Hypothesis for an Interdependent Neural Collective

Premise

History teaches us that the succession of survival and extinction of species on this planet, regardless of their nature, is necessarily linked to a single factor: the capacity for adaptation. While mortality defines us as living beings, the ability to adjust to changes acts as the coefficient that reduces the percentage of causes of death: this is because we are not self-sustaining beings regarding the biological functions essential for our survival; rather, we depend entirely on the environment we inhabit for every single process, whether physical or chemical. Geological changes can be categorized into macro-level or micro-level phenomena. The former can be seen as a stage where the margins of an alteration compatible with life must always remain at levels that allow for minimal variations. This includes phenomena that complement or protect the vital primary processes of any organism, such as oxygen in the cellular nutritional-respiratory process or the geomagnetic field, without which we would literally be burned by solar winds. The latter, macro-level phenomena, operate on a lower tier, where variables such as weather events, seasonal changes, and dietary habits offer broader margins for adaptation. Nevertheless, the underlying concept remains the same: we are guests of this planet; therefore, any mutation in its conditions that affects the prerequisites for biological existence must correspond to necessary alignment and balance by the species involved

Classification of Adaptation States

Adaptation can be subdivided, when taking the natural-evolutionary process as a baseline, into fundamental elements, each of which leads to the subsequent one. These can be viewed progressively according to the following sequence: biological adjustment, which can entail logical cognitive development, and which in turn can lead to technological development. It is crucial to understand that evolution, as documented in diverse species, has shown us that all processes to be described are necessarily interconnected and that, even if indirectly linked to the initial starting point, they must, as an irreproachable condition, emerge from at least the immediately preceding levels, whose continuation will shape the evolutionary trajectory itself.

Observed Evolutionary Processes

Let us take biological mutation at the chemical-physical level as a starting point: this is by far the most widespread adaptation phenomenon recorded in planetary memory. This phenomenon is characterized by privileging hereditary changes within a species that are functional to overcoming a particular critical condition for survival, thus allowing these traits to be transmitted to the next generation. It does not limit itself to the survival of the existing group with these genetic traits but creates an imprinting in reproduction whereby changes are preserved in the species permanently, or at least as long as they are strictly necessary for survival. When an inherited trait becomes unnecessary, precisely due to the species' increasingly non-essential dependence on it, that trait may recede or, in some cases, disappear, favoring new mutations that may have arisen over millions of years to counter new phenomena occurring in subsequent geological eras. It is no longer a mystery that, in our primate relatives, the tail is an invaluable aid for living in trees, contributing to their center of gravity during maneuvers in conditions where balance is often unstable and serving prehensile functions for grasping objects or branches; however, for humans, who have developed an upright posture and whose habitat is terrestrial, such a tail would be more of a hindrance than an advantage. Yet it is not a wholly vanished trait, as recent studies suggest that the terminal portion of our spine (the coccyx) is nothing other than the vestige of a tail. In contrast, consider giraffes, where the recession of genes that govern neck length would pose a serious risk to their ability to find food; thus, natural selection operates unambiguously: individuals unable to reach branches for nourishment will not survive to pass on their inadequate genes to offspring, as they will inevitably die before reproducing.

Now, let us turn to cognitive-logical evolution: this is closely tied to the evolutionary process of biological mutation but offers an alternative that extends beyond merely physical capabilities to better exploit the environment through engineering of those capabilities. For example, revisiting the case of the giraffe: even if the species possessed an intellectual process capable of enhancing the technological level of individuals to reach nourishment from trees, the morphology of their limbs would hinder practical realization, both in the creation and use of any tools. In contrast, a monkey dealing with a coconut can not only shake the fruit to determine if there is water inside, but also utilize stones or other objects to open the fruit and drink its contents. However, it must be emphasized that such logical processes are not necessarily instinctive in the individual; alternatively, they can be acquired and memorized through a series of synaptic associations that determine learning through numerous sequences of interconnected neural reactions, resulting in myriad practical acts in attempts, where inconclusive outcomes are discarded, while successes are memorized and taught, observed and learned by other individuals. Thus, individuals will be better equipped to replicate the processes that led to the final outcome, expanding, correcting, and transmitting the chain of learning.

