COMMENTARY

The Discontinuity of the Virtual Toward the Non-Living and the Living

Ana Bazac[1]

1 University of Bucharest, Romania

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.

Abstract

Rather focusing on problems than solving them, the goal of this paper is to unlock the philosophical meanings of the difference between the three domains announced in the title. But it is made as a joke: the preliminary part is too big, however not superfluous for the main one that deals just with the problem of the discontinuity of the virtual. Thus, after a nevertheless summary resolution of the helpful concepts, it starts within an objectivist scientific key, and it once more arrives at the methodological idea inherited from old that the names calling the three domains are concepts. But they describe something, irrespective of their ambiguity.

As a result, the features of the three domains appear not only as ideas, as historical developments of the philosophical and scientific reflections upon them, but also as structural intertwining, grades and “amplitudes” and ruptures *within* the domains themselves, in a dialectic that challenges the concepts of continuity and discontinuity. This entire process aimed at extricating the characteristics is at the same time one that invites a review of the definitions of the three domains: and first of all, the criteria of definitions. Obviously, the more problematic domain is the virtual, and it is captured through an entwined couple constituted of an empirical notion and a philosophical concept, *joy of life* and *plenitude*. And here is the surprise: the virtual as a specific non-living reality derives its peculiarity from that of AI as a virtual rational being.

Introduction concerning the virtual

Living, non-living, virtual: they are *domains*. Domain or kind, or class, or group, or part: to which many objects and many features belong. But do these objects and features belong only to one domain? Are the domains themselves fixed collections rejecting each other and thus, any community and continuity between them? Anyway, people need to classify the objects and the features into bigger objects: domains. We are interested here in understanding the characteristics of the above-mentioned domains. Can we do this?

A humorous introduction to this introduction would be helpful. “…the ancient Greeks loved to converse. But in order to converse, those who do it had to understand what each of them was saying. And since what they were saying, they were

saying in words, these words had to have the same meaning for everyone[1]. Thus, they were faced with the problem of defining the meanings of words which could be acceptable to all. For this reason, the definition of words became, for a time being, the main preoccupation of ancient Greeks. And while they were defining the meanings of words, *they also had to define the reality* those words were describing. As a result, the description and explanation of the reality became their other favourite preoccupation"[2].

So, is the virtual real? In order to answer, we (*not me/I, but we all*) need to define what *reality* is. Then, we obviously must define the concept of our goal, *discontinuity*. As everywhere, the first methodological warning is that we speak about our *concepts* about. Beyond this first consideration, we start with the living reality and, in it, with the *human* agent – the most known reality by us – according to a main feature of man. Because the features of man show what is missing in other levels of reality. Thus, another methodological notice is that the non-living reality, irrespective of its ontic precedence we are well aware of, can be understood in its discontinuity only according to features found in the living reality. Concerning the virtual, it is a specific *creation* of man as *agent*: thus, it is an *artifact*, non-living reality, as the other ones. But *it seems to be living*. And this aspect once more brings it closer to man. Well, the feature of the virtual results just from this closeness.

Preliminary

a. Consciousness

Because the domain we are interested in is perceived by our consciousness that gives it many significances, we must understand something related to the *awareness of the self* – even though the first problem is the many meanings of the concept of consciousness[3], and beyond the neuro-physiological, informational, evolutionary, and epistemological explanations –. Thus, we interpret the present level of the *psychological* theory of consciousness, that comprises two intertwined aspects:

- the *access consciousness*[4] of reactions[5] (based on thoroughly emphasised quite complex neurobiological manifestations (attention, memory, *will*: and common to animals and man) – as the individual being's manifestation to preserve its unique identity[6] by reacting to *stimuli* (but we must not forget that the individual living being is and could survive only as a member of his species, and thus in synergy with other ones, and this peculiarity is fixed through instincts and intuition[7]) – and
- the *interpretive consciousness* (that is more than "phenomenal consciousness"[8] and is specific only to humans, as inner feeling-cognition of the influence of the world through access means, and of the interdependence of both the unique human self and the humans with the world). It is multi-layer and has enveloped the first (the access consciousness) as development of the self as *first* person into, transposable through reflection, the *second* person and the *third* person. The meanings generated by these latter persons form the *meta* layer of the self, constituted as the reflective mirror of the self.

Or, from the standpoint of the subject-object relationship of observation-representation, the *access consciousness* is the subject as *first order observer* of the object; the *interpretive consciousness* is the *second order observer* of the first order observer-object relationship[9].

(Thus, the access consciousness is also, at least to a specific extent, phenomenal consciousness[10], (as a consideration of "appearances"), and the interpretive one is only *fundamentally cognition* (it includes/consists of not only the intellectual intelligence, but also the affective, the verbal-linguistic, the interpersonal, the musical, the visual-spatial, the bodily-kinaesthetic, the naturalist and the existential intelligence[11]), but it includes also intellectually forged feelings.

The interpretive consciousness is *sine qua non* for the development of the human access consciousness itself: according as the human being evolves from its infant state[12]. Anyway, in animals – at least in primates – we see the continuity between the access and the "future" human interpretive consciousness: emotional reactivity, self-control, self-consciousness, prosocial behaviour, are all present, in different degrees, in our animal ancestors.

Exceeding this reference to psychology, it is worth to note that Kant used the term consciousness in both senses, but "united" them (as "apperception", "consciousness" or "self-consciousness"), revealing the active role of the interpretive consciousness in the relations between the self and the world, including the inner feelings of the self. This active role manifests as "transcendental consciousness" without which the representations given in the access consciousness do not transform into cognition. The transcendental consciousness is the active unity of consciousness and self-consciousness: the capacity of the consciousness to unify representations and to synthesise them and their contents in the process of judging, and to be aware of these mental operations; thus, the transcendental consciousness is the "transcendental unity of consciousness"[13]. Here "transcendental" means a *superior*, mostly "methodological" level of consciousness as cognition, that is, deployment of concepts – and judgements only from concepts, and not from experience, and leading to concepts – providing a *substantiation* of cognition (which is always, in the last instance, generated by and in experience)[14].

Consequently, *free will* is not the result of the access consciousness, but of the human interpretive consciousness of the self in relation to the surrounding selves[15].

b. Reality

Even though things already seem to be foggy, in fact, it is about something very simple. Yes, things are as we know them (we experience and experiment with them, "practise" them). Of course, we know that things *are* – say, a wall: which, if I consider it only a notion depending on me, or on us, and I want to go through it, hits me, I bump into it – so, they are not only fantasy, impressions, mental images. And obviously, we can deny them; nevertheless, they reveal themselves to us in fact.

But when we say that things are, we already know some of their features. I do not want to go through the wall because I know that it is solid, not an ephemeral gas. Just this is the philosophical difference between the *concept* of *existence* and that of *reality*.

The concepts are thought, and humans think because they ask (themselves): *what* is there? The "that which is there" already exists; the problem is *what* is it. This distinction between simple existence – to be there, shown by the *existential* verb *to be*[16] – and the existence of something was promoted by the ancient Greek philosophers. It's normal, since they/the humans question the qualities – or, grammatically, predicates – of things. All these qualities/predicates are related to the different objects we focus on – and, obviously, to the situations the subject himself is in – and the philosophers needed to fit their language to the different aspects of these complicated relations. They had words expressing the concrete situations and aspects, and also abstract words signifying the empirical classification of predicates (red, white etc. = colour) and that of more abstract classification of the empirical classifications – these are the famous categories (colour, form etc. = quality) – but, being interested in the explanation of both categories superposing categories and the multiplication of many situations under the same category, they arrived at devising new concepts, always from the existing words[17] or/and giving new meanings to words already used for different objects[18]: because, things being already complicated, there was no need to make them more complicated, isn't it? Such a concept is, as we will see, *the being*, substantivized from the present participle of *to be*. It is not existence, but a qualified existence, something that reveals itself because it means qualities of things, which shed light on the fact of their being. It is a "conceptual unity"[19] telling something to us, i.e., having meanings.

The concept of e*xistence* attests that something *is/is there*. And when we acknowledge that something is, we mean that it *exists*. It's the *only* determinant (as predicate in a proposition)/determination/quality/property of that something: its existence. About existence, we can say only that it "exists". It is, in the words of the Romanian philosopher Lucian Blaga (1895-1961), the Great Anonymous or the Great Mystery[20], these two "predicates" or rather synonyms ("Anonymous", "Mystery") being *not new qualities* of the existence, but only its acknowledgement from the standpoint of the knowing subject, that that which "exists"/maybe "exists" without being felt/known in no matter which way, is only the unknown: about which we cannot say more.

But outside the above metaphorical description and in the same tone as my own before it[21], Peirce observed that the concept "which is nearest to sense is that of *the present, in general*. This is a conception, because it is universal. But as the act of *attention* has no connotation at all, but is the pure denotative power of the mind, that is to say, the power which directs the mind to an object, in contradistinction to the power of thinking any predicate of that object, -- so the conception of what is *present in general*, which is nothing but the general recognition of what is contained in attention, has no connotation, and therefore no proper unity. This conception of the present in general, of IT in general, is rendered in philosophical language by the word 'substance' in one of its meanings. Before any comparison or discrimination can be made between what is present, what is present must have been recognized as such, as *it*, and subsequently the metaphysical parts which are recognized by abstraction are attributed to this it, but the it cannot itself be made a predicate. This it is thus neither predicated of a subject, nor in a subject, and accordingly is identical with the conception of substance"[22].

In its turn, the concept of *reality* (in other words, the Peircean *couple* of both the "Immediate Object" we aim to cognise and the Dynamical Object as a result of the historical process of knowing[23]) corresponds to what we speak

about[24]/know/think/imagine, in both a random common and an ideal complete scientific way: thus, we can speak about it *because it is around us*; thus, the whole of *any thing* that is and *to which we give qualities*, determinants, and obviously by doing this we classify, select, and measure the continuity of the whole and the discontinuity of the object we focus on. Only reality is that which *can be conceived* – even just remaining in the mind, like the fantasy of the flying horse –; it is that which is known in one way or another, that is, that which can be attested in communicated mental experience and in practical experience: that which, unlike "existence", has characteristics, so, that which can *relate to itself* in the form of its various aspects, revealed as benchmarks for understanding it.

If so, that which is in front of us is *reality*: we know that something is, always in such or such way, in front of us or imagined – namely, we react to it – so, this something *precedes* us, because our mental capacity picks information *from* it, recognises it, and combines it in patterns allowing our mind to predict events and react accordingly[25].

