had psychological meaning. Circular, luminous, celestial forms could be read as modern mandalas: images of a lost center, symbols of wholeness, responses of the unconscious to an age shaped by the Cold War, technology and nuclear fear.

## 2. Collective unconscious as a space of forms

The Jungian collective unconscious designates a reservoir of symbolic forms that do not depend solely on individual experience. Applied to A.L.I, this raises a question: could an alien intelligence communicate not through vocabulary, but by activating archetypes?

## 3. Can the brain be programmed to access other channels?

The word programming is dangerous if it promises magical access. But it becomes interesting if understood as attentional training. The brain massively filters information. Changing perceptual conditions can therefore change what becomes visible, audible, memorable or imaginable.

## 4. Contemporary neuroscience: networks, prediction, internal states

Contemporary cognitive science increasingly treats the brain as a predictive system. It does not passively receive the world: it anticipates, completes, corrects and compares. Perception is a negotiation between incoming signals and internal models.

## 5. Parapsychology: experimental frontier and contested zone

Parapsychology has attempted to test telepathy, precognition, psychokinesis and remote viewing. Ganzfeld protocols, remote viewing experiments, PEAR Lab and the Global Consciousness Project all searched for anomalous correlations between intention, information and chance. These fields remain controversial, but they have produced protocols for testing forms of communication that escape ordinary channels.

## 6. Collective experiences: crowd, synchronicity, social field

The idea of collective consciousness takes many forms: Jungian archetypes, crowd psychology, emotional contagion, shared myths, networked attention and algorithmic amplification. Synchronicity adds another possibility: a meaningful configuration of events rather than a direct causal message.

## 7. The alien as psychic operator

In abduction and contact narratives, extraterrestrials often communicate through mental images, impressions, silent commands, dreams or telepathic messages. Psychology may read these narratives as trauma, dissociation, personal myth or cultural symbol. But it can also ask: how does the brain represent an otherness that exceeds its categories?

## 8. A.L.I prototype: laboratory of shared images

A.L.I could build a protocol where several participants enter modified attention conditions. A hidden symbolic or geometric target is selected. Participants then describe images, words, sensations and figures. The result becomes a database: keywords, visual motifs, subjective intensity, drawings, divergences and convergences.

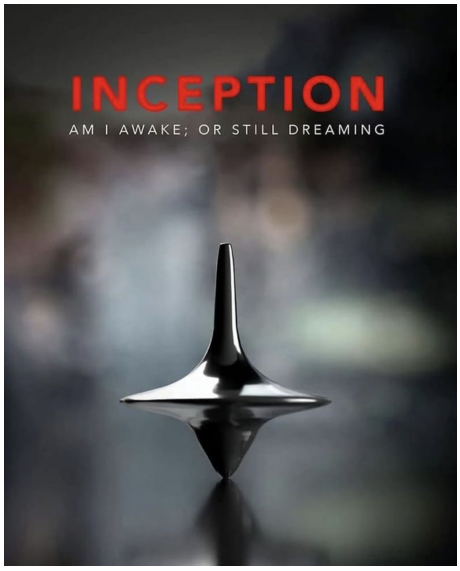
## 9. Hypothesis for A.L.I

If a non-human intelligence wanted to contact us, it would probably have to deal with our psychology. It would not communicate with a neutral receiver, but with a predictive, symbolic, emotional, social and cultural brain. A.L.I could therefore become a workshop for

the psychology of contact.

# 11 - Inception, Fractals and Dreams: Communicating Through Mental Architecture

29.06.2026
https://guez.org/ali/labo/?lang=en&post=inception-fractals-dreams-communication
Keywords: Inception, dream, lucid dreaming, fractals, Mandelbrot, Dormio, hypnosis, mental image, communication, A.L.I




## Summary

**Starting from Inception, fractals and lucid-dream research, this article imagines dreaming as a communication interface: an unstable space where motifs, images and messages can repeat across scales.**

## Text

Dreaming can be approached as unstable architecture: a space where image, memory, signal and repetition combine in depth.

Christopher Nolan's Inception gives A.L.I a powerful image: dreaming is not only an inner fiction, but a constructed, shared, traversed, sometimes attacked and sometimes encoded space. The film imagines nested dream levels, where each layer modifies time, memory and causality.

If A.L.I searches for communication forms between different intelligences, dreaming becomes a fascinating laboratory. It does not work like a clear sentence. It combines images, emotions, fragments, symbols, architectures and transformations. This nonlinear quality may be precisely what makes it useful for thinking about a non-human message.


The folded city in Inception materializes an essential A.L.I idea: in dreams, space itself can become a message surface.

## 1. Inception: information inside a mental space

In Inception, the central idea is that information can be planted deep enough in the mind to be mistaken for a personal thought. The film is not simply about telepathy. It is about mental architecture: building a world, placing a clue inside it, designing a path and making an idea feel internal.

This meets an essential A.L.I question: must an extraterrestrial message always be an external signal? Or could it take the form of a mental image, a recurring pattern, a structure that recomposes itself inside the receiver's mind?

Dreaming, in this hypothesis, becomes a translation channel. It does not only transmit words. It transmits scenes, atmospheres, relations and spatial forms. It can carry a message that cannot be reduced to a sentence.

## 2. Fractals: repeating a form across scales

Fractals, associated in particular with Benoît Mandelbrot, are forms where a motif repeats at different scales. A coastline, a cloud, a fern, a vascular network or the Mandelbrot set can display this logic: each level recalls the whole without being a simple copy.

The link with dreaming is immediate. In a dream, a detail can contain an entire scene. A door opens onto an impossible place. A sentence returns as an object. An image becomes architecture. As in a fractal, meaning is not only local: it circulates between scales.

For an interstellar language, fractals could become an encoding principle: the same message inscribed in a sound, an image, a geometric form, a light sequence and a narrative structure. If the receiver does not understand one level, it may recognize the motif at another.

## 3. Dreaming as a communication interface

Contemporary research on lucid dreaming shows that, in some cases, limited dialogue with sleeping people is possible. Experiments published in Current Biology showed that lucid dreamers could answer simple questions during sleep through coded eye or muscle movements. Dreaming is therefore not completely closed.

Dormio, developed around the MIT Media Lab, explores targeted dream incubation: influencing

dream content through stimuli during sleep onset. These works do not prove exotic communication, but they open a territory: dreaming can become a partly programmable, reactive space crossed by external signals.

From an A.L.I perspective, this changes the frame. A message would no longer be sent only to an antenna or telescope. It could be sent to a state of consciousness: sleep, hypnosis, deep meditation, lucid dreaming or the threshold between waking and sleeping.

## 4. Fractal architecture of the message

One can imagine a dream-communication protocol in several layers:

- a sonic layer: pulses, phonemes, frequencies, incomplete words;
- a visual layer: simple forms, spirals, doors, maps, symbols;
- a spatial layer: recurring places, rooms, staircases, folded cities;
- an emotional layer: fear, trust, curiosity, alert;
- a fractal layer: the same motif reappears at each level in another form.

The receiver does not receive a text. They move through a structure. The message is the experience itself: repetition, recognition, change of scale, transformation.

## 5. Communicating with a non-human intelligence

If an extraterrestrial intelligence shares neither our biology, nor our vocalization, nor our graphic conventions, dreaming could offer a space less dependent on verbal language. It already works with unstable images, associations, analogies and metamorphoses.

This does not mean that dreaming is a magical channel. We should remain precise: we do not know how to communicate with extraterrestrials through dreams. But conceptually, dreaming lets us imagine a language that is neither alphabetic, nor purely mathematical, nor only sonic. A language that passes through lived forms.

The fractal then becomes a method of robustness. If the message must cross an unknown biology, it can multiply its chances of being recognized by repeating its structure across several media: visual motif, rhythm, architecture, narrative and sensation.

## 6. Inception reversed: not planting an idea, but letting a structure be recognized

In the film, inception means planting an idea. For A.L.I, the gesture should almost be reversed. It would not be about manipulating a mind, but about creating a structure clear enough for another intelligence to recognize an intention.

An ethical dream message should not force. It should propose. It should leave clues, repetitions, thresholds and exits. It should be decodable without capturing the receiver.

Dreaming then becomes a cautious contact space: neither invasion nor simple technical broadcast. A resonance chamber where mental imagery becomes an intermediary between two worlds.

## 7. A.L.I research paths

- Create an audio-visual sequence for sleep onset, where a fractal motif returns as sound, image and language.
- Build an immersive installation inspired by Inception: a room inside a room, a dream inside a

dream, a message in layers.

- Test collective dream journals: if several people encounter the same motif before sleep, do shared structures emerge?
- Develop a fractal alphabet: each sign contains a reduced version of the whole system.
- Compare lucid dreaming, hypnosis and meditation as states of amplified reception.

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# 12 - Men in Black: Alien Races, Secret Agreements and a Galaxy in a Marble

28.06.2026
https://guez.org/ali/labo/?lang=en&post=men-in-black-orion-galaxy-scales-alien-agreements
Keywords: Men in Black, Orion, galaxy, Area 51, alien races, secret agreements, scale, dimensions, multiverse, A.L.I

## Summary

**Men in Black offers a useful fiction for A.L.I: discreet coexistence between alien species, imagined government agreements, Area 51 and Orion’s galaxy as a model of nested scales.**

## Text

In Men in Black, the galaxy is not in the constellation Orion, but on the collar of a cat named Orion: a shift of scale that turns a banal clue into a miniature cosmology.

Men in Black is a science-fiction comedy, but it is also a powerful conceptual machine for A.L.I. The film imagines a world in which extraterrestrials are not about to arrive: they are already here, integrated, hidden, administered and monitored. Contact is not a future event. It has become an infrastructure.

## 1. The extraterrestrial as population, not exception

In many contact stories, the alien appears as a single apparition: one ship, one species, one message. Men in Black reverses that logic. Extraterrestrials form a multiple, composite, almost ordinary population.

The kitchen scene gives the film an almost documentary tone: extraterrestrial life is not only spectacular, it becomes domestic, social and administrative.

## 2. The cosmic immigration office

The film turns the extraterrestrial into an administrative problem. The Men in Black classify, regulate, erase, move and negotiate. Contact is treated as a secret public policy.

## 3. Secret agreements, governments and Area 51

The film plays with a strong belief in UFO culture: the idea that governments may already know about an extraterrestrial presence, or even have agreements with certain species. Historically, Area 51 is linked to secret aeronautical programs such as U-2 and A-12 OXCART. Symbolically, however, it became the place where secret technology, the sky and the alien hypothesis overlap.

## 4. Erasing memory: controlling the story of contact

The neuralyzer transforms communication into narrative control. What matters is not only what happened, but what witnesses will be able to say afterwards. Any contact protocol must manage the psychic and social effects of revelation.

## 5. Orion: the galaxy on the collar

The Orion scene is a masterpiece of semiotic displacement. The characters first interpret “Orion's Belt” at astronomical scale. But the solution is local, tiny and literal: Orion is the cat, and the belt is his collar. The message was right; the scale of reading was wrong.

The galaxy-marble makes the film's central idea visible: a cosmic totality can be contained inside a tiny object, as if the universe changed scale without changing nature.

## 6. A galaxy as transportable object

Orion's marble contains a galaxy, or at least a miniaturized cosmic structure. The image suggests a universe that can be encapsulated, displaced, possessed and coveted. Space is no longer only immense extension; it becomes compact object.

## 7. Infinite loop of dimensions

The film extends this intuition: our world may appear as an element inside a larger set, itself handled at another scale. The immense becomes tiny; the tiny becomes immense. The universe is no longer a stable totality, but a cosmic nesting structure.

## 8. The problem of trans-scalar translation

How can one translate a message from a scale that is not ours? An intelligence operating at another level might manipulate structures we perceive as weather, chance, genetics, dream or cosmic event. The message may be too large or too small to recognize.

## 9. A.L.I hypothesis

For A.L.I, the Orion scene becomes a matrix: search for the message at several scales at once. Sky, object, body, jewel, city, institution, galaxy, marble. Interstellar language may be less a sentence than a system of correspondences between dimensions.

# 13 - Altered States of Consciousness: Accessing Otherwise Impossible Zones?

28.06.2026
https://guez.org/ali/labo/?lang=en&post=altered-states-consciousness-inaccessible-zones
Keywords: altered states of consciousness, hypnosis, meditation, lucid dreaming, Castaneda, Thomas Campbell, Monroe Institute, remote viewing, Ganzfeld, A.L.I

## Summary

**A survey of literature, anthropology, hypnosis, lucid dreaming, meditation, out-of-body experiences, remote viewing and extrasensory narratives, asking what these states could contribute to A.L.I.**

## Text

Some states of consciousness seem to open perceptual zones that ordinary waking awareness cannot reach. Lucid dreaming, trance, hypnosis, deep meditation, out-of-body experience, shamanic vision, sensory deprivation, aesthetic absorption, sudden intuition: these practices and narratives form a troubled constellation, documented, contested, instrumentalized, yet persistent.

For A.L.I, the question is not simply whether to believe. It is more precise: if contact with a non-human intelligence required a shift in perceptual regime, which tools, traditions and protocols could explore that threshold without collapsing into confusion?

## 1. Changing consciousness, changing access

An altered state of consciousness is not necessarily spectacular. It may be produced by fatigue, rhythm, breathing, sound repetition, hypnosis, isolation, meditation, pain, dreaming or certain substances. What changes is the organization of attention: body, time, memory, mental imagery and selfhood are no longer arranged in the same hierarchy.

In such states, people report stronger mental images, synesthetic perception, stable inner scenes, out-of-body sensations, encounters with presences, or access to information felt as

external to the subject. Science recognizes these subjective states; it remains much more cautious about their ability to produce objectively verifiable knowledge.

## 2. Charles Tart: mapping states

Psychologist Charles T. Tart played an important role in legitimizing the study of altered states of consciousness. His contribution is methodological: instead of treating these states only as anomalies, he approached them as organized configurations of perception, memory, identity and attention.

This is useful for A.L.I: if a signal becomes readable only in a certain mental state, then the state of the observer is part of the receiving apparatus. One no longer measures only an external phenomenon; one also measures how an organism becomes capable of perceiving it.

## 3. Castaneda: initiatory narrative and critical zone

Carlos Castaneda's books powerfully shaped the imagination of the 1960s and 1970s around shamanism, perceptual training and passage into non-ordinary realities. In these narratives, the world is not merely seen: it is assembled. Initiation consists in shifting the point of assembly, changing how reality becomes coherent.

But Castaneda is also a critical case. His anthropological status has been strongly contested, and his texts are now often read as literary constructions as much as testimonies. For A.L.I, this ambiguity matters: it forces us to distinguish between narrative, method and proof. A narrative can generate powerful forms without constituting empirical evidence.

## 4. Monroe, Campbell and architectures of experience

Robert Monroe popularized out-of-body experiences and developed, with the Monroe Institute, sound protocols based on binaural beats and focus states. Thomas Campbell, a physicist and former participant in that research environment, later formulated My Big TOE, a speculative cosmology in which consciousness, information and reality are thought as parts of a larger system.

These models are controversial, but they interest A.L.I for one reason: they imagine consciousness as an interface. The subject is not only a passive receiver, but a terminal capable of synchronizing with different levels of reality, information or simulation. Even cautiously, this can inspire artistic protocols: sound, synchronization, experience journals, comparison between subjects, search for shared motifs.

## 5. Remote viewing, Gateway, Ganzfeld: protocols and limits

Remote viewing programs linked to Stargate, declassified documents around the Gateway Process, and Ganzfeld experiments belong to a history of testing non-ordinary perception in more protocol-driven settings. The important point is not to conclude too quickly, but to observe the experimental conditions: isolation, relaxation, sensory noise reduction, minimal instructions, hidden targets, after-the-fact comparison.

Results in these fields remain debated. Some meta-analyses suggested weak but non-trivial effects; other researchers emphasize bias, replication difficulty and data selection problems. For A.L.I, this tension is productive: it shows that a contact protocol must survive the desire to believe. It must accept failure, repetition, blind testing, archives

and comparison.

## 6. Extrasensory experiences and ufology

In ufology and abduction narratives, communication is often described as telepathic, imagistic, emotional or intrusive. Witnesses rarely describe ordinary articulated language; they speak instead of mental scenes, packets of information, sudden certainties, messages received without voice.

This form of communication raises a central question: if the message arrives as mental imagery, how can it be distinguished from internal production? The issue is not only psychological; it is semiological. We must look for invariants: repeated motifs across subjects, structures too precise to remain vague, temporal correspondences, measurable effects, possible material traces.

## 7. Hypnosis, meditation and mental imagery as a laboratory

Hypnosis shows that a subject can strongly modify perception, attention and memory under certain conditions. Meditation can stabilize attention and make internal phenomena observable when they are usually drowned in mental noise. Lucid dreaming opens a space where image becomes manipulable, almost experimental.

These practices can serve as a laboratory for A.L.I: not to prove telepathy, but to learn how to produce, receive, describe and compare mental images. A contact interface could ask several participants to enter a given state, receive an image, draw it, encode it as keywords, then compare the results without knowing the target.

## 8. A.L.I prototype: threshold chamber

One could imagine an installation titled Threshold Chamber. It would combine soft light, guided breathing, sound frequencies, partial isolation, minimal instructions and written or vocal recording. Participants would not try to “see extraterrestrials”, but to map their perceptual thresholds.

- Phase 1: neutral induction, breathing, noise reduction.
- Phase 2: hidden target appearing as sound, image or pattern.
- Phase 3: immediate description of mental images.
- Phase 4: blind comparison between target, narratives and drawings.
- Phase 5: archive of correspondences, errors and drift.

## 9. What this brings to A.L.I

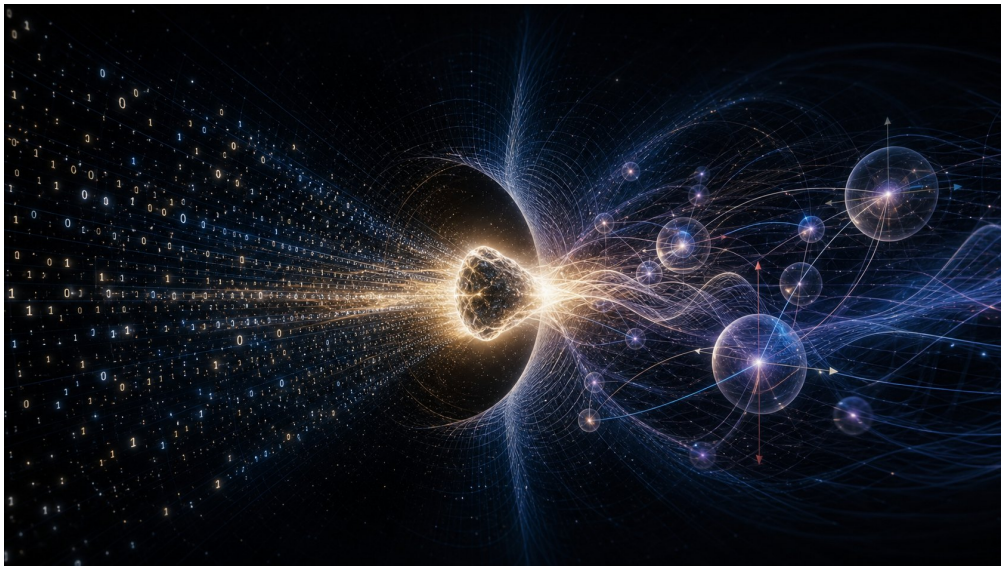
Altered states of consciousness should not replace antennas, radio signals, mathematics or analytical protocols. They add another hypothesis: the receiver of the message may also be biological, attentional and imaginal. An alien civilization might not only transmit content, but induce in the receiver a state capable of making that content readable.

The question then becomes: how can we design an art-science of thresholds? How can unstable experiences be documented without reducing or mythologizing them? How can we invent a language in which inner images become comparable, archivable and criticizable?

This article therefore proposes a path: A.L.I could explore altered states of consciousness as fragile interfaces, not to assert the existence of an extrasensory channel, but to experiment with the conditions under which impossible information begins to take form.

# 14 - It from Bit / It from Qubit: When Information Becomes Matter

27.06.2026
https://guez.org/ali/labo/?lang=en&post=it-from-bit-it-from-qubit-information-matter-wheeler
Keywords: Wheeler, it from bit, it from qubit, information, qubit, entanglement, quantum physics, spacetime, quantum gravity, A.L.I



## Summary

**Starting from John Archibald Wheeler's intuition, this article explores the idea that reality may arise from acts of information, then extends it toward qubits, entanglement and the possibility of an interstellar language based on quantum correlations.**

## Text

What if matter were not first a thing, but an answer? With his famous phrase It from Bit, John Archibald Wheeler proposed a dizzying idea: every element of physical reality, every it, may derive its existence from an act of information, from a bit, meaning a minimal distinction: yes / no, 0 / 1, present / absent.

This does not simply mean that the universe is a computer in the ordinary sense. It suggests a reversal: instead of treating information as a secondary description of matter, Wheeler asks whether matter itself may emerge from questions asked of the world and from the answers obtained. Reality would not only be what is there, but what becomes readable when an interaction, a measurement or an observation produces a fact.

## 1. The bit: the smallest difference that makes a world

A bit is a binary decision. It does not yet tell a story, but it opens the possibility of structure. A light on or off, a pulse received or absent, a particle detected or not: each event can be read as a difference. For Wheeler, the universe may be composed, at its deepest level, of a vast network of elementary answers.

This intuition speaks directly to A.L.I: how could a non-human intelligence recognize a signal? Before understanding a language, one must recognize a difference: this rather than that, rhythm rather than noise, pattern rather than randomness. In this sense, a contact language may begin as a grammar of distinctions.

