Tele-detection and Tele-presence: Approaching the Reality of Material Objects

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Abstract

Starting from Aristotle's reflections, the paper discusses the possibility and the actuality of directly unseen material objects: not from the standpoint of ontology of objects, focusing on their persistence as such in time and space, but from an epistemological perspective, indebted to phenomenology, about the process of knowing those objects. This process begins with their seeing, but seeing as such involves two steps: detection and full visualisation. How to see distant, thus invisible objects, which may simply be inexistent? First, we discover them (on the basis of some effects and correlations of appropriable physical parameters). The core concept here is presence, however not in relation with past and future but with actuality or reality *for* the subject. After pointing the meaning of full visualisation, the last chapter suggests that no matter how precise is the measurement giving the tele-detection of distant material objects, they are not *fully present* if they are not directly felt by the sense organs, the gate to the human meanings of objects, i.e. if they are not given meanings, including practically, without being again *tele*-detected. However, we are used with their sketched presence, necessary step to their as many sided analysis, thus image, as it is possible; but we are not used with the *tele-presence* of members of the human species.

Contents

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Aristotle's lesson

We depart from Aristotle's famous chapter 9 in *De interpretatione*, about the future contingents, i.e. about the *possibility* of the *future* events. What is now – and what it was – is/are *actual/existent/real*, so about it we may formulate contradictory judgements: from which only one of them is true, while the other is false[1]. Thus, this happens because our propositions correspond and must correspond to reality[2]. But when this is about future, so about a *potentiality* that only is to be given by human decisions and facts[3], we cannot formulate determinately or with precision that an event will *necessarily* take place/not take place. What is *actual* – namely, occurred or is occurring – can be understood as *necessary*, having or not the characteristics we consider they had/have or did/do not have: irrespective of what we say about them, they were/are, so our propositions about them are either true or false. But to say about *future* events that they will/will not occur necessarily, would suppose a *fatalism* that is not specific to things dependent on future human will and many circumstances[4]. The truth value of propositions about future events remains intact, but the truth-false analysis does not concern only one proposition – stating that the event will/will not occur – but the system of affirmative and negative propositions about the event: both the *possibility and impossibility* of the future event is true. But no one of the two is necessary, and thus neither their system. Since actual things are, they should have been necessary. But: 1) "it cannot be said *without qualification*[5] that all existence and non-existence is the outcome of necessity", and 2) there is a difference between the understanding that actual things show their actual causes (which "must needs be") and that the actual things are/would have been absolutely necessary. Aristotle rejected the fate as absolute necessity, because even if this necessity of actual things follows from their causes – and especially from their *telos* or reason-to-be – in reality the occurrence of things faces many and different accidental causes which intervene in the constitution of these things[6].

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[1] In contemporary epistemological terms, Aristotle was both a semantic realist and an epistemological realist., meaning that the descriptions of real things have truth value (being either true or false), and that these descriptions represent, just by reflecting the real world, its knowledge.

[2] Aristotle analysed the logic pf propositions, but this doesn't mean he discussed only logical forms or logic as instrument. As it is known, Aristotle was an early representative of the explanation of language and judgements both by convention subordinated to reason and by their correspondence to things (semiosis). See [Aristotle OI] Chapter 4 (17a): "Every sentence has meaning, not as being the natural means by which a physical faculty is realized, but, as we have said, by convention"; Chapter 9 (19a): "events will not take place or fail to take place because it was stated that they would or would not take place", and "Since propositions correspond with facts, it is evident that when in future events there is a real alternative, and a potentiality in contrary directions, the corresponding affirmation and denial have the same character".

And Aristotle was equally interested of logic and epistemology, and of ontology.

[3] His famous example is that of a naval battle that may or may not occur tomorrow.

[4] For events which already occurred and are occurring now, their circumstances – said Aristotle – "have always been such that (the occurrence of events) is a matter of necessity". While for the events which may or may not occur in the future, their "circumstances are not influenced by the fact of an affirmation or denial on the part of anyone".

[5] I underlined, AB. This *qualification* is not related to logic, but to ontology: there are many facts which may interfere in the occurrence of things and which can deflect the process that would form from the initial causes. So, people must describe in a qualified manner the real situations, being sensitive to both the initial and the accidental causes.

[6] [Rossi '13]

For the future events, "there is potentiality[7] in either direction", to occur or to not occur and to have or have not such or such determinants. There are, Aristotle insists, many "alternatives", even if "some (alternatives) exhibit a predisposition and general tendency in one direction or the other, and yet can issue in the opposite direction by exception". Accordingly, we cannot say "determinately" that an affirmative or negative proposition about the future is true (or false), but "must leave the alternative undecided". In modern parlance, the future (and the past) is open[8].