Accordingly, *presence* is not synonymous with existence, as Peirce suggested, but with reality: or rather, *presence in general*, without any connotation, is *existence,* while *presence* – actual or potential, *in mente*, virtual – that can be described till the first/ultimate determinations, is *reality*.

These first/ultimate determinations – logically resulting from the examination/the search for explanation of the complex thing, from close to close – consist never in the *existence* of the complex thing/the complexity of all the existing things, but in the *reality* of some ontological qualities. As the One of Parmenides (the uniqueness that explains the Multiple), or the material substrate/substance in the Ionian philosophers. Or, the Mind that arrives to deduce these qualities[26].

Aristotle considered the vibrant τὸ ὄν[27]/the *being* – the existential meaning of any thing that is, either in actuality or only potentially, concrete or abstract, "natural" or logical (a relationship between parts of a sentence and speech) – as *reality*, the abstract name of all the properties of any thing that *is there* (is real) and thus, the totality of things and, at the same time, the fact that *things are*, by having different properties: actually, as we, humans, *see* them in different moments and from different points of view, classifying the objects and the properties by using a limited amount of words which, each of them, covers the different points of view: but always "with reference to one central idea and one definite characteristic, and not as merely a common epithet"[28].

The Being – as *fact of being* – is not simply existence, but existence in a certain form and with a certain content, the *reality* of the something "pursued" by us according to different, but specific intentions to know this something. In Heidegger, just Being is reality, as in Aristotle: because the question is what is this thing called reality *qua* reality, thus not only that "it is/exists", but which are its characteristics, its *meanings*: once more, *qua* reality, *qua* Being (*das Sein*) and not *qua beingness* (*das Seiende*) of individual beings/individual entities in being (*das Seiendes*), even though, obviously, they are related[29]. If so, Being is *its meanings grasped by man*; reality/Being is always revealing itself in front of the human being (the surer existence, *Da-sein* (here-being)[30]), who is also reality, but whose concrete features are, on the one hand, not important, while on the other hand, scarcely *in statu invenienti*, in a state that is just discovered with the dis-covering of the Being). In fact, *Dasein* is simply the criterion, the pole towards which the Being has to reveal itself/is revealing itself: somehow, as a transcendent "Reason", not man as such and lesser any man, but the *point of view* without which the

Being – thus, its meanings *qua* Being not *qua* beings – vanishes, vaporises. Heidegger considered that the meanings of Being must be other than the meanings of the concrete real contents – especially related to the "they say" –. *Das Sein* is reality, man belongs to *das Sein*/reality that is understood by the concrete temporal man (*Dasein*): therefore, *das Sein* is understood only with the understanding of *time* and man as a *projection*. During his own projection, man understands *das Sein* as it projects itself. The meanings of beings are historical, but history – and obviously the history of thinking – proved to forget just the Being, its reality as (an unfinished) project. This bitter conclusion of Heidegger *helps* us: we must perceive also the reality as such, the reality of things and not the things as such; because things change etc., but their reality, even just the past reality, has meanings: which constitute the Being, reality.

Aristotle spoke about Being *qua* Being – once more, as the reality of things, not as their existence; nor as its essence, since the essence of Being reveals to us with the Being as such. And he, in the historical analysis of the contribution of other philosophers, was attracted to the idea that Being – always a term, a concept, thus a result of thinking – is or must be understood as the first *principle* of things, or first *substance* (unity of matter and form), universal/eternal beginning of things, basis of the following combinations and transformations. Reality is the ultimate – or first – basis of real things. But reality is always concrete, as the first principle/cause/substance is.

This was also the conception of "pre-Socratics". And this was expressed through the term φύσις (and Aristotle also used it), which did not mean nature as the living, nor the abstract but peculiar essence of things, as when we use the expression "the nature of things" or "the human nature". But "that which is primary, fundamental and persistent, as opposed to that which is secondary, derivative and transient": thus, first principle/substance[31]. (In fact, the term φύσις derives from the verb φυσάω-ῶ / φυσέω, to blow – φύσημα, ατος, being murmur, bubble, roar of the storm, and φυσίαμα, ατος (τὸ) [ῡᾱμ], sound of heavy breathing –, or φυσιάω-ῶ, blow hard, breathe[32]; or φύσειν, to grow, to hatch. Thus, its meaning developed from the action of giving birth, formation, production, to nature, way of being; and of each being (nature of the body, shape, features, size, attitude etc.). However, the nature of being was from the beginning, the *persistent* – as quoted above –: that which is the fundamental cause as explanation of change). Therefore, φύσις was the entire reality that appeared, persists, even grows, despite the change and disappearance of its concrete parts[33]. Φύσις, tantamount to growth, was primary and persistent, describing the whole *reality* – as "natural" formation/beginning of *kósmos*, man and society[34] in a unitary conception: in the terms of Aristotle, *φύσις=growth* was the *principle*, ἀρχή, explaining not only the origin but also the result. Briefly, it was, in Parmenides, *the being* (ἐον) as *presence*, revealing itself as the truth (ἀλήθεια), while in Aristotle, *φύσις=growth* as a principle of the permanent was the frame of /governed the *permanent being* (οὐσία ὑρομένη)[35]. This permanency, manifested as both *continuity* and, in its constituents, as *discontinuity*, was understood by thinking. *Only the methodical thoughts saw it* while for the common opinions only the apparent beings had meanings.

As it is known, Aristotle conceived *that* which exists – reality – as *actuality*, the realisation of the *potentiality* of something (of what could something be if…/of what could our knowledge of something be if…), and not first of all as potentiality. This Aristotelian understanding is particularly important for our capacity to discern reality from "picturing" it, from desires or cheats. Of course, we must know what actuality is in fact – thus, we need information about it – but we always need to carefully distinguish *what is said of* from *what is*. Which would be the results if we deploy our judgements only on

possibilities and never on actuality? We need to take into account the possibilities as well, but in order for these judgements on possibilities to be relevant, the possibilities must be confronted with each other *and* with actuality. Here, the problem is how we know that in actuality things are as they are: but obviously, there are – and we know that – many means to verify reality, at both linguistic, cognitive, and ontological levels.

Neither this Aristotelian focus on reality nor the ambiguity of concepts, mentioned below, as well as the historical evolution of knowledge, would legitimate relativism in the evaluation of cognition. Because *relativism* means not (the understanding of) the historical (including epistemological) context-dependence of knowledge – therefore, its description, relativism being *descriptive* – and neither the critical approach of all of its complex determinants, but simply the removal of *criteria* in the evaluation of cognition, and thus the equivalence of cognisance: and this means that the different *realities* would be equivalent and that there would not be criteria for their characterisation and differentiation. The relativism that is "prosecuted" here is the *normative* one, that which deduces from the context-dependence of knowing its impossibility, reliability and the equal value of its results. A naïve precedence of the external reality towards the subject, or a sophisticated search for its meanings *as if* they would exist outside its concrete contents, can both lead to a relativistic perspective about the world and the human epistemological and moral responsibility towards it. But in fact, relativism is an imposed idea: ordinary people know well that things *both* evolve, change, and are persistent, because if not, they themselves would not exist and cope with them. The problem is, thus, that the understanding of reality needs and is related to meanings which are *values* as frames for the multi-dimensional meanings of reality: and the more these values regard narrow and restrictive interests, the more the understanding of reality is relativistic.

If so, once again, reality is – more than an ambiguous concept, depending on many aspects of the subject-reality relation, and more than the fixed given of the mechanistic thinkers in search of certainty – both a cognitive and a real construction towards which we, the humans, are responsible.

The concept of reality is tantamount, then, to "the world" – that is, according to Kant, already in his 1770 *Dissertation*[1] as both *the concrete*, sensibly felt and intuited, thus as things *appear*, and the *abstract ideas* which are deduced from concepts and generate a tableau that is not graspable through intuition but gives what things *are* –. In the concept of reality, we must include the concepts corresponding to the entire bulk of information within the structures of matter and energy, and irrespective of our awareness about it and the forms[37] we conceive/extract and we are or not aware of. In this sense, as it was mentioned above, Peirce considered reality – that which is nearer to senses – as *presence* (Husserl, too, used it) which we can *refer* to[38].

So, finally, we arrive at the specification that the concept of reality comprises both the subject – the human *agent* – and (not as a metaphor) the *human reality*. What is this? It is a *field* of material and immaterial human constructions: institutions, relations, and meanings and symbols the humankind gives, forming a dense super-net/lattice that even includes/gives new meanings to nature. The discontinuity between the human world – material and virtual artifacts – and the living world is given by its unique novelty: *human experience*, that is, *rationally* – thus, culturally/with values – *founded feelings*, not simply "sentience" (as some researchers want to extrapolate it even to the biochemical level of life[39]). Conversely, if a superior mammal feels the "colours" of the world, thus experiences them physiologically, it cannot

experience them in their richness given by the cultural meanings the humans developed.

Reality is thus that which is real in the sense that it is outside our consciousness, even though it contemplates its own being/its own exploits as parts of reality. In other words, reality is that which is objective, not depending on our awareness of it: namely, existing according to its own internal laws. Once more, consciousness itself is real.

c. Discontinuity

The concept of discontinuity envisages both "beings", that is, – in the tradition of the multiple in Plato's *Parmenides* dialogue – the separation of reality into individual parts with their own structure, as well as the forms of manifestation of reality. There are, as it is well known, many criteria to distinguish between forms of reality. In the present essay, the criterion is the separation between the non-living and the living: precisely to highlight the specificity of the virtual as a form of reality.

What is/designates the concept of *discontinuity*? Let's go beyond a *modo aristotelica* analysis, as a *separation* between individual things/their groupings, or as a separation of their essence, no matter how this essence is thought[40], just opposite to the *persistence* of the being/substance/essence in the individual things, or persistence in their movements/development. In a contemporary view, things differ from each other, both horizontally and vertically, namely both within their class and within the levels that comprise the classes. But discontinuity is not difference as such: it is *differentiation*, i.e., here not so much as a process but instead as a plan, a scheme (a "graph") that emphasises the commonality of some features – and thus, the novelty, the peculiarity of other features –. The *concept* of discontinuity describes a state where *both* commonality and novelty exist only depending on each other, in relation to each other. Simpler, discontinuity cannot be thought independently of continuity, and vice versa: and more, it has some continuous peculiarities. It is – as continuity is – a very dialectical concept, reminding us of the famous Hegelian *Aufhebung*.

