

Anthropoid odds: Robotics and Cognitive Revolution

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Abstract— The human civilisation is seen reaching critical situations, because its ecologic sustainability is undermined by over-depletion and over-contamination practices, compared to the current availability of natural resources and the planned reintegration measures. The study outlines the *anthropoid* chances, supposing that «life and intelligence singularities», in the past, occurred on the earth, enabling «agentive» skills by *gene* evolution of organic forms and «cognitive» knacks by *meme* fruition of human species. The «progress», thus, is not the effect of «natural laws», maybe, universe-inherent either God-ruled; it is contingently arranged by the men proficiency, using available sources, after biological, chemical, engineering, etc. transformations. The picture can open less dramatic prospects, face to ecology threats, if we restrict our views on temporary growth, bounded by the provisional men aptitudes and possibilities. The survey summarises a few theoretical prerequisites of the contingent «cognitive revolution», with the linked state-of-the-art implications.

Index Terms— Ecologic Sustainability, Anthropoid Chances, Cognitive Revolution, Temporary Growth

I. INTRODUCTION

The ecology teaches us that resource dwindling and waste build-up are progressive harm, destroying the further growth, if just coached by utilising in progress tangible stocks, via value-added transformations. The mankind civilisation is assumed to be the result of mindful alterations of the local earth surrounds by clever innovations, i.e., by discovering ingenious makeovers or visionary revolutions, to enhance the life quality. It is hard telling how and why the civilisation could come about. With some ingenuity, plain guesses are:

- pre-set inner motivation, forced by inherent contributory structures;

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- blissful upper provocation, stimulated by inexplicable opportunities;
- human driven spurs, intentionally planned, under contingent ruses.

In widely shared contexts, the succession of occurrences is thought to result because of underlying acts or facts: all the phenomena in the universe have driving settings, which precede or prompt their incidence. The doctrine allows identifying actual «cause/effect» series, explaining changes and renovations, due to the specific «natural law», which directs the cosmos. The perspectives are somehow bolstering: the civilisation is inborn process; every think has immanent foundation, without margin of doubts. In earlier contexts, the transience of the growth was threatening: the science safe bets are broken up; the trust in mysterious aids might turn to be blessed prospect, perhaps, priced as mankind mission. The ecology brings in highly unlike concerns: the causative framework is impending threat; over-consumption and over-pollution are technical issues, providing proof that the progress trends do not any more have intrinsic substance.

Today we cannot trust on perplexing ventures; we are aware that the contributing frames show the end of friendly surrounds, with enhanced coming wellness. The growth, if any, cannot hunt upper incitement, or inner stimulus; it may only address anthropoid deployments, based on purposeful men-conceived tricks. Is it possible? The bet is reasonable if the men autonomy is realistic knack. The civilisation so comes out from pace wise men doings, after intentional planning the enhancing choices and the drawback removals. Unhappily, we cannot rely on certainties: the pre-set cosmos' stimuli are dubious and surely out of control; the blissful holy goads are pious outlooks. It is necessary to bank on the «rational» picks of the mankind, assuming that the right know-how and proficiency support its decision keeping [1], [2], [3], [4], [5], [6].

The ecology is sad awakening. We understand that the progress is not immanent trait, nor transcendent award; the finding suggests to look at the past, trying to find out alternative explanations. The search stops at the

intentionality of the human goings-on. If this is *sufficient* account, we might consider further options, which depend on the mankind talents, rather than on the natural surrounds. The analysis separates three ranges: how the *intellectual* spheres distinguish from the tangible ones and whether absolute weights exist; why the speculative research can help, remarkably by *robotic* selections; in what way the *perception* frames become constituent and instrument asset. The ecology menace is not avoided; it is only possible to extend the civilisation control, under aware conditions.