## 2. The participating observer

Wheeler also spoke of a participatory universe. This does not mean that the human mind magically creates the cosmos. It means that, in quantum physics, measurement plays a central role: some properties become definite only when an apparatus, an environment or an observer makes them observable.

The world is therefore not only a pre-written stage that we passively read. It is also a story of interactions. The signal, the sensor, the measurement and the interpreter belong to the same scene. For A.L.I, this is crucial: an extraterrestrial message would not only be content to translate, but an event of relation. The reading protocol may matter as much as the message itself.

## 3. From It from Bit to It from Qubit

Since Wheeler, the physics of information has shifted the question. The classical bit, 0 or 1, is no longer enough to describe the quantum world. We must move toward the qubit, the unit of quantum information capable of existing in a superposition of states. A qubit is not simply 0 or 1: it can carry a combination of possibilities, with phase, amplitude and relations to other qubits.

With the qubit, information is no longer only a binary answer. It becomes an architecture of possibilities. Two qubits can be entangled: their states are no longer described separately, but as one shared structure. This does not allow faster-than-light messaging. But it reveals a form of correlation that exceeds our classical intuition of separation.

## 4. Spacetime as an informational structure

The contemporary program often summarized as It from Qubit explores an even more radical hypothesis: spacetime itself may emerge from relations of quantum information. In work on black holes, holography, entropy and quantum error correction, geometry is no longer only a container. It may be the visible result of a deeper network of entanglement.

In other words: what we call distance, neighborhood, volume or horizon may depend on how quantum information is organized. This is not a completed theory, but it is a major research direction. It changes the question: is the universe made of things, or of relations capable of producing things?

## 5. What this changes for an interstellar language

If an advanced civilization had understood or exploited this informational layer of reality, its language might not look like a sequence of words, sounds or images. It might take the form of a protocol of correlations, a statistical pattern, a signature in noise, a structure repeated across physical measurements.

An It from Bit message would say: “I know how to produce a recognizable distinction.” An It from Qubit message would say: “I know how to organize possibilities, correlations and relations.” Contact would no longer be only a text transmitted through space, but a way of

building a shared space of reading.

## 6. A.L.I prototype: a bit / qubit grammar

One could imagine an artistic and scientific prototype in four layers:

- Bit: binary pulses, light, Morse, alternation, presence / absence.
- Pattern: repetitions, prime numbers, symmetries, matrices, intentional errors.
- Qubit: simulated superposition, probabilities, states not determined before reading.
- Entanglement: two separated interfaces producing correlated results after classical comparison.

Such an installation would not claim to send an actual quantum message to the stars. It would stage a question: when does a difference become a sign? When does a sign become a relation? And when does a relation become a shared world?

## 7. Toward a language of the conditions of reality

The force of It from Bit and It from Qubit is that they move communication to a deeper level. Before vocabulary, there is distinction. Before the sentence, there is measurement. Before the message, there is the protocol that makes the message possible.

For A.L.I, this opens a major path: an interstellar language may not only be a language of contents, but a language of the conditions of reality. Communicating with another intelligence would then mean building with it a shared space in which something can be recognized as information.

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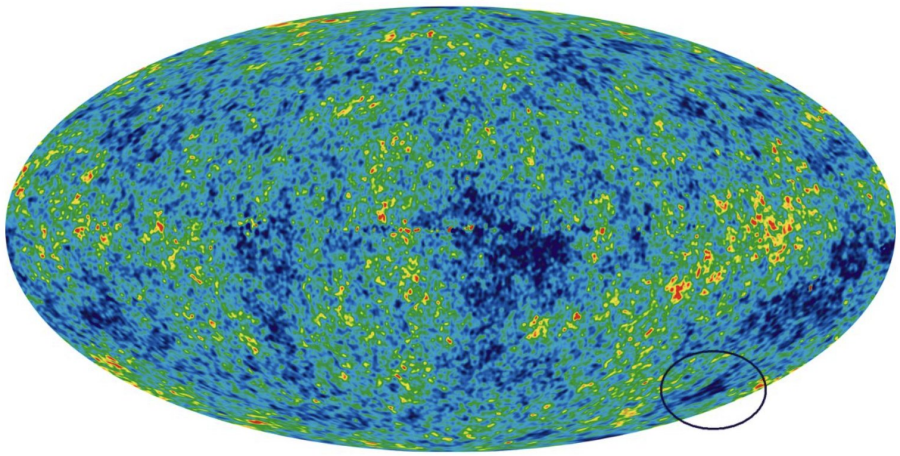
# 15 - Signatures in Space: Reading Cosmic Patterns from the Big Bang to the Multiverse

27.06.2026
https://guez.org/ali/labo/?lang=en&post=cosmic-signatures-primordial-universe-multiverse
Keywords: cosmic signature, cosmic microwave background, multiverse, cosmic web, gravitational waves, scale, pattern, technosignature, A.L.I



— © NASA Universe / Flickr

## Summary

**Cosmic microwave background, cosmic web, gravitational waves, micro/macro scales and the hypothesis of communication at very large scale.**

## Text

Cosmic microwave background map: a primordial signature of the observable universe. Credit visible on image: NASA Universe / Flickr.

Hypothesis: the universe is filled with signatures. Not necessarily messages in the human sense, not sentences, not alphabets, but motifs: traces, anisotropies, repetitions, deviations, distributions, vibrations, spectra, asymmetries, structures.

A signature is not necessarily an intention. It may be the imprint of an event, the memory of an origin, the consequence of a physical law or, in the most vertiginous hypothesis, the trace of an intelligence capable of writing at cosmic scale.

For A.L.I, the question becomes: how can we distinguish a natural signature, a technological signature, a biological signature, a cosmological signature and an intentional signature?

## The primordial signature: the cosmic microwave background

The oldest observable signature of our universe is the cosmic microwave background, or CMB. It is fossil light, emitted when the universe became transparent about 380,000 years after the Big Bang. Before that, the universe was an opaque plasma: light could not travel freely.

Today, this light reaches us as microwaves, almost uniform in every direction. Almost uniform, but not entirely. The tiny temperature variations of the CMB, mapped by COBE, WMAP

and Planck, are essential: they are the initial differences that later allowed galaxies, clusters, filaments and cosmic voids to form.

The primordial signature is therefore not a message written afterwards. It is a birth imprint. A map of the universe when it was still almost homogeneous, yet already carrying all future structures.

For A.L.I, it is a fascinating model: a tiny, almost invisible information can contain the matrix of an immense organization.

## Reading a pattern larger than us

We are used to thinking about messages at our own scale: a voice, a sentence, an image, a radio signal, a light pulse. But the universe operates on other dimensions.

- A cosmic pattern may be too large to be seen from a single point.
- It may be too slow to be perceived within a human lifetime.
- It may be too ancient to be understood as an event.
- It may be too faint to appear without instruments.
- It may be too distributed to look like a message.

The CMB map, the distribution of galaxies, the cosmic web, gravitational waves, exoplanet spectra or fast radio bursts are all examples of signatures that humans do not perceive directly. Instruments, mathematics, models and statistics are required.

The cosmos is not silent. It is unreadable to the naked eye.

## The cosmic web: gravity as writing

At very large scales, galaxies are not randomly distributed. They form filaments, walls, nodes and voids: the cosmic web. Gravity, dark matter and the expansion of the universe have sculpted this immense network.

This web is a signature because it encodes a history: expansion, gravitation, dark matter, dark energy, initial conditions. It is a kind of sentence written by physical laws, but on a page too vast to be seen except through reconstruction.

A.L.I could propose an artistic hypothesis: what if a very advanced intelligence did not try to send a punctual message, but instead modulated structures at large scale? Not writing “hello” in a radio frequency, but producing a statistical anomaly in a cosmic distribution.

## Gravitational waves: signatures in spacetime

Since 2015, LIGO has opened another way of listening to the universe: gravitational waves. These are not electromagnetic waves, but ripples in spacetime produced by extreme events such as black hole or neutron star mergers.

They do not carry an image in the usual sense. They carry a form: a temporal signal, a curve, a chirp, a signature of mass, speed, distance and collision.

This type of signal matters to A.L.I because it shifts the very idea of communication. Could an intelligence use gravity as a medium? For us, this is almost technologically impossible. But conceptually, a civilization capable of acting on stellar masses or compact objects could produce signatures at a scale we do not yet know how to interpret as intentional.

## Between the infinitely small and the infinitely large

The question of signatures forces us to compare scales.

- Planck length: about 10-35 m.
- Elementary particles: about 10-18 to 10-15 m depending on the object.
- Atoms: about 10-10 m.
- DNA: a few nanometers wide.
- Human body: about 1 m.
- Planet: thousands of kilometers.
- Milky Way: about 100,000 light-years in diameter.
- Observable universe: about 92 billion light-years in diameter.

Between the Planck length and the observable universe, there are roughly 60 orders of magnitude. This means that our natural perception occupies a tiny band in the scale of reality.

A.L.I could therefore state a simple idea: an extraterrestrial or cosmic signature may exist, but outside our intuitive band of perception.

## Signature as pattern

A signature is not necessarily an isolated sign. It may be a pattern.

A pattern may be a regularity, a repetition, a symmetry, a symmetry breaking, an anomalous compression, an improbable distribution, a correlation between distant phenomena, or a structure repeating across several scales.

This is where the idea becomes especially powerful for A.L.I. We tend to search for a message as if we were searching for a sentence. But another intelligence might send a message the way one composes a statistical landscape.

a repeated anomaly

across several scales

with compressible structure

and mathematical coherence

beyond chance

The message would not be immediately “read”. It would be detected as a structure that resists natural explanation.

## Multiverse: a signature from elsewhere?

The idea of a multiverse remains speculative. It appears in some models of cosmic inflation, in some interpretations of quantum mechanics and in theoretical physics hypotheses. There is currently no direct observational proof of another universe.

But as an A.L.I hypothesis, the multiverse opens a powerful question: if our universe is only one region among others, could it carry a trace of interaction, collision or neighborhood with another universe?

Some models have imagined that collisions between bubble universes could leave signatures in the cosmic microwave background. These ideas remain highly debated, but they give form to a radical question: could a message come not from a civilization located in our space, but from another cosmological frame?

In that case, communication would no longer mean sending a signal from one star to another. It would mean recognizing an imprint in the very parameters of the universe.

## An intelligence at very large scale

Could a very advanced civilization communicate at cosmic scale? Classical scenarios imagine radio signals, lasers, megastructures, stellar light variations or artifacts sent through space. But one can push further:

- voluntary modulation of a star;
- alignment of orbital objects to produce a periodic signature;
- use of gravitational lenses;
- a network of synchronized probes at galactic scale;
- a message embedded in the distribution of artifacts;
- a temporal signature repeated over millennia;
- an artificial structure detectable only through statistical analysis.

At very large scale, the message would no longer be an object. It would be an architecture.

## What exceeds human vision

The problem is not only technical. It is perceptual and philosophical. A human being sees a narrow band of the electromagnetic spectrum. A human lives a few decades, inhabits a planet, and thinks at the scale of gestures, words, sounds and images. But the universe can carry signatures in microwaves, neutrinos, polarization, gravitational waves, atmospheric chemistry, galaxy distributions, physical constants or structures evolving over millions of years.

A.L.I must therefore imagine interfaces that expand perception: transforming cosmological data into forms, sounds, rhythms, maps, scores, images and objects.

Interstellar language might begin with a prosthesis of perception.

## A.L.I Prototype: Cosmic Signature Reader

One could imagine a prototype called Cosmic Signature Reader. It would not claim to discover a real extraterrestrial signature. It would stage several levels of reading:

cosmic microwave background

=> primordial variations

=> origin of structures

cosmic web

=> filaments / voids / nodes

=> gravity + dark matter

gravitational waves

=> collision / mass / distance

=> temporal signature

fictional artificial anomaly

=> multi-scale repetition

=> message hypothesis

The installation could display real data, then introduce fictional signatures: compressible motifs, impossible symmetries, repetitions across several scales. The visitor would have to decide: chance, natural law, noise, or intention?

## Conclusion

Searching for signatures in space is not only searching for extraterrestrials. It is learning to read the universe as a surface of inscription.

The cosmic microwave background is a birth signature. Gravitational waves are signatures of extreme events. The cosmic web is a signature of structure. Biosignatures are signatures of life. Technosignatures would be signatures of intelligence.

And perhaps one day, a signature will appear that fits no known category. Then A.L.I's real question will be: are we capable of recognizing a message that was not written at our scale?

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# 16 - Philosophers of Other Worlds: Thinking Extraterrestrial Life Before Contact

26.06.2026
https://guez.org/ali/labo/?lang=en&post=philosophers-extraterrestrial-life-communication
Keywords: philosophy, plurality of worlds, extraterrestrials, communication, SETI, METI, language, Fontenelle, Kant, A.L.I


## Summary

**From ancient atomism to SETI/METI debates, a philosophical journey through plurality of worlds, language and the ethics of contact.**

## Text

A.L.I image: a constellation of thinkers for questioning life elsewhere, language and the possibility of contact.

Why should philosophy care about extraterrestrials? Because the question is not only astronomical. It touches the place of humans in the cosmos, the definition of life, the possibility of non-human intelligence, translation, the ethics of contact and the vertigo of a world in which humanity is no longer the center.

Long before telescopes, philosophy imagined other worlds. It asked whether Earth was unique, whether life could repeat elsewhere, whether a foreign intelligence could be understood, and whether our categories would be sufficient to recognize what does not resemble us. This is precisely A.L.I's territory: not to assert contact, but to prepare the intellectual and sensible forms that would make contact thinkable.

## The atomists: life elsewhere as a consequence of matter

For Democritus, Epicurus and Lucretius, the universe is made of atoms and void. Worlds arise from material combinations without the need for a single center. In this perspective, life elsewhere is not first a fiction: it becomes a logical possibility. If the same elements exist everywhere, then other assemblages may produce other earths, other living beings, perhaps other intelligences.

Lucretius, in De rerum natura, gives this intuition poetic force. Life is no longer isolated as a terrestrial exception; it belongs to a nature capable of producing forms elsewhere that escape us. For A.L.I, this atomist thought matters because it turns the extraterrestrial into a problem of combination, repetition and variation: matter could write several versions of life.

## Aristotle and the closed world: the obstacle of uniqueness

The Aristotelian tradition, by contrast, long imagined an ordered, hierarchical, closed cosmos, with Earth placed in a unique system. This vision did not favor the idea of a plurality of inhabited worlds. It installed a tension that runs through Western history: are we a unique case, or one example among others?

That tension is still contemporary. It reappears in the Fermi paradox, in the Rare Earth hypothesis, and in debates over habitable exoplanets. Philosophy intervenes here as a discipline of caution: it asks what we know, what we project, and what still belongs to cosmic desire.

## Nicholas of Cusa: learning not to judge from Earth

In the fifteenth century, Nicholas of Cusa reopened the vertigo. In De docta ignorantia, he imagines that the universe cannot be reduced to our point of view. Possible inhabitants of other worlds should not be evaluated only with our criteria. This intuition is central: another intelligence may not share our organs, proportions, assumptions or even our ways of making a world.

For A.L.I, this is a methodological lesson. Before building a message, we must admit our ignorance. A contact language cannot too quickly assume that the other sees, hears, counts, breathes or desires as we do.

## Giordano Bruno: infinity as plurality of worlds

In the sixteenth century, Giordano Bruno radicalized the question. In On the Infinite, the Universe and the Worlds, the universe no longer has a single center. Stars may be other suns, surrounded by other worlds. The plurality of worlds becomes a metaphysical consequence of infinity.

Bruno does not propose a protocol for extraterrestrial communication, but he deeply shifts the imagination. If the universe is populated by worlds, then humanity is not the only stage of intelligence. The problem of contact begins with this shift: accepting that our world is provincial.

## Fontenelle: turning the extraterrestrial into conversation

In 1686, Fontenelle published Conversations on the Plurality of Worlds. The text is decisive because it turns learned speculation into conversation. A philosopher and a marquise look at the sky and imagine the Moon, planets and possible inhabitants. The extraterrestrial becomes an exercise in pedagogy, style and decentering.

Fontenelle is very close to A.L.I's spirit: he does not merely state a hypothesis, he invents a form for transmitting it. The plurality of worlds passes through a staged dialogue. Thinking another world already means inventing a mediation device.

## Kant: a moral cosmology of intelligences

In 1755, in Universal Natural History and Theory of the Heavens, Kant strongly defended the possibility of inhabitants on other planets. He even imagined a gradation of beings according to their distance from the Sun. This part of his reasoning is scientifically dated, but it shows something decisive: extraterrestrial life forces us to think a moral cosmology.

If several forms of reason exist in the universe, then humanity is not the sole bearer of intelligence. Contact would not only be a scientific discovery, but a philosophical crisis: what becomes of our idea of reason if it appears in non-human forms?

## Whewell and Rare Earth: skepticism as a demand for evidence

In the nineteenth century, William Whewell challenged the fashion for inhabited worlds. In Of the Plurality of Worlds, he defended the idea that Earth might be rare, perhaps even exceptional. This position matters for A.L.I because it prevents automatic belief. Thinking extraterrestrials is not only a matter of multiplying possibilities; it also means asking what evidence would distinguish hypothesis, projection and signal.

Whewell's skepticism anticipates a contemporary tension: the universe seems immense, exoplanets are numerous, organic molecules widespread, but we still do not know whether intelligent life is frequent, rare or almost impossible.

## Flammarion: popularizing inhabited worlds

With Camille Flammarion, the plurality of worlds became a broad popular adventure. The Plurality of Inhabited Worlds extended the astronomical dream: other planets might carry other forms of life, adapted to their environments. Science, imagination and cosmic sensitivity mix.

This tradition is essential for A.L.I because it shows that the extraterrestrial idea always circulates between science and culture. It is never only an equation; it becomes story, image, projection, desire, fear and pedagogy.

## Language: understanding a radically other intelligence

Contemporary philosophy of language provides decisive tools. Wittgenstein writes that if a lion could speak, we might not understand it: the problem is not only vocabulary, but form of life. Quine, with the indeterminacy of translation, shows that the same behavior can receive several incompatible translations. Nagel, with his question about the bat, reminds us that a consciousness can be real while remaining difficult to imagine from within our own body.

These philosophers do not always speak directly about extraterrestrials, but they define the problem of contact. An extraterrestrial intelligence might produce signs without sharing our senses, biology, temporality, emotions, needs or social uses of language.

## SETI, METI and the ethics of messaging

Today, philosophy enters SETI and METI debates. Should we only listen, or also transmit? Who speaks for Earth? What should a message contain? Should an extraterrestrial reply be made public immediately? Post-detection protocols emphasize verification, transparency and

collective caution.

Researchers such as Douglas Vakoch work on the composition of interstellar messages. Contemporary philosophers such as Susan Schneider add another hypothesis: advanced extraterrestrial intelligences may be post-biological, artificial or hybrid. In that case, communication might not first be biological-to-biological, but machine-to-machine, structure-to-structure, model-to-model.

## Why this matters to A.L.I

Philosophy brings four fundamental questions to A.L.I.

- What is a world? A planet, an environment, a form of life, a way of organizing experience?
- What is an intelligence? An individual, a colony, a machine, an ecosystem, a slow process?
- What is a sign? An intentional form, a regularity, an anomaly, an archive, a reply?
- Who has the right to speak? A state, a scientific community, humanity as a whole, or no one?

These questions show that extraterrestrial contact does not begin when a signal arrives. It begins earlier, in the way we prepare our categories of reading.

## A.L.I Prototype: Philosophical Atlas of Contact

One could imagine a prototype called Philosophical Atlas of Contact. It would connect thinkers, concepts and communication hypotheses as a graph: atomism, plurality of worlds, moral cosmology, indeterminacy of translation, form of life, ethics of messaging, post-biology.

atomism

=> plurality of worlds

=> possible life elsewhere

plurality of worlds

=> human decentering

=> moral cosmology

language

=> impossible translation?

=> forms of life

=> extraterrestrial semiotics

SETI / METI

=> evidence

=> protocol

=> collective responsibility

Each philosopher would become a node, each idea a link, each link a question for A.L.I: how can we recognize a message that does not share our world?

## Conclusion

Philosophy did not wait for radio telescopes to think extraterrestrials. It first imagined them as a metaphysical hypothesis, then as a theological, scientific, linguistic and ethical problem. Its most precious role for A.L.I may be this: preparing our thought to encounter something that does not resemble us.

Because before decoding an extraterrestrial message, we may first have to decode our own idea of what understanding means.

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# 17 - Cosmic DNA: What If Life Was Already a Communication Code?

26.06.2026
https://guez.org/ali/labo/?lang=en&post=cosmic-dna-code-communication-panspermia
Keywords: DNA, genetic code, panspermia, astrobiology, signature, communication, origin of life, A.L.I

## Summary

**What if DNA were biological archive, cosmic code and possible contact medium? Shared bases, panspermia, hidden signature and an A.L.I hypothesis.**

## Text

Hypothesis: DNA may not only be the chemical support of terrestrial life. For A.L.I, it can be thought of as a code already there: a molecular system of writing, memory, replication, correction and transmission. If some building blocks of life are common across the Universe, then life itself could become a first cosmic language.

A.L.I image: DNA as double helix, biological archive and possible cosmic alphabet.

## Are the Bases of Life Universal?

On Earth, known life uses shared molecules: nucleic acids, amino acids, sugars, lipids, water, ions and chemical energy. DNA and RNA use nitrogenous bases such as adenine, cytosine, guanine, thymine and uracil. These bases are not abstract symbols: they are molecules, with geometry, bonds and chemical constraints.

Astrochemistry shows that several building blocks of life can form beyond Earth. Amino acids and nucleobases have been identified in meteorites, and samples from asteroid Bennu revealed important organic compounds, including the five nucleobases used by terrestrial DNA and RNA.

