

What people are saying about Spheres of Perception

Moving beyond and between disciplines and the effects of technology on our lives, this book provides a rich and sophisticated transdisciplinary exploration of humanity's 'being in this world.' The reflections on our logical, physical, and metaphysical evolution challenge our illusions about humanity's competence to overcome disparities between the way we live and the way we develop. This book must be read by everybody looking for a sensible and holistic evaluation of the drastic challenges we face and the transformations we require to adapt to the present.

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Spheres of Perception

Morality in a Post Technocratic Society

Theodore Holtzhausen

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Also by Theodore Holtzhausen

This book is dedicated to all those who without exploitation quietly, unnoticed, and selflessly help to evolve our knowledge and morality, to improve the world for present and future generations.

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Recent findings in the biomedical and physical sciences have dramatically changed the way we see the world and our place in it. This significant paradigm shift in our understanding will dramatically affect every part of our future existence. Strangely, this knowledge has not sufficiently infiltrated our socioeconomical structures yet. Eminent and urgent, then, has become the need to *single out* and update our outmoded economic and healthcare systems. Both current arrangements are dismally failing to meet the demands set by our rapidly evolving epistemology. A progressive new model is presented here.

I shall never rest until I know that all my ideas are derived, not from hearsay or tradition, but from my real living contact with the things themselves.

Goethe, *Italian Journey* (1816–17)

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Abbreviations and formulae introduced in this text:

PSR Physical sphere of reasoning LSR Logical sphere of reasoning MS Metaphysical sphere
M Metaphysical

PMD Physical sphere/Metaphysical Dilemma DNA Deoxyribonucleic acid
RNA Ribonucleic acid
TT Tentative theory

EE Error elimination

1. P1 Problem 1
2. P2 Problem 2

QOL Quality of Life

$\infty\Delta a \approx \infty\Delta b$ Ev
Ev(mo)
C

where a is the observer and b is the observed Evolution

Moral evolution

Cognition

Traditional natural selection = $\Delta a(C) \rightleftharpoons \Delta b$

or

Perceptive Ev(mo) = $\sum \infty\Delta C \{ \infty\Delta a(\text{Metaphysical} \rightleftharpoons \text{LSR} \rightleftharpoons \text{PSR}) \approx \infty\Delta b(\text{Metaphysical} \rightleftharpoons \text{LSR} \rightleftharpoons \text{PSR}) \}$

Illustrations:

Figures 1, 2 and 4 © author
Figure 3. Citric Acid Cycle (Ophardt, 2003)

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The most important human endeavor is the striving for morality in our actions. Our inner balance and our very existence depend on it. Only morality in our actions can give beauty and dignity to life. Albert Einstein

In considering an ethos in healthcare securing its foundations in pragmatic and pure knowledge free of pseudoscience and fraud, we should foremost ask ourselves how to safeguard it against delusion- al belief systems and impetuous profiteering.

Author, from abstract delivered in Prague, 2014

1.1 Introduction

We live in an astonishing era with an unprecedented dependency on modern technology. A constant flow of new ideas and opinions bombards us daily while our eyes are glued to our various electronic devices. A new electronic battleground has emerged to influence what people see, believe and think. With much of our information production motivated by profits or self-interest, our collective knowledge is becoming undeniably biased—at times even false, as we lack the filters in our electronic systems to weed out the lies and prevent social media from spreading them around the world. At the same time, we are suffering information overload. We are bombarded by advertisements and social media marketing that seeks to draw our attention and sway our opinion. How are we to determine what new information is accurate and important in the midst of this barrage?

Science, meanwhile, has been making discoveries that would dramatically change the way we see and understand ourselves—if that new information could get through the blaring noise. Instead, there is an increasing discrepancy between what science knows and what our

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current economic system tells us is true. This is most pointedly true when it comes to the study of evolution. Science is discovering our place in the universe as much more interconnected and interactive than previously recognized, while the current economic system in turn, by design, fosters exclusion and segregation. This is a significant shift in our evolutionary paradigm; yet the importance of this metamorphosis has not spread around the world, and remains largely unknown. Perhaps this is because science doesn't create marketing campaigns, and doesn't have billion-dollar advertising budgets.

Meanwhile, our economic system is becoming over-stimulated by the information age. Interconnection has helped companies earn trillions and rise swiftly to global dominance. But the 24-hour wired world has also led to increased volatility, and negative information; even an accidental computer glitch can plunge the market and create panic. Corporations must pay ever more attention to the short-term bottom line. Shareholder profits, at all cost, seem to be what matters most. Our economies are therefore based on what can sell, rather than what can genuinely improve the human condition. Health, the environment, the welfare of society—these are pushed to the edge of our national concerns. Politicians hand out business incentives and tax breaks, then tell us there's not enough revenue to improve health services. A company wants to build a pipeline, and any wilderness in its path that will be spoiled is just the cost of progress. Valuing short-term profits and growth over long-term impact on society and the environment inevitably will lead to collapse.

On a personal scale, even buying a vacuum cleaner is difficult— with many choices, financing options, warnings and warranties, and information online about each product. Large corporations have now obtained significant power to sway research with bias-targeting profits based on their own interests and world-views. It is now commonplace for the pragmatic value to consumers and the potential negative impact on the environment to be heavily manipulated by clever marketing strategies. In fact, the words ‘genuine’ and ‘truth,’ ‘evidence-based’ and ‘peer-reviewed,’ have never been more equivocal and potentially

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more malleable by those with legal and financial muscle. Such ambiguity and manipulations are also threatening to divert a pragmatic, open and truthful science into a misdirected pseudoscience, with the potential to turn our entire evolving epistemology into a misguided fallacious and embarrassing fabrication.