To be more specific, we might also categorize the associations leading to cognitive processes (in a summary description that does not do justice to the vast and complex synaptic phenomena inherent in the neural network itself, many of which remain only partially understood) into two stages: instinctive-derived logic and pure-intuitive logic. Instinctive logic (or modal algorithmic logic, taking a mathematical standard as a reference point) is almost entirely interwoven and derived from our primary sensors: for instance, when we hear a loud noise stimulating our auditory apparatus at an intensity greater than what we experience in daily life, it makes us jump or at least prompts us to consider the occurrence a potential danger, thereby alerting us. Intuitive logic (also referred to as heuristic) is, however, a far more complex phenomenon that contemporary science describes at a deep level within the individual. It is more closely associated with intrinsic intellectual modus than with direct reliance on external senses: there is no specific and static term since all studies conducted thus far suggest that neural associations are entirely dynamic and never static, hence we speak of the “set” of our memories, the “totality” of our neural network, the “flow and becoming” of it. This type of logic is markedly more refined than instinct, as it prompts us to analyze and consider phenomena that may initially appear unnoticeable or dismissed precisely because they are not directly signaled by our bodily sensors: we do not see bacteria or other microorganisms, we do not feel cosmic radiation, we do not perceive radio frequencies beyond a certain range; however, by analyzing the effects of their existence, we have built instruments capable of detecting and sensing dimensions, nature, and intensity, and hypothesizing, once our range of comprehension has broadened, the existence of other similar or dissimilar phenomena.

It is redundant to specify that only species with substantially evolved and sufficiently rapid synaptic networks can develop a significant level of intuitive logic, which may lead to another stage of evolution: technological progress. As the term itself suggests, its meaning is far broader because research connected to technology impacts both the theoretical understanding of reality and the fundamental nature of materials, as well as their usage and properties, exerting direct influences on social and political organization. Indeed, whether one likes it or not, technological progress has always been the spearhead (or sword, to be a tad sarcastic regarding its primary uses on more than one occasion) in all historical eras of humankind, playing a primary role in all scientific accomplishments and beyond. It has allowed civilizations, whether vanished or future, to establish a standard reference, so that even today we discuss primitive and advanced civilizations. Consequently, all discoveries across any human domain have, in technological progress, the foundation that has continually driven their paths and reshaped their foundational aspects towards new horizons.