In *Physics*, Aristotle underlined that there are two types of necessity, one reflecting and resulted from the accomplishment of the end of a thing/substance, thus from their *telos*, and the other, the *hypothetically* necessary, resulted from an assumption, related to the conditions allowing the telos of the concrete thing, but not purposeful causing it[9]. It follows that things existing as a result of accidental conditions are not only necessary *ex hypothesi*, but also possible *ex hypothesi*.

More: in *Metaphysics*[10], after pointing out that things which are possible but yet they do not exist, i.e. they are not in actuality, (and conversely, things which are possible to not being, they are (actual)), Aristotle emphasises that the actuality of things concerns only the *moving* things, namely their *change according to their entelechy / their internal capacity to have a reason-to-be*, and not the things which have as a property their intelligibility (AB, as the abstract concepts, and not only[11], as Aristotle says: the "non-existent things" *here and now*), because these ones have no entelechy and do not move. So, these things are not actual, but "they will exist actually", so they exist only potentially. And, what is of utmost importance, we cannot say that things existing only potentially will not/will never exist: because, if they would not be possible, they obviously could not be actual, but since they are possible, they will be as their essence with or without entelechy allows the conditions of actuality.

Nicolai Hartmann considered that Aristotle conceived of an *epistemological* possibility (where a thing is actual only if it is possible[12]), while the Megarian philosophers have showed that in the real world the *real possibility* (where a thing is possible only on the basis of actuality) requires already existing/actual conditions in order this possibility to become actual[13]. However, Aristotle too referred to conditions – as different types of causes determining the potentiality, actuality and impossibility of things – and the emphasis in a special level of reality, that of literary creation, is significant.

In Aristotle's *Poetics*, we read that the verisimilitude of a poetic work resides not in the narration of "what actually happened" but of "what could and would happen either probably or inevitably". Poetry is not history, says Aristotle, because the latter describes and docu-

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[7] *Dunamis.*

[8] [Barnes '09]

[9] [Aristotle Ph] II, 8, 198b16–19; and [Rosen '18]

[10] [Aristotle MPh] 1047a, 1047b.

[11] An interesting example: the faults in IT programmes and models. They exist, but are not real, although they are actual when they simply are, in the presence of the users. Otherwise, they are *virtual*. These faults can be *detected*, i.e. *identified*, and even *diagnosed*, when they occur, by computational intelligence techiques, thus fault diadnosis systems [Palade '06].

[12] *Dunatos*, expressing the *dunamis* of that thing.

[13] [Hartmann '17]

ments "what happened", while the former – "what might happen". And thus, the actuality of things in history concerns individual facts, while poetry tries to transmit models of action, thus, general images about generally possible behaviours and action[14]. In order to transmit this generally possible, the poetic work must involve different methodological and concrete conditions (plot, characters, spoken reasoning, language, melody and spectacle); and only if they are met the possible facts transmitted by poetry are *credible*. In other words, the general tableau given by the work is not a copy of reality, but it is /seems possible: because it seems to be probable, or even necessary. The non-actual but imagined events and behaviours (thus not having they themselves entelechy) are nor certain, because they result from the internal logic of the work, requiring and generating internal cohesion of the plot and behaviours, but they must be credible. And the credibility of a fiction depends on how the happenings seem probable, thus possible[15].

So, things *hypothetically possible* – and perhaps actual – are according to time and conditions (actually, time is also a condition). But what if the above problems raised by Aristotle would consider space?

Immobile autonomous things

The examples of unmoving things, given above, require two kinds of theoretical development: one, concerning the abstract concepts and the other – the not actual, i.e. not sensibly proven, simpler said, the not (yet)-seen objects. But the present paper is devoted only to the second, including because the aspects emphasised here are significant for the use of the former.

For the time being, we should rather be sensitive towards the difference between the abstract concepts and the invisible material objects. The *abstract concepts* are not invisible – on the contrary, they are present, and consciously, in all our thinking and speech – but they are *virtual*. The *possibility/impossibility* or *actuality* of abstract concepts depend on the intended meanings of the entire statement they are used within, while the abstract concepts themselves being generalisations of possible and actual facts. If the fictional objects (say, plots) are not actual but only possible because probable, the abstract concepts – created by humans in their experience – denote *both* possible/impossible and actual facts, and are characteristics of *both* possible/impossible and actual facts. The virtuality of abstract concepts does not mean that they are simply possible, but that they are used ubiquitously and may have all the meanings between non-existent and actual, may fulfil all the nuances of probable, possible, actual etc., because they both reflect and specify the deployment of individual facts, and construct them in the "actuality" of mind, namely, when the consciousness focuses on things and expresses them *in mente* or in communication.

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[14] [Aristotle P] 9 (B), 1451a and 1451b: "For this reason poetry is something more scientific and serious than history, because poetry tends to give general truths while history gives particular facts".

[15] If we stop on Aristotle's observation in *De interpretatione*, that for future events there is potentiality in either direction (of occurrence and non-occurrence of the future events), we could mention – the fictional objects being analogous to future events – that the poet could develop the plot in many directions, and all of them would be equally credible: if the construction of the poetic work involves an adjustment of conditions or new conditions.