II. THE KNOWLEDGE FRAMES

The <knowledge> is typical man invention, produced to describe, store and transmit the abstract mind-content of the thinking persons. In the common understanding, however, many boffins accept as true that the outer reality combines <corporeal> and <discerning> items, viz., <matter/energy> and <information>, or <palpable stuffs> and <rules>. So, a <perceptive framework> exists, with, in the <monism>, insert utility, or in the <dualism>, counterpart role, if it is thought that the reality has provable worth with insightful merit. The view is *faith*, as <material> and <perceptive> items are *objects*, not *subject*, of intellectual abstraction, even if they are beheld at noumenon authenticity, bypassing the empirical evidence at phenomenon range.

In the said view, the <perception framework> is *absolute*: it brings about out-and-out *reality*, with stuffs and immanent regulations (<monism>), or with matter and transcendent holiness (<dualism>). The <cognitive framework> that we experience, just, relies on human observations. We deals with *contingency*, providing <operation dualism>: the <knowledge> is *ex post* construal, conceived by onlookers; its *validity* is based on the <falsification principle>, managed within interpersonal mind worlds. The approach cannot claim, surely, to reach *absolute* truths; however, in parallel, it works via <creative information>, namely, the instant man's <knowledge>. If we get rid of *transcendent* godlike veracity or *immanent* deterministic actuality, the future is pace wise planned by observers/performers, with *a posteriori* choices, having <contingent> *worth*. In conclusion, the *intellectual* spheres distinguish from the tangible ones, because they belong to the *mind* worlds and they are abstraction operated within educated *brains* of the human species. The deepening of the subject has to face several queries: whether absolute clouts are imaginable having *real* existence; how they affect *brains* and, through them, *minds*; or, along a totally opposite way, *minds* act dealing with *fashioned* information, which can factually be used by men; and so on. The extant analyses are a bit misleading, with implicit resort to <cognitive frameworks>, as if they could be meaningful independent on the human processing. Further examinations lead to focus the attention on the

<intelligence> singularity, also, because of the bewildering outcomes already ensued. If the picking is correct, we shall find out suited delineations to deal with <mind> and, thereafter, matched explanations of ensuing upshots [7], [8], [9], [10], [11], [12].

A. Information bases and courses

The genuine <information> is absolute entity, maybe, matter-*immanent* or God-ruled; instead, we have access to *relative* frames. If progress occurs, we recognise that our guesses and actions fittingly hit, even if hazard exists. In contrast: the *transcendent/immanent* ways follow upper/inner (causal) information, and we are subject to already fixed steering; the *contingency* way can adapt the planning through *a posteriori* conjectures, using past outcomes as (interpersonal) <knowledge>.

In the present discussion, <information> and <knowledge> are totally unlike: physical entity, the former; mind construal, the latter. The <cognitive framework> aims at establishing a bridge among the two. The way entails the accepted *faith*. The *transcendence* assumes that God illuminates the men. With the *immanence*, men belong to the natural surrounds; on the earth, the biological occurrences started, with ambient-driven *gene* evolution, and (possibly) *meme* extension to <intelligence>, making feasible the comprehension of the natural laws. The <cause/effect> series is accredited, without exceptions: the determinism grants authentic worth to the detected <information>. Open doubts, maybe, exist about <knowledge> forming and grasping: they are bypassed, once recognised the inborn truthfulness of the natural <information>.

If the faith in *absolute* <cognitive frameworks> is absent, we are obliged to turn towards the *contingency* of the <operation dualism>, established in the mind worlds. The differentiation, here, establishes among the *tangibles*, viz., <matter/energy>, and the *intangibles*, viz., <mind by-products>. We do not encompass *a priori* <information>: the order of the universe, with connected *laws*, the tricky earth issue, with related *evolution*, etc., are stepwise <uncovered>, after empirical trial-and-endorsement. We cannot say that the encountered <natural laws> are *certainties*; we have evidence of noteworthy *singularities*, e.g.: <life>, trailed by *agentive* replication or the <intelligence>, ensued by *rational* undertaking. The cognitive dealings are man's *invention*, which assembles the capabilities of genomics, to propagate self-organised matter, and the proficiencies of the intellectual abstraction, to disseminate intangible reasoning.

