The Human as a Robot or a Biological Organism

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By

Marcienne Martin

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To Cyril Anger, Isabelle Anger, Sylvain Beaupré, Mircea Bochiș, Luc Martin, Denis Pryen and all human communications from consciousness to consciousness …

L’homme pensé

Vent solaire et feu glissant,
Découvrant les lignes étranges
Du filet métamorphique,
Vous fûtes homme pensé
À travers la ligne du temps
Et les pierres de l’univers.

De la cellule émergente
À la raison déclinée en conscience,
La pensée devint homme,
Et l’homme,
Pensée du futur.

Marcienne Martin

Marelle lunaire – Recueil de poésie (2018, 57)

The Human Being Thought

Solar wind and sliding fire,
Discovering the strange lines
Of the metamorphic net,
You were human thought
Through the line of time
And the stones of the universe.

From the emerging cell
To reason declined into consciousness,
Thought became the human being,
And the human being,
Thought of the future.

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GENERAL INTRODUCTION

Questioning the meaning and nature of the universe and the living world calls on all of the existing fields of research. Although the answers to these metaphysical questions have not been provided *in stricto sensu*, their decryption is constantly updated with the various discoveries that are gradually transforming the way humans look at their environment. We are referring here to the consciousness of the human, integrated into the world of the Real and experienced as such, and not the consciousness whose normative filter, born of various beliefs, subtracts the most recent scientific advances.

Questioning oneself on the meaning of life with, in the mirror, that of death resonates with the observation and understanding of the functioning of the units of the living world, of which the different species within the framework of the animal world and the multiple varieties in the vegetal are its material representation. And it is from the language tool in human beings that these questions arose.

If the time factor, through its unfolding, is at the origin of entropy (disorganisation) and negentropy (organisation), the basic structures of the objects of the Real are related to a programming taking its source from the different atoms composing them. Within the framework of the living world, the DNA[1] code, composed of four bases: A = adenine, G = guanine, C = cytosine, T = thymine, also refers to its planning. The organisation of this quaternary system echoes the binary system used in computer science, whose re-registration in the form of algorithms is at the origin of the various existing computer programs.

It is from the connection between the binary system and the quaternary system that this work was born, asking whether every unit of the living world is only the result of a given programming? What about the human being? Are they a robot participating in the living world or consciousness inscribed in a biological habitat? Would the language that is specific to us not allow us to decode existing forms of reality, but which are not directly accessible to us?

[1] http://www.futura-sciences.com/magazines/sante/infos/dico/d/genetique-base-azotee-308 (accessed April 13, 2016).

This study will make different approaches to the understanding that *Homo sapiens* has of the universe. The first will be articulated around language as a locating tool with, in parallel, the highlighting of awareness, or conscientization, which opens on to the establishment of information structures allowing the fields of science to decipher the universe of which we are part, but which also integrates us.

The transfer of information participates in all the objects of the universe, both in a form of programming registered upstream and allowing predetermined exchanges between such object A and object B (this is the case with genetic reproduction where marriage between different species cannot be achieved), but also by appealing to creativity, which opens up a reorganisation of the objects of the world in an original way. Art and research are one manifestation of this. In addition, advances in genetics have enabled us to decode a large part of its structures and rewrite them in another form. These modifications refer to coalescence[2]; this is the case with ligrons[3] (tigers–lions), leopons,[4] etc. It is mutagenesis which can be natural or artificial. This echoes, indirectly, the modification of computer programs, the result of which will differ.

In humans, language carries multiple possibilities for translating reality. Thus the observation linked to the analysis of such a particular object/event will open up new scientific advances, but, being an interpretation, the inscription of said unknown and a non-decoded object/event may integrate different belief systems: the god of lightning perfectly illustrates this in the various mythologies from the Greeks to the Hindus, including the Chinese and the Mayas. This is the case with the deities called Zeus (Greek mythology), Thor (Norse mythology), Indra (ancient Indian mythology), Chac (pre-Columbian America), and Tlaloc (Aztec god). The inventor of the lightning rod, Benjamin Franklin,[5] in the 1750s participated in research on a phenomenon that was visible but not decoded: electricity. By relating the lightning emitted during thunderstorms to small-scale electric arcs, he realised they were large-scale electric arcs. This procedure is based on a scalar-type approach, which corresponds, in this context, to the perception of two objects located at different scales, but functioning in a similar way.

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[2] Réunion d'éléments voisins, http://www.cnrtl.fr/definition/coalescence (accessed February 14, 2014).

[3] Le ligre ou ligron est un félin hybride né de l'union d'une tigresse et d'un lion mâle (accessed February 14, 2014).

[4] The leopon is a hybrid feline, a cross between a male leopard and a lioness. Ibid.

[5] http://www.futura-sciences.com/sciences/personnalites/matiere-benjamin-franklin–217 (accessed July 25, 2022).

While the observation of a given environment can be described and analysed, emotional feelings, also called "qualia,"[6] cannot be transcribed directly through language. Speeches or tropes allow a form of translation within which the hidden meaning can be uncovered. Language can also be used to translate the indirect perception of objects in the world: intuition linked to awareness is an approach that opened on to major discoveries such as the one made by the Greek mathematician Archimedes:

> Anybody immersed in a fluid at rest, fully wetted by the latter or crossing its free surface, undergoes a vertical force, directed from bottom to top and opposed to the weight of the volume of fluid displaced; this force is called the "Archimedean thrust."[7]

As the legend says, this scholar shouted "Eureka" ["I found it"] when he realised the connection between the vertical force and the weight of the volume of the displaced fluid.

In relation to the language, awareness opens on to a more sophisticated approach to understanding objects in the world. In a way, it serves as an interface between the existing, its visualization and the decoding we are doing.