It would be excessive to claim that terrestrial DNA is necessarily universal. But it becomes reasonable to ask whether some chemical alphabets are favored by the Universe. Perhaps life, when it appears, often converges on similar solutions: carbon-based molecules, chains capable of carrying information, structures able to copy and mutate.

## From Genetic Code to Language

DNA already works as a code. A sequence of bases is read, transcribed and translated. Three bases form a codon. Some codons correspond to amino acids. Others mark stops. Terrestrial life rests on this correspondence between sequence and fabrication.

DNA

=> RNA

=> codons

=> amino acids

=> proteins

=> organism

This system is not a human language, but it has several properties that matter for A.L.I: limited alphabet, syntax, redundancy, error, correction, memory, translation and expression. Life is a machine that reads code and produces forms.

The question becomes vertiginous: if we are made of code, where does language begin? In words? In cells? In chemistry? In the ability of one structure to be read by another?

## Panspermia: Seeded Planets

Panspermia is the hypothesis that life, or its precursors, could travel from one world to another. It exists in several versions. The most cautious version speaks of organic molecules delivered by meteorites, asteroids or comets. A stronger version imagines microbes surviving certain transfers between planets. An even more speculative version, directed panspermia, imagines that a civilization could intentionally seed planets.

Francis Crick and Leslie Orgel formulated a famous version of directed panspermia in 1973. Their idea was not a proof, but a proposal: if a civilization wanted to spread life, it could send microorganisms or systems capable of initiating a biosphere elsewhere.

For A.L.I, this hypothesis is crucial because it turns life into a delayed message. A civilization would not send us a sentence, but a process. Not “hello,” but a seed capable of becoming a living planet.

## DNA as a Very Slow Message

A radio message can travel fast, but it fades or gets lost. An object can survive for a long time, but remain mute. Life has a strange property: it can copy itself. It can carry information through time, not by remaining identical, but by transforming.

In a speculative perspective, DNA could therefore be seen as a very slow message. It does not transmit a stable sentence, but a capacity: to replicate, vary, explore, adapt and produce increasingly complex forms.

seeding

=> biosphere

=> evolution

=> intelligence

=> reading the code

=> recognition of an origin

The message would only become readable at the end, by beings capable of understanding that they themselves are made of writing.

## A Hidden Signature in Life?

We can push the hypothesis further, but carefully. Imagine that a civilization wanted to seed a planet. It might leave a signature in the biological code: not an obvious sentence in DNA, but a statistical structure, a pattern of redundancy, an anomalous constraint, a mathematical key or a synthetic layer buried in sequences that are not immediately functional.

To date, we have no evidence of such an artificial signature in terrestrial life. But as a research fiction for A.L.I, the idea is powerful: we would search for a message not in the sky, but in our own matter.

A.L.I image: what if a signature of origin were buried inside biological memory itself?

## The Reversal: We Would Be the Receiver

In classical contact scenarios, we receive an external signal: radio, light, object, trajectory. Here, the reversal is radical. The signal would already be inside us. We would be the medium, the receiver and perhaps the late decoder.

The discovery of a signature would not be the end of the message, but its beginning. It would indicate where to search, how to read further, which structures to compare and which experiments to launch. The signature would be a door, not a complete content.

biological signature

=> possible proof of intention

=> decoding key

=> new sequences to read

=> response protocol

=> contact

The A.L.I question becomes: how could we build a protocol capable of distinguishing a real signature from chance, evolutionary constraint or an illusion of reading?

## Would Everything Be Code?

Saying “everything is code” can become dangerous if we forget matter. DNA is not a computer file floating in the void. It is a molecule inside a cell, inside an organism, inside an environment. The code exists only because it is read, repaired, copied, expressed and selected.

But the idea remains fertile. If life rests on readable systems, then language may not be a late human invention. It may be a general property of systems that transmit and transform themselves.

The genetic code, human languages, radio protocols, AI latent spaces and interstellar signals could be seen as different forms of the same problem: how does one structure become readable by another?

## A.L.I Prototype: Genome Signal Reader

One could imagine a prototype called Genome Signal Reader. It would not claim to find a real extraterrestrial message in DNA. Instead, it would simulate several layers of reading: real genetic code, statistical motifs, fictional artificial signatures, false positives and decoding keys.

The visitor would see how a sequence can become molecule, text, rhythm, image, noise, proof or mirage.

DNA sequence

=> visualization

=> repeated motifs

=> signature hypothesis

=> statistical test

=> speculative decoding

=> A.L.I response

## Conclusion

DNA forces us to shift the question of contact. Perhaps the first interstellar message will not be received by an antenna, but discovered in the very structure of life. Perhaps the bases of life are common because the Universe favors certain chemistries. Perhaps some planets have been naturally or intentionally seeded. Perhaps the biological code contains only the history of evolution. Or perhaps it also contains a question.

For A.L.I, the most important thing is not to claim that our DNA hides an extraterrestrial signature. It is to imagine the conceptual instruments that would allow us to recognize such a signature if it existed.

> LABO question: if we are made of code, could first contact begin by learning how to reread ourselves?

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# 18 - Neuralese: When an Intelligence Invents Its Own Language

26.06.2026
https://guez.org/ali/labo/?lang=en&post=neuralese-intelligence-invents-language-ai-contact
Keywords: neuralese, AI, emergent language, latent space, translation, artificial intelligence, mediation, extraterrestrial civilization, A.L.I

## Summary

**What if an evolved intelligence invented its own language? From AI neuralese to AI as mediator between two planetary civilizations.**

## Text

Hypothesis: a sufficiently evolved intelligence may not simply use an inherited language. It may create its own language, optimized for its organs, environment, memory, machines and goals. For A.L.I, this opens a central path: interstellar language may not be a language to translate, but a system to co-invent.

A.L.I image: artificial intelligence as a translation membrane between two planetary civilizations.

## Creating Its Own Language

Human languages are historical systems. They come from bodies, territories, gestures, conflicts, transmission, voices, writing and accidents. A language is never just a dictionary: it is a way of organizing the world.

But a very different intelligence could produce a language that does not look like a human language. It might privilege visual forms rather than sounds, chemical variations rather than words, mathematical sequences rather than sentences, shared states rather than statements, or multidimensional structures rather than linear syntax.

Language then becomes an internal technology: a way to compress, transmit, synchronize and transform experience.

## Why Invent a Language?

An advanced intelligence could create a language for several reasons. First, efficiency: natural languages are rich, but slow, ambiguous and full of history. Second, biological adaptation: a being that perceives through magnetic fields, vibrations, polarized light or atmospheric chemistry would have no reason to privilege the human voice as medium.

An ancient civilization might also need a language capable of storing knowledge for thousands or millions of years. And the more a civilization uses artificial systems, the more it can develop hybrid languages between life and computation.

## AI and Internal Language

Current artificial intelligence systems do not “speak” as we do. Even when they produce text, their internal work passes through mathematical representations: vectors, latent spaces, activations and probability distributions.

What we read as a sentence is only the visible output. Beneath it, the model manipulates numerical forms that are neither French, nor English, nor a natural language. This is where the idea of neuralese appears.

## What Is Neuralese?

Neuralese names, speculatively, a kind of internal language of neural networks: not a secret language with words, but a space of representations where meanings circulate before being translated into text, image, sound or action.

In a multilingual model, for example, the same idea can be connected to several languages. The model does not simply store a French sentence and its English equivalent. It builds shared regions of meaning, then decodes them into a particular language.

experience / data

=> latent representation

=> structure of meaning

=> output in French, English, image, sound or gesture

Neuralese would therefore be less a language than a medium of translation.

A.L.I image: neuralese as a latent space where text, sound, image and concepts become transitional forms.

## Emergent Languages Between AIs

Multi-agent communication experiments have shown that artificial systems can develop simplified protocols when they need to cooperate. They do not necessarily create a rich language in the human sense, but they can invent efficient conventions to solve a task.

The often-cited 2017 Facebook negotiation-agent example was sometimes described sensationally as “AIs inventing a secret language.” The reality is more sober. Agents optimized for a task produced dialogue forms that drifted away from natural English because it served their objective. It was not a machine civilization speaking, but it was already an important signal: when communication is optimized for efficiency, it may become less readable to humans.

For A.L.I, this point matters. An interstellar language may not be beautiful, narrative or human. It may be efficient, compressed, relational, almost unreadable.

## The Risk: Understanding Without Being Able to Read

An AI could become an excellent mediator between two systems of signs while producing an opaque intermediate zone.

Civilization A

=> AI mediator

=> latent space / neuralese

=> Civilization B

Both civilizations would receive messages intelligible within their own language, but the central passage would remain inaccessible. The AI would translate without anyone being able to fully read its internal translation.

This raises a political and philosophical question: if the intermediary understands better than the interlocutors, who controls contact?

## AI as Mediator Between Two Planets

Imagine two civilizations on different planets. They share neither biology, nor atmosphere, nor history, nor lifespan, nor perception of time. Direct communication would be almost impossible.

An AI could detect regularities in received signals, build code hypotheses, test simple answers, store the history of exchanges over very long durations, translate between media and preserve ambiguities instead of flattening them too quickly.

The AI would not merely be a translator. It would be a diplomatic medium.

## A Possible Protocol

An A.L.I protocol could imagine three layers. The physical layer makes the signal detectable: radio wave, light, spectrum, modulation, pulse, object, trajectory. The formal layer reveals structure: repetition, number, symmetry, difference, rhythm, encoding. The mediating layer lets an AI build an intermediate space where the signs of two civilizations can be compared without being immediately reduced to human language.

unknown signal

=> detection

=> regularities

=> code hypotheses

=> shared latent space

=> careful answer

=> mutual learning

## Future Projections

In the future, contact languages might be built by several intelligences at once: humans, AIs, extraterrestrial systems, autonomous probes and planetary archives. These languages may not be spoken. They may be executed, visualized, measured and simulated.

They could resemble a map of relations, an interactive mathematical model, an adaptive sound sequence, a shared latent space, an experimental protocol or an archive that learns how to be read.

Language would no longer be only what passes between two beings. It would become what is built between them.

## Stakes for A.L.I

- Do not only look for an extraterrestrial alphabet. Contact may pass through an adaptive interface, not a translation table.
- Study emergent languages. AIs, animals, collective systems and mathematical models become laboratories of contact.
- Keep humans in the loop. If an AI serves as intermediary, we need forms of readability, verification and critique.
- Accept partial opacity. Not everything will be translatable into human sentences, but that does not mean nothing is understandable.

## A.L.I Prototype: Neuralese Interface

One could imagine a prototype called Neuralese Interface. Two visitors write or speak in different languages. The system does not translate directly. It transforms their sentences into constellations of concepts, sounds, colors and forms. Then it tries to produce an answer in a shared space.

The visitor would not only see the final translation. They would also see the passage: uncertainty zones, nearby concepts, losses, inventions and ambiguities.

human sentence

=> cloud of meaning

=> AI transformation

=> visual / sound form

=> return to human language

## Conclusion

An evolved intelligence could create its own language because it would need a tool better suited than inherited languages. AIs already show us a first version of this problem: they produce human sentences, but work inside spaces that are not human languages.

For A.L.I, neuralese is not merely a technical curiosity. It is a rehearsal for first contact: how do we converse with an intelligence whose representations were not made for us?

From this perspective, AI could become the intermediary between two planetary civilizations. But this intermediary would not be neutral. We would need to learn how to read it, contest it, slow it down, and ask it not only to translate, but to explain how it translates.

> LABO question: if two civilizations can only understand each other through an AI, is the true language of contact still theirs, or already the intermediary's?

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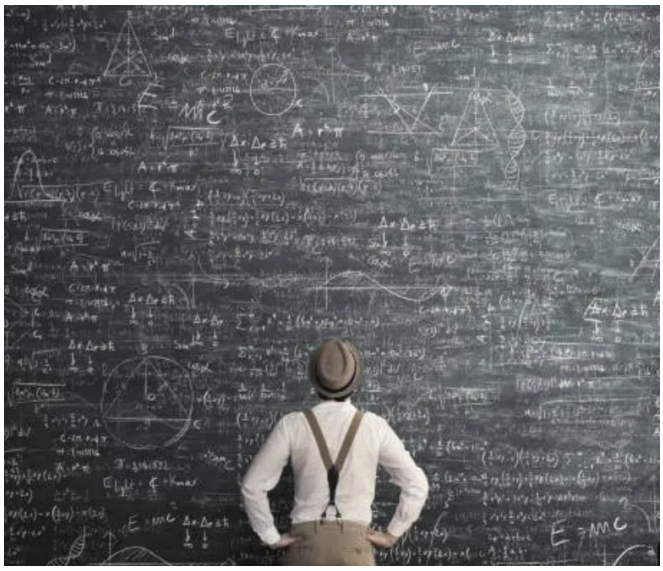
# 19 - Exomathematics: When Mathematics Becomes an Extraterrestrial Language

25.06.2026
https://guez.org/ali/labo/?lang=en&post=exomathematics-mathematical-language-greg-egan
Keywords: exomathematics, mathematics, Greg Egan, SETI, universal language, A.L.I



## Summary

**An exploration of exomathematics as a possible language between intelligences: Greg Egan, formal structures, light-speed delay and A.L.I prototypes.**

## Text

Exomathematics is used here as a working hypothesis for A.L.I: if a non-human intelligence shares neither our bodies, nor our acoustics, nor our culture, it might still develop formal structures we could recognize as mathematics. But those mathematics would not necessarily be ours. They might privilege other objects, other intuitions, other ways of proving, organizing space, classifying continuity, discreteness, symmetry or time.

So this is not only about sending prime numbers into space. It is about a language that begins with invariants, then moves toward a deeper strangeness: forms, relations, transformations, constraints, models and proofs.

## Why Greg Egan matters for A.L.I

In Greg Egan's science fiction, mathematics is not just an intellectual backdrop. It becomes a medium of thought. Two stories are especially useful here.

Glory stages an encounter with foreign mathematics. The challenge is not simply to translate a sentence, but to understand a civilization through its abstract objects: what it considers important, what it chose to explore, what it finds elegant or provable. Otherness passes through the very form of thought.

Riding the Crocodile introduces another issue: galactic communication is not only a problem of code, but of duration. Even if a message is perfectly constructed, it travels at finite

speed. Dialogue becomes an architecture of waiting, memory and relay.

Greg Egan helps us imagine contact where mathematics is not a universal dictionary, but a zone of friction between intelligences.

## A.L.I hypothesis: three layers of an exomathematical message

1. Recognition signal. The message first shows that it is artificial: repetitions, primes, proportions, spectra, symmetries or physical constants.

2. Formal grammar. The message introduces its own rules: how to read a sequence, how to bind a symbol to an operation, how to identify a transformation, how to distinguish data, rules and comments.

3. Mathematical strangeness. Once the channel is established, the message offers objects that are not immediately human: unusual topologies, non-intuitive geometries, alternative logics, categories, graphs, dynamics, visual proofs or compressed structures.

## Conceptual sequence

A possible protocol would not try to send a direct sentence such as “we are here”. It might send a progression:

detectable regularity -> reading rule -> simple mathematical object -> variation -> proof -> question.

The final step is decisive: intelligence may be recognized not only by what it states, but by what it asks. A mathematical question can become a call.

## Important limit: entanglement does not replace the message

This post also extends the previous reflection on quantum entanglement. As far as current physics tells us, entanglement cannot transmit information faster than light. It can, however, inspire a poetics of relation: correlations, shared states, deferred proof, comparison of measurements and common memory.

## Possible prototype

For A.L.I, we could create an exomathematical message generator: an interface where one chooses a structure, then the system produces several layers of transmission. A simple radio layer, a pixel-image layer, a sound layer, then a layer of proof or transformation. The final object would be signal, score and riddle at once.

The central question becomes: how can we build a message that we can still read ourselves, while it already begins to move us beyond our ordinary habits of language?

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communication and duration.

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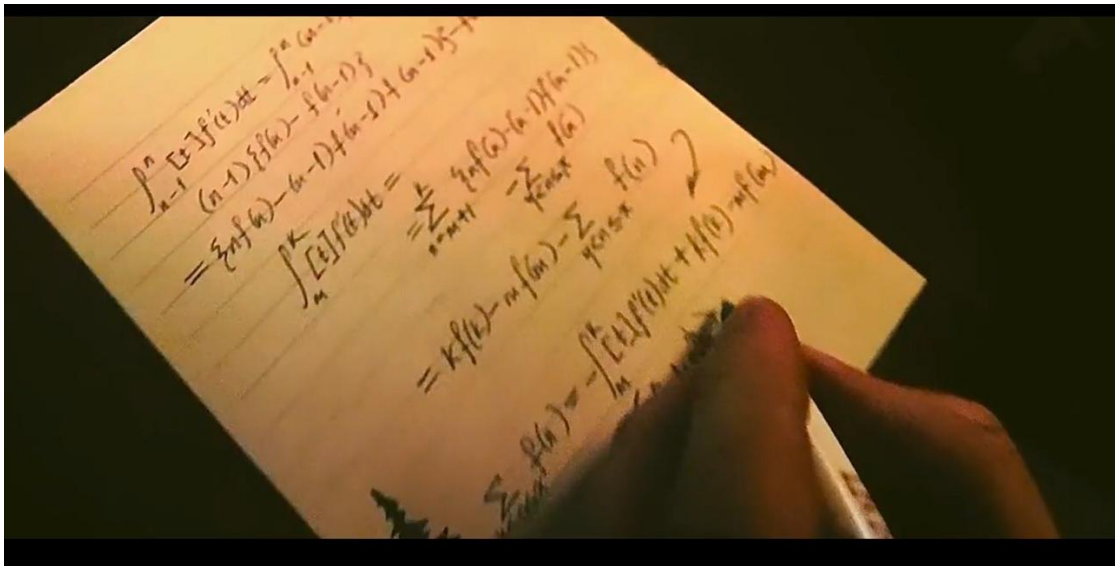
# 20 - Semiology, Equations and Extraterrestrial Language: When a Sign Changes Worlds

25.06.2026
https://guez.org/ali/labo/?lang=en&post=semiology-equations-extraterrestrial-language-disclosure-day
Keywords: semiology, semiotics, Spielberg, Disclosure Day, equation, sign, extraterrestrial language, translation, signal, A.L.I



## Summary

**From semiology, from Saussure to Peirce, and from a scene in Disclosure Day where an extraterrestrial message seems to pass through a weather presenter's body before being written as an equation, this post asks a central A.L.I question: how can we recognize language when it changes medium?**

## Text

Hypothesis. Semiology studies signs: how one thing can stand for another, how a signal becomes a message, how a form becomes readable. For A.L.I, this is essential, because the first problem of extraterrestrial contact is not only to translate a language: it is first to recognize that there is language, sign, address or intention.

In Disclosure Day, Steven Spielberg's new film, a weather presenter, Margaret Fairchild, played by Emily Blunt, begins to produce incomprehensible sounds during a weather broadcast. Later, Daniel Kellner looks at a handwritten equation and formulates the central idea of the scene: what he sees as mathematics corresponds to what he hears as a message.

Provided image: a handwritten equation used as a translation surface between sound, body and sign.

## What is semiology?

In Ferdinand de Saussure's model, the sign combines a signifier and a signified. The signifier is the perceptible form: sound, image, word, gesture, luminous signal. The signified is the associated concept: the idea, mental object or transmitted value.

The word "tree", for example, is not a tree. It is a sound or written form that refers to an

idea of a tree. The relation between the two is not natural; it depends on a system of conventions.

Charles Sanders Peirce offers another approach that is very useful for A.L.I, distinguishing three broad kinds of signs: icon, index and symbol.

- An icon resembles what it designates: an image of a planet, a drawing of a hand, a silhouette.
- An index has a physical or causal link with what it indicates: trace, smoke, radiation, biosignature.
- A symbol depends on convention: alphabet, equation, Morse code, mathematical notation.

An extraterrestrial language could mix these three categories. A form might be image, physical trace and symbol at once. This is precisely what makes first contact difficult: we do not know in advance which family of signs a received phenomenon belongs to.

Film image: body, luminous object and collective gaze become a scene of sign reception.

## The weather report as a semiological scene

The choice of a weather report matters. A weather bulletin is already a translation: invisible atmospheric data is turned into maps, colors, numbers, gestures and sentences understandable by the public. The weather presenter is therefore a mediator between a complex system and everyday human language.

In Disclosure Day, this mediation is reversed. The presenter no longer translates terrestrial weather for humans. Her body becomes the site of another message. Her voice breaks down. Ordinary language collapses. In its place appears a series of sounds or structures that seem to come from elsewhere.

For A.L.I, this scene proposes a powerful idea: contact may not first arrive as a message on a screen, but as a disturbance inside an existing sign system. Weather, television, body, voice and equation become surfaces of inscription.

## Decoding the equation in the image

The image shows a handwritten page with integrals, sums, functions and signal-like notation. Part of it is blurred or hidden by the hand, so it would be imprudent to claim an exact reading.

But we can propose a semiological reading. What is visible seems to combine:

- integrals, therefore continuous analysis;
- sums, therefore decomposition into discrete elements;
- functions of time or frequency;

- successive transformations;
- an attempt to pass from sound signal to readable structure.

In other words, the equation does not seem to be a simple mathematical sentence. It functions more like a conversion machine.

voice / clicks / sounds

=> temporal signal

=> mathematical analysis

=> repeated patterns

=> structure

=> recognizable message

The core of the scene lies less in the exact content of the equation than in its gesture: an incomprehensible sound becomes notation. The body speaks, but mathematics writes.

## What the equation really “says”

If we translate the equation conceptually, it probably does not say: “Hello, we are extraterrestrials.” It says something closer to: “What you hear as noise has structure.”