The empirical build-up of factual *relative* <cognitive frameworks> is oddness, which follows the <life> and the <intelligence> *singularities*. The former has evidence in the <genome>, showing the series of instructions that define the programme, needed to

propagate the *agentive* quality. The latter has endorsement through *choral* civilisation events. The *choral* requisites stand out, as only the *interpersonal* components instantiate the *abstract* level of operation planning and outcome appraisal, needed to concurrently enable some truly astonishing issues, such as *idioms* and *trade*, viz.:

- the sanctioning of communication talents, with resourceful vocabulary and syntax;
- the enactment of exchange options, in line with fairness rules and authority tenets.

In the depiction, <brain> and <mind> are distinct upshots, each one settled, after an enabling *singularity*. The *gene* evolution is pursued by all the life forms, from unicellular beings, to mammals and to anthropic species. At these ultimate stages, the infra-individual communication and recollection empower data and sympathy interchanges, promoting *relational* understanding. The genomics sustains open loop adaptation; it stabilises, once the altered copy has fitting consistency. The *relational* consideration is closed loop route, the common empathetic issues, even out simulation and emulation procedures, with mimicry fruition. They are said doing *gene* tuning (or *neuronal* recycling), if the basically *deterministic* reading is chased. Presently, assuming the <intelligence> *singularity*, the *meme* fruition looks after weighed propagation paths, purposely addressing long term benefits. The schema is closed-loop, through utility-driven decision making choices; it brings about *rational* legality principled behaviour, as abstract *intangible* quality, after a *posteriori* checks.

B. Mankind culture and ethics

The *deterministic* path up to <intelligence> is, at times, imagined, not ascertained. In default of evidence, the <mind> relates to the subjective experience of consciousness, through which empathy converts in aware *relational* comprehension. Only men develop such results, even if the <brain> of mammals or anthropic species has similar consistency (but post-birth *gene* tuning is quizzical gamble). Then, <mind> defines as the embodied process, which deals with *relational* interpersonal communication/recollection of *information*. It entails interactive data flows between the <brain> belonging to two or more individuals; the new-born child requires the interaction with several *caregivers* (starting from parents and including teachers and trainers), to develop the communication/recollection skills. The *education* entails the *meme* fruition, but completion can be delayed, once suited caregivers are performing.

Summing up, the <mind> assembles: the <brain> of the person; the *relational* involvement of *caregivers* and, later, of any interlocutors; the <brains> of the interacting people, the *memory* of which is retained. In the definition, the word *information* is mentioned; actually,

the *relational* links operate on data flows. The reference to *information* is justified, when our identified models are worthwhile, with issues validated by the <falsification principle>. This agrees with the *contingency* merit of the men established <knowledge>. In the depiction, the stress is on the <intelligence> *singularity*, but the <life> one is similarly recognised, when recalled that the genome provides just *instructions*, and, surely, it does not revives dead individuals.

If this <mind> definition is retained, the mankind characterises by the *relational* faculty. We have already quoted two astonishing issues. In more details, the human knack affords intangible constructions with fully interpersonal gratification and management, not even fancied by other living beings, viz.:

- the culture: coding, processing, sharing and storing of the (creative) information;
- the ethics: invention of collective orders, with tied infra-person/assembly bylaws.

<Culture> presumes <languages>. At the very beginning of the human way-of-life, countless exchange of notions could be conceived, singling out phonetics, grammar and syntax rules, to emit sentences, qualifying objects and actions and explaining connections and guidelines. The account features, gradually, single out a set of patters, leading to a few families of languages by structures (yet, by wide spectra of phonemes); this shows that the *relational* faculty permits setting apart the winning picks (dodging poorer keys). The culture has its start from here; the creation of knowledge, technology, science, etc., is basic support to improve the life quality by (agriculture/industrial) revolutions and, perhaps, the <cognitive innovations> to come. Growth is anchored on the exploration of original sources, expanding the potentially useful transformations.

<Collective orders> are *conceptual* formations, built due to the *relational* enhancing knacks. We discern:

- the companionship sorts: assemblies of kith and kin or friends, to share joys or to pool ideas;
- the partnership bonds: business/trade companies, systematising efficient activity backdrops;
- the governance unions: public/political compositions, sanctioning the members' rights/duties.