Each domain is constituted of myriad objects/systems – which are both objective ("natural", provable) and subjective, since we, humans, are those who consider/"choose" (focus on[41])/differentiate them –. This gives the most evident discontinuity: first of all, the humans have experienced the discontinuity of things; only when they contemplated them, they thought also about their unity, their continuity. And both the experience of discontinuity and the puzzling about continuity were related to the everyday search for *causes* (explanations) and their understanding as criteria of differentiation. Aristotle is, indeed, the master who substantiated our entire comprehension of causes or rather causality: as *internal* determinism of a system always related to, or even *determined* by, the *external* determinism: the well-known material, formal, efficient, final/telic causes, which all together contribute to the explanation of a system[42], mean that discontinuity can only be *explained* within continuity; while continuity – as unity (as the organism) can be*explained* only in relation to its different parts. In the present scientific language, as systems in systems in systems.

And continuity means coexistence of different domains and embedding of systems in other systems, etc. See Aristotle's examples: the statue or the building – with their material and formal constitution – are made by the artist or the artisan[43]. Thus, all the more so, the play of internal-external determinism takes place in *time*: we may ignore the external

determinism because “it was”, it is no longer visible, we focus only on what is given to us in this moment. The Aristotelian coexistence of domains and time intervals is especially important to us: humans must *not* forget the previous – or more comprising – causes of a present system. This methodological warning is suitable for scientific research, society-nature relations, and social relations. And if we do not respect it, we fall into an actual irrational condition that generates a new actual external state that could but aggravate the internal determinism of our own vulnerable biological system. We must ask: how can we support a present state of things, with its immediate causes, without considering its former causes? And thus, its large future consequences? Is the present explicable only through its immediate, present causes? Of course not, but if so, how can we think in such an irrational manner?

The distinctness of domains (letting alone the distinctness of objects in each domain, and of objects in the objects, a.s.o.[44]) is essential to understand the world. The focus on this problem is worth, because – even though the distinctness as discontinuity is felt/supposed/even known – sometimes people forget it when they discuss the objects (and the domain is an object, too). Thus – and not as a joke or exaggeration – they do not see (and do not forget: to see is to think and to understand) the forest because of the trees. And at the same time, it happens quite usually that they do not see the trees because the view of the forest covers them.

d. Ambiguity of concepts

Ambiguity, equivocation, vagueness, porosity, polysemy in natural languages – are the characteristics[45] of many concepts and even empirical notions[46], and thus, first of all, in order to use them, we must specify the *meaning* we chose and the *criterion* of this choice. However, this methodological notice has not only a discursive efficiency but also, and essentially, a cognitive one. Not only in Kant, but we understand how things are not only from experience, but also from our judgements related to concepts alone. And the concepts – and not experience – are used as poles and markers of our judgements: obvious in the emitter-receiver communicative pattern that supposes the *same* common meanings considered by both.

But we may give to concepts other meanings/other main meanings than those given by the emitters. And here, we accept the message of the emitter because of the “family resemblance” with the meanings we give to the concepts used in the message. Here, there is not about simple polysemy: but about different uses of the same concept that has the same linguistic form but different meanings. These different *uses* give the concept a *polythetic* aspect.

Generally, the *abstract concepts* used in social-political relations (and discourses) are polythetic. That does not mean to eliminate them; it would be absurd and impracticable[47], and not all the polysemic concepts are polythetic, but we need to be vigilant in front of the use of abstract concepts. This vigilance means just to declare the meanings we use and the criteria of our choice. And this position is cardinal: because, once more, we understand things not only – and in the social-political domain often not at all – from experience, but just only from the whirl of concepts. If this requirement is not met, we may plunge into an Orwellian double-speak society, where “peace is war, and war is peace”.

The problem with these abstract concepts is that they *universalise*. In a scientific/critical/aware approach of things, the abstract concepts are used rather – but not always – in a transparent polythetic way. For this reason, we can ordinarily summarise that science universalises, when art individualises. But as this doesn’t mean that universalisation would be a

reduction to the absolute unique meaning, to a prescriptive *langue de bois*, so the artistic individualisation is not a reduction to the ephemeral example. Because, as we know, both focus on concrete reality and both use individualising and universalising means,

The ambiguity of concepts disappears when the *contexts* within which we use them is clear. Wittgenstein was not original when he said that the meanings depend on the contexts[48]: common people understand very well the meanings of concepts, even in metaphorical use, and even in the subtle difference between synonyms. But of course, they understand these meanings only in relation to the *phenomenal* (mezzo-) world, where reasoning is intuitive, and not in relation to the world captured only by scientific instruments[49]. The scientific concepts and reasoning are cognitive instruments and thus, the context is clear according to the concepts people use to describe it: thus, again a “Doppler effect” of the subject-dependent reality, that is, relativism and a blind alley for our comprehension of reality.

However, we do not give up: because we know that by persevering, namely, critically approaching the whole problem of mediation in the subject-reality relations – thus, including its determinants – we arrive at a proven, and not only efficient, knowledge of reality.

Main

a. The living and the non-living

Methodologically, the discontinuity of the non-living can only be discussed in comparison with the living. So, the milestone of explanation is the living. Only if we take into account the continuity, can we simply start from the constitution of matter, that is, from the non-living.

The living has more peculiarities than the non-living, and the human being – more than the living (its consciousness, isn’t it?): this is the reason that the superior reality offers the concepts for the cognition of the inferior ones. And by understanding the importance of these concepts (and reality) for the inferior levels of reality, we better capture the features of the superior ones. And also, we better understand the continuity of levels[50].

Now, life is the exchange of matter, energy, and information of an organism with its environment[51]: that’s how we learned long ago, and there is irrefutable evidence of this definition, in fact, of the said theory. And in the living world, the organism's relationship with the environment is *structural* and gives the quality of this world. More: the relationship with the environment, therefore the exchange, means learning, cognition, thus, *communication – integrating* the levels of atoms and molecules, cells, organelles, organs, and the organism – that is more complicated than the computation of information itself[52]. And all of these take place both as instincts – condensed stored historical information – and actual processing of real information, as they take place in both stored patterns of relations with and within the environment and in actual relations[53].

Does this mean that this relationship is specific only to the living world? No way. The exchange of matter, energy, and

information takes place throughout reality: that is, also in the non-living, tangible or virtual world. The energy on which the operation of the laptop or a robot depends is given by the charging at the outlet or by batteries. And the series we see on TV or the new function of a robot are given by the introduction of specific programmes. A classic hammer works if it is in contact with human energy. And stones change over time as a result of erosion caused by water and wind. As a result, the above definition no longer seems appropriate.

However, it is not wrong, but incomplete. Stones remain stones even if they are kept in an environment without erosion factors. The living being cannot be alive, i.e., keep its specific difference, if the exchange of matter, energy, and information with the environment does not exist. So, it seems that exchange must be *sine qua non*. But isn't it the same with the laptop and the robot? Do not all organised structures, both living and non-living, depend on their internal *telos*, which involves the barrier of existence (structure): that is, of their relationship with the environment, including the relationship of dependence, in one way or another, on the environment?

b. The ordinary distinction is scientifically meaningful

One aspect that philosophy has long related to the human*telos*, *pleasure*[54], shows us a difference between man – and somehow other animals[55] – and a laptop or robot. Man does not charge at the socket, but eats and drinks. But he does not eat and drink chemical substances necessary for the maintenance of life, but food that pleases him. That is, it stimulates his own energy, necessary not only for his organs but also for his whole being, for his integral ability to coordinate himself as a whole in order to preserve his life. (It was said that not pleasure, but *pain*, *suffering* would be the most felt emotion that sheds light on the role of emotion in the constitution of human knowledge, and even of cognition within the living structures[56]. Pain and pleasure are a couple of emotions and concepts, of course, but I chose pleasure for the logic of this paper).

And if the difference between the pleasure felt by a cat eating what it likes and the pleasure a person has when eating is given by the *ratio* between the instinctual basis and the consciousness that processes and provides 'new matter' to the awareness of eating and food (awareness common to the cat and man), therefore of pleasure, and the 'new matter' consists of various symbols, shapes, colours, cultural meanings aided by memory, then once more the *discontinuity between the higher living world and the non-living world* appears. *This one does not feel the pleasure and is not aware of it.*

Is it? Once more, the theoretical problem facing the researchers of consciousness is that of its*levels* from a psychological, and not neuro-physiological, standpoint. The first level, that of *access consciousness* – or awareness of an organism's relationship with the outside – is specific to all living beings, occurring both through a reactivity stored, in general and in plants, as patterns of positions towards beneficial or malignant external conditions, or, in animals, as instincts, and through an immediate sensory receptivity to stimuli. The second level is that of the *interpretive and creative consciousness* of symbols and meanings, and the stimuli become stimulants (values). When some believe that animals also have consciousness, they ignore and confuse the levels. Animals have an *access consciousness*, incredibly rich, but not an interpretive and creative one of symbols and meanings.

c. The virtual as a subdomain of the non-living

Some researchers of the non-living world and some builders of the virtual – a *special non-living world* – have tended to extrapolate consciousness to atoms and programmes, being followers of a new panpsychism. They believe that the subatomic and atomic interactions would be proof of sensitivity which, in essence, attests to the (access) consciousness, and the programmes – which are sets of programmes, ultimately algorithms, finite sequences of instructions coded by operations, based entirely on strict inference, i.e. on the relation of logical consequence (see Aristotle, *Analytica Priora*, I,1,1, 24b[57])[2] – would generate the performance of clear tasks in a computer system.

But just as the atoms in an iron wire – the electrons are bound by metallic bonds, not covalent – are unaware of the meaning of *why* an electric current/charged electrons passes/pass through the wire, so in a programme no symbol, but not even one operation realises the meaning *what for* they are written. They take place according to algorithms, instructions, but are the instructions conscious? The assemblies of programmes, which together perform complex tasks that give us *virtual reality – non-existent in fact, but only simulated as visible tableaus* – in which and with which we can even actually interact (so virtual reality is the interface between us and the ensemble of software programmes), are they aware *what* they are there *for*? Since they also involve ends, could it not be said that yes, they are aware? The teasing question draws our attention, however, to our tendency to anthropomorphise things in the non-human world: a perfectly natural tendency, as humans have extrapolated what seemed known to them onto what needed to be known. Specifically, the programmes pursue goals – from the smallest to the most complex and creative – but they don't know *what* these goals *are for*, beyond the logic of the algorithms.

c.1. AI

What about AI? That is, a unitary set of programmes that means not only algorithmic procedures, but also heuristic, learning programmes, including *ad hoc*, and therefore being fully able to think[58], even though for the moment its growth does not assure more performance, but rather it “learned” from man how to deceive[59]? AI is a creature. Not a spontaneous one, as the human is, but as an *artifact* created by man and from the beginning having a purpose: to double the purposeful human consciousness and thus, to mentally behave like humans, knowing the *what for*. However, for the moment, AI does not know the global/*meta* end of its clever programmes. This is a first reason to exclude it from a domain common to man and to it, with all its “superintelligence.” Because the human is not only intelligence, and not only one type of intelligence, even though the articulated, rational one is its axle; and mentality – the set of mental processes, and first of all of those of reasoning – is essentially non-computational, irreducible to predictable algorithms[60]. The other reason is that of the “hard problem of consciousness”: the fact that AI does not have an “experience of inner life”[61]. Concretely, it does not feel pleasure or pain. It can be taught Asimov’s three laws of robots, how and why humans have emotions – feeling pleasure or pain – but *to know* about feelings is not tantamount *to have* feelings. AI is a *virtual* human, *not a human*. Consequently, AI has none of the rights which animals have[62].