Technology and Biotechnology

We tend to conceive of our planet, our solar system, and our galaxy as components of a perfectly synchronized clockwork mechanism ticking away the passage of time. It is needless to say that this is not the case. The fact that our own evolutionary history is too brief for us to observe appreciable change in the planetary context we inhabit does not imply that drastic changes have not occurred, or that they will not occur again. Numerous catastrophes, documented at the level of geological eras, caused both by the nature and configuration of our planet and by external events, have led to mass extinctions affecting almost all specie; it has even been hypothesized that such changes may have acted multiple times on a macro-level, from asteroids to exchanges of planetary orbits (which exert gravitational influence on one another), completely sterilizing Earth on several occasions, leaving no remaining life forms. However, it is not necessary to await the next event to realize the necessity for technological systems that balance potential changes: consider that all forms of life have developed and adapted to the specific conditions present on this planet's surface; therefore, the moment we venture away from it, we encounter a hostile or, at the very least, extremely inhospitable environment. The first consideration is the quantity of oxygen, which is infinitesimally less in space than that on Earth: this factor alone would result in a human being dying within minutes. This minimal amount of gas in space also leads to nearly zero external pressure, the absence of which would disrupt the balance with our internal pressure, disorienting us, damaging blood vessels, and ultimately killing us, even if not instantaneously, within a relatively short time. One could go on discussing cosmic radiation, which has recently been deemed responsible for a significant percentage of illnesses among the astronauts of the “Apollo” missions, or variations in temperature, not to mention the fact that, beyond 2000 meters above Earth's surface, gravity would cease to pull us toward the planet's center, transforming into “microgravity,” causing muscle atrophy, osteoporosis, and numerous other phenomena that are still under study and research. Therefore, let us return to the focal point, which is the adaptation of species: how can evolution find solutions in cases of drastic geological changes on our planet within the habitable zone on the surface or even above or below it? Hypothetically, we might construct houses and space stations at higher altitudes, remaining above sea level up to the limit where life can be sustained, allowing human, animal, and plant species to persist for tens of millions of years, and then observe whether any genetic mutations lead to improved environmental sustainability. This process can then be repeated at subsequent levels, for instance, moving from the stratosphere to the mesosphere, and from there to the thermosphere, and so forth. In any case, we would eventually reach the insurmountable limits of the primary necessities of carbon-based life as we understand it, meaning that macro-level mutations cannot be sustained through any form of evolution, at least not by the complex forms of life as they currently exist. It is no coincidence that we have not discovered life forms in space, nor would we find them on the solar photosphere at 5000 degrees. Technology in this sense can provide significant (and surely more rapid) contribution to adaptation and survival. To start, without a contraption designed for space travel, our physical bodies alone would keep us grounded by gravity even just a few meters; we would need spacesuits to balance pressure, oxygen tanks for breathing, and adequate protection against solar rays. This is merely the beginning, given that, as biological beings, we also require nourishment to perform our physiological functions, and so forth. Solutions for each single problem have been theorized and realized thanks to hundreds of individuals who have dedicated their lives to hypothesizing and developing solutions.

Permanent Implants and Nanotechnology

The question that has recently emerged is different: to what extent does change necessitate the permanent integration of potential solutions within the human body? To clarify, why do we not always wear a spacesuit? Simply put, because we are not always in space; thus, there is no need to wear one on Earth, at least not for survival purposes. But what if we needed a permanent aid for a vital function? It’s not a fresh news, at least for over half a century, that an individual can carry an electronic pacemaker to regulate the heartbeat; in this case, as is easily intuitive, the internal modification of the human apparatus must be permanent, aiming to avoid the problems for which it was implanted. The first so-called “Pacemakers” were external containers housing the necessary battery for their operation; today they are even integrated within our very hearts. However, further theorizing suggests: why not create a device that, if electronic, could convert the very biochemical energy of our bodies into electrical energy for self-sustenance? Or even better, construct it as an additional biological organ that could coexist with all other organs in our human body? Until a few decades ago, this was deemed entirely impractical; however, today we have reached a level of miniaturization in electronics allowing for the creation of nanomachines capable of interacting with our most minute organic processes. On the other hand, bioengineering has not remained stagnant either: the same process can be executed through the cultivation of modified cells, which can themselves intervene where and when needed according to their function. In fact, we are already doing this (consider all vaccines currently in production), and in the future, there will be a much more selective application utilizing microelectronics and genetics independently tailored to the required utility: for example, in the case of a tumor, where it is precisely the cells that are attacked, the use of nanoelectronics (which, by its nature, is immune to the tumor itself) would be much more effective for its eradication, while in the case of permanent prosthetics, it would be far better to biologically recreate the affected part for improved and natural adaptation. This is, of course, necessitated by micro-level changes; however, when there is a need, returning to the astronaut example, for a permanent suit within our bodies, should we spend our whole lives in an atmosphere-less environment, there are those who advocate a middle path: the merger of organic and electronic components, such that we may exploit the advantages of both for better and quicker adaptation with minimal negative consequences. This may be applied broadly, from humans to plants, or even concerning a planet itself; that is, executing terraform on a sterile and life-averse world to render it sustainable and better suited for any potential biological presence.