Because the interrogation makes it possible to move away from the reality, it also makes it possible to have a more global vision of it, which refers to the notion of a scalar approach to the objects of the world, a study which will integrate the second part of the book. Let us look at the example of the vegetal which corresponds to the following definition[8]:

> Living organisms which vegetate, presenting a thallus or a set of roots, stems, leaves, flowers (with arborescent, bushy, herbaceous or creeping growth), formed of cells with a cellulose wall, capable of developing its organic matter (in particular by photosynthesis in green species) from mineral and gaseous elements of the environment or living in symbiosis, in parasitism with other species, characterized by relatively low mobility and sensitivity, reproducing sexually or vegetatively.

---

[6] "In the general sense, a quale is a sensitive quality presented by a thing in a determined observation context." In Jérôme Dokic and Paul Égré, "The Identity of Qualia and Goodman's Criterion," http://j.dokic.free.fr/philo/pdfs/goodman_de1.pdf (accessed July 14, 2022). What corresponds to the feeling.

[7] https://www.futura-sciences.com/sciences/definitions/physique-poussee-archimede-8127 (accessed March 24, 2019).

[8] http://www.cnrtl.fr/lexicographie/v%C3%A9g%C3%A9tal (accessed April 11, 2016).

Consider the rosebush, a shrub belonging to the *Rosaceae* family, made up of different organs such as its oval or rounded calyx, the corolla of five petals, numerous stamens, leaves and thorns, and which also drains a liquid called "sap."

Exercising a scalar approach to this plant will depend on the levels of observation; at T0, the plant will be seen in its usual material expression, at T-100, it will be the plant cells comprising it that will become the object observed. These two experiences will be experienced as not bound if no conscious link connects them. From this digression, if we put the hypothesis that everything is connected, the decryption, for its part, is very complex, since to invalidate or confirm the said hypothesis it will be necessary to use different scalar approaches of the studied object, sometimes very distant and seemingly with no connection between them.

Thanks to the increasingly sophisticated technologies implemented in our modern societies, the microstructures and macrostructures of the universe are being deciphered with a precision that goes well beyond the perception that our sensory apparatus have. Between the invention of the first microscope "by Zacharias Janssen, a Dutch optician, in 1595,"[9] and the first telescope built in 1668 by Isaac Newton,[10] the perception of our universe has completely changed scale. Thus modifying the scalar level of observation has opened up awareness of the existence of a reticular substrate underlying all matter: molecules, photons, gravitational waves, etc. – the whole being connected but differentiated in its realisation.

The notion of the network will also be discussed within the framework of an approach applied to objects of the world at the level of their representation at different scales, even very distant ones. This organisational structure is made up of nodes and links. The node is, in a way, the base where information is stored, and a link serves as its transmitter. The activation of this phenomenon is very varied: neurons are linked to synapses, genetic code, and the group structure included in the paradigm of civil society but also in that of virtual society.

We will try to analyse these organisations and show that the functioning of the reticular basement is generally similar to all structures.

With language, lexico-semantic transfers of the instincts inscribed in our brain are made, from which reconfigurations like that of the group structure were born, whether on a representational or symbolic level. This is the case with metaphor, a figure of speech signifying them, like a "crowd bath," "to

[9] http://www.futura-sciences.com/magazines/high-tech/infos/dico/d/technologie-microscope-11130 (accessed April 13, 2016).

[10] http://www.universalis.fr/encyclopedie/telescope-de-newton (accessed April 13, 2016).

merge, to lose oneself, to disappear in," "to fight as a single human," "a collective body," "a social body," the "human mass," the "collective unconscious," a "human tide" …

Standing out from the social group can be the object of rejection – the pariah status is one illustration of this – but it can also lead to endangering the life of the person or group concerned, in particular in the context of totalitarian systems. Individuation is the marker that has allowed humanity to evolve at the level of consciousness. The gregarious basis, whether of the instinctual type or under the doxa of the social group, becomes non-signifying. Whether they are researchers or artists, the individual's personal approach to the objects of the world has allowed them to decode certain forms of reality through the imaginary inscribed in the field of beauty and feeling, to modify its perception and open up new interrogations.

Going from the paradigm of matter to that of consciousness involves a number of approaches, both philosophical and scientific. However, no tangible answer has yet been given. The third part of this study will be structured around these different questions.

Being integrated into the universe while also being inhabited by it joins what is related to symbiosis, a form of unity existing between two different objects.

The language tool is an operating mode that has enabled humans to decipher their environment. If the reptilian brain is used by any living unit to control the functioning of its biological interior, other more elaborate structures are related to levels 1 and 2 of Maslow's[11] pyramid which appeal to instincts linked to survival and reproduction. As for the cognitive capacities specific to *Homo sapiens*, a number of studies have analysed their origin and inscription in the brain: "The recent expansion of the prefrontal cortex, in conjunction with the increased plastic and associative capacities of the neocortex, therefore seems to be the origin of many typically human cognitive capacities."[12]

Different forms of reasoning arise from logical reasoning, but what questions it is precisely the awareness of the existing, its awareness. Indeed, if our percepts allow us to be in relation with our environment with sight, smell, taste, hearing and touch, they do not allow us to decode all the existing structures. This is done when the visualization of object/event A with object/event B shows an existing link.

[11] "According to this author, regardless of culture, a person draws his or her motivation from five needs that are ranked in a hierarchy, with each unmet need being a potential source of motivation," https://www.editions-retz.com/actualites/qu-est-ce-que-la-pyramide-de-maslow.html.

[12] http://lecerveau.mcgill.ca/flash/a/a_05/a_05_cr/a_05_cr_her/a_05_cr_her.html.

If analogical thinking has allowed humans to relate similar objects, which may have a common foundation (deciduous trees and evergreen trees), logical thinking is linked to the unfolding of events and their results. Thus the pollen of a rose (*Rosaceae* family) cannot generate a tulip (*Liliaceae* family). This requires programming. We find this procedure inscribed in computer programming, a similar procedure which indirectly refers to biomimicry, which one corresponds to the transfer, in the form of artifacts in human societies, of what exists in nature. This is the case with means of air transport, which have taken their constructive foundations from the observation of birds linked to an analysis of their flight structure.