For example, in our heavily corporate-infiltrated healthcare systems, this surge of profit-driven knowledge makes it difficult for the clinician to distribute bona fide and wise treatments to their patients (now called ‘consumers of healthcare’). For those seeking treatment, it has become more complex to weigh up the dependability of costly medicines and procedures against their quality of life. With pharmaceutical companies and big corporations operating on a different level, well removed from the emotional impact of disease and suffering, they see any equivocality or falsifiability in a science and its knowledge as new potential for exploitation to maximize profits. This power to sway outcomes is then vulnerable to biases, personal and set world-views. Subsequently, marketing products with gnomonic value backed by pseudoscience are constantly slipping through the system while ethical decision-making in healthcare is growing in complexity.

Healthcare is just one example. It seems that this is just the way the world is; the machine has grown too big, too powerful, too fast for us to change. How can scientists, visionaries and those who care about future generations make their voices heard? What can we do to challenge the primacy of our economic system, and place new emphasis on creating a virtuous society?

I believe an important part of the answer, a part we have neglected thus far, is to develop a trustworthy epistemology. By this I mean a new way of thinking about the knowledge we develop, debate, and disseminate to others. If we can learn to think clearly and act wisely, we may discover a universal morality is within our reach. This is the purpose of this book: to help clarify our ability to think by introducing three **spheres of reasoning**. This, I will argue, is the missing ingredient. If we can possess such a trustworthy epistemology, then our innovative technology plus the findings of scientific research can lead us, perhaps,

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to understanding our universal evolutionary purpose for the very first time.

This is not at all a theoretical exercise, but rather, a pressing need: a need for concrete and trustworthy guidelines for our society. Specifically, we need something to replace the ‘survival of the fittest’ approach, both in business and in our daily lives. This mantra of Charles Darwin no longer reflects current evolutionary thinking. Yet this ‘survivalist’ mentality is partially responsible for making the world an unnecessarily unjust and a much harsher place than it needs to be. Indeed, it legitimizes greed, corruption, and manipulative behavior.

However, the science of evolution has itself evolved. In as much as ‘survival of the fittest’ has been used to justify harsh, competitive behavior on the part of individuals and corporations, an updated understanding of evolution could lead us to update our ethics. What if written into the code of our DNA and RNA is a guide for how we should behave and live with one another?

Science has come to see life as evolving through responsive and pliable RNA and DNA molecules. They interact in interconnected ways, using various chemical elements and molecules as means of communicating information. In other words, DNA and RNA act as if they are perceiving their environment (and each other), and

then communicating about it to each other. This enables them to collaborate on a goal, such as building a specific protein. This is evidence of a more percipient and *mobile* DNA/RNA than previously thought. It has not only dramatically changed the way we understand evolutionary biology, but also has implications for human morality: Connection, communication, and collaboration are in the building blocks of our molecular structure. At the very minimum this calls for a re-evaluation of our reductionist interpretation of evolutionary biology. It needs to be updated and recognized as the *perceptive* process it really is.

No doubt it sounds strange to speak of molecules as perceiving, communicating, and collaborating. We don't think of these as attributes of *things*, of bits of matter. Instead, we think of these as attributes of conscious beings. But is that necessarily so, or is that the

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materialist Newtonian paradigm lodged so deeply in our minds that it is hard to imagine anything else? In fact, we know that paradigm was wrong about atoms. Einstein showed us that matter is only energy. As quantum physics has shown us, the atom—once thought of as a solid little ball circled by whizzing electrons—is actually a cloud of quarks and particles that themselves dissolve. In reality, we can't really get our minds around what an atom is. Similarly, science has a great deal of difficulty grasping the nature of consciousness. Where exactly is consciousness located? How does it come into being? How does it move matter such that we can intend our hand to open and it does? Why should our human experience of consciousness be the only standard? A dolphin, a bee, a tree—all perceive, communicate, and collaborate. (It's recently been discovered that trees send chemical messages to each other through underground networks of fungi. If these creatures are in some sense conscious, why not DNA?) The only thing we can say for sure about consciousness is that it arises within a body made up entirely of molecules. So, if we are conscious, and all we are made of is molecules, then the rather inescapable conclusion is there must be something in the nature of molecules that enables consciousness in us. Fortunately, it's not the purpose of this book to convince the reader that this is so. It is merely a useful thought-exercise, however, to explore how adherence to dogmatic ideas (reductionist materialism) can block one's openness to logical reasoning (that molecules may have some kind of consciousness). So, when the text refers to molecules as "perceiving," having "concerns," or an "ethic" governing their activities, please remember I'm not implying they have human-like consciousness; but I am using these words as shorthand for describing behavior among molecules that a reductionist model can't easily explain.

Just as quantum physics has shown us that materialism is inadequate (material is an illusion of energy), so modern molecular science is revealing that 'survival of the fittest' is also inadequate. Perceptivity, responsiveness, and collaboration are essential behaviors for evolutionary success. If indeed these are the principles that make life work, then a single-minded focus on competition—a 'survivalist' mental-

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ty—is a dangerous delusion that hampers progress and may lead to our extinction. It is made all the worse by the fact that those corporate elements of our society who have embraced a survivalist mentality are the dominant voices in the production and dissemination of knowledge.