Conditions for Scientific Evolution

Returning to the primary process necessary for the inheritance of collected information, the acquisition, teaching, and learning of acquired knowledge,one might wonder why scientific progress has surged exponentially in the last 100 years compared to the thousands of years documented by ancient civilizations or the millions of years of primitive civilizations unearthed, during which they could barely progress beyond the use of stone tools. The explanation is straightforward: the possibilities for information intercommunication among concurrent ethnic groups were considerably limited; hence, even individuals whose synaptic networks might have processed data more effectively were deficient in the actual data required, having to start with minimal acquisition or at least a rather limited cultural transmission, particularly regarding technology, alongside all the implications this includes. Adequate physical, chemical, biological, and engineering knowledge were absent, but more importantly, every minor discovery remained localized and not always reported, thereby forcing anyone encountering the same problem subsequently to start all over again. Additionally, as previously stated, the human brain primarily operates at the instinctive-derived level, associating unknown phenomena with practical experience without employing a genuine scientific method to validate hypothetical theories. This often results in beliefs that, while lacking logical foundation, are easily propagated socially, thus causing passive acceptance by the masses who adopt them as true. Therefore, any potential analyst examining phenomena in a scientific framework must first free themselves from misconceptions. Moreover, the analyst would encounter skepticism from the collective populace itself, which may be reluctant to accept more complex explanations. In the last century, communication channels have multiplied; transport networks such as railways, maritime routes, and air travel have accelerated physical movement, tools like the telegraph, telephone, radio, and television have facilitated rapid information exchange, and more recently, the internet has exponentially increased the availability of diverse data globally. Thanks to this enhanced communicative interrelation, it is no surprise that all populations that have not remained isolated from the rest of the world have found improved grounds for development in knowledge and technology, paying particular attention to educational and formative processes. Modern scientifically open societies have indeed focused on a compulsory learning pathway through which each new individual can be equipped with solid foundational knowledge so that they can choose their field of study as early as possible.

Neural Connection and Interrelation

Given these premises, science is leading us toward a higher stage of information transmission: direct synaptic communication, which will enable almost instantaneous information exchange between one brain and another. This will soon become feasible due to the tremendous advancements made in understanding how and to what extent neurons can communicate with each other and exchange the information that comprises the neural network, with derived technologies, both electronic and biological, laying the groundwork for the construction of new neuro-communicating transmitters between one mind and another. Thus, it is hypothesized that in a few years we will be prepared, thanks to the previously described technological, biological, and neural advancements, for the next step in communication: the sending and receiving of our information and memories through an expansion of our sensory perception that is no longer tied to a single individual but to a collective. The transmission of data and their processing will thus be global, with each individual acting as a node of exchange within the network, not merely as the singular processing element. Even today, some wonder why, at a certain communication speed via the internet, humanity resorts to such a primitive and slow system of communication as language: relying on a mechanism arising from vocal cords, designed neither for prolonged nor continuous use and which, after a few hours of sustained activity, induces pain and temporary loss of voice, is, to many, a relic that makes us resemble noisy primate troops rather than pioneers of the cosmos. For example, if the sending and receiving of even a city's emails were entrusted to a vocal cord-based server, we would not send or receive half the emails from just a few individuals in a solar day, let alone a million. Two questions thus arise: to what extent can a single brain not only receive but also process information, and how much can a mind process different information simultaneously, or not one process at a time? Regarding the first question, without practical evidence concerning limits of information acquisition, one can only hypothesize theories until a physical standard of reference is established. As for the second answer, nature has already demonstrated that the human brain excels at processing a set of information focused on a single theme at a time (regardless of quantity), favoring information deemed necessary while excluding that which is considered non-essential. This exclusion occurs not only logically, but also physically-receptively, inhibiting the processing of non-involved senses: for instance, if we were to observe a painting or concentrate on writing, we would be less stimulated by auditory or tactile events; thus, we might not notice, for example, that we are being called, while we would much more readily notice a fly or an ant moving within our focus of vision. Conversely, if we were engaged in conversation with someone while observing another event, discussing matters unrelated to the observed event, our minds would isolate the extraneous audiovisual stimuli, as those two events would be dissociated from an associative perspective. This is a process often taken for granted, but its absence can create serious mental disturbances within individuals: it is believed that a lack of this associative discernment (sometimes linked to so-called attention deficit) may correlate with certain forms of autism, significantly impacting social relationships both in the short and long term. It remains clear that, as new experimental data emerges, we will be better positioned to quantify the shape and limits of our cognition.