Many reproductions of constructions of objects in the world have been reproduced by humans, as illustrated in a book dedicated to biomimicry[13]: "Animals are also a useful model to emulate for their sense of teamwork … How does a flock of birds manage to move while keeping their cohesion?" This is the question that allowed the computer scientist Craig Reynolds in 1986 to put the movement of groups of birds in relation in terms that can be assimilated by a computer, phenomena which refer to the correlation between the quaternary system (genetic code) from the living world and the binary system (computer code) created by human beings.

Virtual reality perceived through a headset linked to digital applications is a very particular approach to observation that echoes the dreamlike paradigm where the creation of the dream takes its source from analogue thinking. If we compare the digital virtual realities and the dream with the usual reality perceived by our five senses, we consider the latter to be much more real. Wouldn't the creation of this artefact refer to a form of reality existing upstream from our own, a not perceived reality, but which we would translate, indirectly, by using biomimicry?

Isn't awareness linked to language the tool for decoding this programmed reality? It's a question around which the whole of this study will be articulated.

[13] Mat Fournier and Yannick Fourié, *Quand la nature inspire la science – Histoire des inventions humaines qui imitent les plantes et les animaux* (Toulouse: Éditions Plume de carotte, 2011), 155.

First Approach

From Microstructure to Macrostructure, Walk in the Field of All Possibilities through Awareness

Introduction

"Every evening, they sit facing the setting sun, raising their hand above their eyes," said Picq (2017, 36) evoking hamadryas baboons. In the living world, observation is a behavioural mode related to survival: between prey and predator, the instinctual choice is predetermined, even if the unity of the living is inscribed in both roles.

Observing an object like the sun then enters into the interrogative mode, without the language, in hamadryas baboons, being there to structure its foundation. What about *Homo sapiens*?

It was from observation that the mirror experiment began in large primates. As Chaline mentions: "The mirror experiment shows that the chimpanzee, gorilla and orangutan understand very quickly that the image returned by the mirror is theirs, while other animals believe they see another animal" (2006, 97). The observation recorded in instinctual mode refers to a program linked to the survival of each unity of the living world. Reflective thought is absent there. Looking at yourself in a mirror and recognising yourself as an individual comprise one of the first experiences of awareness, which refers to reflection and analysis.

Self-recognition begins in early childhood. As Wallon points out:

> Between the immediate experience and the representation of things, there must necessarily be a dissociation, which detaches the qualities of the existence specific to the object itself from the impressions and actions in which it is initially involved, by attributing to it, among other essential characteristics, those of exteriority. There is only representation possible at

> this price. That of the own body … must necessarily meet this condition. (1949, 172)

In the hominid, this experience correlated with language is at the origin of the construction of identity. In addition, this communication medium that is specific to it appeared as follows:

> Up to a year and a half, both chimpanzees and humans have the larynx in the same position, but at the end of this period in humans, the larynx descends and increases the pharynx allowing it to play the role of a box of resonance mechanically authorizing articulate language, impossible for the chimpanzee. (Chaline 2006, 284)

Thus, from mirror to speech, this path has opened up to awareness through observation and analysis.

1.1 The language mirror of genetics

The reticular substrate of the living world is articulated around basic elements that are common to them. A number of works by biologists and ethologists have enabled the decryption of the genome of the living world through nucleotides. As the biologist and ethologist Dawkins[14] mentions, "The basic blocks or nucleotides are only of four different kinds, the names of which can be abbreviated as A, T, C and G. They are the same for animals and plants. What differs is the order in which they are put together" (2003. 42). Thus, from their redistribution, the unity of the living, inscribed in matter, takes an already programmed form, reflected by the phylogenetic classification through cladistics.[15] In addition, two parameters intervene within the framework of this programmed writing; it is about the environment and the timeline. In the first case, depending on a given environment, there will be rewriting of certain aspects of the organism so that it can survive in synchrony and endure its genetic reproduction in diachrony. In the second case, time is a form of energy opening up to transformation and evolution. Without this parameter, the living becomes frozen.

---

[14] R. Dawkins, *Le Gène égoïste* (Paris: Odile Jacob, 2003), 200.

[15] Cladistics consists of a method of classifying individuals and taxa according to their kinship. http://www.futura-sciences.com/planete/definitions/classification-vivant-cladistique-14448 (accessed September 24, 2016).

As we can see, the foundation of the living world is built from the same and, depending on environmental and temporal factors, it will evolve in a configuration inscribed in the different (see figure 1).

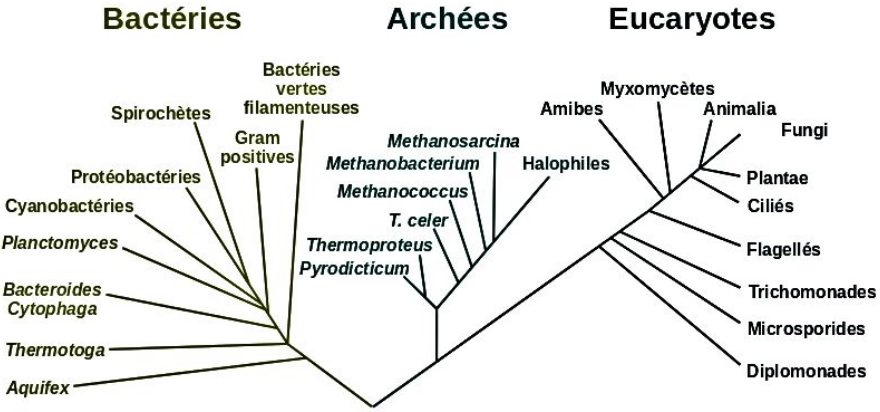

Figure 1. Hypothetical phylogenetic tree of all living organisms. The tree is based on 16S rRNA sequences. Originally proposed by Carl Woese, it shows the evolutionary history of the three domains of life (bacteria, archaea and eukaryotes). Source: https://commons.wikimedia.org/wiki/File:Phylogenetic_tree-fr.svg (accessed April 29, 2019)[16]