Presence of material objects

But the *material objects* can be actual and non-actual, present and not present, visible and invisible, in different combinations. For example: *actual* (and present) and *invisible* (as a building in a distant place) – or simpler, *present but invisible (e.g., a not yet excavated archaeological object) –, and non-actual* (because they are *not present* – like an airplane that is not in your yard) and *visible*, a drawn flying horse[16].

Therefore, the first aspect interesting for us is *presence*[17]. We do not remain at the epistemological meaning of this concept, we share – presence as frame of reference for the subject[18], but just in virtue of this fact sending to problems of the knowledge of presence, of approximations and truth – nor at the phenomenological one of the intentionality of the consciousness, that *brings into mental presence* things (ideas, memories, images, representations of material signs through the sense organs etc.) desired by or interesting for the consciousness, but we approach it in a simple scientific one, where the materiality of the object is an ontological feature[19]. In this frame, it should be said that not all the existing material objects, thus actual, are present. Although we can understand presence from the standpoint of the object – thus presence being a kind of its quality, since every object is somewhere –, in fact, presence concerns the *relationship* between the *subject* whose consciousness intends to see – physically and, on this basis, to understand the supposed material object – and this *object*. If the object can be felt directly by sense organs and by the instrumentality of devices and apparatuses[20], then it is *present*, and obviously exists in *actuality*[21]; it is not only presumed, a hypothesis, and neither is it only possible and nor only probable[22], in all these situations being *in mente*: no, it can be *described in its phenomenal aspects – or in some of its features as in mental/imagined representations or concepts*, thus it is present[23], thus actual, *necessarily* being here.

The concept of presence already suggests two little conclusions: one is that *actuality/reality*

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[16] Obviously, here the example is not the drawing, but the flying horse.

[17] In Latin, the preposition prae means in front of, behind, around, near, from th cause of. *Praesum, -esse, -fŭi*, to be before, to be ahead. (*Esse*, to be). *Praesse* gave *praesentia*, being in front of, or, in Heidegger's term, at hand.

[18] In this regard, presence is universal because the thinking subject refers to something only in the moment he/she refers; presence is a universal ontological condition of the subject-object relationships.

[19] The objects of science are not only material, of course, and the non-material ones – from the consciousness to relationships, institutions and values – cannot be reduced to the material ones, but have include them.

[20] In an extreme point of view, Baas van Fraasen considered that only the objects detected by unaided senses are observable (seen), thus within the limits of experience. Marc Alspector-Kelly [Alspector-Kelly '04] has showed that "immediacy of experience is capable of disclosing to us truths concerning entities that are not detectable by the naked eye. Science and technology provide us with the means to see things we have never seen before".

[21] Therefore, the *sense data* of the subject prove the existence of the *external* world. This world is anterior and independent of any experience, but at the same time it appears to humans according to their experience within, thus to the ideas resulted from and opposed to this encounter. In this respect, we must acknowledge that "the world appears as our ideas shape and describe it".

[22] Roderick M. Chisholm, [Chisholm '89] p. 41, showed that when in propositions about present objects, witnessed by senses, we have in the subtext of our signalling of objects – even though this signal is expressed in *a de dicto* locution ("he perceives that there is...") – *de re* locutions (the thing... is perceived by him to be the thing...") with which we can substitute the *de dicto* formulae. But we cannot make this substitution when the statements express possibility.

[23] More: it is *self-presenting*, see [Chisholm '89] pp. 21-25.

is the result of presence. This is *not* an ontological statement, and it does not mean an objective idealism where the material existence is denied or rather subordinated to something other (to a concept or, here, to time flux and passage and successions of past/not yet, now, after). This does not mean either the Berkeley's subjective idealism, *because things have many determinants and multi facet verifications (including that of practice), and past and present time coordinates*: the objects/properties A, B, C, ... are *actual*, because they were proved through various practical and theoretical[24] verifications. This is the reason of the above statement about existing material objects which are not present. Certainly, we cannot say that these objects are actual (existent, real) thus necessary in the order of things, or *are* present because they *will* be proven, see Aristotle's future contingents' problem: in this moment these objects are only presumed, they *will* be actual after they *will be proven*[25]. Only a theory about the non-visible, non-observable object is not enough to assert its reality – thus, presence – but multiple ways to prove it outline it. Accordingly, the other conclusion is that actuality is not *pair* only with possibility, but also *with presence.*

Presence as such excludes time because it is always a moment[26], the moment of the awareness of the subject-object relationship, or it is *between* past grasping and knowledge of objects and the *future* process that will give the evidence[27] of these objects[28]. But presence involves *space*. In order the objects to be actual/real for the observers, they must be present, thus

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[24] Therefore, the position upheld here is opposite to what is called constructive empiricism (having as a leading figure the above-quoted Baas van Fraasen); as Paul Churchland, [Churchland 85] p. 36, noted, "our observational ontology is rendered *exactly as dubiou* as our nonobservational ontology"; the truth or reality of objects is given by theories full of success, *but also by their evolution and change, verification (confrontation) in time; and this process is related to practice.* Abstractly, induction generates pessimism – we cannot exclude another fact that would contradict the theory and the reality of object – but concretely, induction itself is a process and is part of the construction of theory and the proof of the object.
Equally important, the successful theories about objects involve the prediction of objects according to their theoretical modelling, and when experiments confirm their effects and parameters we can assert the reality of objects ([Duhem '06] p. 28).