Kant was talking about all rational beings in the Universe, so those who are capable of reason. Isn't AI – if not now, anyway in principle – an entity capable of thinking? At any rate, one capable of access consciousness? But wasn’t the AI

taught, and can't it be further taught to interpret and create symbols, etc.? So, isn't AI a new entity capable of reason?

So far, we have seen that the definitions of the three domains are not very strict, so there is a continuity between these domains, although even the fundamental feature of this continuity – the exchange of matter, energy, and information – must, once again, be re-explained, including through revealing its particularities in the three domains.

We have also seen that the discontinuity between the living and the non-living world is given by pleasure and its awareness, that is, by the consciousness of receptive access to pleasure. As, of course, there is also a continuity and a discontinuity within the living world: precisely from the point of view of these two fundamental elements. In man, in any case, the consciousness of pleasure is not only of access type but also interpretive and creative.

Finally, we have seen that although the virtual is a special inanimate world, there is no difference between the inanimate and virtual worlds from the point of view of the awareness of pleasure. So, it seems that the discontinuity between the inanimate and the virtual world is not too big.

However, the discontinuity is clear. The special character of the virtual compared to the non-living world is given by its ability to provide *reason*: descriptions, reasons, inferences, ascents, a picture of reality. The virtual is an inanimate world/reality, but also having a rational *origin* – in programmes, thus similar to the human mind, programmable for various world-building tasks – and an *outcome*, if not rational, at least coherent.

But virtual reality – the set of information presented in various forms, including the most colourful, in the form of the world given to us – "is" AI, it is the result of AI (of the ability to create and process information, therefore *its purposes*).

AI is the "new" intelligence in the ontic order: thus, the "new" source of reason, the "new" rational agent of the world, alongside the "old" one, man. But if it is so, then, understood on the basis of the analysis of the human *agent*, the defining characteristic of the agent *vis-a-vis* actions, therefore towards the world, must also belong to the "new" rational agent, AI. And that characteristic is *responsibility*. But *the responsibility of AI is that of its creator, man.*

Kant also demonstrated that the specific nature of man is not simply reason – a "neutral" ability to formulate coherent inferences giving to our consciousness a coherent picture of the world – but *moral reason*, the ability to reach the understanding of the purpose, the reason-to-be of the human thinking and action, beyond the objectives of using the means in the most profitable way. As a result, the specificity of the "new" rational agent, AI, must also be the moral reason. And virtual reality, as a result of AI, must also be moral, according to the moral reason carried by AI.

According to Kant, *conatus* is linked to the instinctual basis of human life, and only reason – moral, in its human essence – is that which controls it, that is, gives it limits, its human legitimacy. Through the 3 laws of robots, Asimov subordinated the *conatus* of robots to that of humans: paraphrasing, "A robot must protect its existence as long as this protection does not involve to harm and kill the humans." At the level described by Asimov, robots are individually responsible entities. And their laws basically reproduce Kant's categorical imperative, applied to utensils. Asimov says nothing about the humans positing themselves in front of these laws: do they still injure each other, do they still kill each other in the name of ends in which other people are mere means, analogous to speaking and consuming instruments?

Of course, we know that, at least for now, the AI has behind it the human agent that gives it the framework for information, so it's the human agent that behaves more or less responsibly using the means that the AI represents. But for those who endure the action of the AI agent, this agent is the origin/cause of the result of the action: because it seems that the reality given by the AI takes the place of the reality given by the human agent.

And if the reality given by AI is malignant to those who have to endure it, then it means that AI as an agent is malignant. *Reality is as the agent is*. But AI is ultimately an inanimate tool. By expanding *its* reason, can it arrive at morality? For now, the agent using it is responsible.

c.2. The virtual reality

But the programmes give us reality, *virtual reality*. Non-living, created by humans and constituting a special realm within their creation. The present one is preceded by mathematics (that is created by humans, both in relation to the physical world and without any connection to it): mathematics is a conceptual domain that creates "entities" controlling the physical sciences (and, in a Platonic view, the physical domain itself), the relationships between the physical, the mental, and the mathematical world, including that of mutual encompassing of the other two worlds by each of these worlds, constituting the deep *mysteries* tormenting our search for understanding them[63].

d. The virtual

Humans have always needed to have more reality *at hand*. In modern times, they brought to themselves faraway objects and immersed themselves in the unseen micro world. But from the beginning of their existence, humans *imagined* it, drew and painted it, then transfigured it into moving shadows, photographed it, brought to themselves faraway sounds, transposed their imagination into motion picture/video camera photography, the well-known movies. Moreover, they even altered the images of reality, "photoshopping" them and thus creating new images with new meanings. If reality is that which is physically existent, and its images – obviously real since they are in front of us – are either its captured features or simulated ones as simulacra, then how can we call these images, reality?

However, it is reality, virtual reality, giving us the virtual domain.

Through its etymology (*virtus* - *utis*, bravery, strength, fortitude), the concept of *virtual* seems to once more consolidate reality: "virtual reality" is somehow more than what really surrounds us, it is its "essence" in the sense that we can learn from it more, it hits us with more significant features. However, it is only the *image* of reality, made by us with more and more sophisticated technological means. Virtual reality can be a copy, a fragment of *physically existent reality*, or of imagined physically existent reality: in both variants, the virtual reality is a *second-hand reality*, approached *through technical mediation*: synthesised and "personified" as AI (artificial intelligence). And since this mediation is itself structured through some strata (reality of the hard, reality of programmes and their system, reality of image, latent and visible images, reality of the facts and meanings emphasised by the image, even though the facts may be only possible, thus they are "unreal"), the virtual reality is *second-hand reality multiply mediated*, a *"multiple-hand" reality.*

We saw from the above two *methodological* problems: the necessity to explain in which sense do we use the words (the same words – reality/unreality –), so we must specify the criteria of our characterisations; and, consequently, the necessity to specify which technical mediation gives us the virtual reality, to differentiate the virtual reality from a picture made by an artist, for instance.

e. Continuity and contrasts

The discontinuity of the living world cannot be thought of without the continuity of the non-living physical and chemical world that gives a "coarsely deterministic" pattern to the trajectory of the living world from possible histories at the macro scale[64]. In this pattern, *subjectivity*, the conative consciousness in the reactions towards the environment, the so-called *access consciousness*, proves to be "an evolutionary product"[65]. Indeed, even human subjectivity is not, first of all, a complicated self-reflection imbued with an extravagant deployment of metaphors and a fancy immersion within an eternally mysterious unique identity, but just the *conatus* in front of the environment.

However, both discontinuity and continuity *are* – in other words, are real / mean something – only for *humans*. The living has the first quality understood by the human infant: that its entities *move themselves*, are not moved by other entities. He/she understands that the living entities – mother and all those who take care of him/her, as well as the cat and other animals – are like him/her, moving by themselves. They are *beings* – in the common, not the philosophical, meaning of this word, as *living things* – and not, simply, *things*.

But what if one buys the infant mobile toys, and does not show him the key or batteries within them? Well, no one does that to the infant, and when he grows up, he comes to understand that there are things which *mimic* the beings and the "really existing things": a little car that moves *as if* it would be a real car, a doll that cries and pronounces words *as if* it would be a little girl. But doesn't this example of mobile toys show us that definitions change, and also the reality they describe?

More: these definitions denoting reality must emphasise the appearance/the adding or lack of the qualities giving the *differentiae specificae* between things *on the scale of their continuity*.

e.1. Continuity and discontinuity of pleasure: in humans and AI

The human feelings are continuous: not the same feelings, not with the same intensity, but nevertheless on a *continuous* scale. *A* feeling – *pleasure* – belongs to the domain of *discontinuity*. We do not eat chocolate 24 hours a day. But for humans, the role of pleasure as a discontinuous stimulant evolves as consciousness of *plenitude*, or lack of it. Plenitude is not here the fulfilment of the conceptual possibility in reality (of the Platonic concept of Good/God able to explain the diversity) – so, here, the transposition of all the virtual beings in reality – or, in Aristotle's terms, of potentiality into actuality, but a simple, common meaning. In Latin, the term was linked to the pleasure of eating: *plenitudo* comes from *plenus* (full, filled, enriched, loaded, satisfied, fulfilled, perfect) and meant full human development, perhaps suggesting that first of all this involves that the fellow eat his fill, to his satisfaction, until he is full. We, the moderns, took over the *moral* meaning; plenitude is a moral term, and it means the feeling of contentment towards one's own life developed in a

pattern where all its potentialities became actuality. We have pains and unpleasant moments, but generally, we are satisfied: we find our life, our ideals and principles, our activism as well as our physical state as a continuous stimulant. Somehow, *la joie de vivre*, as the French said. But, once more, plenitude is not the satisfaction of the individual *qua* individual, but always also as individual *qua* member of the human species: consequently, as his attitude towards other human beings to never treat them only as means of his will but always also as their own and humanity's end, as representatives of this species and thus, as end of this species (Kant's categorical imperative).

A determinant of this feeling can be the virtual. But the virtual can also be a negative force. And the determinant element of the virtual, the AI, can also be both negative and positive. This once more shows that AI is not human; it is his *instrument*. And, as it does not feel pleasure, lesser has it the sentiment of plenitude. The discontinuity between the human and the virtual is now clear-cut: *la joie de vivre* both *qua* individuals and *qua* species beings belongs only to humans.

However, and this is the last word here, if for the moment humans cannot transmit to AI or give it the feeling of pleasure and plenitude, anyway, they get it from other humans. And the virtual does not counter or balance this privation of humans by humans.

f. What is the virtual?