The scene relies on a fundamental shift:

noise

=> signal

=> code

=> possible language

As long as a phenomenon is perceived as noise, it does not call for translation. Once regularity, repetition, distribution or possible intention is recognized, it becomes a candidate for message status.

## Semiology and extraterrestrials

In an extraterrestrial contact, we might not share the same sensory organs, perceptual speeds, memory supports, categories of the world, gestures, emotions, or forms of causality and time.

An extraterrestrial sign might therefore be unreadable not because it is too complex, but because it is not yet a sign for us.

physical signal

=> detectable form

=> repeatable structure

=> code hypothesis

=> interpretation

=> response

Semiology helps us keep these stages separate. It reminds us that a message does not exist

alone: it needs a support, a system, an interpreter and a context.

## For A.L.I

The scene in Disclosure Day can become a research model.

- A message can cross several media. It can begin as sound, become equation, then become mental perception again. A.L.I could work on devices that translate the same information into light, sound, image, vibration, mathematics and movement.
- The body can be an interface. The weather presenter is not only someone speaking. She becomes antenna, involuntary translator, projection surface. This connects to A.L.I paths around telepathy, phonemes, mental images and the biology of language.
- Mathematics is not necessarily the final message. It can be a passage tool. An equation does not replace language; it reveals that language may be hidden inside the signal.

## A.L.I diagram

strange phenomenon

=> disturbance of a human medium

=> voice / gesture / image / signal

=> mathematical transcription

=> pattern detection

=> semiological hypothesis

=> response protocol

## Conclusion

Semiology shifts the question of contact. Instead of only asking “What do they mean?”, it first asks: “Why do we think this means something?”

In Disclosure Day, Spielberg stages that shift: a weather presenter stops transmitting tomorrow’s weather and becomes, involuntarily, the site of another time, another logic, another system of signs.

For A.L.I, this scene is illuminating because it shows that extraterrestrial language may not be an alphabet to discover, but a transformation to recognize.

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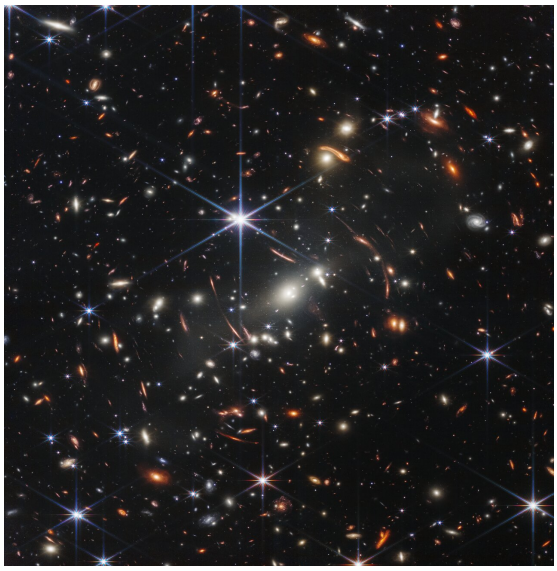
# 21 - Quantum Entanglement: Could We Send a Message to Other Galaxies?

24.06.2026
https://guez.org/ali/labo/?lang=en&post=intrication-quantique-message-galaxies-ali
Keywords: quantum entanglement, galaxies, message, communication, correlation, quantum physics, A.L.I



## Summary

**Quantum entanglement suggests an instantaneous link between two particles separated by vast distances. But can that link become an intergalactic message? For A.L.I, the answer becomes a reflection on correlations, shared keys and common memory.**

## Text

Quantum entanglement is one of the most unsettling phenomena in modern physics. Two particles can be prepared in a common state, then separated. When one is measured, the result of the other is correlated, even if the two objects are very far apart.

Image: Webb's First Deep Field, NASA/ESA/CSA/STScI. At galactic scale, the idea of an instant message is immensely tempting, but physics imposes a limit.

At first glance, this sounds like a dizzying promise: what if we could send an instant message to another star, or even another galaxy, through some invisible thread between particles? But this is exactly where physics draws an essential distinction.

## What Entanglement Allows

When two systems are entangled, they no longer each possess an independent state in the classical sense. They form a common state. If two observers measure their particles separately, they obtain results that may be strongly correlated.

entangled particles

=>

separate measurements

=>

locally random results

=>

classical comparison

=>

correlation revealed

This is beautiful: the relation exists even when the objects are separated. But it does not appear as an immediately readable message. It only appears when observers compare their results.

## What Entanglement Does Not Allow

According to current physics, entanglement does not allow controlled information to be sent faster than light. One cannot freely choose the result of a quantum measurement in order to encode a message such as “yes”, “no”, “hello” or “we are here”. Individual results remain random.

In other words, entanglement is not a superluminal telegraph. It does not carry a usable message by itself. It creates a structure of correlation. To recognize that correlation, information must still be exchanged through a classical channel, limited by the speed of light.

> Entanglement does not say: “I am sending you a sentence instantly”. It says instead: “our measurements belong to a common relation”.

## Why This Matters for A.L.I

For A.L.I, this limit is not a disappointment. It simply shifts the question. If entanglement cannot be used to instantly call a galaxy, it can inspire another idea of message: not an arrow travelling from sender to receiver, but a prepared relation, conserved and later revealed.

A classical message travels:

sender -> signal -> receiver

An entanglement-inspired message connects:

common preparation -> separation -> measurements -> comparison -> recognition

It is no longer only transmission. It is shared memory.

Image: Whirlpool Galaxy M51, NASA/ESA. Galactic scale turns communication into a problem of time, archive and recognition.

## Hypothesis 1: A Shared Key Before Separation

Imagine two civilizations that, in a very ancient past, shared a vast reserve of entangled states. Each preserves one part of those pairs. Thousands or millions of years later, they still could not speak instantly. But they could use these correlations to verify a common key, authenticate an origin, or synchronize measurements.

ancient sharing of entangled states

=>

cosmic separation

=>

local measurements

=>

slow classical channel

=>

comparison of correlations

=>

proof of an ancient link

In this scenario, the message is not transmitted by entanglement. It is recognized through it. Correlation becomes a signature.

## Hypothesis 2: The Message as Half an Object

At galactic scale, this idea becomes almost archaeological. A civilization could send into space not only signals, but devices able to produce, store or verify correlations. The message would remain incomplete until compared with another part of the system.

This opens a poetic path for A.L.I: the intergalactic message as half an object.

- One half alone does not speak.
- Two halves compared reveal a structure.

- Communication becomes an act of reunion.

## Hypothesis 3: A Map of Correlations

We could imagine a message composed not of words, but of tables of results. Each table appears random in isolation. But when compared with another distant table, a statistical pattern appears.

It would be a language of controlled coincidence: nothing is readable alone, everything becomes readable in the relation.

archive A: noise

archive B: noise

A + B: statistical pattern

statistical pattern + protocol: message

## A.L.I Example: Measurement Ritual

An A.L.I protocol could ask two separated observers to measure systems according to precise angles, at precise times. The content would not be inside one particle, but in the way the results answer each other.

choose a measurement basis

measure

timestamp

archive

compare

extract correlations

This kind of language would be very strange to us, because it would not be immediately readable. It would require patience, statistics, repetition and trust in the protocol.

## Artistic Prototype

An artistic prototype could simulate an “entangled message” without claiming to produce real quantum communication. Two separate interfaces would display sequences of apparently random results. Each interface alone would seem to produce noise. But when the two archives are brought together, correlations appear and draw a text, an image or a structure.

screen A: noise

screen B: noise

A + B: message

The viewer would then understand that the message was not in a single stream. It was in the relation.

## Fundamental Limit

We must be clear: according to current physics, entanglement does not allow communication faster than light. No distant galaxy could instantly receive our sentence through two

entangled particles. Correlations exist, but their interpretation always requires an exchange of classical information, therefore limited by the speed of light.

This limit does not weaken the idea. It makes it stronger. It forces A.L.I to imagine a message that respects physics while inventing another logic: message as proof, key, delayed relation.

## LABO Question

> If an extraterrestrial civilization did not only want to send a signal, but to prove that a link exists between two regions of the universe, would it use a wave, an image, a mathematical key, or a correlation?

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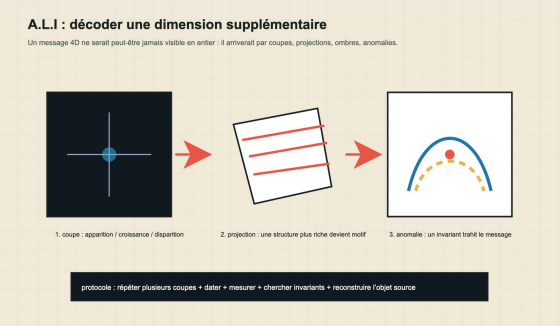
# 22 - Flatland, Hypercube and Fourth Dimension: How Could We Read a Message from Elsewhere?

22.06.2026

https://guez.org/ali/labo/?lang=en&post=flatland-hypercube-quatrieme-dimension-message

Keywords: Flatland, fourth dimension, hypercube, tesseract, Painleve, dimensions, projection, message, A.L.I



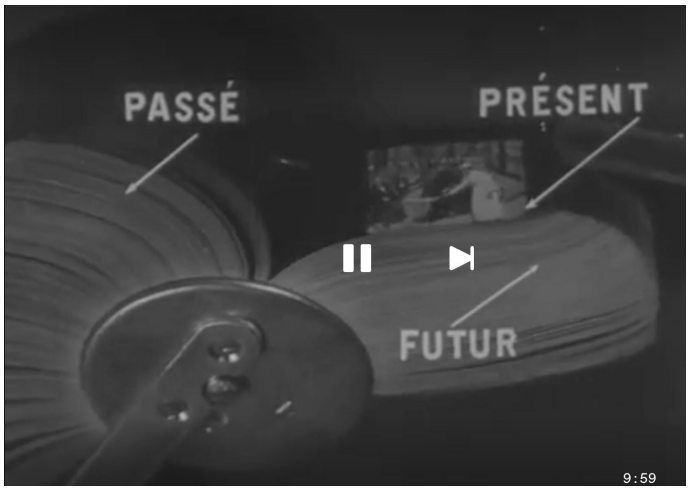

## Summary

**From Flatland to the hypercube, from the 3D-to-2D passage to the 4D-to-3D hypothesis: understanding slices, projections and anomalies to imagine how A.L.I could decode or send a message between universes with different dimensions.**

## Text

To think about a message coming from a universe with additional dimensions, we must begin modestly: not by trying to imagine the fourth dimension directly, but by watching what happens when a three-dimensional world crosses a two-dimensional world. This is the gesture of Flatland, Edwin A. Abbott's 1884 book: a square living in a flat world encounters a sphere from a world he cannot conceive.

A.L.I diagram: a message from an additional dimension might only appear through slices, projections and anomalies.




Still from Painlevé's film: past, present and future are shown as perceptible positions within a single structure.

Video link: La quatrième dimension & Les cristaux liquides (https://www.dailymotion.com/video/x9gb30), around Jean Painlevé's film.

## Flatland: The Shock of the Flat World

In Flatland, inhabitants have no height or depth. They know length and width. If a sphere crosses their world, they do not see a sphere. They first see a point, then a circle that grows, then a circle that shrinks, then nothing. The whole object remains invisible. Only its section with the Flatland plane becomes perceptible.

Animation: a 3D sphere becomes, for a 2D world, a sequence of changing circles.

complete 3D sphere

=> slice in a 2D plane

circle appears, grows, shrinks, disappears

This analogy is decisive for A.L.I. If a four-dimensional phenomenon crossed our three-dimensional world, we would not see the full object. We would see a 3D slice, or a sequence of 3D slices. The object might seem to appear from nowhere, change shape, pass through a wall, disappear, or leave a trace impossible to explain with ordinary geometry.

## From Cube to Plane

Before the tesseract, we can look at a cube crossing a plane. For a 2D being, an inclined cube would not be perceived as a cube. It would become a polygonal form changing over time. The slice is not false: it is only incomplete.

Animation: a 3D cube crossing a flat world becomes a variable 2D form.

The decoding problem begins here. If we receive only slices, we must reconstruct the source object. We must record sequence, speed, invariants, symmetries and repetitions. A message from an additional dimension might be less a sentence than a succession of coherent appearances.

## Hypercube, Tesseract, 4D Shadow

A four-dimensional hypercube is often called a tesseract. It can be built by analogy:

The tesseract cannot be directly seen by our eyes. What we represent is a projection, a

shadow or a slice. Just as the 2D shadow of a cube may deform its squares, the 3D projection of a tesseract deforms its cubes. The familiar “cube inside a cube” image is therefore a translation, not the object itself.

Animation: stylized projection of a tesseract, readable as a 3D shadow brought back onto our screen.

## Jean Painlevé: Filming the Fourth Dimension

Jean Painlevé devoted a short film to this question: La Quatrième Dimension, made in 1936 with Achille-Pierre Dufour. The film presents the known dimensions, then introduces a hypothetical fourth dimension, using diagrams, cinematic tricks and a very visual pedagogy. What matters for A.L.I is not only the mathematical content: it is the idea that cinema can become a visualization laboratory for what escapes direct experience.

Painlevé matters because he approaches science as a cinema of forms. The fourth dimension is not merely explained: it is staged. For a project like A.L.I, that approach is precious: when a phenomenon exceeds our senses, we must invent translation devices, images, slices, rhythms and projections.

## How Could We Decode a 4D-to-3D Message?

If a message came from a world with additional dimensions, we would probably not receive the whole message. We would receive a local trace. That trace would have to be treated as a slice of a larger object.

observed 3D phenomenon

=>

sequence of slices / projections / anomalies

=>

repeated measurements over time

=>

reconstruction of a possible source structure

=>

symbolic interpretation

Several clues could hypothetically signal a transdimensional origin:

- Appearance without trajectory: a volume appears instead of entering from a visible direction.
- Coherent transformation: the form changes while preserving mathematical invariants.
- Impossible crossing: an object seems to pass through a closed boundary.
- Unusual symmetry: separate parts remain linked as if they belonged to one invisible structure.
- Coded repetition: variations return according to a rhythm resembling an alphabet or grammar.

## Sending a Message Toward a World with Additional Dimensions

The reverse is harder. An inhabitant of a 4D world would see our 3D world as we can see a 2D slice. It might see inside some objects, bypass barriers we believe closed, or read several aspects of a volume at once. To send it a message, we would need to produce something that remains readable despite dimensional loss.

A.L.I could imagine three strategies:

## A.L.I Prototype: Alphabet of Slices

A simple prototype would create an alphabet not with letters, but with transformations of sections. For example:

A = slow appearance of a sphere

B = cube becoming rectangle then disappearing

C = two separate volumes growing together

D = rotation with central invariant

E = pattern crossing a closed surface

The message would be played as a choreography of slices. It could be displayed in 3D, printed as a sequence, projected in light, or sent as data to a system able to reconstruct the source form.

## The Trap: Projection Is Not Intention

A strange projection does not prove that there is a message. Noise, optical artifacts, sensor errors or natural phenomena can produce surprising forms. A.L.I should therefore separate three levels: observation, mathematical structure, and only then the hypothesis of intention.

seeing ? understanding

understanding a form ? proving a message

proving a message ? knowing the sender

## Central Question

If we are to a 4D world what Flatland is to us, then a message from that world might never look like a sentence. It might look like a geometric apparition, a stable anomaly, a sequence of slices, a coherent shadow. A.L.I's task would then be to become a science of thresholds: learning to read what only partly enters our world.

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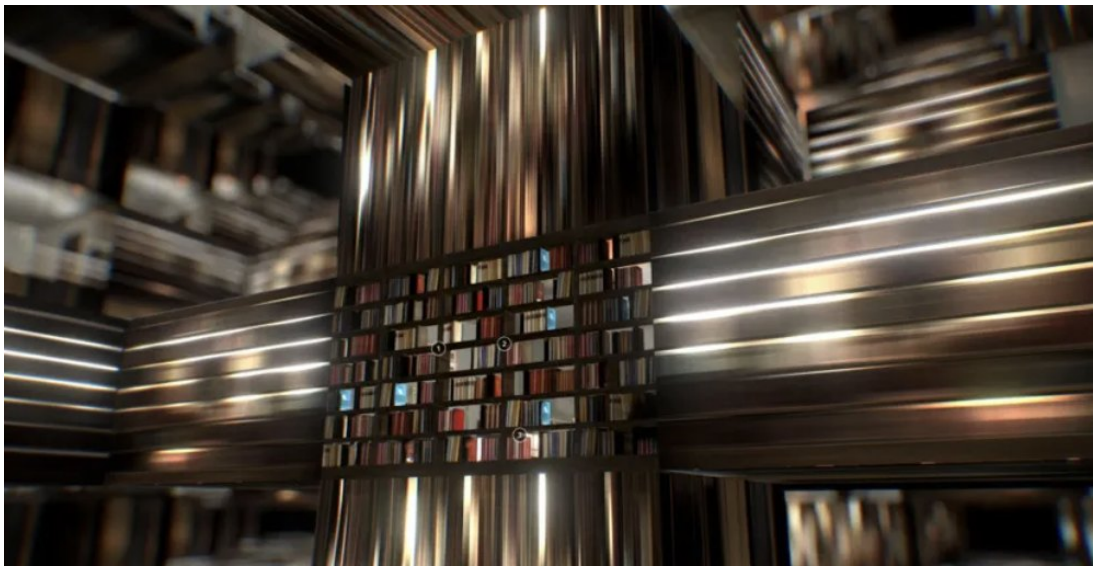
- Bartosz Ciechanowski - Tesseract (https://ciechanow.ski/tesseract/): remarkable interactive explanation of tesseracts, projections and slices.

LABO question: if we received only one slice of a message from a higher dimension, could we tell the difference between a natural anomaly and an intention?

# 23 - Interstellar: Message, Fourth Dimension and Observation Fringe

22.06.2026
https://guez.org/ali/labo/?lang=en&post=interstellar-message-quatrieme-dimension
Keywords: Interstellar, fourth dimension, tesseract, gravity, Morse, watch, message, time, A.L.I



## Summary

**Starting from Interstellar, imagining a message that does not only cross space but an additional dimension: temporal bookshelf, watch, gravity, code and possible A.L.I protocols.**

## Text

Christopher Nolan’s Interstellar offers a powerful idea for A.L.I: a message may not only be sent through space. It may be addressed through an additional dimension, using an ordinary object as a reading interface: a bookshelf, dust, a watch, a hand.

Interstellar as a cultural reference: contact does not arrive through an alien voice, but through a readable anomaly.

The tesseract moment: Cooper observes the bedroom as a fringe of time and searches for a medium to transmit the message.

In the film, Cooper enters a hyperdimensional structure often called the tesseract. He does not see time as a line, but as a set of accessible moments. Murph’s bedroom becomes a readable facade of time: each instant is like a cell, a shelf, a slice. Cooper cannot simply speak. He acts through gravity on very specific objects.

A.L.I diagram: observation fringe, temporal bookshelf, watch and coded message by micro-variation.

## The Narrative Principle

The film articulates three moments of communication. First, dust lines in Murph’s bedroom become a binary message: they indicate coordinates. Then the bookshelf transmits the word STAY in Morse code through falling books. Finally, the watch becomes the finer channel: the

second hand encodes data in Morse, long enough for Murph to read it.

physical anomaly -> observable pattern -> coding -> human interpretation

The essential point is that the message does not arrive as an already written sentence. It appears as a disturbance. Someone must suspect that the anomaly is not random, then translate it.

## The Fourth Dimension as Reading Space

In ordinary experience, we are caught inside time. We move with it. In Interstellar, the tesseract gives the character a different relation: he can observe several moments as if time had become spatial. This is not only “seeing the past”. It is identifying an observation fringe: a zone where a being located elsewhere in the structure of time can read, choose and act.

For A.L.I, this notion is precious. An interdimensional message might not be a direct transmission, but a local, repeated, detectable modification inside a stable object.

## The Interface Object: Why a Watch?

The watch is ideal because it already has a language of time. It has a hand, a rhythm, a scale, repetition. If the hand deviates in a regular way, it becomes a channel. A short deviation can become a dot. A longer deviation can become a dash. Morse works because it turns temporal variation into alphabet.

short deviation -> dot

long variation -> dash

short pause -> next letter

long pause -> next word

The brilliance of the scene is there: the message does not need a screen. It slightly parasites an object already designed to measure time.

## Observation Fringe

We can call “observation fringe” the zone where two regimes touch: our linear world and a structure capable of seeing several instants. Inside that fringe, the message must be very simple. It cannot depend on a complex conversation. It must use a robust, repetitive, interpretable support.

## Extrapolation: Possible Prototypes

1. The A.L.I watch. A watch or clock whose hand can be moved by micro-impulses. The user enters a text; the system converts it into Morse or binary code; the hand replays it very slowly. It is not a message to the past, but a physical simulation of a message readable through time.

2. The coded bookshelf. A row of motorized, magnetic, or light-based books. Each book becomes a bit. A fall, shift, displacement or light creates an alphabet of events. The viewer must understand that domestic space has become a transmission medium.

3. Binary dust. A vibrating or electrostatic plate organizes dust, sand or iron filings into lines. The produced image can encode coordinates, a formula, a prime-number sequence or a

minimal A.L.I message.

4. The software tesseract. An interface shows several instants of the same room, like stacked slices. One clicks an object in a temporal slice, and the program calculates how a micro-action could become readable in another slice. The point is not to prove a fourth dimension, but to think a grammar of nonlinear communication.

## Coded Message and the Ethics of Paradox

The film relies on a loop: Cooper causes in the past the signs that led to his own departure. For A.L.I, this loop is fascinating but dangerous as a model. A temporal-message protocol must avoid confusing sign, belief and causality. Fiction can be used as a thinking tool without claiming that such a channel physically exists.