[25] Peter Wickers [Wickers '22] discusses just the credence of science based on future proofs. More: science offers historically relative truth and certainty just by confronting the immediate scientific knowledge. In this line, not the observable-unobservable distinction is very important from an epistemic standpoint, but the careful interpretation of the observable and unobservable levels, including the criterion of how fructuous are the ideas for future-proof examination.

[26] Although the paper is not devoted to ontology, we should mention that the current prevailing theory assumes the [*four-dimensionality* of objects, meaning that time is not an exterior objective flux framing the persistence and change of material objects, but a quality of objects themselves in the real process of persistence and change. And presence acknowledges both persistence and change that chisels and may foliate and mill the initial objects. In the present moment, and for the present experiencing of the perduring object, it is the summum of the changes carried over from all past moments. Simpler put, the present material object – but the subject is a material object, too, isn't it? – is the result of its history.

[27] In analytical approach, Miriam Schoenfield [Schoenfield '15] showed that our belief or acceptance of the whole body of its evidence depends not only on the accuracy of proofs, including their verification, but also "on what we think the connection between rationality and accuracy amounts to". In other words, besides our plan of collecting the facts and information as accurate as they are possible and according to rational hypotheses, equally important is the end of this plan. Just these two plans – one related to the gathering of proofs according to an *a priori* belief, and the other related to the *results* of the plan – together contribute to the rationality of our credence, by pushing our search for higher order evidence (exploration of facts based on new hypotheses etc.).

[28] Presence suggests rather the *kairos* – the proper moment or time interval for the grasping of the object by the subject: for the grasping of the object as actual, thus necessary.

in space. In fact, the space realises the temporal moment or interval of objects[29], and is the basis of scientific explanation[30]. *As objects depend on their history, so they depend on space*: on their different temporal configurations/ space in different temporal moments and on their horizontal relationships with other objects as well as their near and distant environment.

Objects in space

Space is always actual, because it is always filled with objects whose relationships give our image about it. In other words, space is always present for the subject because to feel and know objects means to feel them in space. And as the discussion about time involves the problems of circumstances and causes, so to stopping on space raises the issues of its conditions.

When it is about the ability of the observer to see objects, a main condition of space is the *distance* to the objects interesting for the subject. And since the ability of the observer depends on his/her limits of vision, the distance concerns the *far away* and the *near*, i.e. the space interval between the limit where the objects cannot be seen directly and the limit where they can.

Since the inexistent things in present are not actual – we could not even confer them entelechy, ability to move (according to their internal *telos*) – the humans and, obviously, the scientists endeavoured to bring into presence invisible objects. And if actuality/reality is the result of presence, the problem is the proving of directly invisible objects: not in imagination, not in mental demonstrations, but *realiter*.

There are, of course, no matter how huge they may be, objects far away from us, as well as minuscule ones very near to us, actually in the deep down of our material constitution and in the constitution of all things, also "far away" from us. All these objects constitute, as it is poetically said, the *macro* world, the *micro* world and between them the *mezzo* world, the world at hand directly for our sense organs. Everywhere the problem is to prove the objects we presume, because in all three worlds there are directly invisible objects for us, for all of the humans.

In order to make visible or graspable the material objects we need not only technical means which increase thousand times our visual acuity, but also clever hypotheses about the limits – thus, according to *criteria* – of the systems we consider. About molecules, cells, cosmic systems etc, their limits and the forces assuring the internal space of systems, thus of systems as such and of their internal objects, as well as their relationships with near and distant systems, we imagine *models*: as if they would be real.

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[29] Even our expressions for presence in a temporal moment involve space, or the transposition of time in space, equating the temporal moment with spatial coordinates. See an illustration in Anthony Eagle [Eagle '16]: "a persisting object exists at those times at which it is located, no matter which parts it happens to have at those times, and give a locative characterisation of endurance".

[30] [Meyerson '27] p. 262.