In a society that is technologically advanced, yet morally mediocre and dominated by profit-seekers, how can we learn to think clearly? We can now assert that our thoughts and ideas, including our ideas about morality, are no more than *a subset of progressive interconnected evolutionary processes*. We can now also create scope for ongoing adaptability for both how we think and how we behave. This could give us the ability to create a higher level of morality than humanity has ever experienced before, an *internal* evolving morality that is literally in our genes, and that we have transgressed to our peril. As we learn more about evolutionary processes at the molecular level, in the principles behind them we may find further guides towards a more tolerant, respectful, interconnected, and moral society. This path also opens up a new *metaethics*—a way to think about what morality is—and thus gives us a process for continued moral development. The evidence for this will be explained in following chapters.

The immediate challenge we face is to articulate any realistic and universal opinions on morality and ethics free of biases, for instance personal interests, religious or cultural factors, and politically driven motives. The Harvard logician and Kant scholar Clarence Irving Lewis (1883–1964) proposed that what is right and wrong might be evaluable in terms of whether they fit with experience and survive scrutiny. I see in this pragmatic approach the criteria that ethics be backed by justifiable universal rules supported by both evidence and experience. These rules should be detached from personal reward and also be capable of pragmatic adjustment to meet our evolving needs. Where can we turn to for the kind of experience that will serve as a foundation? Human society (and current ethical systems) may not

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be the best place to look for ethical norms. Our existing world-views are so biased by prejudice, greed, oppressive power structures, and mistaken and conflicting mythological beliefs, that we need a clean slate to begin. An honest natural science gives us a perspective of ‘what is’—provided we can decontaminate it of our biases. Just as scientists are trained to craft experiments in such a way as to avoid observer biases, so too our methods must prevent the biases of false beliefs from creeping in.

This quest is more urgent than most of us realize. Saving the planet may sound a bit grandiose, but in an era of genomics, robotics, and climate change, reviving our moral duty backed by a truthful science can no longer be ignored. It is vital to our ongoing evolution as moral and perceptive beings. Indeed, in the final chapters we will argue that morality and perceptivity are intrinsically entwined.

Here’s how I perceive our current ethical situation: We have inherited a diverse set of moral codes that are part of religious belief systems. Mostly these are based on some version of God or gods handing to humans a code of conduct. A good metaphor for this is that God, our maker, has also given us an instruction manual (moral code) for our smooth operation in society. This set-up nicely nestled our morality inside our metaphysics. But the whole package is externally imposed—that is, it is derived from a source (God) outside of ourselves. As science has come to question the metaphysical validity of religion, the ethical foundations nestled within have crumbled too. As a result, humanity finds itself struggling to hold on to a sense of morality in a reductionist world with no external standard of right and wrong. In that world, we have been told that ‘survival of the fittest’ is what is in our genetic blueprint. Our ethical struggle is between a set of beliefs we can no longer believe in and a grim amoral reality. Our materialistic metaphysics excludes God, and *therefore* gives us no moral code.

This predicament has enabled the rise of our ‘survival of the fittest’ economic system. Ethical complaints seem like quaint throwbacks to our religious past: unrealistic objections to the way the world really is. One response to this has been to create a morality based on human

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rights: what we can agree on to value in each other. In other words, not a code God gives us, but rather, a code that we give to one another. While there may be much to admire in this humanist approach, it remains an extrinsic morality: a code imposed upon us, rather than derived from who we truly are. So long as ‘survival of the fittest’ is seen as the code written in our DNA, it will likely remain a more powerful justification for how we treat each other.

I would argue that we can’t advance our morality by ignoring the metaphysical, and that evolutionary science can help us succeed where both religious belief systems and humanism have failed. We must express grave concerns with any search that, firstly, presents a normative, such as a traditional belief, fixed law, or set theory on how to behave, and attempts to define and enforce morals from such an intransigent normative. And then subsequently continues, through power struggles, to attempt to formulate an ethic from this with disregard for its origins in nature, where everything is constantly evolving and adjusting. Such an approach dismally fails to address the changes it has to confront and adjust to as an *evolving interconnected* perceptive network. With such

an approach, the end-product would also be subjective, equivocal, and not practical or universally applicable. Furthermore, such a manmade construction masquerading behind the metaphysical, or obscured by a noumenal world, will be open to manipulation by the main beneficiaries of such a fabrication—with perpetual power-struggles over protecting the delusions of competing views. Such struggles have historically caused much conflict and suffering in the battle to define morality.

In order to avoid attachment to what may then also become no more than dogma under naturalism or scientism, we need to realize that any normative will unavoidably be based on what we interpret as how it *ought* to be, a *temporary* temporal ‘what is’ in what is referred to in this book as our **Physical sphere of reasoning** (PSR)—this term and its relatives (**Logical sphere** and **Metaphysical**) to be defined and explained in the next chapter and throughout the remainder of the text. In other words, our assumptions of how the universe works or what

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is ethical is based on a rather fragile ‘how we think it ought to be’ as evolving organic lifeforms, attempting to survive while continuously formulating transmutable ideas. We in turn continuously circulate these ideas between physical realities (Physical sphere), uncertainties (Logical sphere), and the unknown. It should be obvious without much discourse that without constant pliable interchanges between ‘what is’ and what we think ‘ought to be’ we cannot evolve a truthful epistemology of temporary acceptable ‘what-is’s or any realistic theories. This presents us with a morality that is in the same position, where we base our ‘ought-to-be’s (normative) on ‘what-is’s that used to be ‘what-ought-to-be’s and subsisted progressive rational criticism. We unavoidably always have to return to face the *what ‘is’* in our Physical sphere of reasoning in an interconnected evolving universe that simultaneously prescribes and describes in an interactive and interconnected constantly *changing* system. This interconnected system continuously evolves and enhances itself by exchanging ideas within a principled perceptive network, in a critical, rational, and ‘falsifiable’ manner.