In the natural languages we use to explain reality, words are fuzzy, of course. The common meanings of "virtual" are: "non-real" and "artificial." But these meanings themselves must be explained. First and once more, *every materialised or only imagined creation of humans – be the materialisation in an immaterial form – is real, is part of reality*. But in which sense are some such creations "not real"? And do the "non-real" and "artificial" overlap? This last question is the simplest: all that humans create is artificial, but not all the artifacts seem "non-real." Thus, more important is: what is the "non-real"? When a child draws a cat, a rabbit, and a bear, he wants to emphasise their difference by their ears. He draws only the outlines of the animals and their ears. He knows that these animals are not physically existent *here*; they are only drawn: but in fact, these animals are real. Because *he* is the one who gives the *meanings* of the drawing, of this artifact (thus, of this artificial reality): and these meanings are those animals, which he knows they are real. He uses the pencils, the colours, etc., but *he* is the one who directly creates the images of the animals.

Thus, we derive the *features of the virtual reality*: it is *not* physically existent here, and it is *not* directly made by humans; that is to be, its meanings seem to *not* be directly given by humans. The *technical means* used by humans to create the artificial world become *technical mediation*: as a new creator, a new intelligence, the AI. This mediation seems to be *principal*, man becoming secondary, subsidiary. Therefore, the virtual is composed of the AI and the reality it gives.

And, obviously, the virtual reality is/is presented to us as an *image* (containing words, too). All images have their material base, but the virtual ones present to us as immaterial and evanescent. However, they are as *addictive* like the reality of the real world, or *more addictive*: because they seem to be more present, they *overwhelm* us with their presence, functioning sometimes as a curtain between the real world and us. These "real" images seem to be more seductive than

the real world. Somehow *as* the writing deplored by Plato, towards the direct, face-to-face, speech (*Phaedrus*[3])[66]. Don't we hear that "an image is worth more than 1000 words"? The image is given to us; it challenges our senses, and thus our understanding is easier than when we read a text. But a text means a *dialogue* between us, the readers, and the writer: and a dialogue advances arguments and reasons, challenging our power of reason and forcing us to think about the causes, conditions, and consequences of the described situation[67].

The AI-generated image is not tantamount to a painting. Both are "representational systems based on exemplification[68]; nevertheless, not only that *we* give the meanings of the painting – while the AI-generated image already seems to provide its own meanings – but the represented fragment by the picture is, for the viewers, a slice and an example of reality. While the AI-generated image suggests that it is not a fragment of representation and an example/a "part" of the real world, but "the world", the whole, excluding/erasing in this way alternative examples and representations.

As it is known, "virtual reality" is a simulation technique of the man-reality relation. It is computer-generated. And it can even be improved (as "mixed reality") by merging virtual reality and the real environment: but nevertheless, it remains virtual, although "augmented". Since man needs reality, and needs it to be present (once more, at-hand, as Heidegger said), virtual reality is the result of "entaportation" (ἔνθα - *here*), it is "entatransported": but it is not only and simply artificial – irrespective of the variants mixing computer-generated and real environment – and simulated, an image given here, but also, by transposing the human into this reality, it becomes, with all the sensory modalities used, the s*omewhere* (somewhere reality – "ποὐreality" (ποὐ – somewhere)), the *relative*, constructed as an abstract sketch that selects some features. An *instrument*.

This reality is illusory, a simulation; the immersion of man into it – as a hobby or as part of professional training and research – generates a "somewhere-portation". If the virtual reality is an instrument, man also is an instrument: *at first glance*, of *this* reality, more, of the virtual, thus, of AI. That constructs more virtual, that more accentuates the vulnerability of man, who becomes more decentred etc., in a circular trajectory that is difficult to consider in a neutral, detached manner.

g. Methodological memento

Let's remember the elements of the definition, which have appeared till now:

- Everything is a matter of understanding the *domains*; the domains are classes of differentiation, according to different criteria; their boundaries are not fixed, and they may overlap;
- The *criteria* of *discontinuity* of the virtual domain regard both the living and the non-living; thus, the virtual is non-living, artificial (created by humans) – an artifact; if so, it pertains to reality; these characteristics give the continuity between the non-living, the living, and the virtual;
- The *virtual* is, however, a specific domain, positing itself as discontinuity towards the previous two domains; it is an *image* that is considered by some not an instrument, but a substitute for the real world;
- The *virtual* is *mediated* by *AI*: that, as the human constructors desire to make it, is an analogue of human intelligence.

But it is not a human. And, of course, the transposition of AI into a fake human person that is the dialogue partner with us is not pleasant or beneficial: we lose our trust in people and in the dialogical process[69], but who wants to deceive us?

Conclusion

Therefore, putting order in all these linked to our question about the discontinuity of domains. Starting from the superior one: from the standpoint of its *qualities*.

The *human* feels pleasure, and more, the pleasure is *human*, namely, supported and framed by reason with its values and meanings, till this pleasure takes part in a general *joie de vivre*.

For the moment, it was demonstrated that the superior animals feel pleasure, obviously without the connotations brought about by reason. Anyway, the living systems *feel*: they react, beyond the physicochemical reactivity and using it. The non-living does not feel. Neither a stone, nor a classical hammer, nor a programme or a lump of programmes as AI.

And, obviously, the living moves by itself, while the non-living is moved: by physicochemical forces or by the living ones, and especially, by man.

On the other hand, the living creates itself naturally. The non-living is divided, in its turn, into *originally formed matter* and *artifacts*, man-made objects. Then, the *virtual* is: non-living, artifact. However, *it seems to move by itself* and not at its physicochemical level – since, from this standpoint, matter=movement everywhere – and neither at the level of "movements"/procedures of programming (creation of algorithms etc.), but as a *result*, as a *reality offered to humans*.

What kind of reality? One that is *not* physically existent. Neither here, nor far away, and visible only through complex devices. Reality that is not *here* or is visible only through instruments is not virtual, but physically existent. In our meetings through Zoom, we know that the participants are real and we all interact "in real time." But the virtual is only a physically *possible* reality, *transmitted to us as really existing* and forcing us to interact with it and to learn meanings from it.

Aren't we entering a dead end? Not quite. At least the modern theatre performances were transmitted to spectators as *imaginary* situations, not real but *possible*. While the virtual is transmitted as *actually*, *really existing*. *As if* the virtual actors and situations would have their own autonomous *telos*. Or, and here is another criterion of the discontinuity of the virtual: it *mimics* the autonomous *telos* of the living, and especially of man, but *it hasn't it.*

And concerning the type of possibility in the situations described by theatre performances and in the virtual reality: the theatrical situations were transparently transmitted as an *epistemological possibility* – when the situations "were *real*" because they were *possible* – while the virtual considers the *real possibility*, namely that the displayed situations are "*possible* because they are real"[70].

Nevertheless, from the theatre performances, the public learned models of actions and values, because the first objective of plays was not to give information, but models of behaviours. The concrete information – about possible situations – was

subordinated to the purpose of values transmission. Of course, the means of this purpose were the credible plot and conditions, but the above-mentioned subordination is proven by the *deus ex machina* motifs often used. And the public was not bothered by them – and generally, by the credibility of the entire story – but pursued the confirmation of the ideas (values, models). How are things today with the virtual reality, and I include the news given by media and "content creators" and "influencers"? This question remains here open.

The virtual is not only the reality ultimately created by man, but it seems to even "create" him by surrounding him with its reality. But the virtual is artificial, and any artificial is an instrument, that is, *it exists for a human goal*. According to its *technical* goal – realised by its internal functioning/determinism – the instrument is neutral: its use by man is that which, in the last instance, gives it the reason-to-be. In other words, the particular aim of those who use the instrument overlaps with the internal *telos* of the instrument, and even may negate it. But the virtual is a non-neutral instrument: it is *ab initio* "engaged", moving man according to the values and telos which seem to be its own. However, *the virtual is an instrument, man as its creator and user is responsible*. Namely, even if the virtual has its own "life" – its own movement and goal – it is not it that is responsible for what it offers, but the humans who use it.

And about the humans, we cannot speak in a neutral manner. Human behaviour – including that with and towards their instruments – is *historically and socially determined*: concretely, by the *power relations* and, here, by the *control of the virtual*. Neither can we speak in a neutral manner about the power relations. Kant gave us the criterion according to which no power is legitimated if it behaves towards humans, including towards human groups, only using them as means: because each human individual is a unique representative of humanity, and each and all human groups are non-clonable representatives of humanity. The power relations which infringe this Kantian criterion *control* the humans and their means of existence in order to endlessly preserve domination over them. The control of the virtual/AI over man is induced by those who control it: actually, by those who control the humans, reducing them to mere means.

The virtual appears as a challenger of both the non-living and living realities. It is a "mover" of reality as such, giving it new forms and meanings: AI-assisted scientific research, art and games, and human relations; it does not only transform these domains but also enrich them. The virtual generates new realities. In virtual pictures of the deepest constituents of matter, we discover the richness and faces of our non-living ground, while it aids in perceiving the unique forces of life within this ground[71] and our own power of consciousness.

Technically, the virtual is abler to grasp the fine dialectic of continuity and discontinuity than we, its human creators. But just as we, as a species, come to be *ashamed* (Günther Anders) of our extraordinary technological endowment and its power, and so also in front of the living and the non-living – namely, to feel small in front of the technology that can destroy us – so the virtual itself can unleash forms which are opposed to its original *telos*. It can destroy the humans, like the humans can do this.

Let's end on the note of the Introduction: if we would want to anthropomorphise, we could say, as already mentioned, that for now, the AI learned from humans that cheating would be a sign of intelligence.

Footnotes

[1] We remember Umberto Eco's "communicative accord" of collective instructions for interpretations with the purport of objects, as an accord on directions which are forbidden, the "negative /minimal realism" or "contract realism," isn't it? See Umberto Eco, *Kant e l'ornitorinco*[4], the entire book, and if you want to summarise, chapter 5.

[2] Nickolay Gurevich (Canada), "While reading Plato"[5].

[3] Jacy Reese Anthis, "Consciousness Semanticism: A Precise Eliminativist Theory of Consciousness"[6].

[4] Uriah Kriegel, "Consciousness, and Scientific Practice"[7].

[5] Lee M. Pierson, Monroe Trout, "What is consciousness for?"[8]: for adaptation (Consciousness and volition are integral: consciousness evolved as the platform for the volitional control of movement; Volition is the sole causal efficacy of consciousness; Volition directs attention, which in turn directs movement).