Detection

What do we see when we make visible material objects? We see them as *phainómena*, i.e. appearances. But, as already the ancients explained, to see phenomena does not equate with their understanding: we may look at them but we do not see them, if this allusion to the meanings of the verb to see is allowed. We can, in continuation, to "see" either "Ideas", namely our hypotheses about systems etc., or, as Berkeley emphasised, ideas of their concrete elements, qualities (as distance and space as relationship) perceived by the mind. In fact, the real objects are blurred by our mental images/theories/ideas: both in the negative sense that we do not see what we are seeing but what is in our mind (as presuppositions, actually representations of former experiences and ideas generated by them), and in the positive sense that the clarity, perspicacity and efficiency of our seeing depends not only on our natural visual acuity, even helped by glasses, but also on the theories related to the objects we see[31]. The scientific research is based not only on observation of objects but also and necessarily on hypotheses and theories: which, as it is known, see before our sight and critically guide it in the process of observation, as our vision critically adjusts the old and new theories. Without ideas and theories[32], the world would be for us only a *kaleidoscope*, a view of forms (and a wondering in front of their beauty), meaningless and rather frightful, as Plato warned in its cave allegory.

However, we cannot have ideas without the perception of things by sense organs. Thus the first condition to see the essence, causes, and the world behind phenomena is just to see them[33].

What does to make visible not directly visible material objects mean? It does mean to *bring them into presence* for us, into *our* presence (or presence-at-hand, in Heidegger formula, presence *here*, in front of our sense organs). Once brought into presence, it also does mean to visually glimpse them[34]. Glimpsing means to have a first image about objects: thus rather superficial, an appearance without too many details. An ancient verb for the first view of

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[31] [Berkeley 1708] sections. 9, 10, 13, passim.

[32] The qualitatively new way of seeing was considered from old the *thought* and/through the medium of *language*.

Rousseau emphasized that the sound language appeared because touching (others to communicate something) and feeling are limited to presence and to the *presence* of objects, namely at "arm's length", and also that sight as a means of communication is limited to the radius of such sight in a certain space; for this reason, voice – which is addressed to the ear and to a person located farther, and which refers to things seen – became a more effective means of communication than gesture, and the premise of communication was, of course, need: but it was not the need to share knowledge, but the need to manifest different passions (love, hatred, pity, wrath) ([Rousseau 1781] pp. 495, 497).

And, interestingly, because of the affects, the first words had not been words for literal descriptions, but figurative ones. Rousseau's example (p. 498) was that of a man who, because he was afraid of other people he met, called them giants, and only then he coined the word that included himself and the others, as men/people. The articulated character of language has developed from the unarticulated language, that of onomatopoeia, and that is why Cratylus, Plato's character, who claimed that terms have an intrinsic truth which is not dependent on the will/conventions of people, is not altogether untrue (p. 499, Rousseau).

[33] Berkeley ([Berkeley 1708] fragm. 95, 99) showed the synthetic image given by the sight, generating different ideas from those given by touch, a sense of the discontinuous.

[34] We exclude here the grasping with other senses. Berkeley had long proven that sight is "epistemologically" superior to the other sense organs because it provides the profoundest data on reality (colours, nuances, shades and lights, distance, space beyond the perceptible limit through touching and also because it

things is *dētĕgo, -ĕgĕre, -exi, -ectum*, to discover, to uncover, to exhume[35]. To discover is to cause to arise. The *detectum* object is the object as we first saw it: as it appeared to us, as it arose to us. Since we do not know the objects because they are covered, hidden, sheltered and protected precisely by their anonymity – *tĕgo, tĕgĕre, texi, tectum*, to cover, to clothe, to hide, to shelter, to protect, to defend, to keep/guard a secret – they must be de-tected, i.e. privated by their covering. Not every dis-covering is knowledge, but is its ground. Not every view is understood, but it is the basis of the understanding. Detection as discovery and visibilisation is relatively synonymous with *identification* (which is distinguishing, recognizing the thing).

The idea of *detection* is famous and ordinary in science. It involves a wide range of technical devices and technological sciences in order to allow man to see more and more material objects and scientific objects[36] very far away, very near and everywhere. Many of them are invisible, even the very near ones. Hence, detection is not easy. For example, in quantum mechanics we see the quantum objects only indirectly, by measuring some parameters and thus supposing them, and erecting on these suppositions theories which are, in their turn, demonstrated both by direct and indirect measurements and observations.

Therefore, the *first* moment of the relation between the curious subject and the material world he/she wants to see is detection. The *second* is the circumscribing of the detected object as visible, and present for combing it out; and *then* the practical-theoretical moments of search for its essence, causes and transformation follow.

So, detection means to making visible the objects located until then outside the visual field. By detection, they become present for the subject. And thus, able to be better observed: seen. *But they do not become fully present*: they can be seen even in the smallest details, but they remain far away.

Tele-detection

First, as near to us as they may be, the invisible objects are very far away from us. Thus, always detection is somehow *tele-detection*, detection of the far away. It is the basis of our further sighting, because the detected objects need to be clearer, more detailed, thus more able to be perceived in their complexity. What will we see next? The model of *tele*-detection is simple: the invisible objects are made visible as signals meaning different properties of the objects; they become present as *existent for the subject*, and thus the authentic objects which preoccupied him/her and which will to be the basis of further examination and thinking.