Karl Popper, perhaps the most famous science philosopher of the twentieth century, proposed the idea of **falsification**. In simple terms, falsification is the methodology whereby science derives answers by a process of refutations of hypotheses that can be proven false rather than authentications of what is true. By eliminating all the false hypotheses with certainty, one gains confidence in the validity of that which remains unrefuted. Popper urges us, at a minimum, to pay more attention to the uncertainties and biases in our thinking that may turn a truthful science into a misdirected pseudoscience such as we often find in today’s marketplace, as clarity and truth then become heavily afflicted by the profit motive.

The next question we inevitably confront is how a creature like ourselves or objects that cannot representationally recognize anything can have evolutionary origins without valuing anything? Fortunately, recent

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revelations in genetics and neuroscience are setting new guidelines. DNA is revealing itself as a recognition system. Basically, recognition involves valuing: to sense it and want to interact, or want to get away. Valuing takes place when it can be *interconnected* with everything else in order to create a pliable valuation *system* and formulate workable operations, which we can think of as ‘ideas,’ like the idea to build a protein. At the very least the first strands of RNA had to recognize or identify (biochemically through receptor sites) the presence and *value* of transcriptase enzymes on the physiological level, interconnected to an environment that gave it the *idea* to replicate itself in a *changeable* manner. Backed not only by new evidence in science but by using orthodox logic (deductive and inductive), the whole principle of evolution is now seen as based on an interconnected network of pliable *recognition* systems, on all levels. Recognition and interaction occur on various levels from atoms to DNA, escalating into complex organic life. Evolution cannot operate in isolation, and in order to make contact it needs to be perceptive. So, we can safely have an impression that there are universal obligations and workable rules to interconnect and get closer to temporary workable ‘ideas’ within a

pliable and progressive recognition system—whether on the molecular, cellular, or social level. The temporary values proposed here as pragmatically advancing our Physical sphere of reasoning (PSR), as we shall define and discuss in chapters 1 and 2, are purposely driven to expand a *progressive interconnected and escalating perceptive network*. Circulating and valuing ideas for pragmatic value between the Logical (uncertainty) and metaphysical (unknowns) spheres, such a network is dependable on reliable interchanges. This new understanding, mimicking what has recently been witnessed in biology, reveals a system generating complexity as it expands its interconnections and evolves its perceptive mechanisms. Discrediting an era of focused reductionism and the limitations set on measuring matter, this new perception will also act as a release from the strife created by competing uncertainties in our Logical sphere and help to reduce the doubts in our Physical sphere that accompany all our thoughts, enabling us to take advantage of our

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full creative potential.

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We can now consider ethics to be *a guide for an interconnected interdependent group; a guide that respects the joint origins of the group and their united concerns as linked throughout a shared environment*. We can now evolve what the guide will say, as well as the definitions of all the terms, as we better understand the interplay between our genetics and a dynamic environment. In other words, this definition allows for both co-evolving values and pragmatic ideas, and a progression of our *moral* demands on ourselves and one another. RNA and DNA coding is such a system in its elementary form. The brain and its primitive precursors are interconnected products of a similar recognition system.

Once recognition takes place, we can judge (value) and then inter- connect. Changing ideas can emanate from this process and be tested against the experience of the evolutionary drive in a falsifiable manner—constantly refining our search for a better world. The definition of ‘better world’ in turn simultaneously changes, intricately connected to an evolving perception of these changes. As we now know, this process mirrors that of the pliable and mobile DNA, as will be discussed in more detail in a later section. We can perhaps claim that there can be no fixed values, unbendable genetic blueprints, unfalsifiable theories, or concrete ideas in a perceptive evolution where everything is inter- dependent and based on progressive experience and knowledge. This interdependency is also what advances this perception in complexity.

Even then, at the very best, this system will only provide temporary values about value; or ‘what-is’s and ‘what-ought-to-be’s in a state of constant change and correction. The former claims will be explained and discussed in following chapters as essential for any progressive evolution or pragmatic ethic to sustain itself. Likewise, genetic coding (life) cannot be based on anti-realism or reductionism. And neither can it be void of some form of adaptable conduct (ethic) and subject only to

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a natural selection driven by a static blueprint. Gaining support of the genetic code acting not only as a moral code but interconnected to an evolutionary cognition now becomes a prerequisite for making sense of an expansive evolution. Acknowledgment of such a code is imperative for our future evolutionary success and shelters us from the damaging effects of external dogma, reductionism, and false belief systems misdirecting our inevitable universal evolutionary co-morality.