Thus human belongs to the **animal kingdom**, to the **branching** of vertebrates, to the **class** of mammals, to the **order** of primates, to the **family** of hominids and to the **genus** *Homo*, the only current representative of which is the species *Homo sapiens* (genus and species) (see figure 2). An analysis of the various underlined terms shows that they are descended from the general (animal kingdom), which corresponds to the hyperonym, to the specific, i.e. the hyponym, which corresponds here to the term “species.”

[16] All of the figures presented in the book are copyright free; they were downloaded from https://commons.wikimedia.org/wiki/Main, which authorizes their use.

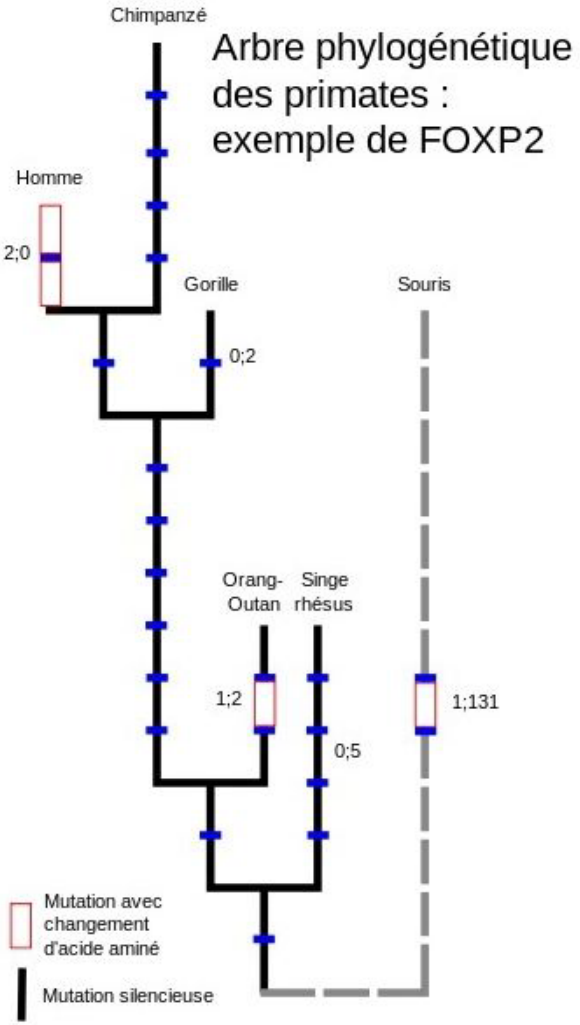

Figure 2. Phylogenetic tree of primates, based on FOXP2 sequencing results
Source: https://commons.wikimedia.org/wiki/File:Phylogentic_tree_FOXP2_01-fr.svg (accessed March 30, 2019)

Going from the identical to the similar and the different is an approach that we find in the context of the configuration of atoms. The periodic table of

elements, developed by Dmitri Mendeleev in 1869,[17] is an example. Thus each simple or compound element has its own identity.

> This table groups together all the known chemical elements, classified according to their number of protons, or atomic number. The table is called the periodic table (which returns regularly), because we find the elements with the same properties at regular intervals (therefore in columns).[18]

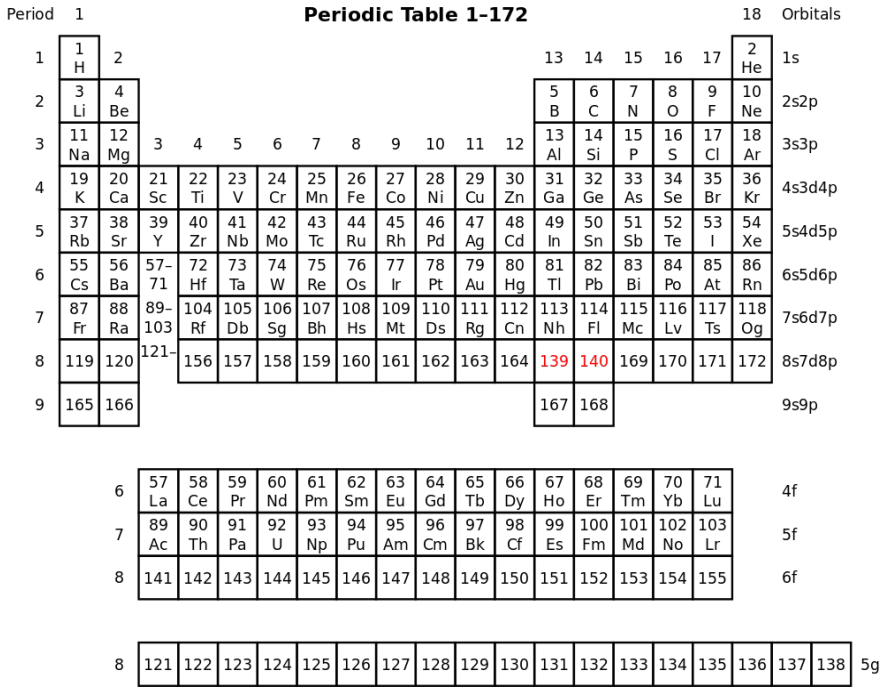

Figure 3. Mendeleyev's table
Source: https://commons.wikimedia.org/wiki/File:PT172C_1.jpg

The paradigm of the universe is made up of atoms. This infinitely small, indivisible and homogeneous particle, put in relation with other elements of the same nature, is at the origin of the constitution of matter.[19] Depending

[17] http://www.futura-sciences.com/magazines/matiere/infos/dico/d/chimie-tableau-mendeleiev-4425 (accessed March 19, 2019).
[18] Ibid.
[19] http://www.cnrtl.fr/definition/atome (accessed March 19, 2019).

on its assembly, it gives the final structure to the different fields of reality (microcosm and macrocosm).