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equips man with the first language: that in which the reproduction sign of reality is reality itself. See [Berkeley 1733] pp. 9-60; and [Berkeley 1708] section 46.

[35] Exhumation is not only an anthropological fact and historical information but also an epistemological one.

[36] Introducing here the concept of scientific object is rather risky. The scientific object is a problem, or more dryly expressed, a real object or an ideal one *described according to some criteria* and considered as future investigation objects. The scientific object is not a perfect superposition with the material (or the ideal) object it wants to tackle, but is similar to them. The intention was to signal that the scientific objects too are unknown besides their preliminary design and supply, and that they too are or may be invisible, far away or near. But the paper revolves only around the *material objects*, not around the ideal ones and neither around the scientific objects.

The scientific *tele*-detection is mediated by instruments. The scientific observation is also mediated, and it supposes both the direct vision on things and the mediated one.

The *ancient* dis-covering of material objects brought them into the eyesight, thus into presence, as *phenomena*. The ancient material objects were *appropriable*, and the will to see them had in view or expected either to simultaneously understand them from their appearance (and consequently, use them as simple appearances) or to contemplate them in order to transcend their appearance by the inference of deep causes[37].

The *modern tele*-detection is *ab initio* aware of the lot of *meanings* (theories, ideas, cultural universalism and particularism) and *facets* of the simple appearances. Thus, and even though the objects are visible, they seem to be invisible until they are dis-covered; anyway, they seem to be "far away". For us, detection is *tele-detection*, and includes the space and distances of the objects, as well as the distances between we, observers, and them.

But the more they are "distant" to us, the more their tele-detection means and requires *precision*, and *irrespective of not being absolute*[38] this precision is *sine qua non* for the instruments and the logic of *tele*-detection. Actually, for us to *tele*-detect things, to *tele-see* them, means to measure the space, the distances, and to consider the material objects in measured parameters. For us, the objects are or may be present, but invisible until they are measured.

Measuring objects pertains rather to tele-detection and reflects its sophistication through the instruments without which there is no detection at all. In this regard, we are dependent on the modern (*tele*)-detection and more, on its precision through measurements. By the way, we can have two remarks.

One is the recall of Henri Poincaré's observation about the cardinal measurability of all things. Not all things must be measured – his example concerns the feelings (as the economic satisfaction) – in order to be understood, and first in order to be detected. And, when we try to mathematise them – to measure them – we must be *aware, as mathematics is*, of the *hypotheses* we base on our *arbitrary functions* which are the premises of our measurements and we must try to eliminate those arbitrary functions[39]. Apart from the epistemological emphasis that the lack of awareness of hypotheses means to exceed the reason-to-be (*les justes limites*) of the scientific analysis and of mathematics, we should be sensitive to Poincaré's first remark: not all things (even containing material objects) need to be measured accurately in order to be detected. This remark suggests rather the ancient meaning of detection of appropriable phenomena, but beyond this we should not forget the *everyday empirical* detection. Accordingly, we could observe that in the ancient and empirical detection the material objects are invisible and not present, and perhaps not even presumed; in the modern *tele*-detection the objects are presumed, but obviously invisible and not present.

The other remark concerns the thesis of our *dependence* (literally and figuratively) on *tele-detection* (again literally and figuratively). This thesis can be interpreted in the two well-

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[37] Contemplation needed space, i.e. social conditions for cognitive availability.

[38] Letting aside the historical character of instruments, the scientific precision is not absolute because the mathematics it is based on does not imply absolute precision; but it is as precise as we made/make it and we need it. In "human affairs", the formulas which pretend to fully describe them because they would be mathematically accurate and constant dependable are "pseudo-science" ([Lin '38] p. 5), in technical term, *reductionism*.

[39] [Poincaré 1909].

known antithetical *techno-phobia* and *techno-philia*. To the first we can answer that if we would consider the complex instruments of *tele*-detection as our ordinary eyeglasses which we master very well, then we could apprehend that it's not the lack of control over the instruments that frightens us but the *ends* they are used for. To the second, we should repeat the anterior caveat: apart from their internal determinism, the instruments as such do cause anything, only their users induce the ends; thus, the efficiency of instruments does not consist in shaping power as such, directing power as such, only their users have; clearer, the shaping power of instruments, however real at the technical level since it gives the scientific objects to the scientific scrutiny, depends on its users.