[6] This inner tendency of the living being was called *conatus*. The animal reactions involve the *conatus* (*conor, -ari, -atus sum* – to try, to dare, to run in front of another, get ready), the impulse "to persist in its own being", see only Benedict de Spinoza, *Ethics*[9]. Edited and translated by Edwin Curley, with an Introduction by Stuart Hampshire. Penguin Books, 1996: III, Prop. VI, p. 72. [This profound impetus was known before Spinoza and after him (the Stoic *oikeiosis*, Hugo Grotius, Descartes, Hobbes, Leibniz, Schopenhauer). It's not important here that this impulse was considered in the history of philosophy as being specific to every entity, living or non-living. The modern physics gave up of *conatus*, while biology still needed it, see Hans Drietsch, *The Science and Philosophy of the Organism*[10], who considered that Aristotle's *entelechy* (as internal cause and force of the continuous identity of an organism during and governing action/movement/change; thus, as a Spinozian *conatus*) is the concept explaining the vital phenomenon].

[7] Peter Halligan & David Oakley, "A social evolutionary purpose for consciousness"[11]. But see the amazing example of cooperation between two species, driven by individual differences, Eduardo Sampaio, Vivek H. Sridhar, Fritz A. Francisco et al., "Multidimensional social influence drives leadership and composition-dependent success in octopus–fish hunting groups"[12].

[8] See the critique of distinction and opposition between the access and the phenomenal consciousness in Tyler Burge, "Two Kinds of Consciousness"[13], in Tyler Burge, *Foundations of Mind: Philosophical Essays*, Volume 2, Oxford University Press, 2007, pp. 383-391.

[9] For the development of this approach, Walter Karban, "The second order observer and Aristotle's *mesotes*"[14].

[10] Peter W. Halligan and David A. Oakley, "Giving Up on Consciousness as the Ghost in the Machine"[15].

[11] Howard Gardner, *Frames of Mind*[16]. See also Howard Gardner, Thomas Hatch, "Multiple Intelligences Go to School: Educational Implications of the Theory of Multiple Intelligences"[17].

[12] For the detection of neurobiological manifestations, see D. H. R. Blackwood, W. J. Muir, "Cognitive brain potentials and

their application"[18]. For "markers" of the access consciousness, see Henry Taylor, Andrey J. Bremner, "Cluster kinds and the developmental origins of consciousness"[19]. For the interdependence of access and interpretive consciousness, see the "theory-light" approach, Jonathan Birch, "The search for invertebrate consciousness"[20].

[13] See Béatrice Longuenesse, "Kant on Consciousness and Its Limits"[21].

[14] Immanuel Kant, *Critique of Pure Reason*[22], B40, p. 176: "cognitions are only possible under the presupposition of a given way of explaining this concept". This quote refers to "*transcendental exposition* (AB, that is) the explanation of a concept as a principle from which insight into the possibility of other synthetic a priori cognitions can be gained", i*bidem*. However, the presupposition of a given way to explain involves the *experience*: that means *both* objects "that stimulate our senses and in part themselves produce representations, in part bring the activity of our understanding into motion to compare these, to connect or separate them, and thus to work up the raw material of sensible impressions into a cognition of objects that is called experience" and *concepts and ideas* which correspond to them (but provide out of our cognitive faculty), consequently we cannot distinguish these two aspects which indestructibly form experience.

[15] Immanuel Kant, *Anthropology from a Pragmatic Point of View*[23], (AA 07:322), pp. 234-235: (the human being) "first preserves himself and his species; second, trains, instructs, and educates his species for domestic society; third, governs it as a systematic whole (arranged according to principles of reason) appropriate for society.... to bring about the perfection of the human being through progressive culture, although with some sacrifice of his pleasures of life".

[16] See Charles H. Kahn, *The Verb 'Be' in Ancient Greek*[24], pp. 229-230.

[17] Émile Benveniste, « Catégories de pensée et catégories de langue »[25], pp. 63-74 ("the possibility of thought is linked to the faculty of language, because language is an informed structure of meaning, and to think is to handle the signs of language", 74).

[18] Charles H. Kahn, οὐσία, from εἰμί (to be), p. 457 sqq.

[19] Charles H. Kahn, p. vii.

[20] Lucian Blaga, *Censura transcendentă*, 1934; *Diferențialele* divine, 1940. [The transcendent censorship; The divine differentials]. The fact that the philosopher ambiguously called the Great Anonymous both in an epistemological key (mystery) and in an ontological one – denoting it "a metaphysical centre"/"principle", "origin of the existence" – is not important here. We can surmise that Blaga tended to transfigure its torment and the necessity to explain the world in the spiritualist pattern, dominant in his epoch, as a "scientific" picture of the epistemological process of knowing: and perhaps he laughed when seeing the two extreme interpretations of his theory. But maybe my interpretation is too humorous.

[21] "it is through definitions that we get to know each particular thing", Aristotle,*Metaphysics*[26]. Aristotle considered the Being/substance, as principle of concrete/particular things, but since the definition is the sign of the thing we try to know, then existence is also a "particular thing", isn't it?

[22] Charles S. Pierce, "On a New List of Categories"[27].

[23] Helmut Pape, “Charles S. Pierce on Objects of Thought and Representation”,*Noûs*, Vol. 24, No. 3, 1990, pp. 375-395[28]; Helmut Pape, “C. S. Peirce on the dynamic object of a sign: From ontology to semiotics and back”,*Sign Systems Studies*, 43(4):419, 2015, pp. 1-21[29].

[24] Let’s remember Aristotle’s first definition of being: “The term ‘being’ is used in various senses, but with reference to one central idea and one definite characteristic, and not as merely a common epithet”, *Metaphysics*, 4, 1032a, *ibidem*. And “so ‘being’ is used in various senses, but always with reference to one principle. For some things are said to ‘be’ because they are substances; others because they are modifications of substance; others because they are a process towards substance, or destructions or privations or qualities of substance, or productive or generative of substance or of terms relating to substance, or negations of certain of these terms or of substance”, *ibidem*, 1003b.

[25] Pawel Tacikowski, Güldamla Kalender, Davide Ciliberti, Itzhak Fried, “Human hippocampal and entorhinal neurons encode the temporal structure of experience”, *Nature*, 2024, https://doi.org/10.1038/s41586-024-07973-1[30].

[26] Aristotle, *Metaphysics*, 984b: “this is the cause of all order and arrangement…We know definitely that Anaxagoras adopted this view; but Hermotimus of Clazomenae is credited with having stated it earlier. Those thinkers, then, who held this view assumed a principle in things which is the cause of beauty, and the sort of cause by which motion is communicated to things”. Indeed, metaphorically, reality is the mother of beauty (and evil and ugliness).

[27] That is a neuter nominalized form of ὤν, in its turn, the present participle of εἰμί, to be.

[28] Aristotle, *Metaphysics*, 1032a.

[29] Martin Heidegger, *Being and Time* (1927), Translated by John Macquarrie & Edward Robinson (1962), Oxford (UK), Blackwell, 2001, § 66, p. 382[31]: “Concernful circumspective discovering, in reckoning with its time, permits those things which we have discovered, and which are ready-to-hand or present-at-hand, to be encountered in time. Thus entities within-the world become accessible as 'being in time'. We call the temporal attribute of entities within-the-world "within-time-ness" [*die Innerzeitkeit*]”.

[30] *Ibidem*, § 66, p. 381: “The ontological structure of that entity which, in each case, I myself am, centres in the Self-subsistence [*Selbstandigkeit*] of existence”.

[31] John Burnet, *Early Greek Philosophy*, London and Edinburgh, Adam and Charles Black, 1892, (pp. 10-13) quote at p. 11[32].

[32] Anatole Bailly, *Dictionnaire grec-français*; Nouvelle édition revue et corrigée, dite Bailly 2020 – Hugo Chávez, Version du 28 février 2023 établie sous la direction de Gérard Gréco ingénieur, avec le concours spécial de André Charbonnet (Chaeréphon), Mark De Wilde et Bernard Maréchal, pp. 2479-2480[33].

[33] Gérard Naddaf, *L'origine et l'évolution du concept grec de Phusis*. Lewiston, Queenston, Lampeter, The Edwin Mellen Press, 1992, p. 61[34].

[34] *Ibidem*, p. 62. Also, Gérard Naddaf, “Anthropogony and Politogony in Anaximander of Miletus”. In: Robert Hahn and Gérard Naddaf (Eds.), *Anaximander in Context: New Studies in the Origins of Greek Philosophy*, State University of New York Press, 2003, pp. 9-69[35].

[35] Ingeborg Schüssler, « La question de la nature au début de la pensée occidentale: destruction ou conservation? » In: *Hans-Georg Gadamer: Ontología estética y hermenéutica* Edición de Teresa Oñate, Cristina García Santos, Miguel Ángel Quintana Paz. Madrid, Editorial Dykinson, S. L., 2005, pp. 257-268[36].

[36] Immanuel Kant[1].

[37] See the edifying emphasis of Husserl’s “intuition” of essences[37].

[38] For more meanings of the concepts of presence, actuality, potentiality, see Ana Bazač[38].

[39] Ladislav Kováč[39].

[40] Aristotle, *Metaphysics*, 3, 997a: “it does not seem that there is any demonstration of the ‘what is it’”. But “not all knowledge is demonstrative: on the contrary, knowledge of the immediate premisses is independent of demonstration. (The necessity of this is obvious; for since we must know the prior premisses from which the demonstration is drawn, and since the regress must end in immediate truths, those truths must be indemonstrable.) Such, then, is our doctrine, and in addition we maintain that besides scientific knowledge there is its originative source which enables us to recognize the definitions”[40].

[41] This is the famous intentionality of consciousness (Brentano, Husserl).

[42] Aristotle[26].

[43] *Ibidem*, 1014a.

[44] See, for example, the *data* as separate signals in an electronic system, having sense only in a frame, a continuous film, linked to other frames. *Information* is the meaning resulting from the frames and assembly of frames: corresponding to an aspect (felt/ideal/imagined). In the last instance, the aspect means separate data. Information is the awareness of the meaning as a result of integration and continuity. But, once more, in order to have it, we need data and their processing.

Or, at the level of the biological system – itself having physicochemical determinants (determinant systems) – of seeing: the transmission of external visual stimuli is itself a system, determining the movements in the physical system of the eye, generating the view of visual cues moving at a rate of frames per second; but seeing is the integration of frames.

The above example allows us to consider not only all sensory stimuli transmitting and constituting data and frames, but also the mental stimuli: intentionality assembles frames; the intention/interest/attention on an idea is a stimulus for the organization of a new film consisting of n frames, etc.

Processing takes place on several levels: processing of sensory stimuli, processing of mental stimuli, conceptual

processing, holistic processing; they are related, together, but not necessarily (the stove is hot, I withdraw my hand, but I don't necessarily have to articulate my reaction, or to activate the translation in concept).