Surprisingly, it was from reflections born out of questioning the meaning of life and our universe that the notion of the atom was born. With current scientific advances, its decoding as an immutable and indivisible basic unit corresponds to the intuitive perception that Leucippus and Democritus had of it:

> The philosopher Leucippus (5th century BC) and his disciple Democritus (around 460–370 BC) then supported the theory of the existence of vacuum as well as that of particles. These particles of "being," which they called "atoms" (from the Greek atomos, meaning "indivisible"), would be immutable and indivisible.[20]

This perception of objects of the Real seems to show that all information, whatever the form, is integrated into the universe, and that within the framework of the awareness of the existence of an object X, without it being perceived directly, and its translation by the use of the communicational tool which is language, it then integrates the paradigm of understanding the world into human beings. Certain major discoveries or hypotheses made and then verified exemplify this phenomenon.

Pascal, enrolled in various fields of research such as geometry and physics, is also known for his philosophical reflections on the meaning of life. Thus the correlation between genetics and his reflection on, "what is a human in nature? A nothingness with regard to infinity, a whole with regard to nothingness, a medium between nothing and everything"[21] shows that Pascal perceived a form of reality of unity of the living, and more specifically of the humanoid.

The encounter between a spermatozoon and an ovum shows a disproportion noted by Pascal in the context of the place of humans in relation to the universe and objects of nature. As has been demonstrated by Christine Gourier (Laboratory of Statistical Physics [ENS / CNRS]): "In humans, the path that goes from the vagina to the fallopian tubes – where the ovum is patient – measures approximately 10 to 12 cm long. That's 24,000 times the

[20] https://www.futura-sciences.com/sciences/dossiers/chimie-introduction-chimie-atomes-molecules-fil-histoire-1456/page/6 (March 31, 2019).
[21] Blaise Pascal (1623–62), *Pensées* (posth. 1669), "Disproportion de l'homme." http://www.penseesdepascal.fr/Transition/Transition4-moderne.php (accessed July 25, 2022).

size of a spermatozoon head, the equivalent of … 42 kilometers for us!"[22] The spermatozoon is a maximum of 75 micrometres (µm). The micrometre is one millionth of a meter, or one thousandth of a millimetre: 1 µm = 10−6 m = 10−3 mm (0.000 001 m and 0.001 mm). From the microstructure, the living thus passes to the macrostructure. We find this at different scales (see figure 4). This is a strange phenomenon that seems to come from science fiction.

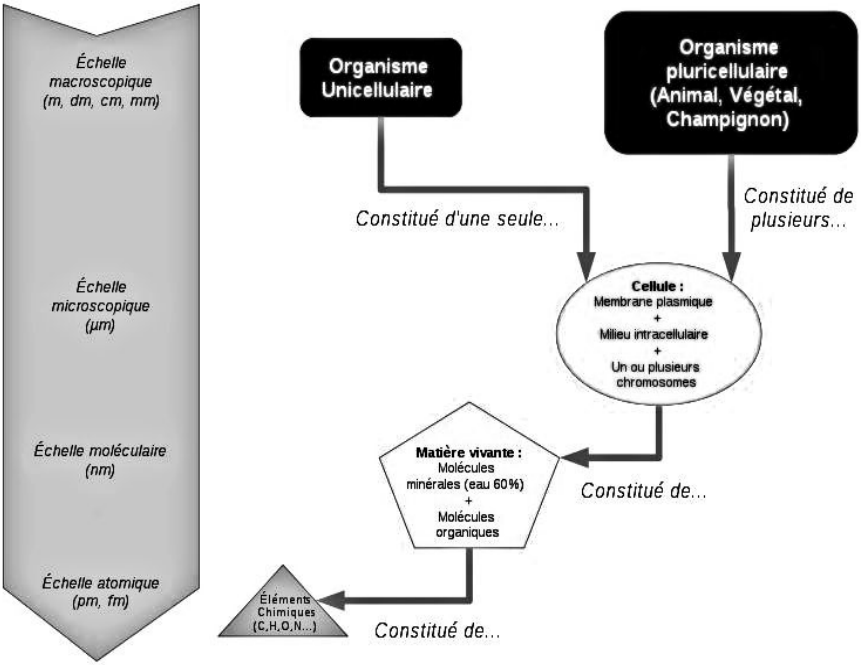

Figure 4. Scale of the organisation of the living world
Source:
https://commons.wikimedia.org/wiki/File:SVT_EchelleOrganisationVivant.svg
(accessed March 31, 2019)

That said, why link the evolution of living things to robotics? The dictionary definition of "robotics"[23] is: "All the techniques allowing the design and production of automatic machines and robots; by metonymy, use of these

[22] https://www.sciencesetavenir.fr/sante/le-voyage-fantastique-du-spermatozoide_114350 (accessed July 14, 2022).
[23] http://www.cnrtl.fr/definition/robotique (accessed July 14, 2022).

machines in a given domain or context." Artifacts born from various projects then applied in terms of material objects are capable of accomplishing a particular task (household, industrial robots, etc.). The sophistication of these objects allows the realisation of projects developed by humans, but which can be adapted to different environments, which corresponds to a form of autonomy.