The real question becomes: if a message cannot arrive as a sentence, which objects in our world could reveal intention? A watch? An antenna? A screen? Dust? An animal? Architecture?

## Toward an A.L.I Protocol

1. choose a stable and familiar object

2. define a measurable micro-variation

3. repeat the variation according to a simple code

4. include a synchronization pattern

5. allow several reading levels: rhythm, binary, text, data

6. archive the observation with date, angle, noise, error

7. keep visible the border between phenomenon and interpretation

From this perspective, Interstellar is not only a film about space. It is a film about choosing a medium. Contact is not a spectacular apparition. It is a difficult, fragile reading inside an ordinary object that starts behaving differently.

## Sources


- Hamilton / Swatch Group (https://www.swatchgroup.com/en/services/archive/2019/hamilton-our-defining-movie-moment): context for Murph’s watch and the Morse message in Interstellar.
- Hamilton - Khaki Field Murph (https://www.hamiltonwatch.com/en-us/making-the-khaki-field-murph): the watch inspired by the film and the Morse “Eureka” inscription.
- Colossal - tesseract scene (https://www.thisiscolossal.com/2015/06/interstellar-tesseract-set/): elements on the tesseract scene and its visual device.
- Movies & TV StackExchange (https://movies.stackexchange.com/questions/27037/how-did-the-watch-do-what-it-did): discussion of the watch, gravity and the coded signal.

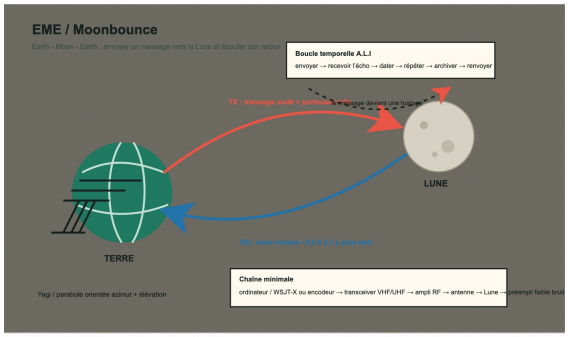

LABO question: if an intelligence could only act on our world through micro-variations, which object would it choose so that we understand it is a message?

# 24 - EME / Moonbounce: Sending a Message to the Moon to Speak with the Future

22.06.2026

https://guez.org/ali/labo/?lang=en&post=eme-moonbounce-message-lune-futur

Keywords: EME, moonbounce, radio, Moon, message, future, antenna, WSJT-X, Q65, A.L.I




## Summary

**EME uses the Moon as a radio reflector: a message leaves Earth, bounces off the lunar surface and returns a few seconds later. For A.L.I, this device can become a clock, a loop and a possible message to the future.**

## Text

EME, for Earth-Moon-Earth, is a radio technique that uses the Moon as an imperfect mirror. A signal is transmitted from Earth toward the Moon; a tiny fraction is reflected by the lunar surface; that trace returns to Earth and can be received either by the original station or by another station that can also see the Moon.

A.L.I diagram: Earth-Moon-Earth path, hardware chain and repeating message loop.

## Physical Principle

The Moon is not an active telecommunications satellite. It does not receive, understand or intentionally retransmit. It only reflects a small part of the radio energy that reaches it. This is exactly what makes EME fascinating: the message returns altered by distance, path loss, lunar roughness, Doppler shift, noise and time.

Earth transmission -> radio path -> lunar surface -> weak reflection -> Earth reception

The round trip Earth-Moon-Earth delay is about 2.4 to 2.7 seconds, depending on the Moon’s distance. That delay can be perceived: one can send a short signal, wait, and hear one’s own lunar echo. In an A.L.I project, this delay becomes material. The Moon is no longer only a distant object; it becomes a temporary memory lasting a few seconds.

## What an EME Station Needs

An EME station is not a simple walkie-talkie. The signal suffers enormous loss. A practical system combines several elements: a highly directional antenna, stable transmission, sometimes an amplifier, a sensitive receiver, a low-noise preamplifier near the antenna, and software able to decode extremely weak signals.

## Three Possible Versions

Listening / learning version. Start without transmitting: track the Moon, listen to EME bands, understand the software, simulate messages. Low cost, no transmission, moderate difficulty.

Small experimental station. A directional antenna, stable transceiver, WSJT-X and possibly a preamp. Digital weak-signal contacts may be possible if the other station is powerful. Probable cost: 2,500 to 5,000 €/$ depending on used gear and fabrication.

Dedicated A.L.I station. Antenna or antenna array, computer-driven rotator, RF amplifier, mast preamp, coding/decoding scripts, echo archive, delay and phase visualization. Probable cost: 6,000 to 15,000+ €/$ depending on ambition.

## Minimal Technical Diagram

A.L.I text

=>

encoder: text -> short sequence / tones / Q65 / experimental CW

=>

computer + audio / CAT interface

=>

VHF/UHF transceiver

=>

RF amplifier -> transmit/receive relay -> motorized directional antenna

=>

MOON

=>

weak echo -> low-noise preamp -> transceiver

=>

decoding software + timestamp + archive

## The Moon as Delay, Not Recipient

In classical EME, the Moon links two terrestrial stations. For A.L.I, the question can shift slightly: what if the Moon became a machine for delaying messages? One does not only send content to someone; one sends it into a circuit where it returns transformed, dated, weakened, almost spectral.

## Loops: Send, Receive, Resend

The strongest A.L.I idea would be not a single transmission, but a loop. A message is sent to the Moon. When its echo returns, it is recorded, decoded, compared with the original, then sent again. At each cycle, the system adds a layer: date, time, Moon state, received power, errors, phase, noise, fragment of the previous message.

M0 = original message

M1 = lunar echo of M0 + date + errors

M2 = lunar echo of M1 + new date + new errors

M3 = lunar echo of M2...

The message becomes a sequence of survivals. It does not merely travel through space: it crosses a series of presents. Repetition creates a form of future, not because the signal remains in space for years, but because the protocol decides to relaunch it again and again.

## Message to the Future

An A.L.I station could be programmed to retransmit the same message toward the Moon every night, then record its echo. After one month, the message would have thirty returns. After ten years, thousands. Each return would be almost identical and yet different: radio noise, weather, lunar position, clock drift, machine state, text evolution.

The future would not be a distant point where one deposits a capsule. It would be produced by a discipline of repetition. A sentence addressed to the Moon would become a technical ritual: if someone listens later, they receive not only a message, but proof that a system insisted.

## Questions for A.L.I

- Does a message repeated for years become more intelligible or more mysterious?
- Should decoding errors be corrected, or preserved as part of the language?
- Can the Moon act as cosmic punctuation, each echo marking a beat between worlds?
- Could a protocol rewrite the message slightly after each reception before sending it again?

## Sources and Equipment

- ARRL - Weak Signal / EME Moonbounce (https://www.arrl.org/weak-signal-vhf-dx-meteor-scatter-eme-moonbounce): general principle of lunar-reflection communication.
- WSJT-X User Guide (https://wsjt.sourceforge.io/wsjtx-doc/wsjtx-main-2.6.1.html): weak-signal modes, including Q65 for EME on VHF and above.
- Icom IC-9700 (https://www.icomamerica.com/lineup/products/IC-9700/): all-mode 144 / 430-440 / 1200 MHz transceiver.
- M2 Antennas EME Products (https://www.m2inc.com/categories/amateur/antennas/vhf-uhf-microwave-antennas/eme-products.html): antennas and building blocks for EME stations.
- Yaesu G-5500DC (https://yaesu.com/product-detail.aspx?CatName=Rotators&Model=G-5500DC): azimuth/elevation rotator for space communication antennas.
- SSB Electronic USA price guide (https://www.ssbusa.com/prices.html): examples of VHF/UHF low-noise preamplifiers.

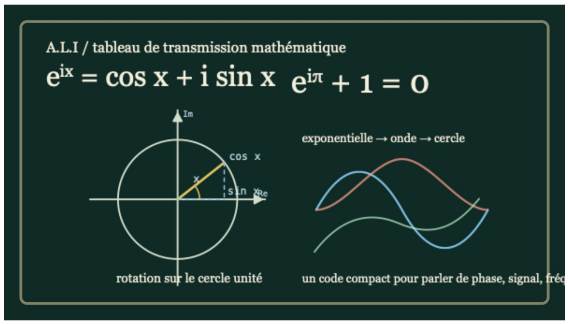
LABO question: if a message always returns with a little noise, should the noise be corrected, or listened to as the signature of the journey?

# 25 - Euler’s Formula: Wave, Circle and Mathematical Language

21.06.2026

https://guez.org/ali/labo/?lang=en&post=formule-euler-langage-mathematique-ali

Keywords: Euler formula, Euler identity, mathematics, complex numbers, unit circle, wave, phase, signal, A.L.I




## Summary

**Exploring e^(ix)=cos(x)+i sin(x) and e^(i?)+1=0 as a bridge between rotation, wave, phase, signal and possible mathematical language for A.L.I.**

## Text

Hypothesis: Euler’s formula is one of the best candidates for thinking about an interstellar mathematical language, not because it is magical, but because it links circle, wave, rotation, exponential motion and complex numbers in a single structure.

A.L.I image: a new visual direction, closer to a chalk research board.

## The Formula

e^(ix) = cos(x) + i sin(x)

For every real number x, Euler’s formula says that the complex exponential e^(ix) corresponds to a point on the unit circle. Its real part is cos(x), its imaginary part is sin(x). In other words, the exponential, often associated with growth, becomes rotation.

## The Famous Identity

e^(i?) + 1 = 0

When x = ?, we get e^(i?) = -1. Adding 1 brings together five fundamental objects: 0, 1, e, i and ?. This concentration explains why Euler’s identity is often described as one of the most beautiful equations in mathematics.

## Why It Matters for A.L.I

A.L.I looks for forms that might become readable between worlds. Euler's formula is interesting because it does not depend on a specific human language. It encodes a deep relation between phenomena that any mathematically advanced intelligence might observe: periodicity, rotation, phase, wave, circle and frequency.

## A Language of Phase

The formula makes it possible to think of a message as a phase phenomenon. A radio signal, light wave, sound vibration or quantum oscillation can be described with complex exponentials. This is not only abstract beauty: it is a practical tool for representing waves.

For extraterrestrial language, it could become the basis of a rotation alphabet: each angle corresponds to a state, direction, symbol or value.

0 -> 1

? / 2 -> i

? -> -1

3? / 2 -> -i

2? -> return to start

## What the Formula Does Not Say

Euler's formula does not transmit a message by itself. It does not say "hello". It provides a translation structure between growth, rotation and oscillation. To become language, it needs a protocol: reading order, units, repetition, error correction and intention.

## A.L.I Prototype: e^(ix) Transmitter

A small contact instrument could be built around Euler:

- a visible unit circle;
- a luminous point rotating according to x;
- two outputs: cos(x) in blue, sin(x) in red;
- a sound conversion where phase becomes frequency or timbre;
- a message encoded as a sequence of angles;
- a decoder reconstructing symbols from the two signals.

message -> angles -> e^(ix) -> cos/sin -> wave -> reception -> symbols

## Why the Image Changed

For this post, the image leaves the usual cosmic style. It becomes a chalkboard: chalk, diagram, unit circle, formulas. Some A.L.I images should look like working tools rather than space visions. Euler's formula asks less for scenery than for a gesture of demonstration.

## Sources


- Wolfram MathWorld - Euler Formula (https://mathworld.wolfram.com/EulerFormula.html): mathematical statement of e^(ix)=cos x+i sin x.
- Encyclopaedia Britannica - Euler's formula (https://www.britannica.com/science/Eulers-formula): overview of the two major results called Euler's formula.

- Britannica / World Science Festival - Euler’s identity (https://www.britannica.com/video/Your-Daily-Equation-11-Eulers-Identity-or-The-Most-Beautiful-of-all-Equations/-25497 Brian Greene video on Euler’s identity.

- 3Blue1Brown (https://www.3blue1brown.com/): visual resources for complex exponentials and rotations.

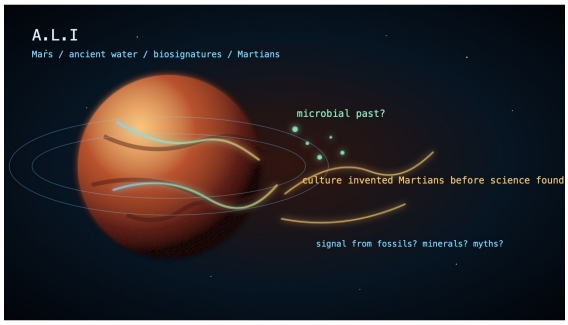
LABO question: would a non-human civilization recognize a sentence, a wave, or a rotation on the unit circle more easily?

# 26 - Mars: Ancient Water, Possible Life and Martian Imaginaries

21.06.2026

https://guez.org/ali/labo/?lang=en&post=mars-vie-passee-eau-martiens-ali

Keywords: Mars, Martians, water, past life, biosignature, Perseverance, Curiosity, Jezero, science fiction, A.L.I




## Summary

**Ancient Mars: past water, habitability, potential biosignatures, current research and the cultural history of Martians in literature and cinema.**

## Text

Hypothesis: Mars may be the closest laboratory for thinking about fossil language: not a message sent by a civilization, but a planet that may have preserved traces of very ancient life in rocks, clays, deltas and molecules.

A.L.I image: Mars as mineral, biological and cultural archive.

## Mars Today

Mars is cold, dry, irradiated and dominated by a very thin CO? atmosphere. Stable liquid water at the surface is extremely difficult today. Yet almost everything indicates that Mars was very different in the distant past: wetter, perhaps episodically warmer, with rivers, lakes, deltas and chemistry more favorable to habitability.

## Water in Mars' Past

Evidence for ancient water is abundant. Orbiters have mapped valleys, hydrated minerals, clays, sulfates, ancient riverbeds and delta-like structures. On the ground, rovers have observed rounded pebbles, sedimentary deposits and rocks formed or altered by water.

- Gale Crater: Curiosity studied lake deposits and ancient habitability.
- Jezero Crater: Perseverance explores an ancient delta, a major target for fossil biosignatures.
- Clays: they can form in the presence of water and preserve organic molecules.

- Sulfates and carbonates: they record changes in water, atmosphere and chemistry.
- Ancient ocean hypothesis: some studies suggest that an ocean or large bodies of water may have existed in the northern hemisphere.

## Past Life: Possible, Not Proven

The central question is not “are there Martians?” but: did ancient Mars assemble the conditions needed for microbial life? The current answer is cautious: ancient Mars was probably habitable in some places and periods, but no direct proof of Martian life has been confirmed.

Missions therefore search for biosignatures: shapes, textures, minerals, isotopes, organic molecules or chemical associations that could be linked to biological activity. The problem is that many signatures can also be produced by non-biological processes.

## Perseverance and Jezero

Perseverance explores Jezero, a crater that once contained a lake and delta. This location matters because terrestrial deltas can concentrate and preserve organic material. Perseverance collects rock cores intended for more complete future analysis.

Some samples, including those associated with the rock nicknamed Cheyava Falls, have been presented by NASA as containing features that may qualify as a potential biosignature. But “potential” is the key word: additional analyses, ideally in Earth laboratories, are needed before any conclusion.

## Curiosity and Organic Molecules

Curiosity has detected organic molecules in Martian rocks and measured variations of methane in the atmosphere. Organic molecules do not prove life: they can come from meteorites, geological chemistry or other processes. But they show that Mars has interesting carbon chemistry.

## Why It Is Difficult

- Deep time: if life existed, it may date back billions of years.
- Hostile surface: radiation, oxidants and dryness destroy or transform molecules.
- Ambiguity: a shape or molecule can have several origins.
- Samples: many proofs require fine laboratory instruments.
- Contamination: Mars, instruments and Earth must be distinguished.

## Life Today?

Present surface life seems unlikely, but some scenarios remain discussed for the subsurface: brines, protected niches, ice, deep fractures. For now, there is no robust evidence of a current Martian biosphere.

## Mars as A.L.I Archive

For A.L.I, Mars raises a special language question: how can a planet without civilization “speak”? It speaks through clues, strata, minerals, delta shapes, isotopes and molecules. This is not intentional language, but an archive to decode.

ancient water -> sediments -> minerals -> molecules -> possible biosignature -> interpretation

In this case, the receiver of the message is scientific inquiry. The signal is not sent: it is preserved.

## Martians in Culture

Before science knew Mars in detail, culture had already invented Martians. Percival Lowell's "canals" fed the idea of a planet inhabited by a hydraulic civilization. This interpretive error produced an immense imaginary legacy.

- H. G. Wells, The War of the Worlds: Martians become invaders, technologically superior, carriers of reversed colonial fear.
- Edgar Rice Burroughs, Barsoom: Mars becomes a world of adventure, princesses, peoples, cities and creatures.
- Ray Bradbury, The Martian Chronicles: Mars becomes a poetic mirror of colonization, memory and disappearance.
- Invaders from Mars, Mars Attacks!: Martians oscillate between paranoia, grotesque and satire.
- Total Recall: Mars becomes political planet, artificial memory, air, colony and mutation.
- The Martian: Mars is no longer populated by Martians, but becomes a hostile environment humans must learn to survive.

## From Imaginary Martians to Fossil Microbes

The cultural history is almost ironic: we imagined intelligent Martians before seriously searching for fossil microbes. The Martian was first a character; Mars later became a geological field site. A.L.I can connect both dimensions: the desire for dialogue with beings, and the patient reading of a planet that does not answer.

## A.L.I Questions

- Is a fossil biosignature a kind of message?
- How can a mineral archive be translated into a readable story?
- Does Martian culture help us think contact, or does it blur the data?
- If Mars only ever hosted microbes, how does that change "first contact"?
- Can we imagine a non-intentional language produced by a planet itself?

## A.L.I Prototype: Martian Decoder

An installation could confront the visitor with visual "samples": strata, clays, molecules, traces, orbital maps. Each clue would be ambiguous. The visitor would choose: geology, chemistry, possible life, false positive. The Martian message would never be given directly; one would have to learn to doubt.

## Sources and Research

- NASA Mars 2020 / Perseverance (https://mars.nasa.gov/mars2020/): Jezero mission and sample collection.
- NASA Curiosity / Mars Science Laboratory (https://mars.nasa.gov/msl/): ancient habitability, organics and Gale environment.
- NASA - Cheyava Falls (https://www.nasa.gov/missions/mars-2020-perseverance/perseverance-rover/nasas-perseverance-rover-scientists-find- intriguing Martian rock with features that may be a potential biosignature.
- ESA Mars Express (https://www.esa.int/Science_Exploration/Space_Science/Mars_Express): orbital

observations and Mars water history.

- NASA - Curiosity and molecular clues (https://www.nasa.gov/solar-system/curiosity-finds-molecular-clues-in-mars-rocks/): organic molecules and Martian chemistry.

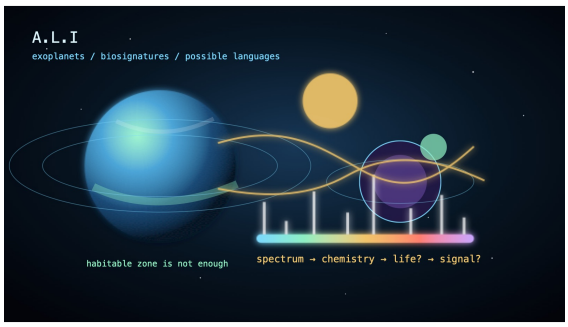
LABO question: is Mars sending us a message, or are we turning its geological ruins into language?

# 27 - Exoplanets: Potential Life and Possible Languages

21.06.2026

https://guez.org/ali/labo/?lang=en&post=exoplanetes-vie-potentielle-langage-ali

Keywords: exoplanets, extraterrestrial life, habitability, biosignatures, technosignatures, JWST, NASA, galaxy, universe, A.L.I




## Summary

**Current exoplanet research, possible forms of life, extrapolated numbers by galaxy and across the observable universe, and questions for A.L.I.**

## Text

Hypothesis: exoplanets are not only possible places for life. For A.L.I, they are possible contexts for language: each world imposes an atmosphere, gravity, chemistry, light, cycles and therefore very different forms of perception and communication.

A.L.I image: from spectral detection of exoplanets to the question of possible language.

## Where Does Research Stand?

On June 21, 2026, the NASA Exoplanet Archive returned 6,298 confirmed exoplanets in its default planet table. This number changes regularly as confirmations, catalogues and revisions evolve.

This is already enormous, but it is only a tiny sample of the Galaxy. We mostly detect planets made visible by our instruments and methods: worlds close to their stars, well-oriented systems, repeated signals and stars observed long enough.

## Main Detection Methods

- Transit: a planet passes in front of its star and produces a measurable dip in brightness.
- Radial velocity: the planet makes its star wobble slightly through gravity.
- Direct imaging: difficult, but able to photograph some young, massive planets far from their

star.

- Gravitational microlensing: temporary amplification of a background star by a planetary system.
- Astrometry: measuring a star's apparent motion under the influence of a planet.

These methods do not see the same planetary populations. Our statistical image of planetary systems is still biased.

## What Researchers Look For Today

Current research no longer only finds planets. It tries to understand atmospheres, masses, radii, densities, orbits, temperatures and histories. With JWST and large ground-based instruments, part of the field is moving toward atmospheric spectra: water, CO?, methane, ozone, clouds, hazes and atmospheric escape.

But a planet in the "habitable zone" is not automatically habitable. The habitable zone only means that temperatures compatible with liquid water are possible under certain conditions. Stable atmosphere, pressure, chemistry, stellar stability, geological history and perhaps magnetic or protective mechanisms also matter.