Unity is Strength

In light of the above, just as it has been established that specific areas of our brain are dedicated to various forms of processing, a single set of interconnected minds could constitute a data computation core for a given event. One collection might duplicate data perception for an event of the same logical nature but across different sensory planes, while other collections could address events of different logical natures. There would be no limit or centrality to the processes; rather, everything could be distributed within a logical framework that would establish an increasingly extensive interactive interdependent neural collective: this way, the associative limits of individual minds could theoretically be transcended. Furthermore, processes of rest and neural attenuation could be regulated; when one set of minds is in a state of quiescence, another could continue collecting data, while another might engage in calculation, and so forth. Networks structured in this way could therefore resolve in a very short time processes that currently require months or years of study, theoretically arriving at solutions that presently appear unachievable, creating a genuine force of thought far greater than what is conceivable even with the best communication tools currently available.

Unity is Consciousness

One of the most contentious points has been the concept of a shared mind aimed at creating a collective: some argue that the process will be spontaneous for the simple reason that sharing sensations, experiences, and associative processes will inevitably lead to a migration of the thinking ego from an individual to a group. Two or more minds may also think different thoughts, but they will be connected by a common individuality, which may lead to a shared flow of sensations; in this sense, if one mind were capable of perceiving and processing another's receptors, a joint development of emotions such as pain, joy, and instinct for preservation could emerge. Raising this to the level of all humankind, a collective consciousness could thereby form, wherein all members would experience themselves as a single individual, multifaceted and with multiple personalities, which, when correlated, could determine a shared predominant or at least more incisive identity; thus, a flow of personalities could also come to light. Some venture further, speculating on connections not just among similar minds but also with those of other animals, or even interfacing with the receptors of plant species for global intercommunication. If this were truly possible, what sort of personality might emerge? Conversely, some firmly believe such a connection is impossible, asserting that every consciousness remains individual, minimizing or nullifying the significance of others' sensations, akin to reading a newspaper and only seeing the stories that interest us. Clearly, for now, we have no definitive answers; however, such developments would undoubtedly imply profound implications for our perception of the world as it is presently understood: would humanity still see itself as the center of the planet?

Unity is Civic Sense

In any attempt at social development, an ordering of the members belonging to it has always necessarily emerged, whether directly or indirectly leading to what can be defined as civic sense and its application. So, what type of organization could emerge from a neural collective? It is hypothesized that, by its very nature, there cannot exist a true hierarchy of command linked to a specific group or individual within the network: everything would be decided by the collective, approved by the collective, and respected by the collective, without even the need for written laws, courts, or judges, as the conscious self would represent the community. The most that could be established would be priorities regarding one process over another, but not dominance or preference; in short, everyone would possess the same duties and rights, even concerning differing roles or tasks. Certainly, this would give rise to problems that perhaps no human has yet considered: would we continue to allow individuals to starve, be victims of wars, or endure acts of barbarity when those individuals are, in fact, ourselves? And in the previous example of a communicative interdependence encompassing the entire planet, would we still consume animals or plants knowing they are a part of ourselves, would we feel pain akin to biting or eating an arm or leg from our own body? In reality, the issue has already been raised, and a commonly accepted solution posits that the structural differences of the body that would come about would lead us to nourish ourselves in ways far different from our current practices, effectively rendering what is known as the digestive system somewhat obsolete and perhaps no longer necessary to sustain simultaneously organic and electronic components. Are we perhaps on the verge of what many define as a form of clean nourishment, similar to the energy derived from it? Some assert that the biological-food chain of our world reflects precisely the deficit of a civic sense rooted in interdependence and that this might be the right moment to enhance the planet itself, equilibrating life forms and halting species extinction. Others, however, believe that we should not interfere with the living mechanism of the planet, even when nature trends toward the total sterilization of all forms of life; at that point, humanity would assuredly be able to exist in environments distinct from Earth, whether on a sterile planet or through modifications to this one.