In the living world, the instinctual substrate works in a similar way. Pelt[24] says that:

> Instinct now appears to be the result of strict chemical determinisms subordinating individuals and species to obligated partners and leading to automated and rigorous behavior of the "stimulus/response" type. (1996, 126)

Between basic instinct posed as a participating parameter of survival and adaptability to a given environment, the unity of the living functions, at the same time, in the register of the reproduction of repetitive behaviours in a given environment (a period of love and associated gestures, for example), but also in that of openness to new behaviours in the context of adaptation to a new environment (domestic animals, for example). As for evolution, it is at the origin of a very important number of adaptive possibilities.

In addition, the basic structure of our universe takes its source from three dimensions: height, width and depth. Within the framework of this structure, a fourth factor will intervene: time. Without this agent, our universe would remain in the state of potentiality. As Martin mentions:

> Time and matter are two sides of the same planned event. It is because time unfolds that the material fits into a given project through a number of transformations that are themselves programmed. (2013, 11–23)

Taking into account the lifespan of a given species shows that, upstream, there would be a form of programming. Each category belonging to the living kingdom has a programmed lifespan: for the eagle, it will be around 30 years, the eel 80 years, the human being 123 years, lichen 1000 years, etc. The time factor is very much like software, the activation of which would trigger the pre-established programming.

[24] J-M. Pelt, *Les langages secrets de la nature* (Paris: Éditions Fayard, 1996), 250.

Table 1. Lifespan of some participants of the living kingdom			
Bee (queen): 5 years	Eagle: 30 years	Alligator: 55 years	Eel: 80 years
Pedunculate oak: 2,000 years	*Ephemeroptera* 2–3 days	Human being: 123 years	Lichen: 1,000 years
Female fly: 29 days	Male fly: 17 days	Sequoia: 6,000 years	Retinal cell: max. 10 days[25]
Source: Schwartz[26]			

1.2 From genetic programming to its lexical-semantic translation

It would seem that, upstream of perceived reality, there is another form of the Real that is being deciphered through quantum physics and genetics, in particular. This form of reality can take shape in language.

The human spermatozoid was discovered in 1678 by the Dutch scientist Antoni van Leeuwenhoek. According to his observations, these cells looked like worm-shaped animals. This announcement was made to the Royal Society of London. If, for the *Homo sapiens*, reproduction is inscribed in the instinctive programming, as illustrated below by this researcher, the rigid morality does not always allow the discourse:

> What I have observed, without behaving in a guilty way, was present in the residue of a conjugal coitus. If your Excellency considered that these observations are likely to disgust or scandalize scientists, I urge your Excellency to keep them private and to publish them or destroy them as he sees fit.[27]

The link between object A and object B, or, in the context of this discovery, the reproduction of the human being, is part of the awareness that Van Leeuwenhoek had about it. As mentioned in the journal consulted, this

[25] Jean-Luc Nothias, 2008. http://sciences-technologies.lefigaro.fr/cellule-duree-de-vie.html.

[26] Jean Schwartz, 2006, 95.

[27] The various references in relation to this discovery refer to the online journal *Futura Santé*, https://www.futura-sciences.com/sante/dossiers/medecine-plus-grandes-decouvertes-medecine-1830/page/7 (accessed April 3, 2019).

scientist "finally suggested that these microscopic creatures swimming in sperm played a role in fertilization. Other scientists see in the spermatozoa simple parasites foreign to reproduction."[28]

As mentioned earlier, all informational databases are inscribed in the universe, but it is through the awareness of the existing link that information becomes readable for human beings. This discovery is one of the illustrations.

If we resume the male and female gamete configuration during human reproduction, the first is dynamic, as stated by Christine Gourier from the Laboratory of Statistical Physics (ENS/CNRS), at the origin of the following discovery: "Without a precise tempo of its long flagellum, it would indeed have no chance of fertilizing an egg! Two oscillations per second for two minutes, with an angle of attack of about 20 degrees,"[29] while the second, the ovum, is static.

What about plants? Pollen grains are produced by the male organs of the flower (stamens). Wind and insects are its means of transport. Once deposited on the flower's pistil (female organ), the pollen grains fertilise the oosphere[30] to ensure the production of seeds.[31] As for the size of the fertilising gamete, it varies according to the plants: between 20 and 30 microns[32] or µm. In humans it is 75 µm at most, as noted previously. In addition, the pollen level becomes high when it is greater than 80 pollen grains per m3.[33]

The linking of these two reproductive substrates in the living world shows that they have common denominators, linked to parameters that differ between them (see Table 2).

[28] Ibid.
[29] https://www.sciencesetavenir.fr/sante/le-voyage-fantastique-du-spermatozoide_114350 (accessed July 14, 2022).
[30] The female gamete in plants which, after fertilization, becomes the egg. http://www.cnrtl.fr/definition/oosph%C3%A8re (accessed July 14, 2022).
[31] http://www.encyclopollens.fr/la-face-cachee-des-pollens/la-carte-didentite-du-pollen/qu-est-ce-que-le-pollen (accessed July 14, 2022).
[32] A micron is a unit of length equivalent to 0.001 millimetre.
[33] https://www.ouranos.ca/publication-scientifique/RapportGarneau2006_FR.pdf (accessed July 14, 2022).

Table 2. Of the common denominator and their parameters in the world of living animals and plants	
Common denominators	
- Microstructure inscribed at the level of μm - Male transmitting organ - Female receptor organ - Transfer dynamics of a colossal number of male gametes - Statism of the female gamete	
Parameters inducing the difference between animal and plant	
Animal species	**Plant variety**
- Emission in a closed biotope (seminal fluid) - Fertilisation of a receptor organ determined at the time of reproduction	- Emission in an open biotope (atmospheric space) - The receptor organ is not determined. Pollination takes place depending on the environment

Within the framework of the microstructure from which all living units come, the male/female opposition, reflected by the dynamics of the emission of male gametes and ovular statism, is transcribed there on our level. In humans, it is reflected in societal structures where the patriarchy is dominant, as well as in language.