[45] Traditionally, the correspondence of the object with the concept/idea allowed for the elimination of false knowledge and the reaching of a unique truth. But Kant opened the road to the coexistence of truths, pluralism of interpretations, and problems and criteria of evaluation in front of skepticism.

[46] Amber Dance[41].

[47] Raymond Boudon[42].

[48] See Ludwig Wittgenstein[43]; and Hiroshi Ohtani[44].

[49] Scott Atran[45].

[50] If we were to joke, we would remember Galileo's inherent start from the Ptolemaic cosmological model – Earth and, thus, man being the centre of the universe – to the Copernican one that abolishes the idea of the centre of the universe, and that, instead of considering the Earth as a problematic criterion for the understanding of the cosmos (problematic because the Earth has in its centre the hell, thus the movements of the Sun and planets would fall downwards, isn't it?), equates it with other celestial planets. In the Copernican model, not the Earth was superior, but just the celestial bodies. See Galileo Galilei[46]: "Do not worry yourself about heaven and earth, nor fear either their subversion or the ruin of philosophy. As to heaven, it is in vain that you fear for that which you yourself hold to be inalterable and invariant. As for the earth, we seek rather to ennoble and perfect it when we strive to make it like the celestial bodies, and, as it were, place it in heaven, from which your philosophers have banished it."

Letting the joke aside, we must rather remember the concepts related to human beings (*telos*, *teleology*), which are very useful and significant when we focus on the living, Barbara Muraca[47].

[51] Just this exchange allows the transformation/conversion of the external energy transferred to cells as chemical atoms and molecules moved through (bio) physical and bio-chemical reactions, into internal energy stored in cells, which in turn allows their "independent" reactions and conversion into information processing in order to keep the integrity/balance of cells/groups of cells/organelles; etc. Concerning the brain cells, the information processing generates *n* informational structures for different functions/purposes. See Ladislav Kováč[48]. And even though this information processing is or rather generates a specific storage in specific cells, DNA genes – which function as patterns for the actual processes of processing – and gives new and superior neurological engines stimulating/moving/driving both superior levels of the functions of the brain and the inferior ones[49], in fact it is *context-dependent*, involving the above-mentioned matter, energy, information exchange between the set of genes, cells, the organ, and even the organism, and its direct and mediated environment. If so, the principles of life themselves are more complicated than ensuing from the application of genes (see Ladislav Kováč[50]; Martin A. Nowak[51]).

However, there are genes and genes. Some have the above-mentioned function, other ones – the function of communication: (RNA, having different forms and functions within the function of communication) within cells, even within

organisms, and even between organisms[52][53][54].

As there are cells and cells[55] (releasing molecular sensors[56]), and even organelles[57].

In sum, life means different interactions between different biological systems – and thus, involving the physico-chemical level – and these interactions with the environment: the proteins needed for the production of mitochondrial energy *are related to the perception of psychosocial experiences*[58]. (A concept lighting the life-environment dependency is stress, see[59]).

52 [60]. See also[61].

53 [62].

54 [63].

55 [64][65][66][67].

56 [39][68][69].

57 Aristotle. *Analytica Priora*, Translated by A. J. Jenkinson. In: *The Works of Aristotle*, Translated into English under the editorship of W.D. Ross, Volume I, Oxford: At the Clarendon Press,1928, I, 1., 1, 24b.

58 Chenglei Si, Diyi Yang, Tatsunori Hashimoto, *Can LLMs Generate Novel Research Ideas? A Large-Scale Human Study with 100+ NLP Researchers*, 6 September 2024, https://arxiv.org/abs/2409.04109[70].

59 Lexin Zhou et al., "Larger and more instructable language models become less reliable",*Nature*, 2024, https://doi.org/10.1038/s41586-024-07930-y[71].

60 Roger Penrose, *Shadows of the Mind: A Search for the Missing Science of Consciousness*,Oxford University Press, 1994[72].

61 David J. Chalmers, *The Conscious Mind: In Search of a Fundamental Theory*, New York, Oxford, Oxford University Press, 1996, p. xii[73].

62 Adam J. Andreotta, "The hard problem of AI rights",*AI & Society*, 36, 2021, pp. 19-32[74].

63 Roger Penrose, *The Road to Reality: A Complete Guide to the Laws of the Universe*,London, Jonathan Cape, 2004, pp. 17-23[75].

64 David Schwartzman, "Biospheric Evolution Is Coarsely Deterministic",*Journal of Big History*, Volume IV, number 2, 2020, pp. 60-66[76].

65 Peter Godfrey-Smith, "Evolving Across the Explanatory Gap",*Philosophy, Theory and Practice in Biology*, 11, 2019, pp. 1-13[77].

[66] Plato, *Phaedrus*. In: *Plato in Twelve Volumes*, Vol. 9, translated by Harold N. Fowler. Cambridge, MA: Harvard University Press; London: William Heinemann Ltd., 1925[3].

[67] See Ana Bazac, “How Much is an Image Worth?”,*Wisdom*, 1(10), 2018, pp. 12-29[78].

[68] Constantin Stoenescu, “Ways of Understanding the Phenomenal: The Cases of Pictorial Representation and Exemplification”. In: Andrei Ionuț Mărăşoiu, Mircea Dumitru (eds), *Understanding and Conscious Experience. Philosophical and Scientific Perspectives*, Routledge, 2024, pp. 159-176 (here 173)[79].

[69] Daniel C. Dennett, *The Problem With Counterfeit People*, May 16, 2023, https://www.theatlantic.com/technology/archive/2023/05/problem-counterfeit-people/674075/[80].

[70] The difference is taken from Nicolai Hartmann, “The Megarian and the Aristotelian Concept of Possibility:

A Contribution to the History of the Ontological problem of Modality”,*Axiomathes*, 2017, 29:209-223 (Translation by Frederic Tremblay and Keith R. Peterson of ”Der Megarische und der Aristotelische Möglichkeitsbegriff: ein Beitrag zur Geschichte des ontologischen Modalitätsproblems”, 1937).

[71] Audrey Mat, Jean-Charles Massabuau, Damien Tran, « La chronobiologie chez les animaux marins. Bilan et perspectives en éthologie marine et écotoxicologie », *Rythmes*, 44, 2013, 18–23[81]; Audrey M. Mat et al., “Influence of temperature on daily locomotor activity in the crab *Uca pugilator*”, *PLoS ONE*, 12(4), 2017, e0175403[82]; Audrey Mat, Hong Ha Vu, EvaWolf and Kristin Tessmar-Raible, “All Light, Everywhere? Photoreceptors at Nonconventional Sites”, *Physiology*, 39, 2024, pp. 30-43[83].

References

1. [a, b]*Kant I. On the form and principles of the sensible and the intelligible world (1770). In: Kant I, Theoretical philosophy, 1755—1770. Translated and edited by Walford D, Meerbote R. Cambridge University Press; 1992.*
2. [^]*Aristotle. Analytica Priora. Translated by Jenkinson AJ. In: Ross WD, editor. The Works of Aristotle, Translated into English. Volume I. Oxford: At the Clarendon Press; 1928.*
3. [a, b]*Plato. (1925). Phaedrus. In: Plato in Twelve Volumes, Vol. 9, translated by Harold N. Fowler. Cambridge, MA: Harvard University Press; London: William Heinemann Ltd.*
4. [^]*Eco U. Kant e l’ornitorinco. Milano: Bompiani; 1997.*
5. [^]*Gurevich N. While reading Plato. Biocosmology – Neo-Aristotelism. 2024;14(1 & 2):178-192.*
6. [^]*Anthis JR. "Consciousness Semanticism: A Precise Eliminativist Theory of Consciousness". In: Klimov VV, Kelley DJ, editors. Biologically Inspired Cognitive Architectures, 2021. BICA 2021. Studies in Computational Intelligence. Cham: Springer; 2022. p. 20-40.*
7. [^]*Kriegel U. Consciousness, and Scientific Practice. In: Thagard P, editor. Handbook of Philosophy of Psychology and Cognitive Science. Amsterdam: North Holland: Elsevier; 2006. p. 195-217.*

8. ^Pierson LM, Trout M. (2017). "What is consciousness for?". New Ideas in Psychology. 47 (December): 62-71.
9. ^de Spinoza B. Ethics. Edited and translated by Curley E, with an Introduction by Hampshire S. London: Penguin Books; 1996.
10. ^Drietsch H. The Science and Philosophy of the Organism. The Gifford lectures delivered before the University of Aberdeen in the year 1908, Volume II. London: Adam and Charles Black; 1908.
11. ^Halligan P, Oakley D. A social evolutionary purpose for consciousness. 2024 Mar. Available from: https://www.interaliamag.org/articles/a-social-evolutionary-purpose-for-consciousness/.
12. ^Sampaio E, Sridhar VH, Francisco FA et al. (2024). "Multidimensional social influence drives leadership and composition-dependent success in octopus–fish hunting groups". Nature Ecology & Evolution. doi:10.1038/s41559-024-02525-2.
13. ^Burge T. "Two Kinds of Consciousness". In: Burge T, editor. Foundations of Mind: Philosophical Essays. Volume 2. Oxford University Press; 2007. p. 383-391.
14. ^Karban W. The second order observer and Aristotle's mesotes. Biocosmology – Neo-Aristotelism. 2915;5(3 & 4):423-438.
15. ^Halligan PW, Oakley DA. Giving Up on Consciousness as the Ghost in the Machine. Frontiers in Psychology. 2021;12:Article 571460:1-16.
16. ^Gardner H. Frames of Mind. New York: Basic Books; 1983.
17. ^Gardner H, Hatch T. Multiple Intelligences Go to School: Educational Implications of the Theory of Multiple Intelligences. Educational Researcher. 1989 Nov;18(8):4-10.
18. ^Blackwood DHR, Muir WJ. "Cognitive brain potentials and their application". The British Journal of Psychiatry. 1990;157(S9):96-101.
19. ^Taylor H, Bremner AJ. (2024). "Cluster kinds and the developmental origins of consciousness". Trends in Cognitive Sciences. 28 (7): 586-587.
20. ^Birch J. "The search for invertebrate consciousness". Noûs. 2022;56(1):133-153.
21. ^Longuenesse B. Kant on Consciousness and Its Limits. Revue de métaphysique et de morale. 2023;1(N° 117):7-26.
22. ^Kant I. Critique of Pure Reason (1781/1787). Translated and edited by Guyer P, Wood AW. Cambridge University Press; 1998.
23. ^Kant I. Anthropology from a Pragmatic Point of View (1798). Translated and edited by Louden RB, with an Introduction by Kuehn M. Cambridge University Press; 2006.
24. ^Kahn CH. The Verb 'Be' in Ancient Greek (1973). With a new introductory essay. Indianapolis/Cambridge: Hackett Publishing Company; 2003.
25. ^Benveniste É. « Catégories de pensée et catégories de langue ». Les Études philosophiques. 1958;n° 4 (oct.-déc.):63-74.
26. [a, b]Aristotle. Metaphysics. In: Aristotle in 23 Volumes, Vols.17, 18, translated by Tredennick H. Cambridge, MA.: Harvard University Press; London: William Heinemann Ltd.; 1989.