Education and Law

Regardless of the means and forms in which this could be expressed, it remains important to note that such a bond would render verbal education obsolete: from the moment a new individual becomes capable of processing information, they would effectively master the cultural and intellectual heritage of the community, including all experiences and mistakes typical of those without prior practical knowledge (in this case, of life itself). Hence, all episodes labeled as adolescent or childhood phenomena, events leading to bullying and other forms of social non-acceptance, would consequently dissipate, providing a means to prevent bullying and patterns of dominance.

The same logic applies to legal systems; there would be no need to write laws down, at least not for practical purposes: should priorities arise during processing, these would be ingrained in the collective, not judged by a court or jury. In a sense, have not laws been formulated by a community of humans themselves? In fact, there would be elimination of laws favoring oligarchy, promoting every single process for the wellbeing of all. We do not speak here of anarchy, but rather of holocracy, in the literal sense of the term holon, simultaneously part and whole: applied to the social realm, this would culminate in the notion that legal frameworks would be surpassed, as there would be no need to enforce laws; simply put, there would be no one to infringe upon them.

Is all of this Unequivocally Right?

It exceeds the purpose of this article to delve into the ethical-philosophical implications; however, many have defined it as a form of genuine socialism or communism, including an elevated level of sharing that which is deemed most precious within humanity: namely, one's information and its processing leading to sensations and consciousness. Others express dissent against even the mere hypothesis of interrelation, stating that a potential loss of individuality would be a deficiency distancing us from the very notion of being human. Yet sociology aids us in this regard: phenomena of dilution of one's personality against collective flows have always been present in any group and will remain so, precisely due to the definitions of social masses, whether connected at a neural level or not. Clearly, as no practical model is currently applicable, only theories on how minds might react to one another have been hypothesized; indeed, lacking complete knowledge of the logical-neural processes, until experimentation proceeds, there will not be sufficient data to produce a nuanced relationship. It is one thing to examine the behavior of a neuron designed by humans, wherein one need only determine if its activity adheres to its intended schematic; it is another to correlate it with our biological-synaptic network. Nevertheless, scientists maintain optimism: from a certain perspective, humanity is already correlated, due tothe multitude of information and data exchange networks we utilize daily. Novadays, we have observed a dangerous overload of information in everyday life, a phenomenon that would escalate exponentially when managing it on a global scale; however, we must also consider that this information would not be processed by a singular individual, but rather by humankind itself, allowing adequate rest periods for the segments of the network that necessitate it. Even the concept of death itself would require reformulation: the absence of an individual from the collective would not signify the death of the collective but rather the severing of a node that would be replaced by another. There is much to discuss here, yet presently we have no physical practical data; therefore, we cannot advance beyond theoretical territory. In any case, the terms of life and death would indeed need redefining or expansion. Nonetheless, it is essential to highlight that if indeed the assertions made hold true, would human beings willingly relinquish such functionalities and, therefore, the benefits of a neural collective? Just think of a military force interconnected in this manner: the tactical advantage would be enormous; would it not be more equitable to connect all humanity in ways that prevent factional conflict? But let's go further, weighing the potential elimination of issues such as wars, murders, global hunger, exploitation of populations, and masses against the sacrifice of personal individuality for a collective, where would the balance lie? Would the preservation of the individual be aligned with maintaining the current species or would it appear inherently selfish? If indeed hatred, racism, death, and mass extermination could disappear, would it be just to maintain the current state of affairs?

Of course, for actual times, these are merely theories. However, in the near future, when all of this becomes realistically available (and it is only a matter of time), we must seriously confront these questions, regardless of the enthusiasm or reluctance that may accomplish our involvement in this project.

Collectively yours… Mike Yoshi