1.2.1. Of the genetic status transcribed in the human macrostructure through language

The statuses of male and female gametes fall under both the similar and the different. They are similar in terms of their content: 23 chromosomes that, during their specific configuration and symbiosis at the time of fertilisation, form the bedrock of the future human being in their capacity as a unique individual: "The random loss of a chromosome of each pair allows the fertilization of two gametes between them, the fusion of which will give rise to an egg (zygote) endowed, like its parents, with 46 chromosomes."[34]

As for the difference in terms of their status, it takes its source in the container, the male gamete corresponding to the spermatozoon and the female gamete to the ovum, one being active, the other passive.

[34] https://www.futura-sciences.com/sante/definitions/biologie-gamete-150 (accessed April 4, 2019).

Thus Aristotle associated qualities identified at the level of perception, qualities "opposed in active (hot and cold) and passive (dry and wet), the former acting on form and the latter on matter."[35] The binarism associated with men and women has been the subject of a number of studies where it is shown that, in many societies, the masculine dominates the feminine: the rules of grammar are an example. Thus, within the framework of the agreement of the adjective relating to a doublet[36]:

> According to the usual rule of agreement, the adjective (or the past participle), in a doublet, agrees with the masculine plural when it relates both to a masculine noun (or pronoun) and to a noun (or feminine pronoun) coordinated by and, even when each of these nouns is in the singular, due to the meaning of addition attached to this conjunction.[37]

The anthropologist Héritier showed, through various studies, that the duality man/woman appeared in human society, though transcribed in a different way, as we can see in table 3

Table 3. From microstructure to macrostructure, the rewriting of binarity

Microstructure Active/emitter: male gamete	*Macrostructure* Man	*Microstructure* Passive/ receptor: female gamete	*Macrostructure* Women
Active, rough, hot, dry, tough, healthy, **fast**, **strong**, bellicose, proficient, clear, **mobile**, **outdoor**, superior, **adventurous**, abstract, theoretical, transcendent, culture		**Passive**, smooth, cold, wet, soft, unhealthy, **slow**, weak, peaceful, incompetent, obscure, **still**, **inner**, inferior, **homebody**, concrete, empirical, immanent, nature	
Binarity man/woman			
Active/passive, rough/smooth, hot/cold, dry/wet, hard/soft, healthy/unhealthy, fast/slow, strong/weak, bellicose/peaceful, competent/incompetent, light/dark, mobile/still, outdoor/inner, upper/lower, adventurous/homebody, abstract/concrete, theoretical/empirical, transcendent/immanent, culture/nature, etc.[38]			

[35] Alain Touwaide, "Aristote et les quatre qualités," in *Revue d'histoire de la pharmacie*, 81e année, no. 296 (1993): 107–8 (accessed April 4, 2019).
[36] The set of masculine and feminine forms of a name is called doublet. http://bdl.oqlf.gouv.qc.ca/bdl/gabarit_bdl.asp?id=3991 (accessed April 4, 2019).
[37] Ibid.
[38] Françoise Héritier, *Masculin, Féminin. La pensée de la différence* (Paris: Odile Jacob, 2012), 16.

We find the man/woman association with elements participating in the direct (percepts) and indirect (metaphorical and symbolic representations) environment in the context of ethnological research carried out by Lévi-Strauss:

> In North America as in the Old World, sagebrush is a plant with **feminine**, **lunar** and **nocturnal** connotations, mainly used for the treatment of dysmenorrhea and difficult childbirth. Similar research, focusing on the other plant group, reveals that they are species synonymous, or assimilated by indigenous thought because of their yellow flowers and their dye and medicinal use (to treat disorders of the urinary tract, i.e. male genitalia). We therefore have a set, symmetrical and inverse to the previous one, with a **male**, **solar** and **diurnal** connotation. (1962, 64)

The occurrences "feminine," "lunar" and "nocturnal" are the antonyms of the lexical units "male," "solar" and "diurnal," in indirect reference to the microstructure where the male gamete can be visible, carried out on a scale greater than our capacity for vision (microscope), which refers to the adjective "diurnal" "borrowed from the Latin *diurnus* ["by day"] (as opposed to *nocturnus* [nocturnal])" (Rey 2006, 1108), while the ovum inscribed in the body of the woman remains a hidden element, in correlation with the darkness making any object invisible.

From the table representing the images related to women and men and extracted from the work of the anthropologist Héritier (see table 3), we will resume the lexical units "active" and "passive" and put them in relation with their semantic field within the framework of the proxemics (the real or symbolic distance existing between different units) (see Table 4).

By correlating the microstructure from which we came and the adjectival values "active" and "passive" linked to the status of the male and female gametes, we find the activation of the same semantic field (see Tables 3 and 4). Indirectly, the linked cooccurrences of transmitter and receiver are also included. With "transmitter": active, fast, strong, mobile, outdoor, adventurous; with "receiver": wet, motionless, interior, homebody. The lexical units identified are underlined (see Table 5).

Table 4. Semantic fields of the adjectival occurrences "active" and "passive"	
Active	***Passive***
Agile, active, alert, going, cheerful, ardent, pugnacious, good, bubbly, merchant, diligent, ready, dynamic, overflowing, effective, efficient, enterprising, expeditious, **strong**, fiery, dashing, tireless, influential, juvenile, hardworking, swift, manifesto, militant, busy, operative, proactive, prompt, powerful, radioactive, **fast**, restless, resolute, lively, hardworking, turbulent, valiant, lively, vigorous, violent, lively, zealous[39]	Amorphous, apathetic, sluggish, automatic, docile, defensive, sleepy, weak, fatalistic, frozen, flabby, flexible, **cold**, gregarious, hostile, **immobile**, impassive, inactive, indifferent, rebellious, indolent, inert, easily influenced, insensitive, instinctive, involuntary, reckless, languid, **slow**, mechanical, malleable, manageable, dead, limp, sheep, mechanical, suspicious, nonchalant, obedient, lazy, recalcitrant, reflex, resigned, reluctant[40]