Nevertheless, *secondly*, *tele*-detection does not bring into physical presence the distant objects. They remain far away, but *virtually present* for us. Virtually: because they can be seen and scrutinised, they even may be receivers in the process of communication – as the "partners" within the radars which transmit – but *they are not fully present*. They are rather *data, parameters* for next scientific design of (models of) material objects[40] or of actions, *sketches* for the next real-world visualisation. The physical presence is far away: as in the paintings and sculptures made by a noted researcher in networks[41], transposing the coordinates of nodes and networks in images of these coordinates. They are not even sketches or schemes of real objects and world, but only visualisations of networks which are the basic structure of reality. The networks are not arbitrary, since every artwork lies on carefully chosen formulas. This transposition of "big data" was called a new "realism", i.e. emphasis of the deep down of structures of the world. But if some one would reduce art to scientific images or to schemes, he/she would be analogous to the *techno-philia* that does not consider the complex meanings and consequences of the technical transposition of the scientific imagination, but reduces everything to the complexity and marvel of technical means.

Ubicuity

It is clear that thinking means to bring into mental presence things hidden in our mind. It was clear that to see not seen material objects means to dis-cover them, namely to bring them into *our* presence.

But the detecting, grasping operation have two directions. One is the above-mentioned physical *bringing* of the object to the subject[42]. The other one, especially when this operation

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[40] If we pass from physically distant objects to physically deep objects, so present but directly invisible, we can consider the informational decomposition of virtual/imagined objects, decomposition helped and realised by an advanced level of IT, the AI, as a metaphorical tele-detection in order to design those physically deep objects. In the following example it is about the design of proteins, i.e. of their shape (through combining informational neural networks). See [Wicky '22] and [Dauparas '22]. But although the assemblies resulted through AI modelling – and, once the software/programme is created and running, emphasising the "self-creativity" of the complex of neural networks through the relationships between the information of all the networks, AI is independent – ressembled to the predicted shape [Anishchenko '21], the objects created in this way are only spectres, and in order to become real they need to be created in the real world, in lab.

[41] Albert-László Barabási, see `https://www.barabasilab.com`.

[42] This movement itself – that supposes the subject's/observer's immobility, since this one is served by the material object – carefully prepared in its coordinates and the fitting of instruments to them – *lights* the object and is part of the *clarification* of the object. But since it is about a relationship between the

is not physically possible, is the subject's transposition into the world of the object, into the presence *of the object*. The modern tele-detection, the sophisticated relative of the periscope, can see remote objects, making them present and allowing even a presentification of their space (through imaging radar, for instance), the observers's *tele*-detection devices can receive signals as radio waves from the objects and process them in order to see some of their properties. Radio transmitters and *tele*-vision transmission are developments on the basis of tele-detection.

Therefore, just by bringing the objects into the visual field of the subject, he/she can plunge into their space. This plunging is, first of all, mental and supported by imagination, because *tele*-detection gives rather a sketch of objects, but is no less their appropriation/integration within the real and visible world and the appropriation of their space, as if the observers would glimpse them *being there*. This reverse movement of the subject corresponds, especially in the above-mentioned developments, to an old desired ontological feature of man: ubiquity. It is, once more, a mental ubiquity helped by something like Goethe's abstract and simple *Urphänomen* through tele-detection, but nevertheless it is the subject's presence between these ghost objects, in their space.

1   *Tele*-presence

After the detection of objects, they are visible. Accordingly, they can be scrutinised in order to be seen as completely as possible: including by analysing them, from as many points of view as possible, just because our ideas and theories about them cannot remain only at the level of skeletons but should have as much "flesh" as possible; our knowledge about them being gradually accurate[43] at the extent we penetrate into their concrete multiple facets and their integration. Opposite to detection – the grasping "in general", namely the presence of objects, according to some parameters – our fathoming, including by thorough examination with sense organs, emphasises the *whole* in its concrete dimensions, sides, "colours". Only this whole is "the truth", let's once more remember Hegel. So, after detection we see *phenomena*[44] – in the etymological meaning of the word – and then we search their deep causes, structures and integration in the world in various, including contradictory, relationships.

Through *tele*-detection, this emphasising of objects as visible means for us that they are present, but virtually. This virtual presence is a feature of the human civilisation. The development of civilisation led to the multiplication of *virtual-* or *tele*-presence of more and more objects which we are dependent on in order to more develop as humans. And we are not at all sorry for this *tele*-presence of objects; on the contrary, it is so integrated in our life that – as the humans become digital natives – one of the first understandings of babies is just the existence of *two types of presence: tele*-presence and presence as such[45].

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subject and the object and thus about the understanding of the object, that means and is based on the deciphering of this relationship as such, even the subject undergoes a process of becoming "transparent", see [Heidegger '27] p. 26.

[43] [Schoenfield '22]

[44] Or, if we want to be euphuistic, εἶδος (εἴδε, at plural): originally, visible form.

[45] They distinguish these two types of presence and do not confuse them: they can see mother etc. on the screen of laptop, but do not ask "that" mother to do what they want; they ask only the present mother.