The *intellectual* character of the links is explicit, making peculiar the *relational* alliance of the <collective orders>: the *social* correlations bringing to *idiom*, *trade* and *nation* construal share conjectural settings that show the value added, with the build-up of the linked society fruition. The imaginary sceneries bring-in the <human law> concept: the linked readings provide hints about the substance of absolute truths: *immanence* applies genomics (e.g., authenticity by

racial consistency); *transcendence* resorts to upper ascendancy (e.g., sovereignty by Grace of God). Today, the genuine legitimacy does not move out of men <collective orders>, using polls and constitutional edicts, to that purpose. The *contingency* is emergent fact, but nobody trusts in the *absolute* frames.

III. THE ROBOTIC SELECTIONS

The wellbeing is outcome of knowledge-centred man inventions, taking advantage from natural sources, directly employing them (agricultural revolution), or through *artificial* energy (industrial revolution), or with *artificial* actors (robot innovation). The workers are crucial front-end element of material transformations; they, however, belong to the *agentive* side of the welfare scheme. In the plan, the mind world operators go in the *rational* side, conceiving and programming the value added opportunities. The separation of the two ranges is meant to say that we deal with distinct <life> and <intelligence> singularities. Till to now, civilisation could focus on the latter, which only categorises men (from other living beings). The growth continuance, in ecology urging frames, has to emphasise the handling of biological resources, at direct and artificial ranges.

In the present construal, the role of men, on a wholly negligible planet of the universe, is prettily weird: we do not ask the <faith> in *immanent* natural laws or in *transcendent* deity; we trust in tricky singularities, which enable (apparently) progressive fruitions by *agentive* <life> and by *rational* <intelligence>. The related growth goes through *contingent* <cognitive frameworks>, with *invention* of culture/ethics by-products, and exploitation of the surrounds by *intentionally conceived* technological revolutions. The <progress> is *relative* outcome: it builds, because the man wilful activity and self-ruling talent allow the *open* choice of plans and the *free* undertaking of them; it will stop, if the selection is inhibited (due to the eco-spoil) and the feasible activity would not anymore address upgrading picks.

The technology revolutions, in the past, have boosted up the food supply (*agriculture*) and widened the productivity odds (*industry*), by open loop inventions. The ecology requires controlling the supply chain by limits on scraps and waste and by closed loop recovery throughout reverse logistics. The conjectured novel revolution arises from the *perception* change of paradigm, made possible by robot technologies. Indeed:

- robot innovation: the instrumental implements consent replacing front-end workers;
- cognitive revolution: the supply chains include enhancing/recovery robotic processes.

The <cognitive revolution> cultivates mind world breakthroughs and develops realistic innovations at the transformation stage of the <palpable stuffs> and <rules>, because both the <tangible> and <intangible> items are

pieces, running value added by direct handling and by indirect overseeing. The changeovers occur since, in robotics, the *artificial* life is plainly entailed to widen the handled stuffs (face to the *agrarian* revolution), and the *artificial* intelligence has twofold role (compared to the *industrial* revolution), as instrumental tool (*programmed controller*) and as processing aid (*human-like operation*). The latter option belongs to yet-to-be changes, bringing forth constitutive *anthropic* deployments [13], [14], [15], [16], [17], [18].

A. Artificial intelligence deals

The word <robot> keeps the slavish root meaning <work>, so the established contrivance is equivalent to (*synthetic* or *artificial*) *worker* or *operator*. It is, moreover, worked up to be an <artificial man>, so the setup provides *human* (*robotics*) capabilities, and it can be engaged instead of any (*real*) *worker* or *operator*. That twofold role means that the robot's appointment involves performing duties together with jobs' performer: the robot is instrument and constituent of the functioning (exactly as a *real* operator). The fact relevance is clear when experimenting on the <matter/energy> and on the <knowledge> parallel falling-off, which is not always well appreciated, if we mix intangible and tangible chances.