Table 5. Adjectival occurrences in relation to genetic microstructure status	
Active, rough, hot, dry, tough, healthy, **fast**, **strong**, bellicose, proficient, clear, **mobile**, **outdoor**, superior, **adventurous**, abstract, theoretical, transcendent, culture	**Passive**, smooth, cold, **wet**, soft, unhealthy, **slow**, weak, peaceful, incompetent, obscure, **motionless**, **inner**, inferior, **homebody**, concrete, empirical, immanent, nature
Source: Héritier (2012, 16)	

Regarding the etymology of the lexical unit "woman":

> The lexical unit "woman" derives from the Indo-European root: *dhê* meaning "to suck, suckle."[41] The word "woman" comes to us from the Greek *phuomai* (*φυομαι*, what is born) then from the Latin *femina*[42] in the sense of being in the feminine, or *foemina*,[43] which derives from *foetare*, *fœtus*, because, as we wrote in the 19th century, "its natural destination is to beget." [44] [45]

[39] http://www.cnrtl.fr/proxemie/actif (accessed July 14, 2022).
[40] http://www.cnrtl.fr/proxemie/passif (accessed July 14, 2022).
[41] Alain Rey (ed.), *Dictionnaire culturel en langue française* (Paris, Dictionnaires Le Robert, 2005).
[42] Félix Gaffiot, *Dictionnaire Latin Français* (Paris: Hachette, 2014), 658, colonne III.
[43] Ibid., 677, colonne III.
[44] Julien-Joseph Virey, *De la femme, sous ses rapports physiologique, moral et littéraire* (Paris: Chez Crochard, 1825), 2.
[45] https://sites.google.com/site/etymologielatingrec/home/f/femme (accessed April 2, 2019).

This male/female binarity is also reflected in the notions of the strong sex, a symbolic representation of the man and that of the weaker sex representing the woman.

This linguistic procedure thus translates a uniform denominator to the entire world of sexed living. The redistribution of the genetic code is ad infinitum.

This unconscious transfer of a common foundation could be related to "the birth of a new language, that of fractal geometry which describes objects with a particular symmetry linked to an invariance of scale. In this geometry, the parts resemble the whole, except for a dilation" (Sapoval 1997). Language would then serve as an informational transfer. It is, of course, an evocative relation of the elements that form its basis: the relation between the microstructure and macrostructure through the reproduction of similar objects, but not an identical one (active/emitter, passive/receiver), which would require a decoding complementary to that of linguistics. In the context of this study, we will refer to this procedure, whose container is similar but whose content varies, by calling it a "fractal matrix."

1.2.2. Of genetic programming transcribed in the human macrostructure through multitude and language

The number of male gametes emitted by human males is extraordinary: "At the time of ovulation, the oocyte is expelled from the ovary, surrounded by follicular cells, then it progresses into the tube. At the time of ejaculation, 300 to 500 million spermatozoids are emitted,"[46] corresponding in 2017 to the population of the United States[47] (329,153,698 inhabitants) and the European Union in 2015 (508 million).[48] Note that, depending on the studies carried out and their references, the number of gametes presented can vary significantly. From microstructure to macrostructure, the multitude is omnipresent.

As before, we will correlate the organic microstructure and its macrostructure using the communicational tool of language and see what the direct and indirect reproductions are.

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[46] https://www.futura-sciences.com/sante/dossiers/medecine-infertilite-sterilite-963/page/4 (accessed April 5, 2019).

[47] https://donnees.banquemondiale.org/indicateur/sp.pop.totl (accessed April 5, 2019).

[48] https://europa.eu/european-union/sites/europaeu/files/eu_in_slides_fr.pdf (accessed April 5, 2019).

Within the human microstructure, during the emission of male gametes, the programmed objective is the perpetuation of the species through the fertilisation of the ovum. In achieving this goal at all costs, regardless of the obstacles encountered, the phenomenal number of units put in place is a strategy for increasing the chances of winning.

We can exemplify with games like the loto (French game) where the result of the combination of numbers makes winning possible only if the number of combinations played is increased significantly:

> The new Loto is now composed of 2 grids: numbers and number Chance: We must choose 5 numbers among 49, which gives us a total of 1,906,884 possible combinations. Then choose 1 "Chance number" among 10, which gives us a total of 10 possibilities. The total number of playable combinations with 5 correct numbers and the Chance number is therefore 1,906,884 x 10 = 19,068,840 possible combinations! This probability is lower than that of the old Loto (in which you had to choose 6 numbers out of 49, i.e. 1 chance in 13,983,816) due to the introduction of the second grid for the Chance number.[49]

The number of gametes emitted is not structured around the choice of a particular gamete, but around a goal to be achieved. This could correspond to a random experiment which within the framework of probabilities and statistics corresponds to an "experiment where chance intervenes making the result unpredictable (e.g. throwing a dice). Set of all possible results = universe of possibilities = W (Ex: W = {1, 2, ..., 6},"[50] which gives the following result by reapplying it to gametes:

$W = \{300\,000\,000 < x < 500\,000\,000\}$

The major pole around which this procedure is articulated is the objective to be achieved: to have a winner or several winners (twins, triplets, quadruplets, etc.) during fertilisation. The means used is the large number of participants. As Martin mentions:

> This phenomenon echoes conception itself, where the fastest sperm enters the egg. We find this "to live" mode, at all costs, at all levels of the living world. Human societies are also built on this model, and phrases such as:

[49] https://www.lesbonsnumeros.com/loto/informations/probabilites.htm (accessed April 5, 2019).

[50] http://www.irisa.fr/prive/kadi/Cours_LR2V/Divers_Cours/cours-probabilit%E9.pdf (accessed April 5, 2019).