The so-called Darwinian dilemma (trying to detach and elevate moral realism from an interconnected natural selection) based on our argument now also becomes the Darwinian reality. We simply cannot relate to an evolution without a valuation system exposed to constant change, as part of an interconnected ongoing progressive recognition system behaving ‘morally’ on all levels of its network. This should be interpreted as much more than occasional mechanical adaptations or freak mutations befitting environmental demands, but as an active continuous perceptive transformation. We now see it as an amalgamation of valuation systems,

functioning on various levels, from atoms to cells, organs, and organisms. Each of these immensely interconnected ‘perceptive mechanisms’ (regardless of it being an atom, cell, or higher mammal) operates within a network of ‘ethical’ demands. We shall at times refer to the objective individual (regardless of who or what) as *a* in this text—with *a* constantly formulating values and ideas about *b* while *b* is concurrently valuing, interacting, and formulating ideas about *a*. All as part of a complex network. No idea or concept can ever be more than a temporary idea of an ‘experienced *a*’ about *b*, or an experienced *b* about *a*—synchronously entrapped in continuous and evolving change. This constant interaction between *a* and *b*, regardless of whether *b* is change in an environment or another person or object, while all are simultaneously evolving, is not only vital to drive evolution, but also, as a perceptive living network, is our only protection against a fraudulent epistemology—the integrity of this network the key to our ongoing survival. It is here, with such delicate interactions, that our morality is persistently co-evolving with our perception, *both* internally *and* externally.

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We now have a more equitable, complete, and updated version of evolution. Evolution can now be known as a highly interconnected *perceptive living-system*, following progressive principled rules. Seen as a pliable flow of ‘ideas and values’ collaborating with constantly changing environments, it is a continually changing set of ideas about ideas (or values about value) that adjust to a group’s interconnected concerns. Such a more considerate and collaborative evolution is not only more comprehensive and more adaptable, but also simultaneously *re-invents* itself as it evolves in both intelligence and complexity as a progressive living network.

Another flaw of the old model of evolution was the emphasis on ‘Darwinian success,’ a goal measured by reproductive successes that was key to the survival of the fittest. Now updated, production and survival are seen as mere methods employed to continue the propagation of innovative ideas in an interconnected perceptive network, with genes and organisms as implements, not ends in themselves. The emphasis has shifted. A new evolution is revealed as goal-directed in advancing a progressive perceptive network, rather than the reproduction of specific bits of genetic matter, fighting with each other for survival. Clearly this paradigm shift also places more emphasis on *coexistence* and renewed focus on better understanding these principled interactions and their operations within their networks. On all levels more is needed to explain how complexity appears to simultaneously evolve. We need to grasp what evolution still has to teach us, so we too can successfully evolve.

The three spheres of reasoning introduced in this book represent a practical new way of thinking about reasoning. It is a method that will clarify how we perceive reality, and thus help us achieve humanity’s potential. There are three main qualities of the human brain we can enhance by employing three spheres of reasoning:

1. Pragmatic thinking—so that our creative ideas can better achieve the results we intend
2. Resilience against manipulation—so that we will be less vulner-

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able to advertising, pseudoscience, and rigid reductionism

3. Greater adaptability and pliancy—so that our minds will better adapt to changing conditions and better incorporate new infor-

mation into our understanding of reality.

Together these abilities can help us to avoid getting stuck in old thinking or blocked from finding a clear forward path. These three spheres interact in unison as the Physical sphere of reasoning (PSR), Logical sphere of reasoning (LSR), and the abstract yet vital Metaphysical sphere (MS).

The *Physical sphere of reasoning* (PSR) is where we contain the verifiable, workable ideas about our physical world. This is where an empirical science mostly operates, for example by finding and eliminating errors. It is a sphere of physical realities, functional theories, and applicable mathematical equations. It delivers pragmatic results: rockets that send humans to the moon, surgeries that heal, skyscrapers, the Internet. An important feature of the Physical sphere of reasoning is its dependency on what, who, when, and where you are. Imagine the Physical sphere of Columbus compared to that of the average human today. The security provided by the high bar of entry into this sphere also makes it difficult (though not impossible) for false ideas or manipulated evidence to creep in. Yet another important feature is that the ideas in this sphere are constantly being adjusted and adapted as new knowledge enters it. Nothing is permanent. For example, Newton's laws of physics had to adapt to the arrival of quantum mechanics. The virtue of this lack of permanence is that it allows for progress—the evolution of knowledge. In this way, the PSR mirrors the principles of evolutionary biology, as our genes themselves evolve from generation to generation. Guided by both internal and external principles, the PSR constantly interacts with the much less certain Logical and Metaphysical spheres.

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The *Logical sphere of reasoning* (LSR) is the sphere where ideas are considered and evaluated to determine whether or not they can be placed within the Physical sphere of reasoning. This sphere is where hypotheses are tested. Although full of uncertainty and doubt, this sphere relies on sound logic, scientific methodology, and reliable perceptions in order to arrive at valid conclusions. Due to the uncertainty of the concepts being evaluated in this sphere, there is always the possibility that personal biases, deliberate manipulation, or simple lack of information might lead us into error. Therefore we have to be careful to only hold *tentatively* any ideas that are in this space. Here's a simple example: If we see an apple on the table, we can pick it up, taste it even, and thus verify it is an apple. So, it belongs in the Physical sphere. But if we imagine there might be an apple waiting for us on our desk at work, where we left it last night, we can't know it for certain (someone may have eaten it). So that idea of an apple that we only contemplate rests in the Logical sphere. Other ideas in the Logical sphere include the possibility of microbial life on other planets, or the health benefits of certain traditional medicines that have not been rigorously tested. It also includes new ideas in subatomic physics, predictions about the stock market, and most other economic predictions. And it would include unscientific but still potentially testable ideas—conspiracy theories, the existence of fairies, heaven and hell, even God.