At the earlier stages, robotics pertains to areas of *applied technology*, aimed at design and utilization of targeted equipment, which, thus, replaces men's operations and duties, by suitable autonomy. In principle, the substitution avails of two supplementary backdrops:

- artificial intelligence, by which imparting logics and cogent aptitude;
- artificial life, by which emulating operational behaviour's autonomy.

At these stages, the robots are computer steered/controlled machines. The former backdrop progresses by teleology, using design rules to confer <rational> ability to devices, up to suited levels. The latter avails of anthropomorphism, moving from *natural* life <agentive> talent to mimic <rational> human decision keeping. The two lines are supplementary and the targets distinguish into:

- instrumental implements, when the artificial intelligence offers the main purposes;
- anthropoid deployments, when the artificial life is the main operative stimulation.

At the initial instance, the industrial robotics is the response of the change of course from *scientific*, to *intelligent* work setups, since the *scale* economy is swapped by *scope* economy. The on-line inset of robots consents removing high-output special-purpose machine-tools, replaced by universal

machining-centres. In parallel, robots allow doing sets of tasks, substituting men in dangerous or unsuited surrounds, or if better efficiency is attained. The latter targets enjoy attractiveness, due to the fallouts in key fields, e.g., *genetic engineering* and *human robotics*. The anthropical deployments are, here, especially addressed, to conceive *artificial life/intelligence* aids, aimed at <to dematerialise> and <to rematerialise> functions, for the ecology management, cancelling out the drawbacks ensuing from *natural* hoard/recovery lacks.

The instrumental robotics is totally acknowledged innovation, and we shall not insist on the linked tricks. The anthropoid robotics accomplishes *constitutive* handling of <matter/energy> and <creative information> or <knowledge>, enabling tangibles-to-intangibles correlation. An example investigation helps explaining the parallels. With men, body illness and/or decline is currently monitored and assessed; brain weakening is, as well, supervised. Forlornly, the *gene* copy fitness is mostly overlooked; in fact, it is marked by <telomerise>: the DNA replicas omit extremities; idle parts are attached. The ageing takes over, when handy data do no longer exist. An eightieth-year-old man may suffer of the three-eighth drop. At the species range, also, the *fitness* is far from improvement. The parasitic transcriptase is weird mode, by which *transposable elements* tune other *genes*; this way, the *endogenous retroviruses*, e.g., are intruders entailed by the on-off switching of *gene* tuning, particularly active with pluripotent cells. The evolution trends do not have raise effects, but just adaptive courses. A mere *gene* track is far from eschatological robotics: the all repeats a typical entropy falloff of the actual *tangible* <information>, compared to the *intangible* <knowledge>.

B. Artificial life arrangements

The last observation gives hints on why *artificial* life provisions might help for recovery/rescue tasks. The <matter/energy> and <information> parallel evolution (and decay) is object of detailed studies, via anthropic applied analyses, mixing biology investigations on the living matter, with focused robotics experiments. The <cognitive revolution> success ought to develop outcome in these fields, bringing to growth persistence, at least, within short forecast views. The finding of *artificial life/intelligence* aids, aimed at <to dematerialise> and <to rematerialise> functions, is fruitless, unless actual reverse logistics aftereffects are reached, granting efficient therapies and remedies, to the extant over-depletion/pollution of the earth. The bet is open: here, short hints on the research trends can offer some insight.

The (molecular) biology fallouts aim at copying

agentive conduct (of living beings) and *rational* manner (of humans); the issues permit performing *artificial* handlings out of previously non-existing life forms, and addressing carefully selected choices, with retrieval/cleaning results. The robot innovation is enabled once the *manmade* guidance generalises those processes, feeding the regular supply chains, rigorously involving <sustainable corporation> solutions. The prospects open results, which, in our views, classify within *meme* tracks, more than *gene* ones. They are, roughly, named *human robotics*, leading to the <artificial man> (may be, with *silicon* brain), which develops <knowledge>, miming the mind activity. Thus, the above said robot's twofold role is at its very beginning at the *artificial life* range; indeed, at the *human robotics* stage, we only discuss a few investigation supplementary suggestions.