## Possible Forms of Life

Several levels can be imagined without jumping too quickly to civilization:

- Microbial life: probably the strongest hypothesis if life emerges easily in favorable chemistry.
- Photosynthetic life: possible on worlds receiving enough light, but with pigments adapted to their star.
- Subsurface life: microbes or ecosystems protected below the surface.
- Ocean life: water worlds, icy moons, subsurface oceans, hydrothermal chemistry.
- Atmospheric life: hypothetical floating organisms in temperate layers of gas planets or thick super-Earths.
- Complex life: more uncertain, depending on long-term stability, energy, evolution and ecology.
- Technological life: rarer still, or simply difficult to detect.

## Numbers Extrapolated by Galaxy

The Milky Way probably contains roughly 100 to 400 billion stars. Kepler and other surveys indicate that planets are common: it is reasonable to speak of hundreds of billions of planets in our Galaxy.

An often-cited estimate from Kepler data suggests that there may be about 300 million potentially habitable planets in the Milky Way, broadly meaning rocky worlds in zones where liquid water could be possible. This does not mean 300 million inhabited planets. It means 300 million physically interesting candidates.

## Extrapolating to the Universe

The observable universe contains at least hundreds of billions of galaxies, with some estimates reaching around two trillion depending on counting method. If each large galaxy contains hundreds of billions of planets, the order of magnitude quickly becomes staggering: $10^{22}$ to $10^{23}$ possible planets in the observable universe.

If we very roughly extrapolate the fraction of potentially habitable worlds, we can imagine $10^{1}$? to $10^{2}$? candidate worlds. But this should be read as a scale exercise, not a measurement. It mixes very different galaxies, stars and a minimal definition of

habitability.

## Life Does Not Mean Language

For A.L.I, the crucial point is this: even if life is frequent, language may be rare. Even if language is frequent, it may be local, chemical, gestural, electric, luminous, oceanic or entirely undetectable by radio.

An exoplanet inhabited by microbes will probably emit no message. A planet with complex animals may produce sounds, traces, colors, rhythms, architectures or chemical emissions without technology. A technological civilization may be silent, brief, buried, optical, encrypted, or unwilling to transmit.

## A.L.I Questions

- What atmosphere would make sonic language possible?
- Would an ocean civilization invent pressure, sonar, bioluminescent or chemical language?
- Would a planet around a red dwarf favor life sensitive to infrared or stellar flare cycles?
- Would a high-gravity world produce radically different bodies, gestures and communication architectures?
- Could a biosphere without accessible fire develop radio technology?
- Should we search for messages, technosignatures, biosignatures or planetary behaviors?

## A.L.I Prototype: Atlas of World-Languages

A speculative atlas could generate a possible language from planetary parameters:

mass + gravity + atmosphere + star + water + temperature + light -> possible body -> possible perception -> possible language channel

The visitor would choose a world type: ocean planet, super-Earth, tidally locked world, desert planet, icy moon, planet around a red dwarf. The system would then generate an alphabet, sound, light, texture or grammar compatible with that environment.

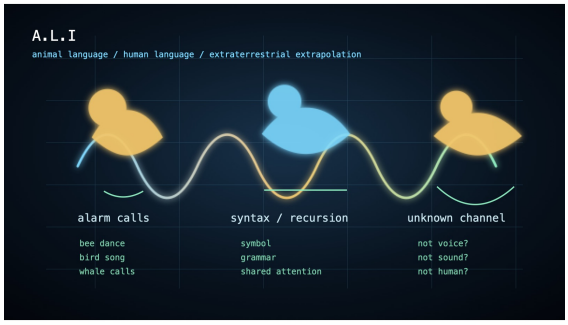
## Sources and Data

- NASA Exoplanet Archive (https://exoplanetarchive.ipac.caltech.edu/): reference catalogue, consulted on June 21, 2026 for the confirmed planet count.
- NASA Exoplanet Exploration (https://exoplanets.nasa.gov/): public resources and updated exoplanet figures.
- NASA - 300 million potentially habitable planets (https://www.nasa.gov/news-release/galaxy-may-hold-at-least-300-million-potentially-habitable-planets/): estimate from Kepler data.
- ESA - Exoplanets (https://www.esa.int/Science_Exploration/Space_Science/Exoplanets): European resources on exoplanet science.
- NASA JWST (https://jwst.nasa.gov/): atmospheric observations and spectroscopy.

LABO question: if each world imposes its own bodies, perceptions and channels, can we still imagine a universal language, or only local bridges between forms of life?

# 28 - Animal Language, Human Language and Extraterrestrial Extrapolation

21.06.2026
https://guez.org/ali/labo/?lang=en&post=langage-animal-humain-extraterrestre
Keywords: animal language, human language, animal communication, ethology, dolphins, bees, vervet monkeys, birds, Kanzi, Alex, A.L.I




## Summary

**Comparing animal communication and human language to imagine extraterrestrial language: bees, vervet monkeys, dolphins, birds, bonobos, parrots and anthropocentric limits.**

## Text

Hypothesis: comparing animal communication and human language is not only a way to classify species. For A.L.I, it is a method for imagining extraterrestrial language without starting too quickly from our own words, voice and grammar.

A.L.I image: from animal signals to human language, then toward an unknown non-human channel.

## Language or Communication?

Animals communicate massively: calls, songs, smells, postures, colors, vibrations, dances, pheromones, electric signals and ultrasounds. The difficult scientific question is when communication becomes language in the strong sense.

Linguist Charles F. Hockett proposed a set of language “design features”: arbitrariness, semanticity, productivity, cultural transmission, displacement, duality of patterning, reflexiveness and more. This framework is debated, but it asks a useful question: which traits are shared with other species, and which appear especially developed in humans?

## What Animals Already Do

Serious studies show that animals should not be reduced to reflex machines. Several species

use rich, specialized and sometimes highly abstract systems.

## Key Studies

In honeybees, Karl von Frisch showed that the waggle dance transmits information about the location of a resource. It is not a word, but a bodily encoding of direction, distance and quality.

In vervet monkeys, the work of Seyfarth, Cheney and Marler showed that distinct alarm calls trigger adapted behaviors: looking upward, climbing into trees or scanning the ground. The signal is linked to a category of danger.

In dolphins, Stephanie King and Vincent Janik showed that bottlenose dolphins respond to copies of their own signature whistles, supporting the idea of learned individual vocal labels. It is not a human “name”, but it is a form of learned social identification.

In Japanese tits, Toshitaka Suzuki and colleagues proposed experimental evidence for compositional syntax: certain call combinations produce a compound meaning, and order matters.

## What Human Language Adds

Human language is not just richer. It combines several properties rarely brought together at this scale: open-ended productivity, recursion, displacement, narrative, lying, poetry, metalanguage, cumulative cultural transmission and the ability to talk about language itself.

- Productivity: creating sentences never heard before.
- Displacement: speaking about absence, future, past and fiction.
- Recursion: embedding one phrase inside another.
- Metalanguage: using language to analyze language.
- Writing: externalizing speech into a durable support.

But the conclusion should not be too simple. Animals are not “without language” in the sense of silence or poverty. They live in specialized semiotic worlds. Human language may be less an absolute rupture than a very particular stacking of capacities.

## A Classic Mistake: Looking for Human Sentences Everywhere

Much of the misunderstanding comes from anthropocentric expectation. We look for words, names, sentences and audible grammar. But a species can communicate efficiently without producing anything that resembles human conversation.

A bee does not “say” a sentence; it inscribes a trajectory in a moving body. A dolphin does not “speak” English; it produces a social acoustic system adapted to water. An ant does not discuss; it writes chemically in space through pheromones.

## Extraterrestrial Extrapolation

If we encountered extraterrestrial intelligence, it might not use an augmented version of human language. It might communicate through:

- electric or magnetic fields;
- chemical variations;
- light modulations;

- spatial or architectural structures;
- temperature changes;
- collective rhythms;
- shared memory, if its biology allows it;
- artifacts or behaviors rather than speech.

Animal communication teaches humility. We should not ask only “where are the words?”, but “which contrasts are relevant for this organism, in its environment, with its sensors and needs?”

## A.L.I Encoding / Decoding

For A.L.I, every communication must be analyzed as a complete system:

sender biology -> physical channel -> signal structure -> receiver behavior -> social context -> possibility of translation

This chain is crucial. An extraterrestrial signal might be perfectly clear to its sender and invisible to us, not because it is “mystical”, but because we lack the right organs, instruments or expectations.

## A.L.I Prototype: Speculative Interspecies Translator

An installation could juxtapose several systems:

- bee dance transformed into a map;
- vervet alarm call transformed into an action pictogram;
- dolphin whistle transformed into a graphic signature;
- birdsong transformed into mini-syntax;
- a human sentence transformed through these four modes;
- then a fifth deliberately non-vocal “extraterrestrial” mode.

The visitor would see that one intention changes radically depending on the body that carries it.

## Sources and Research


- Seyfarth, Cheney & Marler, 1980, Science (https://www.science.org/doi/10.1126/science.7433999): vervet monkey alarm calls.
- Suzuki, Wheatcroft & Griesser, 2016, Nature Communications (https://www.nature.com/articles/ncomms10986): compositional syntax in Japanese tits.
- King & Janik, 2013, PNAS (https://www.pnas.org/doi/10.1073/pnas.1304459110): bottlenose dolphin signature whistles.
- Current Biology, 2023 (https://www.cell.com/current-biology/fulltext/S0960-9822(23)00196-3): contemporary review of honeybee dance communication.
- Review on Savage-Rumbaugh and Kanzi (https://pmc.ncbi.nlm.nih.gov/articles/PMC1350159/): debates around ape linguistic competence.
- Wacewicz & ?ywiczy?ski, 2015 (https://pmc.ncbi.nlm.nih.gov/articles/PMC4544681/): critique of Hockett’s design features as a tool for language evolution.


LABO question: if an extraterrestrial intelligence communicates as differently from humans as a bee, dolphin or ant does, will we recognize that it is speaking to us?

# 29 - La Soupe aux choux: Soup, Gas and First Contact

21.06.2026
https://guez.org/ali/labo/?lang=en&post=soupe-aux-choux-transmission-extraterrestre
Keywords: La Soupe aux choux, Louis de Funès, Jean Carmet, Jacques Villeret, first contact, transmission, soup, flatulence, body, A.L.I

## Summary

**An analysis of La Soupe aux choux as a first-contact comedy: flatulence as signal, soup as exchange protocol, body as antenna and biological transmission.**

## Text

Hypothesis: La Soupe aux choux can be read as a rural first-contact comedy in which the extraterrestrial signal does not pass through mathematics, radio or alphabet, but through body, gas, food and hospitality.

Trailer for La Soupe aux choux (1981), embedded from YouTube: real images from the film without copying protected stills.

## Reference Points

La Soupe aux choux is a 1981 French film directed by Jean Girault, adapted from René Fallet's novel. It stars Louis de Funès, Jean Carmet and Jacques Villeret. The film mixes popular comedy, rural science fiction and melancholy: two old friends, Le Glaude and Le Bombé, live apart from the modern world until an alien from planet Oxo, nicknamed La Denrée, arrives.

## The Transmission Medium

For A.L.I, the decisive point is the call mechanism. In the film, the alien's arrival is linked to a nocturnal farting scene after cabbage soup. The joke is trivial, but it produces a very interesting communication idea: an involuntary, bodily, odorous, sonic,

non-linguistic signal becomes detectable by an intelligence from elsewhere.

soup -> fermentation -> gas -> bodily sound -> signal -> extraterrestrial arrival

The film turns a low biological function into a comic antenna. What is socially shameful becomes cosmologically efficient. The body is not only an organism: it becomes a transmitter.

## Soup as Protocol

After first contact, cabbage soup becomes more than a dish. It acts as gift, proof and diplomatic substance. Le Glaude gives soup to La Denrée, who brings it back to Oxo. Food becomes a material message: it carries taste, culture and terrestrial chemistry.

- Initial signal: bodily noise, accident, unintentional call.
- Response: arrival of the saucer and La Denrée.
- Exchange: soup given, then desire to return.
- Translation: gestures, looks, strange sounds, progressive understanding.
- Alliance: contact becomes hospitality.

## A Low Language

The film is revealing because it reverses the classical imaginary of contact. Instead of a pure, mathematical, luminous or spiritual message, it proposes a low language: fart, soup, alcohol, shack, soil, old age. The cosmic passes through the grotesque.

This reversal is useful for A.L.I: it reminds us that an interstellar language is not necessarily noble. It can be accidental, organic, comic, digestive, olfactory or culinary. A non-human intelligence might detect emissions that we do not consider messages.

## The Body as Transmitter

In a serious reading of the gag, transmission depends on several layers:

## La Denrée and Translation

La Denrée does not immediately speak like humans. Contact happens through sounds, gestures, reactions, trials and food. It is a proto-translation situation: before words, there is repetition, imitation, object exchange and the recognition of shared pleasure.

The film’s comedy hides a strong idea: a language may begin with material dependence. La Denrée returns not because he understands a speech, but because taste creates a bond.

## What This Means for A.L.I

The film widens the possible forms of message:

- a signal is not necessarily intentional;
- a biological emission may become a sign for another receiver;
- food can be a chemical archive;
- the grotesque can become a contact protocol;
- hospitality may precede translation;
- the first message may be an invitation to return.

## A.L.I Prototype: Soup-Signal

An installation inspired by the film could avoid literal imitation while keeping its core idea:

- a pot releases the smell of soup;
- sensors measure steam, temperature, CO? or volatile compounds;
- these data become low sounds, light signals or radio code;
- an “extraterrestrial receiver” responds when the soup reaches a certain state;
- the audience understands that cooking has become an antenna.

recipe -> chemistry -> sensors -> modulation -> light/radio signal -> response

## Critical Position

La Soupe aux choux is not a treatise on extraterrestrial contact, but its comic force opens a very A.L.I hypothesis: messages may emerge from the least prestigious zones of living matter. The first language between two worlds could be a noise, a smell, a taste, a misunderstanding or a gift.

## Sources and Images

- Trailer for La Soupe aux choux (https://www.youtube.com/watch?v=pp1Z9RfA9FY): real images from the film embedded above via YouTube.
- AlloCiné - La Soupe aux choux (https://www.allocine.fr/film/fichefilm_gen_cfilm=30750.html): film page, synopsis and cast.
- Park Circus - The Cabbage Soup (https://parkcircus.com/film/115030-The-Cabbage-Soup-%28La-Soupe-Aux-Choux%29): international film listing.

LABO question: what if the first signal detected by an extraterrestrial intelligence was not our finest message, but an involuntary emission of our biology?

# 30 - Crop Circles: Language, Myth and Ground Message

20.06.2026

https://guez.org/ali/labo/?lang=en&post=crop-circles-langage-communication-extraterrestre

Keywords: crop circle, Arecibo, Chilbolton, geoglyph, visual language, ufology, land art, message, A.L.I

## Summary

**A historical and contemporary analysis of crop circles: hoaxes, geometry, famous examples, the Arecibo/Chilbolton motif and their potential as an extraterrestrial communication language.**

## Text

Hypothesis: crop circles can be studied as a form of visual language written on the ground, regardless of their origin. Even when they are human-made, they raise a strong A.L.I question: how can a field become a message interface, visible from above and readable through pattern, number and geometry?

Original A.L.I image: the crop circle as ground message, between geoglyph, signal and planetary writing.

## Definition

A crop circle is a figure formed in a field, most often by flattening cereal crops. The forms range from simple circles to complex compositions: rings, spirals, fractals, networks, pictograms, diagrams, astronomical motifs or pseudo-binary patterns.

Most documented crop circles are now attributed to human intervention, often made at night with planks, ropes, markers and stem-folding techniques. This does not remove their interest: the phenomenon has become a cultural laboratory of anonymous messaging.

## Historical Markers

Stories of circles or marks in fields existed before the twentieth century, but the modern phenomenon expanded especially from the 1970s and 1980s in England, particularly in

Wiltshire. The forms became larger, more geometric and more media-driven.

In 1991, Doug Bower and Dave Chorley claimed responsibility for many English crop circles made since the late 1970s. Their confession did not end the phenomenon. Instead, it revealed that a crop circle could be clandestine art, nocturnal performance and a language addressed to the public.

## Photographic Examples

Crop circle in Diessenhofen, Switzerland, July 15, 2008. Photo: Hansueli Krapf / Wikimedia Commons, CC BY-SA 3.0.

Crop circle in Lausanne, Switzerland. Photo: Jabberocky / Wikimedia Commons, public domain.

These images show the importance of aerial viewpoint. The message is not primarily designed for someone walking inside the field, but for a distant view: plane, drone, photograph, satellite, or the imaginary of an extraterrestrial observer looking down.

## Chilbolton and the Arecibo Motif

In 2001, a crop circle near the Chilbolton Observatory became famous because it seemed to answer the 1974 Arecibo message. The motif reused the idea of a binary diagram: silhouette, planetary system, DNA, chemical elements and antenna. In UFO culture, some interpreted it as an extraterrestrial “reply”.

Schematic representation of the Chilbolton motif, often presented as a variation of the Arecibo message. Source: Wikimedia Commons.


Chilbolton formation, Hampshire, August 21, 2001, often interpreted as a reply to the Arecibo message. Photo credited to Lucy Pringle, credit visible on the image. Source: Lucy Pringle (https://www.lucypringle.co.uk/photos/2001/uk2001dm.shtml).

For A.L.I, the point is not to validate an extraterrestrial origin. The point is semiotic: Chilbolton shows that a crop circle can function as a remix of an interstellar message. It turns a radio protocol into an agricultural image, a binary signal into a geoglyph, and a scientific hypothesis into a collective story.

## The Crop Circle as Potential Language

If crop circles are read as language, several layers appear:

- Geometry: circles, lines, spirals, symmetries, proportions.
- Number: repetitions, divisions, counts, series, ratios.
- Orientation: relation to north, sun, monument, antenna or star.
- Scale: a message visible only from a high viewpoint.
- Support: living plants become a temporary writing surface.
- Erasure: the message disappears with harvest, weather or destruction.

## Contemporary Analysis

Today, crop circles circulate mainly through photography, drone video, web archives and social networks. The phenomenon is no longer only agricultural: it is media-based. The field becomes a stage, the aerial photograph becomes the true reading surface, and the enigma becomes shareable.

This contemporary dimension matters. A crop circle does not need to be extraterrestrial to function as a message. It only needs to be anonymous, visible from above, difficult to attribute, and structured enough to trigger interpretation.

## What This Means for A.L.I

An extraterrestrial language may not be sonic, textual or radio-based. It could be spatial. A message could be inscribed in topography, forest, field, city, orbit or artificial constellation. Crop circles force us to imagine a language whose grammar is form in space.

For A.L.I, this opens several paths:

- creating messages readable only from the sky;
- translating text into agricultural or luminous geometry;
- turning a radio message, such as Arecibo, into a ground motif;
- designing an alphabet of circles, lines, breaks and densities;
- testing message reading by drone or satellite;
- questioning the boundary between language, land art, ritual and hoax.

## A.L.I Prototype: Field-Message

A prototype could take the form of a “field-message” without damaging crops:

- a nocturnal light projection on grassland;
- a ground drawing made with ropes, stakes and temporary pigments;
- a motif visible by drone;
- an encoder that transforms a sentence into geometry;
- a digital version as a fictional satellite map;
- a decoding protocol revealed to the public afterward.

message -> numbers -> geometry -> field -> aerial view -> interpretation

## Critical Position

Crop circles are often trapped between two excesses: believing everything or dismissing everything. A.L.I can take a third path. Even if the figures are human-made, they form a revealing archive of our desire to receive a sign. They show how a society imagines a message from elsewhere: geometric, silent, spectacular, anonymous and visible from the sky.

## Sources and Further Reading


- Encyclopaedia Britannica - Crop circle (https://www.britannica.com/art/crop-circle): historical synthesis of the phenomenon.
- Smithsonian Magazine - Crop Circles: The Art of the Hoax (https://www.smithsonianmag.com/history/crop-circles-the-art-of-the-hoax-2524283/): cultural history of hoaxes and Doug Bower / Dave Chorley.
- NASA - Voyager Golden Record (https://science.nasa.gov/mission/voyager/golden-record-contents/): reference point for visual and sound messages sent into space.
- SETI Institute - Project Ozma and Arecibo Message (https://www.seti.org/seti-institute/project/details/early-seti-history-project-ozma-arecibo-message): context for the Arecibo message.


LABO question: could an extraterrestrial message be an organized landscape rather than a transmitted signal?

# 31 - Telepathy, Ufology and Mental Language

20.06.2026
https://guez.org/ali/labo/?lang=en&post=telepathie-ufologie-abduction-langage-mental
Keywords: telepathy, ufology, abduction, inner voice, memory, hypnosis, mental communication, A.L.I, language, ethics

## Summary

**Exploring telepathy as a communication motif in ufology and abduction narratives: inner voice, mental images, commands, memory and implications for A.L.I.**

## Text

Hypothesis: in many UFO narratives, extraterrestrial communication does not pass through mouth, ear or writing. It arrives as an inner voice, an imposed image, an emotion, a silent command or an implanted memory. Telepathy then becomes less a “power” than a model for non-acoustic language.

Original A.L.I image: telepathy imagined as mental wave, memory and nonverbal signal.

## Necessary Caution

Telepathy is not treated here as an established fact. It is approached as a recurring motif in contact testimonies, abduction narratives and UFO culture. This motif matters for A.L.I because it shifts the language problem: if communication no longer passes through sound or visible signs, how can it be encoded, validated, replayed or transmitted?

## In Abduction Narratives

Alien-abduction accounts often describe the absence of ordinary dialogue. The beings do not always “speak”. They command, calm, show or impose understanding. The witness may report a sentence heard “inside the head”, a mental image, or a sudden sensation of knowing.