We can perhaps see why our current thinking is often in turmoil: because we fail to clearly distinguish between ideas that have been validated, and those we hold due to belief. When our beliefs conflict with the facts about reality, all too often we choose the familiar over the rational. The desire to impose our personalized beliefs on others has been the cause of much human conflict and suffering. But there could be great social utility to this distinction between spheres: That which is in the Physical sphere has been thoroughly tested, and so those ideas become a common ground that people can agree is true. Clarifying difference between the spheres can give each person a better possibility

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of recognizing an error of reasoning, and adjusting their understanding to better fit the facts.

The *Metaphysical sphere* can also be called the sphere of the unknown. It includes the whole great realm of existence that humanity has not yet contemplated, explored, or discovered. *Meta-physical* literally means 'beyond the physical,' and so we can take it to mean that which is beyond the Physical sphere of reasoning. In this sphere lie our future discoveries and unthought-of experiences. Since we have not yet *thought* what is in this sphere, we can't really call it a sphere of *reason*. Yet the ideas we generate about the Metaphysical are vital to humanity. As George Bernard Shaw wrote: "Some men see things as they are and say, why? I dream things that

never were and say, why not?" By contemplating the Metaphysical, we create, invent, imagine, and conceive new thoughts.

One advantage of including the Metaphysical as a sphere is to escape from reductionism. A reductionist mindset asserts that only the physical exists. If something can't be tested and validated by science, it can't be considered real. But such an approach can easily also be responsible for clouding our imagination and hampering progress. Just as we are developing a new understanding of a perceptive evolution, so too our own ideas about reality are constantly evolving. The Meta-physical forms the substrate from which these new ideas come into our minds. It gives us mental material with which to think new thoughts and stimulates our mental evolution—most vitally in response to new challenges in our human environment. In this way, the Metaphysical can be seen, like the other two spheres, as an actively evolving sphere, wherein the previously unperceived is turned into the newly perceived. There are endless unknown answers, unimagined and unformulated questions out there in this Metaphysical sphere of our existence. This vital sphere interconnects and interacts with the other two spheres, and we simply cannot evolve a sound epistemology without it.

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To further clarify: The idea of a Higgs boson particle used to belong in the Metaphysical sphere (MS)—an unthought-of unknown, until Peter Higgs thought of it. As soon as he thought of it, the new idea shifted to the Logical sphere of reasoning (LSR), where it was studied, debated, and tested. As soon as it was validated, the idea moved to the Physical sphere of reasoning (PSR), where it is now taught in physics classes as a fact about the world. However, as the realm of subatomic physics so well demonstrates, just because an idea is in the Physical sphere today doesn't mean the idea might not be sent back to the LSR tomorrow as new evidence comes into our awareness—or entire new paradigms. So even the Physical space of our knowledge remains unfixed, and constantly adjusts to new information. This is essential if it—and we—are to continue to evolve and adapt. The significant adjustments that scientists now witness in our genome, interlinked and continuously interacting with our epigenome and environment, also reemphasize the importance of the unimagined in a rapidly evolving world.

It is suitable to ask here: *Can we accept the progressive concept of a perceptively motivated evolution presented in this proposal?* We can use a diagram to illustrate this (see Figure 1).

All three spheres continuously interact with, stimulate, and advance each other as they evolve through time, in unison. The interconnections between these spheres will be illustrated in subsequent chapters. This system serves as a *method* to evolve in complexity as it circulates and advances concepts. Directed to continuously evolve better ideas in an interconnected network, this concept is similar to how a perceptive evolution based on new understanding adapts through time.

The urgent value of a sober, candid, and *ethically* driven yet pliable Physical sphere of reasoning is imperative to avoid unnecessary complexities and relativities in such a changing and adaptable network. To confront the challenging task of evolving pragmatic and reliable concepts in this changing intricately interconnected world, this sphere

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Figure 1

has to be simultaneously insightful and adaptable.
The need for truth and pragmatism in a Physical sphere is also es-

pecially important in a future healthcare system where our responsi- bility now extends, based on emerging new evidence, to the pliable and transgenerational passage of the genome. This moral duty of our Physical sphere of reasoning to evolve interchange workable ideas in creating a better and safer world extends to future generations. The Physical sphere would anchor those ideas that create a better, safer, and healthier world for us *all*. Those that do not—the fraudulent, the manipulative, the pseudoscientific ideas—these would be consigned to

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the Logical sphere, or else returned to the Metaphysical.
Through interchanges between the Metaphysical, Physical, and Logical spheres of reasoning we can discover, debate, and secure an adaptable ethic, and thus prevent an external moralism and reduction-ism from setting barriers to our progress. In developing pragmatic but open systems and applying them to our society—healthcare, education, economics, politics—we can perhaps evolve as a more benevolent, moral, and perceptive

society, as we are designed to do. This principled evolution is more goal-directed as a united goal than an egotistical drive to reproduce and survive. We have now also entered a new phase in our interconnected evolutionary advancement with a complex gene-pool full of potential ideas at our disposal, where egocentricism and greed will be exposed as having little utilitarian or genetic worth. In fact they have become the greatest threats to a truthful science and the

search for a better future for humanity, its freedom and life on earth.