For *recovery/remediation* prospects, the *agentive* conduct copying is relevant outcome. The researches look at *gene* tuning: this way, we can guide the *life* of specific biology processes, along the offsetting of the over-depletion/pollution build-ups. The *rational* manner duplication is pursued by *meme* tuning, without an explicit *gene* involvement. The *intelligence* is construed on the relational capabilities: the interpersonal cues mature on emulation and mimicry functions, with trans-cluster effects. The *gene* tuning is thought to occur, basically, because of outer impacts. With *multi-gene* beings, inner and outer coupling ensues; the complex organisms require training and education, before reaching poised wherewithal. So, advanced robotics looks after <trans-humanism> options, even while coded mechanisms are not detected, at the inborn range. Thus, the *relational* mapping is described as *meme* tuning; the reading suggests that the *intelligence* starts at the interactive stage between taught <brains>, which are progressively cultured, to become <minds>. At the end, the effects are chosen among those maximising the *recovery/remediation* prospects.

The *human robotics* is fascinating field; it is essential achievement, on the road of mixing *agentive* with *rational* abilities. Presently, the evolution *fittingness* is thought *gene*-driven, with inner and outer entropy decay constraints: self-replication characterises a series of molecules, carrying the four letters: *A, adenine; C, cytosine; G, guanine; T, thymine*. Quite recently (at the Scripps Institute, La Jolla) a modified bacterium is made reproducing with additional letters, leading to new life forms and suggesting that the *life* alphabet is larger than the one of the biology we know. In robotics, the *fittingness*, therefore, splits in three: the clone-cuttings track, with *gene* copying (doubles do not save *relational* picks); the gmo, *gene* modified

organism track, the bias is preserved; the ⟨post-biology⟩ track, the species' engineering has to be devised. In parallel, the ⟨post-humanism is robotic theme developed via *meme* courses, until when mind/brain links establish only at trained *interactivity* range, and not at evolution *fittingness* one. ⟨Post-biology⟩ and ⟨post-humanism are premises to trust in the *weak* anthropic principle, assigning the growth expectancy to the *intelligence* singularity, which will conceive the robotic innovation, due to breakthroughs done on the *life* singularity.

IV. THE COGNITIVE UPHEAVAL

The robot recovery/remediation prospects will depend on the discovery of fitting eco-driven anthropoid deployments, i.e., of the artificial life/intelligence emulation and simulation issues, providing compensation and reclaiming, face to the current over-consumption/pollution trends. The option is side-effect of a robot application of *contingent* ⟨mental frameworks⟩ in view of the:

- cognitive revolution: manmade guidance of the artificial ⟨life/intelligence⟩ aids.

The here quoted application explicitly aims at *eco-correct* deliveries, viz., through *equalised* retrieval and reclamation, by ⟨to dematerialise⟩ and ⟨to rematerialise⟩ procedures. The robot, in general, helps providing a combined test bench, to unify the cerebral (by *brain* maps) and intellectual (by *mind* maps) investigations. The experimentation, today, makes use of drastically simplified *hardware*, compared to the *brain* neuronal complexity; the *software* is likewise shortened, but the interpersonal neurobiology seems providing insight on the *mind* operation, confirming the linked basic relational construal. Presently, moreover, the computer image offers easy analogies: *hardware* and *software* are tangibles, the former exposed to *brain* evolution, the latter ending with *mind* interactive virtues; the former builds according to the genome instructions and the latter pace wise progresses, agreeing with the interpersonal relational cognitive agendas.

The robot picture provides further similarities: *artificial* life/intelligence devices are corporeal *hardware*, engaged in material undertakings. These merely add an *agentive* side, to the computer architecture. At the *software* range, the changes entail the execution and the control of programmes for *physical* tasks, further to *mental* chores. The ⟨invention⟩ of the *software* is, in both cases, man's prerogative and duty, i.e., it shall involve *intellectual* implementations. At the current comprehension, the *mind* maps discern upshots (men think), from processes (cognitive agendas): the former leads to ⟨knowledge⟩; the latter entails interpersonal relational talent, ending

in abstraction and coding wherewithal [19], [20], [21], [22], [23], [24].