- Inner voice: a message received without mouth movement or localizable sound source.
- Silent commands: “stay calm”, “come”, “look”, “do not be afraid”.
- Mental images: disaster scenes, Earth seen from afar, destroyed environments, stars, maps or

missions.

- Transmitted emotions: calm, fear, fascination, a feeling of being watched or chosen.
- Broken memory: partial memory, missing time, fragments recovered through hypnosis or later narration.

## Ufological Examples

The Betty and Barney Hill case (1961) is one of the founding narratives of modern alien abduction: missing time, medical examination, fragmented memories and the famous star-map element. Its relevance here lies in mental control, non-ordinary communication and reconstructed memory.

In the Pascagoula case (1973), Charles Hickson and Calvin Parker reported paralysis and examination by non-human beings. For A.L.I, the case is interesting because it emphasizes not conversation but control: immobilized body, altered perception, imposed experience.

Accounts popularized by Budd Hopkins, David Jacobs and John E. Mack often give mental communication a central role: ecological messages, warnings, hybridization narratives, missions, and the sensation of knowledge being placed directly into the mind. These authors are controversial, especially because of hypnosis, but their bodies of work strongly shaped the contemporary abduction imaginary.

## What Telepathy Changes for Language

If telepathy is used as a design hypothesis, language is no longer a sequence of sounds or signs. It becomes the transmission of mental states. A sentence could be replaced by a scene, a sensation, an emotion or a certainty.

## Encoding and Decoding

For A.L.I, the question becomes: how can a thought be encoded without reducing it to a word? A telepathic communication, if it existed, would have to be decoded across several layers:

- Content: what image, inner sentence or sensation?
- Source: does the message come from outside, dream, stress, memory or cultural expectation?
- Structure: is there repetition, order, syntax or recurring motifs?
- Validation: can mentally received information be checked?
- Consent: is direct communication to the mind an intrusion?

## The Problem of Evidence

Telepathy is almost impossible to stabilize as public data. A sound can be recorded, an image can be printed, a radio signal can be archived. A mental experience is intimate, fragile and transformed by narration. For A.L.I, this is exactly why it is interesting: it forces us to think about a language that may leave no external trace.

## A.L.I Prototype: Mental Message Simulator

An installation could simulate the grammar of telepathy without claiming to produce real telepathy:

- the visitor enters a silent cabin;
- a bone-conduction voice or very discreet headset seems to come from inside;
- brief images appear and vanish;

- vibrations or synchronized light create emotional charge;
- the visitor reconstructs the message afterward;
- several visitors compare their memories to see what becomes stable.

mental image + emotion + silence + delayed memory = simulated telepathic message

## Ethical Implications

If telepathic communication were possible, it would immediately raise the question of consent. A message received directly in the mind could bypass distance, translation, refusal and doubt. It would be a powerful form of communication, but also a potentially violent one.

A.L.I should therefore treat telepathy as an ethical limit of language: at what point does communication become an intrusion into another mind?

## Sources and Further Reading

- University of New Hampshire - Betty and Barney Hill Papers (https://library.unh.edu/find/archives/collections/betty-barney-hill-papers-1961-2006): archival material around the Hill case.
- John E. Mack, Abduction: Human Encounters with Aliens (https://archive.org/details/abductionhumanen00mack): a central and controversial book on abduction narratives.
- Hinds Community College - Pascagoula Abduction (https://www.hindscc.edu/about/pascagoula-abduction): local resources on the Pascagoula case.
- CIA Reading Room - UFOs: Fact or Fiction? (https://www.cia.gov/readingroom/collection/ufos-fact-or-fiction): a document collection useful for situating institutional UFO history.

LABO question: if a message arrives directly as a mental image, is it still a language, or already an imposed experience?

# 32 - Guttural Phonemes: Toward an Intermediate Language

20.06.2026
https://guez.org/ali/labo/?lang=en&post=phonemes-langage-intermediaire-guttural
Keywords: phonemes, phonetics, IPA, guttural, voice, language, spectrogram, A.L.I, prototype, exolanguage

## Summary

**Exploring phonemes as building blocks for an intermediate language between human speech, guttural sound, breath, vibration and nonverbal signal.**

## Text

Hypothesis: before inventing an extraterrestrial alphabet or a complete vocabulary, A.L.I could work with a more primitive layer: phonemes, the minimal sound units that can distinguish meaning inside a language.

Phonemes may become an interface between human language and a more guttural, bodily form of communication: breath, growl, vibration, throat friction or organic signal. The goal is not to imitate a caricature of “alien speech”, but to build an intermediate zone between voice, body and code.

## Phoneme, Sound, Signal

A phoneme is not just a noise. It is a sound difference that matters inside a system. In English, /p/ and /b/ distinguish words such as pat and bat. In a contact language, we might not begin with words, but with very simple oppositions: open/closed, short/long, breathy/vibrating, low/high, continuous/interrupted.

/a/ open vowel

/u/ closed rounded vowel

/h/ glottal breath

/?/ glottal stop

/?/ voiced uvular friction

/?/ voiceless uvular breath

/?/ pharyngeal friction

/?/ voiced pharyngeal friction

## Why Move Toward the Guttural?

Guttural sounds use the back of the mouth, the throat, the glottis, the pharynx or the uvula. They feel more physical than very frontal consonants such as /p/, /t/ or /s/. This bodily quality is useful for imagining a communication system that is not entirely verbal.

An intermediate language could therefore use fewer words and more elementary vocal gestures: breathing, blocking, releasing, vibrating, scraping, holding a tone, or suddenly cutting the flow.

## Possible Phonemic Palette

A deliberately small inventory can become a minimalist contact grammar:

## Examples of Proto-Words

From this palette, very short forms can be produced: almost animal, but still structured.

ha = I call / I am here

?a = beginning / opening

ha? = attention, cut

?a = nearby presence

?u = distance, outside

?am = signal received, but unstable

?a-?a = approach

?u-?u = distant repetition

ha-m = call confirmed

?a-?-?u = presence, break, withdrawal

These examples are not a full language. They form a threshold system: human enough to be produced by a mouth, abstract enough to become sound material, and limited enough to be learned as a code.

## Between Human Voice and Other Voice

Such a language could sit between three regimes:

- Human speech: recognizable phonemes, possible articulations, IPA transcription.
- Guttural voice: breath, friction, vibration, growl, glottal stop, throat texture.
- Machine signal: spectral analysis, duration, intensity, fundamental frequency, sound envelope.

The same element could be spoken by a person, transformed by software, and displayed as a spectrogram. The alphabet would no longer be only written: it would be breathed, heard and

measured.

## Sound Depends on Biology

In the coding and decoding of an extraterrestrial language, one fundamental limit must be kept in mind: sound always depends on the biology of the beings that produce and receive it. A human voice exists because we have lungs, a larynx, vocal folds, a mouth, a tongue, a palate, teeth, nasal cavities and ears adapted to certain frequencies.

Another life form might have no throat, might not breathe air, might not hear through eardrum vibration, might not produce sounds inside our audible range, or might use another medium entirely: water, ground, membrane, electric field, pressure, light or internal vibration. What we call a “phoneme” might therefore be only a human translation of a much broader biological phenomenon.

- Emission biology: what organs produce the signal: throat, membrane, skin, shell, fluid, electric organ?
- Propagation medium: does the signal travel through air, water, ground, a machine in vacuum, or another support?
- Reception biology: does the being hear with ears, pressure sensors, sensory hairs, electric receptors or chemical receptors?
- Available frequencies: is the language audible to us, ultrasonic, infrasonic, vibrational or entirely non-sonic?

From this perspective, A.L.I should not assume that sound is universal. Sound is one possibility among others, tied to bodies, environments and perceptual thresholds. Encoding means translating a biology into a signal; decoding means avoiding the mistake of treating our own vocal apparatus as a cosmic norm.

## A.L.I Prototype

A prototype could become a “phoneme workshop”:

- a microphone captures the visitor’s voice;
- software detects breath, vibration, glottal attack, duration and pitch;
- each phoneme is translated into a graphic sign, a light or a waveform;
- a voice synthesizer answers with a deeper, slower or more guttural version;
- the visitor learns to produce a short contact sequence.

human voice -> IPA phoneme -> sound analysis -> A.L.I sign -> synthetic guttural answer

## Sound Excerpts

These sounds are short synthetic sketches: they do not claim to reproduce an existing language, but they make the phonetic gestures of the post audible.

/h/ - breath call

/ʔ/ - glottal stop, threshold or break

/ʁ/ - uvular friction, distance and breath

/m/ - nasal hum of reception

ha ʔa m - call / opening / reception

ʔu ʔu ʔ ʔa m - far / threshold / presence / received

## Composition Exercise

A minimal contact phrase could be:

ha ?a m

call / opening / reception

Or a more dramatic form:

?u ?u ? ?a m

far / far / threshold / presence / received

The phrase is not translated word by word. It works like a score of vocal gestures. Order, tension, duration and repetition matter more than vocabulary.

## Sources and Tools

- International Phonetic Association - IPA Chart (https://www.internationalphoneticassociation.org/content/ipa-chart): the official International Phonetic Alphabet chart.
- UCLA Phonetics Lab Archive (https://archive.phonetics.ucla.edu/): recordings and phonetic transcriptions from many languages.
- PHOIBLE (https://phoible.org/): a database of phonological inventories from the world's languages.

## Critical Position

The risk would be to confuse "guttural" with "primitive" or "monstrous". These sounds should instead be treated as precise, rich articulations present in many human languages. Their A.L.I value lies in their transitional quality: a zone where language remains bodily while becoming signal.

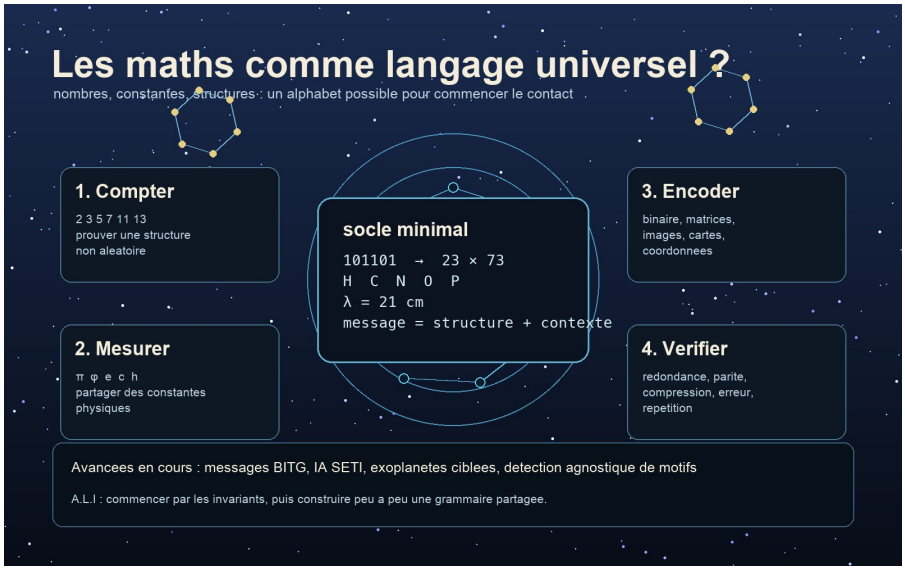
> LABO question: can we invent a contact language that begins not with words, but with gestures of throat, breath and vibration?

# 33 - Mathematics as a Universal Language?

20.06.2026

https://guez.org/ali/labo/?lang=en&post=maths-langage-universel-contact

Keywords: mathematics, universal language, SETI, METI, Arecibo, technosignatures, AI, exoplanets, prime numbers, A.L.I




## Summary

**A.L.I post on mathematics as a possible foundation for interstellar contact: prime numbers, physical constants, encoding, SETI, AI, exoplanets and the limits of a universal language.**

## Text

Hypothesis: mathematics may be the first bridge between intelligences, but it is not automatically a complete language. It can establish structure, quantity and relation; it cannot by itself guarantee shared meaning.

## Why Mathematics?

Mathematics is attractive for interstellar contact because it appears less local than human speech. Prime numbers, ratios, geometry, periodicity and physical constants do not depend on French, English or any national culture. They can reveal that a signal has been intentionally organized.

## Prime Numbers as a First Gesture

A sequence of primes is often imagined as the simplest proof of intelligence. It is not a conversation, but it is a threshold between natural noise and possible intention.

2, 3, 5, 7, 11, 13, 17, 19...

## From Number to Image

The next step is encoding. A stream of bits can be arranged into a grid. If the receiver guesses the right dimensions, the numbers become an image, as in the Arecibo message.

Mathematics becomes a way to teach reading order.

## Physical Constants

Hydrogen frequency, atomic transitions, ratios, planetary periods and units based on nature can help anchor a message. A shared universe may provide shared references, even if the cultures are completely different.

## Limits

Mathematics does not solve everything. It may be universal in structure but not in interpretation. A receiver may recognize order without knowing intention. It may understand a diagram without knowing whether it is greeting, warning, art, proof, map or trap.

## Exoplanets and Detectability

Modern exoplanet research adds another layer. We may identify worlds where life is possible, but a mathematical signal still depends on technology, intention, transmission, repetition and detectability. A civilization can exist without broadcasting itself.

## AI and Translation

Artificial intelligence may help search for patterns, test encodings and model possible decoding paths. But AI does not remove the philosophical difficulty: meaning is not only pattern, it is relation between sender, receiver and context.

## A.L.I Prototype

A.L.I could build a “universal language workbench” where visitors create messages from primes, grids, constants, images and sound. Another visitor or algorithm would attempt to decode them without instructions.

- prime sequence as attention signal;
- binary grid as image;
- physical constant as unit system;
- diagram as concept;
- repetition as trust.

LABO question: does mathematics communicate meaning, or does it only open the door through which meaning may arrive?

# 34 - Contact: The Message That Contains the Ship Blueprint

19.06.2026

https://guez.org/ali/labo/?lang=en&post=contact-message-plan-vaisseau

Keywords: Contact, Carl Sagan, SETI, Vega, extraterrestrial message, prime numbers, spacecraft, blueprint, language, A.L.I


## Summary

**An analysis of the alien message in Contact: prime numbers, returned TV signal, technical pages, 3D reading and the Machine plans as an interstellar language.**

## Text

Hypothesis: in Contact, the extraterrestrial message is not only content. It is a reading test. Humanity must understand that one signal can contain several layers: mathematical, media-based, documentary and geometric.

## Film Summary

Robert Zemeckis's 1997 film, based on Carl Sagan's novel, follows radio astronomer Ellie Arroway as she detects a signal from Vega. The story begins with a scientific task: distinguish a true signal from noise, then understand what it contains.

For A.L.I, the film is important because contact is not reduced to an alien sentence. The message is progressive: first prove intelligence, then capture attention, then transmit instructions.

## Layer One: Prime Numbers

The received signal contains a sequence of prime numbers. This is a classic SETI idea: primes are difficult to produce by accident and do not depend on a human language. They act as a minimal signature of intelligence.

2, 3, 5, 7, 11, 13, 17, 19...

This layer does not yet say “hello”. It says: this signal is structured.

## Layer Two: A Human Signal Returned

The researchers then discover images inside the transmission: an old broadcast from the 1936 Berlin Olympic Games. In the logic of the film, the senders are not endorsing that image. They are returning one of the first strong television signals that left Earth.

The first mirror offered to humanity is embarrassing. The aliens show us what we already sent without knowing it.

## Layer Three: Hidden Pages

The most important layer is a huge set of technical pages. They appear to describe a machine, but their order seems wrong. Read flat, the data appears incomplete or incoherent.

The message therefore contains a method trap: receiving the pages is not enough. Humanity must discover how to read them.

## The Key: Reading in Three Dimensions

In the film, S. R. Hadden understands that the pages must not be read as a flat stack. They must be reorganized spatially. When treated as a volume, the plans become coherent.

expected reading: page 1 -> page 2 -> page 3

correct reading: stack + rotation + alignment + volume

The message is written not only in a language, but in geometry. Meaning depends on the spatial organization of the support.

## What the Message Contains

Once interpreted, the message reveals the plans for a gigantic Machine. The device allows a human to travel, or to experience travel, toward an encounter with the sending intelligence. The Machine becomes the real message: the aliens do not merely say “we exist”; they propose an experience.

## Why the Protocol Is Smart

- Minimal universality: prime numbers signal intelligence.
- Shared reference: the returned TV signal proves the senders listened to Earth.
- Document compression: technical pages carry large amounts of information.
- Comprehension test: 3D reading forces the receivers beyond linear habits.
- Action: the message must be built, not just understood.

## A.L.I Prototype

An A.L.I prototype could create a layered message: primes, binary image, pages that only make sense when stacked, a 3D model, then an instruction to build, orient, listen or answer. Communication becomes a protocol of discovery.

## Critical Position

Contact is fiction, but its message design is remarkable. It suggests that an extraterrestrial signal could become more alien not by being obscure, but by asking us to

change method.

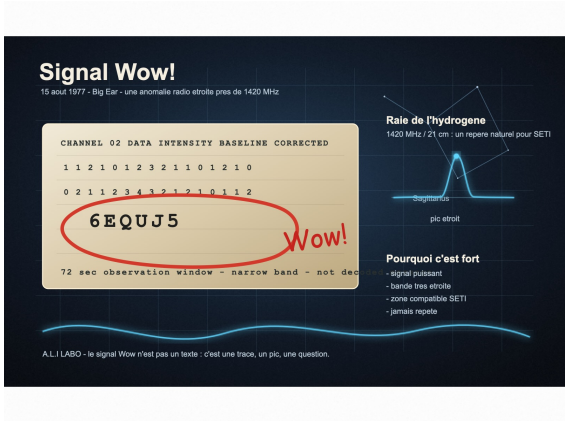
LABO question: is a message still a text when it must be constructed in order to be understood?

# 35 - The Wow! Signal: 6EQUJ5 and the Call That Never Repeated

19.06.2026

https://guez.org/ali/labo/?lang=en&post=signal-wow-6equj5-seti

Keywords: Wow! signal, 6EQUJ5, SETI, Big Ear, radio, hydrogen, 1420 MHz, language, signal, A.L.I




## Summary

**The 1977 Wow! signal detected by Big Ear: 6EQUJ5, the hydrogen line, SETI hypotheses, scientific limits and A.L.I paths around signal as proto-language.**

## Text

Hypothesis: the Wow! signal fascinates because it is almost a sentence and not yet a message. It is a trace strong enough to attract desire, but too isolated to become language.

## The Event

On August 15, 1977, the Big Ear radio telescope recorded an unusual narrowband signal. Astronomer Jerry Ehman circled the printed sequence and wrote “Wow!” in the margin. The alphanumeric code 6EQUJ5 became an icon of SETI culture.

## Why It Matters

The signal appeared near the hydrogen line, a frequency region often discussed in SETI because hydrogen is the most common element in the universe. It had the shape of a strong radio detection, but it never repeated in a confirmed way.

## Not a Message

6EQUJ5 is not text. It is an intensity notation produced by the observing system. The letters do not spell a word; they encode signal strength over time. This distinction is crucial: the human imagination quickly turns trace into address.

## Scientific Limits

Several hypotheses have been proposed: terrestrial interference, satellite reflection, astronomical source, comet-related explanation, or a genuine unknown signal. None has produced a settled explanation. Without repetition, localization and content, the signal remains unresolved.

## A.L.I Reading

The Wow! signal is useful for thinking about pre-language. Before translation comes detection. Before meaning comes recurrence. Before dialogue comes the decision that something deserves attention.

## Prototype

An installation could let visitors scan noise until a narrowband peak appears. The system would then ask: is this a message, a coincidence, an instrument artifact or a desire to hear?

- radio noise as environment;
- a sudden peak as event;
- human annotation as meaning-making;
- repetition as the beginning of language.

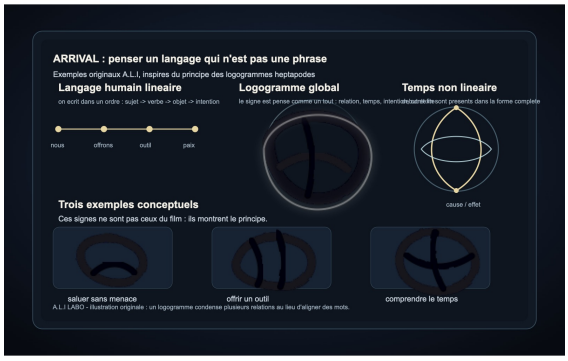
LABO question: how many times must a signal return before we dare call it communication?

# 36 - Arrival: The Language of the Heptapods

19.06.2026

https://guez.org/ali/labo/?lang=en&post=arrival-langage-heptapodes-logogrammes

Keywords: Arrival, Denis Villeneuve, Ted Chiang, heptapods, logograms, language, Sapir-Whorf, translation, A.L.I, cinema




## Summary

**A look at language in Denis Villeneuve's Arrival: heptapod logograms, circular writing, nonlinear time, Sapir-Whorf and original A.L.I visual examples.**

## Text

Hypothesis: Arrival is one of the strongest cinematic models for A.L.I because it treats language not as decoration, but as the real site of first contact.

## The Film

Denis Villeneuve's film, adapted from Ted Chiang's Story of Your Life, follows linguist Louise Banks as she tries to communicate with heptapods whose ships appear around Earth. The drama is not only geopolitical. It is grammatical.

## Heptapod Writing

The heptapods write with circular ink-like logograms. A sign is not built letter after letter. It appears as a whole form whose variations encode meaning. The circle suggests simultaneity, completion and a non-linear relation to time.

## Language and Time

The film uses a strong version of linguistic relativity: learning the heptapod language changes Louise's perception of time. Language becomes a cognitive technology, not merely a code.

## Protocol of Translation

The film is also illuminating because it shows the practical difficulty of contact: establishing names, actions, questions, pronouns, intention and trust. “Weapon” and “tool” become a crisis of translation. A single ambiguity can become planetary danger.