1.2 Logic

We must acknowledge for purposes here the enormous discourse that topics such as reality, existence, and logic can trigger in philosophical circles. The complexity and importance of logic, and the interest that Artificial Intelligence (AI) and robotics have recently triggered, should also not be held in disregard. To create a distinct demarcation between an Artificial Intelligence and organic cognition, I adopted a naturalistic approach where pragmatic logical outcomes are reflected in our Physical sphere of reasoning (PSR) in constant interchange with the other two spheres, the LSR and MS.

Logic, semantically put, would be most likely seen as temporal for our purposes here. Let us consider Arthur Prior's **tense logic** where:

P "It has at some time been the case that..." F "It will at some time be the case that..." H "It has always been the case that..."

G "It will always be the case that..."

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We cannot include *tense* in the temporal logic suggested in my argument. This is in principle because all of cognition, ideas, and knowledge is in a constant state of flux and simultaneously interconnected to change, the past, present, and now. I see tense logic as reductionist and in conflict with any proposal as an attempt to fix knowledge and cognition (either present, past, or future) in time as a constant non-changeable extant, which is, as is explained, not possible in evolution. In our proposed model of Metaphysical sphere, Physical sphere of reasoning, and Logical sphere of reasoning constantly interacting and exchanging ideas, knowledge and cognition are not only exempt from this conflict but constantly evolve in synchrony with change and time. This fits our new understanding of a non-reductionist evolution.

Our logical and naturalistic approach of an interconnected, malleable, and percipient Physical sphere will also reduce the semantic complications that logic, tense, and existence inevitably will always fall victim to. I also see knowledge acquisition in scientific research certainly and inevitably as not being free of induction logic (evidential support) and falsification but in my proposal fully in acknowledgment of the proposal by Moritz Schlick: '*always reserved and temporary in light of further experience*' (*Die Naturwissenschaften* 19, p156 [1931]). It should be therefore treated cautiously and without dogma, scientific or other, and yet find security in a pliable Physical sphere, focused on ethical advancement of an authentic evolutionary cognition.

Existence is seen from a pragmatic, naturalistic, and 'medical scientific' viewpoint, where objective values determine whether an organism is alive or dead as a perceptive being, but carried further to how its actions are conducive to an improved quality of life, harmonized as an interconnected concern. The latter is a prerequisite for a life in the traditional sense, consisting of interconnected projects, concerns, and relationships. The subjectivity of quality of life (QOL), of being alive without having a life (in a vegetative state), and the more recent intricacy of Artificial Intelligence are well acknowledged, with complexities seen as part of a pliable, perceptive whole, evolving both morality and cognition in synchrony. Any human creation will remain utilitarian

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in such a complex network that stretches transgenerationally for eons, driven by an *immeasurable intelligence*.

The traditional philosophical four notions of logic, L1 to L4, are simplified but not ignored. We employ evolutionary concepts of cognition in support of all four valid inferences (L1) and logical consequences (L2 logic), logical truths (L3), and the form of judgments (L4). This is done in an interchange between our Logical and our Physical spheres of reasoning to avoid the semantics that may lead to criticism of an entirely philosophical, or the condemnation of a naturalistic, concept of logic and reality. Cognition is taken as idea-making, tested against constantly changing environments. My argument is again here strongly supported by the recently accepted active anatomical and physiological *plasticity* of an evolutionary cognition set in a *mobile* DNA. This remains the primary and only known means with which to be cognitive of a Physical sphere of reasoning and experience the world and universe unfolding around us. Inescapably, as organisms are changing and constantly adapting (immensely interconnected and interdependent) as part of an active evolution, a fixed objective world, following the same basic rules and ‘true’ judgments, tense, or logic persistently, now becomes absurd. Imagining that such a complex evolving network might lack perception becomes impossible.

As mentioned, we should at all costs prevent a pseudoscience or erroneous beliefs from driving our evolving epistemology. Such a demarcation is vital, not only in a Popperian sense where ‘testifiability and falsification’ (a truthful flawed idea) is a necessity for progressive knowledge and where science remains the most important key; but also, where a pliable ethic free of dogma and manipulation can help us to protect knowledge from suppression, retention, egocentrism, and short-sightedness. Safeguarding against such manipulation is not

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only essential for a progressive and sagacious cognitive evolution and the advancement of sound knowledge, but is also our duty in leaving behind a praiseworthy and pragmatic morality in a functional world for future generations to follow.

It is witnessed throughout history that the deleterious effects of our moral inadequacies will have lasting effects for generations to come, should we fail to match our evolutionary demands. Some scientists are now also witnessing and warning us about the harmful effects of some of the chemicals we so easily distribute, such as pesticides and petro-chemicals, not just on the environment (in a growing and still unexplored list) but also on genomes, this damage evident in rats extending transgenerationally for up to ten generations.

1.3 Key Areas of Concern

Healthcare

Practitioners of medical science, as caretakers of our physical and mental health, develop and evaluate treatment outcomes according to scientific technique and evidence in our Physical sphere of reasoning. I acknowledge the enormous debate that topics such as evidence-based studies, placebo effects, cultural beliefs, reality, and logic can evoke in healthcare outcomes. Growing pseudoscientific activities, mostly fueled by financial gain—with ‘pharma’ standing out here—also give rise to ineffective and sometimes dangerous interventions with the growing use of supplementary, unnecessary, or ‘natural’ remedies. Mostly with minimal, if any, impact on healthcare outcomes and operating in our Logical sphere, the environmental and long-term genomic impact of concentrating these chemical structures is still vastly overlooked, poorly researched, or ignored. The financially driven pharmaceutical industry is also not helping to boost an ethic in current healthcare with its increased focus on market trends and marketing techniques, principally driven by huge profits. Healthcare providers, insurers, government authorities, and most importantly patients, need guidance and clarity on how to distinguish between medical science

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and medical pseudoscience and solipsistic misdirected ‘profit-seeking only’ interests in healthcare.