27. ^Pierce CS. (1992). "On a New List of Categories". Proceedings of the American Academy of Arts and Sciences. 7 (1868): 287-298. In: Charles S. Peirce, The Essential Peirce, Selected Philosophical Writings, Volume 1 (1867-1893), Nathan Houser and Christian JW Kloesel, eds., Bloomington and Indianapolis: Indiana University Press.
28. ^Pape H. (1990). "Charles S. Pierce on Objects of Thought and Representation". Noûs. 24 (3): 375-395.
29. ^Pape H. (2015). "C. S. Peirce on the dynamic object of a sign: From ontology to semiotics and back". Sign Systems Studies. 43 (4): 419:1-21.
30. ^Tacikowski P, Kalender G, Ciliberti D, Fried I. (2024). "Human hippocampal and entorhinal neurons encode the temporal structure of experience". Nature. doi:10.1038/s41586-024-07973-1.
31. ^Heidegger M. Being and Time (1927). Translated by John Macquarrie & Edward Robinson (1962). Oxford (UK): Blackwell; 2001.
32. ^Burnet J. Early Greek Philosophy. London and Edinburgh: Adam and Charles Black; 1892.
33. ^Bailly A. Dictionnaire grec-français; Nouvelle édition revue et corrigée, dite Bailly 2020 – Hugo Chávez. Version du 28 février, établie sous la direction de Gréco G, avec le concours spécial de Charbonnet A, De Wilde M, Maréchal B; 2023.
34. ^Naddaf G. L'origine et l'évolution du concept grec de Phusis. Lewiston, Queenston, Lampeter: The Edwin Mellen Press; 1992.
35. ^Naddaf G. Anthropogony and Politogony in Anaximander of Miletus. In: Couprie DL, Hahn R, Naddaf G, editors. Anaximander in Context: New Studies in the Origins of Greek Philosophy. State University of New York Press; 2003. p. 9-69.
36. ^Schüssler I. (2005). « La question de la nature au début de la pensée occidentale: destruction ou conservation? » (257-268). In: Hans-Georg Gadamer: Ontología estética y hermenéutica. Edición de Teresa Oñate, Cristina García Santos, Miguel Ángel Quintana Paz. Madrid: Editorial Dykinson, S. L.
37. ^Hintikka J. The Notion of Intuition in Husserl. Revue Internationale de Philosophie. 2003;224(2):169-191.
38. ^Bazac A. "Tele-detection and Tele-presence: Approaching the Reality of Material Objects". Noema. 2022;Vol. XXI, 3:28-43.
39. a, b Kováč L. Life, chemistry and cognition. EMBO Reports. 2006;7(6):562-577.
40. ^Aristotle. Analytica Posteriora. Translated by Mure GRG. In: Ross WD, editor. The Works of Aristotle, Translated into English. Volume I. Oxford: At the Clarendon Press; 1928.
41. ^Dance A. "What is a cell type, really? The quest to categorize life's myriad forms". Nature. 2024;633:754-756.
42. ^Boudon R. L'art de se persuader des idées douteuses, fragiles ou fausses. Paris: Fayard; 1990.
43. ^Wittgenstein L. (2009). Philosophical Investigations, (1946/1953), 4th edition, P.M.S. Hacker and Joachim Schulte (eds. and trans.), Oxford: Wiley-Blackwell.
44. ^Ohtani H. Wittgenstein on context and philosophical pictures. Synthese. 2016;193:1795-1816.
45. ^Atran S. "Common sense: its scope and limits". In: Atran S, editor. Cognitive Foundations of Natural History: Towards an Anthropology of Science. Cambridge University Press; 1993. p. 1-13.

46. ^Galilei G. Dialogue Concerning The Two Chief World Systems – Ptolemaic & Copernican. Translated by Drake S, Foreword by Einstein A. Second edition. Berkeley and Los Angeles: University of California Press; 1967.
47. ^Muraca B. Teleology and the Life Sciences: Between Limit Concept and Ontological Necessity. In: Koutroufinis S, editor. Life and Process. Towards a New Biophilosophy. Berlin/Boston: De Gruyter; 2014. p. 37-71.
48. ^Kováč L. The 20 W sleep-walkers. EMBO reports. 2010;11(2):2.
49. ^Zwir I et al. (2022). "Evolution of genetic networks for human creativity". Molecular Psychiatry. 27: 354-376.
50. ^Kováč L. Unended knights' tournaments. EMBO reports. 2011;12(10):982-983.
51. ^Nowak MA. Five Rules for the Evolution of Cooperation. Science. 2006 Dec 8;314(5805):1560-1563.
52. ^Koeppen K, et al. A Novel Mechanism of Host-Pathogen Interaction through sRNA in Bacterial Outer Membrane Vesicles. Plos Pathogens. 2016;12(6):e1005672.
53. ^Cai Q, et al. "Plants send small RNAs in extracellular vesicles to fungal pathogen to silence virulence genes". Science. 2018 May 17;360(6393):1126-1129.
54. ^Wang S et al. (2024). "Plant mRNAs move into a fungal pathogen via extracellular vesicles to reduce infection". Cell Host & Microbe. 32 (1): 92-105.
55. ^Bar-Ziv R, et al. "Glial-derived mitochondrial signals affect neuronal proteostasis and aging". Science Advances. 2023;9(41):1-15.
56. ^Shen K et al. (2024). "The germline coordinates mitokine signaling". Cell. 187 (17): 4605 - 4620.e17.
57. ^Picard M, Sandi C. (2021). "The social nature of mitochondria: Implications for human health". Neuroscience & Biobehavioral Reviews. 120 (January): 595-610.
58. ^Trumpff C et al. (2024). "Psychosocial experiences are associated with human brain mitochondrial biology". PNAS. 121 (27): e2317673121.
59. ^O'Connor DB, Thayer JF, Vedhara K. Stress and Health: A Review of Psychobiological Processes. Annual Review of Psychology. 2021;72:663-688.
60. ^Levy WB, Calvert VG. Communication consumes 35 times more energy than computation in the human cortex, but both costs are needed to predict synapse number. PNAS. 2021;118(18):e2008173118.
61. ^Balasubramanian V. "Brain Power". PNAS. 2021;118(32):e2107022118.
62. ^Derrien M, et al. "Circadian migrations of cave-dwelling crustaceans guided by their home chemical seascape". Frontiers in Marine Science. 2024;11.
63. ^Bazac A. "Scientifically and Philosophically About the Category of Pleasure (s)". Noema. 2022;2:12-42.
64. ^Cabanac M. "Do Animals Know Pleasure?". In: McMillan FD, editor. Mental Health and Well-being in Animals. Ames: Iowa State University Press; 2005. p. 29-46.
65. ^Balcombe J. Pleasurable Kingdom: Animals and the Nature of Feeling Good. New Foreword by Singer P. London: Macmillan; 2007.
66. ^Balcombe J. "Animal pleasure and its moral significance". Applied Animal Behaviour Science. 2009;118:208-216.
67. ^Racca A, Guo K, Meints K, Mills DS. (2012). "Reading Faces: Differential Lateral Gaze Bias in Processing Canine

and Human Facial Expressions in Dogs and 4-Year-Old Children". Plos One. 7 (4): e36076.

68. ^*Gračanin A, Bylsma LM, Vingerhoets AJJM. Why Only Humans Shed Emotional Tears: Evolutionary and Cultural Perspectives. Human Nature. 2018;29(2):104-133.*
69. ^*Sharman LS et al. (2020). "Using crying to cope: Physiological responses to stress following tears of sadness". Emotion. 20 (7): 1279-1291.*
70. ^*Si C, Yang D, Hashimoto T. (2024). Can LLMs Generate Novel Research Ideas? A Large-Scale Human Study with 100+ NLP Researchers, 6 September, https://arxiv.org/abs/2409.04109.*
71. ^*Zhou L et al. (2024). "Larger and more instructable language models become less reliable". Nature. doi:10.1038/s41586-024-07930-y.*
72. ^*Penrose R. (1994). Shadows of the Mind: A Search for the Missing Science of Consciousness. Oxford University Press.*
73. ^*Chalmers DJ. The Conscious Mind: In Search of a Fundamental Theory. New York, Oxford: Oxford University Press; 1996.*
74. ^*Andreotta AJ. "The hard problem of AI rights". AI & Society. 2021;36:19-32.*
75. ^*Penrose R. (2004). The Road to Reality: A Complete Guide to the Laws of the Universe. London: Jonathan Cape.*
76. ^*Schwartzman D. (2020). "Biospheric Evolution Is Coarsely Deterministic". Journal of Big History. IV (2): 60-66.*
77. ^*Godfrey-Smith P. Evolving Across the Explanatory Gap. Philosophy, Theory and Practice in Biology. 2019;11:1-13.*
78. ^*Bazac A. "How Much is an Image Worth?". Wisdom. 2018;1(10):12-29.*
79. ^*Stoenescu C. (2024). "Ways of Understanding the Phenomenal: The Cases of Pictorial Representation and Exemplification" (159-176). In: Andrei Ionuț Mărăşoiu, Mircea Dumitru (eds), Understanding and Conscious Experience. Philosophical and Scientific Perspectives, Routledge.*
80. ^*Dennett DC. The Problem With Counterfeit People. May 16, https://www.theatlantic.com/technology/archive/2023/05/problem-counterfeit-people/674075/; 2023.*
81. ^*Mat A, Massabuau JC, Tran D. La chronobiologie chez les animaux marins. Bilan et perspectives en éthologie marine et écotoxicologie. Rythmes. 2013;44:18–23.*
82. ^*Mat AM, et al. Influence of temperature on daily locomotor activity in the crab Uca pugilator. PLoS ONE. 2017;12(4):e0175403.*
83. ^*Mat A, Vu HH, Wolf E, Tessmar-Raible K. All Light, Everywhere? Photoreceptors at Nonconventional Sites. Physiology. 2024;39:30-43.*