A. Creative information worth

The relational cognitive frames have completion postponement characterising the mankind and lasting several years after birth. At the beginning, the ⟨intelligence-based⟩ relational fruition entails the exchange of signals, with inclusion of an educated reading. Soon, the baby is taught joining signs, to abstract meaning acknowledgment. The ⟨language⟩ presumes representation symbolism by acting with allegories, yet saving *mindful* conscience: the acceptance of signals/nods with no bias, viz., with no-debated integrity. The ability progressively extends the ⟨vocabulary⟩, the ⟨sentence patterns⟩, the ⟨behavioural arrays⟩, etc., namely, the abstraction of ⟨knowledge⟩ fragments.

The intellection processes of the relational fruition organise a twin result: subjective self-sense; shared conscience. The cognitive frame is strongly driven by the local teaching, and its integrity is collective issue. Otherwise, the attention (conscious or not), apparently, moves, within all the animals, along similar routes; the perceived indicators follow comparable priming and training (gene tuning by neuronal plasticity); soon, however, in the mankind, the relationships sharing, through construed signal/nod sharing, turn to become creative information (knowledge) of the given assembly, after the outcome labelling and collective sharing of the symbolic meaning. The terming and encoding of experiences is *collective* neurobiology mark, which exceeds the restricted brain talent. The brain pooling is ⟨net theory⟩ investigation, which tries miming the strictly causal patterns, via tolerantly interactive constraints. The exchanges are, surely, conditioning edge, still the abstraction and labelling outshine the animal perception, but are common mind-sight/mind-reader effects in the *meme* fruition.

The ⟨knowledge⟩ (creative information) track is standard achievement of the ⟨intelligence⟩ singularity. In the sequel, noteworthy notice has to be focused on the mind tuning opportunities: receptivity, awareness, narration, and so on. The openness fosters attachment (affection, fondness, etc.), forming caregiver bonds. The consciousness allows interpersonal adjusting and self-regulation, with culture/ethics amendments. The personal unfolding provides meaningfulness to mind-set sequences, with emersion of spot marks, the mind statuses, linked to form contexts, and enabling coherent telling for data processing. The skill to see his mind and to read the caregiver mind are extra symptoms, setting the parallel distributed processing of neuronal net towards ⟨knowledge⟩ amalgamation. The

mind worlds are *intangible*. The linked statuses have coherent reading, after the contributory tweaking of memetic fruition by mind-sight/mind-reader upshots. However, without the <knowledge> abstract premises, the *tangible* progress could not exist.

These outlined *mind* map upshots are, indeed, rather patchy: since we perceive that we are thinking, the extant gaps are amazingly neglected, as if the creative information could be a real datum. Such problematic choice worsens the comprehension of the *mind* map processes, as if the relational interactive virtues would necessarily promote abstraction and labelling results, such as idioms and trade. In default of coherent clue, the <intelligence> singularity is guessed, justifying the *mind* by interpersonal cognitive agendas, directly built as the proposed peculiarity consequence.

B. Perception track conversion

In the study, not only the <knowledge>, rather as well the <perceptive agendas> are *contingent* upshots, which might be engaged to unequivocally affect the surroundings. If this can be trusted, the eco-consistent growth will be preserved until the depletion and contamination aims are kept below safety bounds, by <to dematerialise> and <to rematerialise> procedures. This entails the <invention> of robot *software* with <data> (programmed instruction) and <measures> (on duty *mind* maps), in the average, verifying the needed aims. Indeed, the robots of the <cognitive revolution> have to include *software* at suited anthropoid deployment, which will grant the recovery material stuffs by the appropriate *synthetic* <life> processes.