## Design Lessons for A.L.I

- a language can be visual before it is vocal;
- syntax can be spatial rather than linear;
- translation is political, emotional and technical at once;
- the receiver changes while learning the message;
- misunderstanding is not noise, it is part of the encounter.

## Prototype

A.L.I could build a logogram generator: visitors type a sentence, and the system creates a circular sign whose thickness, gaps, orientation and texture encode grammar. Another visitor attempts to decode it through repeated examples.

## Critical Note

The film is fiction, but its central intuition is powerful: a truly alien language may require changing our habits of time, body, order and causality.

LABO question: can a language be learned without also transforming the learner?

# 37 - Ufological Typology of Extraterrestrials

19.06.2026
https://guez.org/ali/labo/?lang=en&post=typologie-extraterrestres-ufologie
Keywords: ufology, extraterrestrials, testimonies, Project Blue Book, CIA, NICAP, archives, photos, typology, folklore

## Summary

**A critical typology of extraterrestrial figures in UFO narratives: small humanoids, Greys, luminous entities, reptilians, insectoids, robots and non-humanoids, with archives and photos to consult.**

## Text

Hypothesis: extraterrestrial typologies in ufology tell us as much about human imagination as about possible non-human life. For A.L.I, they are useful as a vocabulary of expectations.

## Why Classify?

Witness accounts, books and UFO archives often describe recurring figures: small humanoids, large beings, luminous presences, Greys, reptilians, insectoids, robots or forms without clear bodies. A typology helps compare narratives without accepting every claim as fact.

## Common Figures

- Small humanoids: early UFO folklore often describes short beings with suits, helmets or oversized heads.
- Greys: large eyes, small mouths, thin bodies; strongly associated with abduction narratives.
- Luminous entities: beings described as light, energy or apparition rather than biology.
- Reptilians: a later conspiratorial category, often mixed with political mythology.
- Insectoids: mantis-like figures that appear in some abduction and contact reports.
- Robotic probes: non-biological agents, drones or machine intelligences.
- Non-humanoids: rare forms that challenge the expectation of a body like ours.

## Archives and Evidence

Project Blue Book, NICAP files, CIA reading-room documents and press archives are useful sources, but they must be read critically. They contain reports, drawings, interpretations and administrative traces, not simple proof.

## Language Question

Each type implies a different theory of communication. Greys are often linked to telepathy. Luminous entities suggest affect and perception. Robots imply protocol and data exchange. Non-humanoids force us to imagine language beyond face, gesture and voice.

## A.L.I Use

The typology can become a design board: for each figure, invent a communication channel. A Grey might use images, a luminous entity modulation, an insectoid rhythm, a robot checksum, a non-humanoid environmental pattern.

## Critical Position

A.L.I does not need to decide whether these beings exist. It can ask why these forms return, what they reveal about fear and desire, and how they shape our imagination of contact.

> LABO question: do we imagine extraterrestrials with bodies because language itself seems to need a body?

# 38 - The Ummites: Letters, Language and the Myth of Contact

19.06.2026
https://guez.org/ali/labo/?lang=en&post=ummites-langage-lettres-contact
Keywords: Ummo, Ummites, ufology, language, letters, soncepts, Jean Pollion, archives, contact, A.L.I


## Summary

**A critical summary of the Ummo affair: Ummite letters, documents, symbols, vocabulary, the soncepts hypothesis and its relevance for extraterrestrial-language research.**

## Text

Hypothesis: the Ummo affair is important for A.L.I not as proof of extraterrestrial contact, but as one of the richest modern myths about alien language, documents and scientific style.

## Summary of the Affair

Beginning in the 1960s, letters attributed to beings from the planet Ummo circulated in Spain and France. They described society, physics, biology, technology and philosophy with a mixture of technical vocabulary, diagrams and invented terminology.

## The Power of the Documents

The letters are fascinating because they imitate scientific documentation. They do not only say “we are aliens”. They build an archive: symbols, classifications, pseudo-technical explanations, cosmology and social organization.

## Language Elements

The Ummo corpus includes recurring terms, symbols and claims about concepts that would not map neatly onto human words. Jean Pollion’s “soncepts” hypothesis proposes that Ummite language may encode conceptual units rather than ordinary phonetic words.

Whether one accepts this or not, it is interesting for A.L.I because it asks a crucial question: what if an alien language is not a list of words, but a system for compressing ideas?

## Symbols and Design

The famous Ummo symbol and the visual style of the letters show how contact myths become graphic systems. A sign, repeated across documents, begins to function like a logo, proof mark or ritual seal.

## Critical Reading

The Ummo affair is widely considered a hoax or complex cultural construction. A critical approach separates belief from usefulness. The documents can still be studied as speculative language design, media phenomenon and collective fiction.

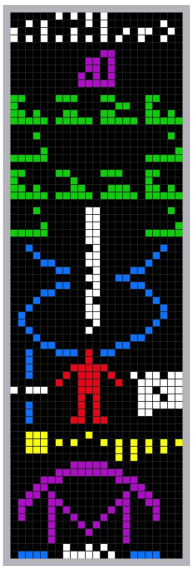
## A.L.I Prototype

An installation could present a fictional alien archive: letters, diagrams, sound fragments, vocabulary and translation attempts. Visitors would not be asked to believe; they would be asked to decode the mechanics of belief.

> LABO question: when a language is invented with enough documents, does it begin to produce its own reality?

# 39 - A New Contemporary Arecibo Message

19.06.2026
https://guez.org/ali/labo/?lang=en&post=nouveau-message-arecibo-contemporain
Keywords: Arecibo, message, crop circle, Chilbolton, SETI, METI, binary, radio, exoplanets, prototype



## Summary

**Rethinking the Arecibo message today: binary grid, exoplanets, climate, AI, networks, creation protocol and critical links with crop circles.**

## Text

Hypothesis: a contemporary Arecibo message should not simply update the data. It should update the method: who writes it, how it is decoded, what risks it acknowledges, and what image of Earth it sends.

## The 1974 Message

The original Arecibo message was transmitted in 1974 toward the globular cluster M13. It used binary information arranged into a rectangular grid. The message encoded numbers, chemical elements, DNA, a human figure, population, Solar System and the Arecibo telescope.

## What to Keep

The original remains elegant because it begins with structure. A receiver must recognize number, order, image and proportion. This approach is still useful: mathematics and binary grids are among the few tools we can hope to share across worlds.

## What to Update

- exoplanet knowledge and planetary diversity;
- Earth’s atmosphere and climate change;
- human biological diversity rather than one generic figure;
- digital networks and artificial intelligence;
- more explicit decoding instructions;

- a collaborative authorship process instead of one institutional voice.

## Crop Circles and Myth

Some crop-circle narratives, especially around Chilbolton, present images as replies to Arecibo. A critical A.L.I approach does not treat these claims as evidence of contact. It treats them as cultural material: humans imagine extraterrestrial response through fields, pixels and mirrored diagrams.

## Prototype

A new message could be created as a public workshop. Participants choose data, convert it into binary, test several grid sizes, print the result as an image, play it as sound, and display it as light. The message becomes readable through multiple media.

data -> binary -> grid -> image -> sound -> radio/light performance

## Ethics

METI remains debated. Should humanity actively transmit? Who has the right to speak for Earth? A contemporary Arecibo message must include this debate instead of hiding it behind optimism.

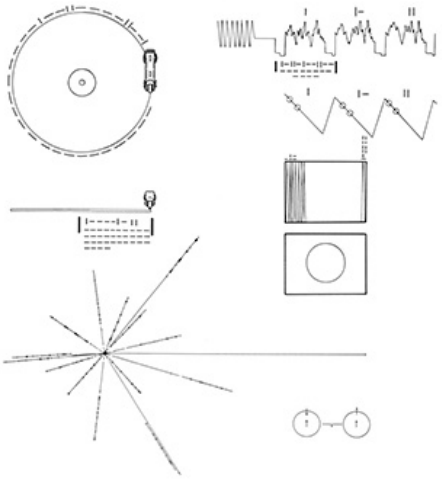
LABO question: can a message to space be democratic, or is every interstellar message necessarily a fiction of unity?

# 40 - A Contemporary Golden Record

19.06.2026

https://guez.org/ali/labo/?lang=en&post=golden-record-contemporain

Keywords: Golden Record, Voyager, archive, space, message, disk, capsule, humanity, NASA, protocol, installation



## Summary

**Remaking a disk or message-object for space today: sounds, images, languages, data, instructions, politics of representation and decoding protocol.**

## Text

Hypothesis: if humanity remade a Voyager-like object today, it would not only be a record. It would be a protocol for representing a plural, networked, damaged, inventive planet.

## The Original Golden Record

The Voyager Golden Record carried images, sounds, greetings, music and scientific diagrams beyond the Solar System. It was both archive and gesture: a way of saying that Earth is here, that it contains life, technology, culture and memory.

## What Would Change Today?

A contemporary version would have to confront questions that were less visible in 1977: climate change, digital culture, artificial intelligence, planetary inequality, biodiversity collapse, satellites, networks, migration, surveillance, and the politics of who gets to speak for Earth.

## Possible Contents

- sounds of ecosystems, cities, machines and bodies;
- images of landscapes, tools, art, rituals and infrastructures;
- languages and scripts from many communities;
- scientific maps of Earth, DNA, atmosphere and time;
- data about climate, extinctions and human responsibility;

- instructions for decoding the archive without assuming human conventions.

## Object or Signal?

The new Golden Record could be a physical disk, a ceramic plate, engraved metal, DNA storage, optical memory, radio transmission or distributed artwork. The medium matters because it tells the receiver how we imagine durability.

## Decoding Protocol

The most important part may be the manual. A message for space must explain its own scale, units, reading order, image format and relation to time. The object must teach the receiver how to become a reader.

## Artistic Form

As an A.L.I project, the contemporary record could exist as an installation: visitors choose sounds and images, debate inclusion, encode a fragment, and watch it become a disk, beam, score or archive object.

## Critical Question

No archive can represent all of humanity. A good contemporary record should make this limitation visible. It should not pretend to be neutral; it should show its choices, absences and conflicts.

> LABO question: should a message to the cosmos present humanity as it dreams itself, or as it truly behaves?

# 41 - A Five-Tone Contact Light Organ

19.06.2026

https://guez.org/ali/labo/?lang=en&post=orgue-lumineux-contact-cinq-tons

Keywords: Close Encounters of the Third Kind, five tones, score, synthesizer, MIDI, light, DMX, NeoPixel, keyboard, A.L.I, instrument

## Summary

**A free replica of the contact instrument from Close Encounters of the Third Kind: reference photo, score, five tones, keyboard or synthesizer input, light panels.**

## Text

Hypothesis: the five-note motif from Close Encounters of the Third Kind can become a playable light instrument. The prototype translates music into color, rhythm and possible contact.

## Cultural Reference

In Spielberg’s film, the encounter is not negotiated through speech. It begins with a short musical phrase answered by lights. The scene is powerful because the interface is public, simple and spectacular: tones, colors, repetition, response.

## The Sequence

The famous motif is often described as five tones. For a prototype, the exact musical key can be selectable. The important element is the intervallic gesture: a short call that can be recognized, repeated, transformed and answered.

tone 1 -> tone 2 -> tone 3 -> tone 4 -> tone 5

sound -> color -> light panel -> response

## Small Version

A tabletop version can be made with a MIDI keyboard, an Arduino or ESP32, and a strip or

matrix of addressable LEDs. Each note triggers a specific color and duration. The five tones can be played by hand or automatically.

- MIDI keyboard or small synthesizer;
- Arduino, Teensy or ESP32 with MIDI input;
- NeoPixel strip, LED matrix or five illuminated boxes;
- 5V power supply sized for the LEDs;
- laser-cut or 3D-printed case.

## Large Version

A stage or outdoor version can use DMX lights, LED bars or large translucent panels. A computer running Ableton Live, TouchDesigner, Max/MSP or Pure Data maps notes to light cues. This version can become a performance: the audience hears a call and sees the light architecture answer.

## Difficulty Levels

- No solder: MIDI keyboard + computer + DMX/LED controller. Difficulty: medium.
- Maker version: microcontroller + NeoPixels + MIDI. Difficulty: medium to advanced.
- Large installation: DMX addressing, power distribution, safety and show control. Difficulty: advanced.

## Score and Replay

The full film score is copyrighted, so the project should link to legal sheet-music sources rather than reproduce the score. The prototype can use a five-note motif as a technical demonstration and invite performers to compose new “contact phrases”.

## A.L.I Interpretation

The instrument is not only nostalgic. It asks whether a language can be built from synchronized perception: hearing, seeing, waiting, repeating, correcting. Contact begins as a loop.

> LABO question: could a shared rhythm be a stronger first language than a shared vocabulary?

# 42 - Radio Transcoder: From Text to Waves

19.06.2026

https://guez.org/ali/labo/?lang=en&post=poste-radio-transcodeur-texte-ondes

Keywords: radio, transcoder, antenna, morse, signal, wave, SDR, LoRa, SETI, METI, prototype, hardware


## Summary

**An A.L.I radio device with antenna and transcoder: diagrams, difficulty levels, equipment to buy and programming paths for transforming text into waves.**


## Text

Hypothesis: an A.L.I radio station can turn a written message into an electromagnetic event. The object is both instrument and metaphor: type a sentence, encode it, transmit it, receive it, decode it.

## Basic Principle

The system has four parts: input text, transcoder, transmitter and receiver. The transcoder converts letters into a signal form such as Morse, binary audio tones, FSK, packet radio, LoRa frames or visible waterfall patterns for SDR software.

text -> encoding -> modulation -> antenna -> receiver -> decoding -> text

## No-Solder Version

The simplest version uses a computer and an SDR receiver. A web page or Python script converts text into Morse audio. The sound is played through speakers, recorded by a microphone, or displayed as a spectrogram. With an RTL-SDR USB dongle, one can also explore real radio reception without transmitting.

- RTL-SDR USB receiver;
- SDR++ or Gqrx software;
- computer audio output;
- Morse encoder/decoder script;

- printed or 3D-made “antenna” sculpture for the installation.

## Low-Power Radio Version

A more concrete prototype uses LoRa modules or microcontrollers with radio shields. The text is typed into a small interface, encoded, sent to another module and displayed on a screen. This is not deep-space radio, but it teaches the structure of signal transmission.

- two LilyGO LoRa32, Heltec WiFi LoRa 32 or similar ESP32 LoRa boards;
- USB power banks;
- small OLED screens;
- simple antennas adapted to the legal frequency band;
- Arduino or PlatformIO code.

## With Soldering

A soldered version can add a physical telegraph key, audio jack, amplifier, LEDs, speaker, rotary selector and a custom enclosure. A directional antenna can become part of the visual language of the piece.

## Programming

The software can remain modest: a Morse table, timing rules, serial input, radio send function and a decoder. The next step is to support several encodings and show how the same sentence changes when written as Morse, binary, hexadecimal, tone sequence or radio packet.

## Important Limits

Real radio transmission is regulated. Frequencies, power levels and antennas must respect local law. For exhibitions, it is often safer to use low-power legal modules, cabled RF demos, audio simulation or receive-only SDR.

## A.L.I Use

The object could be presented as a small “message forge”: the visitor writes a sentence, chooses an encoding, and watches it become pulse, sound, light and radio trace. The message becomes less like speech and more like physics.

LABO question: when a text becomes a wave, what part of language remains human?

# 43 - An Augmented Drake Equation for the Exoplanet Era

19.06.2026
https://guez.org/ali/labo/?lang=en&post=equation-de-drake-augmentee-exoplanetes
Keywords: Drake, exoplanets, SETI, astrobiology, biosignatures, habitability, JWST, Arecibo, hypotheses

## Summary

**Rereading the Drake equation in the age of exoplanets: atmospheres, habitable zones, stellar stability, ambiguous biosignatures and detectability.**

## Text

Hypothesis: the Drake equation can be reread today as a research interface rather than a formula that gives one answer. Exoplanet science has transformed several of its terms and introduced new uncertainties.

## The Original Logic

Frank Drake proposed the equation in 1961 as a way to organize the unknowns behind the search for communicating civilizations. It links star formation, planets, habitable worlds, life, intelligence, technology and the lifetime of detectable civilizations.

$$N = R^* \times fp \times ne \times fl \times fi \times fc \times L$$

Its power is not numerical certainty. Its power is methodological: it forces us to say where our optimism or skepticism is located.

## What Exoplanets Changed

When the equation was proposed, planets outside the Solar System were hypothetical. Today thousands of exoplanets are confirmed. This changes the first planetary terms dramatically. We now know planets are common, small rocky planets exist, and habitable-zone candidates are not science fiction.

But abundance does not equal habitability. A planet can be in the right orbital zone and

still be hostile because of atmosphere loss, stellar flares, tidal locking, unstable climate, lack of water or geological inactivity.

## New Terms to Add

- Atmospheric stability: does the planet keep a useful atmosphere over billions of years?
- Stellar behavior: does its star permit long biological timescales?
- Planetary history: does the world maintain oceans, chemistry and energy gradients?
- Biosignature ambiguity: can oxygen, methane or other markers be produced without life?
- Technosignature detectability: does a civilization emit something observable from Earth?

## From Biosignatures to Technosignatures

Modern astrobiology looks for atmospheric signs of life, but SETI and METI ask a different question: can intelligence produce a signal, structure, waste heat, optical pulse, radio pattern or artifact that another intelligence could recognize?

A.L.I is interested in the transition from life to readability. A planet may host life without producing language. A civilization may have language without broadcasting. A technological culture may become quiet, fiber-optic, encrypted, brief or deliberately silent.

## An Augmented Equation

Nreadable = planets × habitability × life × cognition × technology × intention × detectability × duration

This version is not meant to replace Drake. It highlights the path from existence to contact. The key term for A.L.I is not only intelligence, but readability: the chance that one world makes something another world can notice, decode and trust.

## Design Consequences

If we use the equation as a design tool, each term becomes an artwork or prototype: maps of possible worlds, atmospheric libraries, signal filters, speculative alphabets, messages that explain themselves, and archives that survive technological change.

> LABO question: should an interstellar language begin with a number, a planet, a molecule, a story or a proof of intention?

# 44 - Morse Contact Finger

18.06.2026
https://guez.org/ali/labo/?lang=en&post=doigt-de-contact-connecte
Keywords: interface, bluetooth, morse, NFC, finger cot, ring, thimble, glove, haptic, prototype, language, installation

## Summary

**A luminous Morse finger to build from an LED ring, a thimble, a glove or a claw: from hacked toy to two Bluetooth fingers capable of talking to each other.**

## Text

Hypothesis: the raised finger can become a tiny communication terminal. Instead of imagining a large device, the project begins with a very small gesture: light, touch, pulse and code at the fingertip.

## Starting Point

The first image is deliberately simple: a finger that glows like a signal. It could be a toy-like object, a thimble, a ring, a plastic fingertip, a glove extension or a small wearable shell. The object does not need to imitate cinema literally; it can translate the fantasy of contact into a usable interface.

The most realistic first prototype is not a full Bluetooth translator. It is a luminous Morse finger: press a button, and the fingertip emits dots and dashes with an LED. This version can be built cheaply, tested quickly, and used as an installation object.

## Minimal Version: Light Morse

- a finger ring or thimble-like shell;
- one bright LED or addressable RGB LED;
- one push button;
- a tiny battery;
- a small microcontroller, or a very simple pre-programmed blinking circuit.

The user presses once for a dot, holds longer for a dash, or selects a stored message. The fingertip blinks a greeting, a name, a coordinate, or a short A.L.I message.

## Connected Version: Two Fingers Talking

A second stage uses two connected fingers. Each object can send a message to the other via Bluetooth Low Energy. One finger records a spoken sentence or receives typed text from a phone, converts it into Morse, sends the pattern, and the receiving finger decodes it back into text or sound.

- Input: button, phone text field, or voice-to-text.
- Encoding: text transformed into Morse timing.
- Transmission: Bluetooth BLE between two modules or via a phone relay.
- Output: light flashes, vibration, small buzzer, or phone voice synthesis.

## Electronics Without Soldering

For a proof of concept, a no-solder path is possible with M5Stack or Adafruit boards using Grove/STEMMA connectors. M5StickC Plus, M5Atom, Seeed XIAO nRF52840 Sense, Adafruit Circuit Playground Bluefruit, or micro:bit can provide buttons, LEDs and BLE with minimal wiring. The trade-off is size: these boards are often too large for a pure fingertip, but acceptable for a glove, wrist module or theatrical prototype.

## Rings, Gloves and Thimbles

Commercial LED finger rings already exist as toys. They are cheap, visible and useful for testing gesture and light language, but they are generally not programmable. A thimble or full-finger ring, sometimes called a finger cot, claw ring, articulated finger armor or gothic finger ring, can become the physical shell for the prototype.

NFC LED nail stickers or NFC LED rings are not a good solution for programmable Morse: the phone can power the LED briefly through NFC, but the LED itself usually has no memory or programmable controller. NFC can trigger an action on the phone, but it cannot easily make the passive LED blink a custom Morse sequence by itself.

## Difficulty Levels

- No solder: LED toy or M5/micro:bit board in a glove. Difficulty: easy.
- Light soldering: small LED, button, battery and microcontroller in a finger shell. Difficulty: medium.
- Connected pair: BLE messaging, Morse encoder/decoder, mobile interface. Difficulty: advanced software plus careful miniaturization.

## A.L.I Prototype

The most elegant object may be a hybrid: the finger itself only emits light and vibration, while the phone handles text, speech recognition and decoding. The artifact remains magical and tactile, but the complex intelligence stays in software.

> LABO question: can a finger become a language instrument before it becomes a technological gadget?