Human beings are material objects, too, which, if they are distant to us, can be *tele*-detected and made present via IT. We talk with *tele*-detected persons, we see them, we see even their facial expressions and wrinkles, but it's not enough for us. They must be fully present for us in order to really enjoy them. They are only *tele*-present, present by being far away from us. It's good to see and talk with people from all over the world. But only the real presence allows us to talk more with them, to understand them beyond the appearance and words transmitted by IT, to share with them more than essential propositions. And we are sorry for not being in the same space.

Even the *tele*-presence of objects is not full, total, plenary for us. We try to make them fully present by giving them all the *meanings* we are able to detect through our multi-sided scientific exploration and philosophical and artistic interpretations. Thus, the *tele*-objects do not become simply present[46], and not simple functions[47], but they are *as if* they were the synthesis of all we perceive through our sense organs, presence in as many facets as possible, ready-to-hand (in Heidegger's vocabulary), more or less rich virtual reality surrounding us. But, this *as if* is always appended with both our sentiment of their insufficient lightness and our imagination trying to better penetrate in their wholeness.

Sometimes, we attempt to do the same with human persons. But it's difficult to give all the meanings they have, since they are only tele-present.

Instead of conclusion

The ancient detection – of a pitcher with coins, buried under a tree – made present a supposed object to being there: a possible object. The modern *tele*-detection – observing objects only by means of instruments which scrutinise *both* the "near" invisible (cells, molecules etc.) and the distant one – does not make them present, but only *visible*. Or: it makes them *present at distance*. And their visibility varies between the limits given by the grasping of their coordinates and those given by more accurate containing of their features: visibility as sign of the different degrees of possibility and reality.

The distinctions regarding the presence and actuality – and the far away – in different degrees are more refined and efficient than the observable/unobservable difference because they do not assume that the far away would not be real and thus, that the credence given to the existence of distant objects would be unreasonable. Unobservable objects before can be observed now with the aid of various instruments. Speaking ontologically, they are real. But the distant objects detected by us – and proven to be real – remain distant even after detection. They are "present" only in the form of tele-presence.

We can take the example of the detection of the pitcher with coins, buried under a tree. Even if we look through eyeglasses at the pitcher and at coins after their exhumation, we can value them – and use them – without a new unearthing. But in examples as dental radiography,

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This ability to distinguish the two types of presence is related to the insight that only living persons move the toys in front of their eyes, the toys do not move by themselves.

[46] They never become simply present, because our awareness of their distant beingness is a tacit, subjacent and permanent idea in our representations of tele-objects.

[47] Or *use*, since they are "equipment" (*Zeug*, Heidegger).

biological samples examined through electron microscopy, stars looked at through telescope, houses and cars on a street in a far away city seen by radars, we cannot handle them without the continuous mediation of the mentioned apparatuses. Sure, we can retain the image and the biological and chemical features of samples and prescribe to the patient non-invasive medical procedures, but the precedent analysis through electron microscopy is "present" – and it is again prescribed in order to see the situation of tissues after medication – thus mediates the treatment. The same is for the dentist who always looks at the radiography in order to verify his/her medical procedures. While for stars and distant objects we can retain their coordinates, but we cannot see them without using again telescopes, radars etc.

Although this paper did not focus on the devices (of *tele*-detection), it's not insignificant to mention that like the objects, *the instruments, too, have different degrees of presence in the human consciousness*. These degrees depend, however, on the habitualness with the devices and on their popularisation in the ideological atmosphere. From this standpoint, there are more visible and less visible technologies. Obviously, the eyeglasses making more accurate the present objects are the more visible. The light bulb lighting rather present objects, the telephone, the gramophone, and the camera[48] which all of them brought and bring into presence distant objects or, better, signals of distant objects, as well as today the IT devices, were and are more visible than the radars, *minus those that measure the speed of cars*. This last specification is not made for the sake of joking but for remembering in passing that the attitude towards technologies depend also on how friendly towards humans are these technologies grasped. But all of these technologies have the same (philosophical) function: to bring into the presence of the subject non-present and even non-real, only supposed, objects, including humans. This function is accompanied with the understanding of the complexity of both objects and instruments, and of the complex, thus even contradictory features of their results[49].

The big problem of how we manage the tele-presence of objects and persons requires at least the caution of not remaining only at the level of sketches provided by tele-detection and tele-communication, neither at the level of models based on these *tele*-detection practices (the focus on circumscribed narrow aims). It's all about not sticking to remote sensing, *not reducing real objects to tele-present ones*.

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[48] As on the façade of Casa Lleó Morera, in Barcelona.

[49] The difference in the civil and military use of these technologies is related to the level of pollution, imbalance in the resources (raw materials) these technologies deployed in civil or military domains use (and concerning the radars, even agglomeration of outer space with functional and already non-functional objects). This note does not suggest a Luddite type nostalgia, but the necessity of a unitary, integrated management of both the *input* of technologies (including science) and their *output*.

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