The <artificial life> arrangements are deemed playing decisive role in future robot technologies. The eco-recovery at engineering extension requires batteries of devices, with interactive cooperation, to implement several parallel jobs, each other copying the (synthetic) *mind* statuses, by cross-robot communication. The goals are *gene* evolution imitation, to add-up agentive practice outcomes, and *meme* fruition emulation, to enable perception practice results: robot-made processes repeat man-made ones, with equivalent clouts, but granting industrial efficiency. The man/robot parallel is surely stimulating; however, if the here stated interpretation (with life/intelligence singularities) is opted for, the equivalence requests cautions. Concise comments are useful.

In the study, sharp otherness involves <information> and <perceptive agendas>: in men, the latter allow priming the processes, converting brains into minds, by interpersonal communication, scanning signals via symbols and performing *abstract* meaning allocation. In the done analyses, evident differences appear:

- the man relational intelligence has active labelling and sharing self-capabilities;
- the robot interactive aptitude is stimulated ability, handily designer's specified.

The pieces of information and the processing schemes are fully equivalent and tangible, when the *mind* statuses and the *mind* maps are identified and took out; it is, however, questionable extending the likeness to <knowledge> and to <cognitive agendas>, since these entail interpersonal relational talent, with attached labelling and collective sharing. The *intellectual* implementation involves comprehension (men think), once the child education allows <conscious agreement> with the caregivers' lines. At these stages, however, the thoughts and the mental ideations are intangible, whether the corresponding robot implementations are material *software*, with outer identified conceivers and programmers. The full equivalence may be reached on the yields. The <operation dualism> allows distinguishing the (creative) intellection, from the (purposely designed) technology; it, as well, justifies the <cognitive revolution> hypothesis, allotting competencies and autonomous decisions to men, and distinguishing from them the surroundings, with connected decay and recovery potentials. The ecology menace exists: the robotics has to be used to discover and to implement appropriate <to dematerialise> and <to rematerialise> measures.

CONCLUSION

Face to the future, the ambivalence of the human dreams and fears reveals the uncertainty of how we deal with devised models and science facts, when required to make forecasts and to plan balanced issues. On one side, the <information revolution> is universal panacea, along with visions turning everything into top wellbeing; the other way, the <ecology globalisation> is worldwide jeopardy, with impoverishment and contamination trends, towards the earth self-annihilation. The optimistic views trust in the cosmos' inner imperatives, in the God's upper benevolence or in the men's contingent competencies. The three outlooks differ, because the initial two establish on *absolute* positions, received corresponding to *immanent* laws or *transcendent* truths, while the last one is merely built on *relative* outcomes, factually linked to *conditional* conjectures [25], [26], [27], [28], [29], [30].

The last perspective, moreover, has the good point to separate the man adventure, from the overall backdrop. Indeed, the faith in the natural rulings or in the godlike edicts cannot be disputed: the progress, then, transforms in fixed assignment either allowed mission, exhibiting inherent determinism or heavenly appointment. The all conflicts with our doubts about

the growth sustainability, or, what is more, alarms, if we start grasping the incongruity of the *absolute* universe's actuality, against the *provisional* mankind facts. The basic hesitations, besides, are fostered by the recognised oddness: it is hard to balance the universe by the terrestrial occurrences or to equal the infinity by some makeshift episodes. The reverie, however, helps refocusing the human civilisation without the arrogance to exist as the leading centre of the cosmos.

The *conditional* reading is, in the study, associated to two earth singularities: the beginning of the <life>, say, the formation of self-ruling replication processes, promoting *agentive* metastable setups, with adaptive *gene* evolution; the origination of the <intelligence>, say, the start of autonomous decision-making courses, supporting *rational* deliberate formats, endowed by *meme* fruition. These outcomes are explicitly explored, because the developed construal is centred on the men proficiency at the restricted *contingency* range. The option has advantages and drawbacks: the growth is temporary chance, totally ascribed to know-how and free will. In addition, the <cerebral perception> converts in <cognitive agendas> in men's situations, opening the possibility to envisage the instrument and constituent exploration of the robot technologies. The dream addresses joining the agentive practices, by *synthetic* <life> processes, to the cognitive practices, by *artificial* <intelligence> implements, ending with the suited <to dematerialise> and <to rematerialise> results, sadly, at temporary and contingent extension.

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