This need was highlighted by many; among the more recent studies is work done by Woodhandler and Himmelstein (*BMJ* 345, pp50–1 [2012]). Here they express legitimate concern that offering financial incentives may negatively impact on the more noble motivation of healthcare—clinical excellence and altruism. Arnold Eiser, in *The Ethos of Medicine in Postmodern America* (2014), recorded bias in 69 percent of called-on experts in their fields when acting in advisory capacities based on surveys. A disturbing 75 percent or more of clinical research published in leading journals is today funded by pharmaceutical companies and medical device manufacturers where profit is mostly the major, if not only drive. We are already aware that pharmaceutical companies place profit maximization over scientific objectivity. In much of the research today the main incentive is now marketability and profitability, and with new drug development mostly funded by pharmaceutical companies the goal and bias lie in proving efficacy of a drug rather than possible shortcomings—manipulating a Logical sphere into a Physical sphere. Negative support may either be ignored, understated, or not published. Based on recent evidence in the United States, amalgamation and inevitably the monopolization that follows by the financial powers behind this drive have also cost the consumer of healthcare increasingly more and funneled wealth to make a select few in the corporate world extremely rich. Officials are also easily bribed under such a system to clear distribution of novelty drugs and uncertain techniques that save few lives but claim to affect healthcare outcomes or fund future research with narrow margins. In veterinary medicine, this more callous corporate mentality, with its focus on financial reward instead of on clinical excellence and a pragmatic, ethically applied universal and multidisciplinary healthcare, has also infiltrated deeply on all levels in recent decades. Last and not least, as stated by Eiser, “the corporate mentality, promising savings and improved standards, in healthcare has merely increased neglect of experiential and cultural aspects of healthcare and moved it from

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a more logical anthropological model to a callous business one” (A. Eiser, *The Ethos of Medicine in Postmodern America*, 2014, p5). From a public perspective, the practitioner is now clearly a subordinate part of the corporate world.

Judicial

It is becoming more difficult for courts to get the facts right in such confusing times, and easier to bribe corrupt officials. The reliability and sources of diverse types of evidence presented to courts, seen as correctly determined evidence based on expert testimony and candid knowledge, is becoming complex and debatable—even among called-on experts. Sometimes it is in the interest of litigants to present non-scientific claims as solid science backed by some sort of research and peer-reviewed publication dug up somewhere. Therefore, courts and ethics committees must also be able to distinguish between science and pseudoscience. A universal ethic among healthcare workers and pharmaceutical companies will be welcomed by all as a growing number of issues concerning healthcare are based on legal, political, and financial muscle, with the stakeholders driven by profits in a trillion-dollar industry, rather than confronting sincere practice-based patient and moral concerns. R.G. Steen (2011) observed that the 742 English-language research papers retracted from the PubMed database between 2000 and 2010 had error or misconduct (73.8 percent) and fraud (26.6 percent) as reasons for retraction of papers. Other researchers, such as Felicitas Hesselmann et al. (*Current Sociology Review* 65(6), pp814–84 [2017]), pointed to the fact that although the extraction process is helpful to the scientific process, “its principal value is the fact that it creates awareness that misconduct exists. As a consequence, attention is mainly drawn to the fact that misconduct exists and that someone is dealing with it in the interest of the scientific community; who this is and how they are doing this, remains opaque.”

Environmental policies

To be on the safe side against impending natural disasters, it may

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be legitimate to take preventive measures when there is valid yet insufficient evidence of an environmental hazard. This must be distinguished from taking measures against an alleged hazard for which there is no valid evidence at all or misdirecting areas of major concern due to personal political or commercial interests. Therefore, decision-makers in environmental policy must be able to distinguish between scientific and pseudoscientific claims in research if they aim to have a realistic and pragmatic outcome. We also urgently need a more universally adaptable system and ethic here to measure the impact on life on earth, and as already mentioned, now also the *genome* as part of such a living network.

Science in education

The promoters of some pseudoscience (notably creationism, financial enterprises and alternative remedies) continuously and increasingly try to introduce their teachings and views in school and university curricula backed by growing financial support. Teachers and educational authorities need to have clear criteria of inclusion that protect students against unreliable and disproved marketing strategies by powerful financial institutions, stagnating a more pragmatic knowledge. Commercial interests and support may furthermore also swing education to take a turn often different from logic or objective fact but influenced by personal religious or sociopolitical structures.

Cultural

With a growing number of professionals moving freely between countries and in general a more mobile global workforce, awareness of cultural differences has become more pressing (albeit simultaneously becoming more uniform) as a factor for healthcare workers to consider in their care. There is a slowly emerging, more progressive universal knowledge-base in healthcare, but it is still very vulnerable to being hijacked and manipulated by major commercial interests and big corporations grounded in their own set views and interests. Besides the biases of overpowering corporations and pharmaceutical companies,

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clinics promoting alternative remedies lacking sufficient evidence and simultaneously practicing medicine as a science have become more common. Such ‘holistic’ clinics see these cultural gaps and remedies (in need of much more substantial research) often more as a cultural belief system causing no harm with minimal impact but with added financial benefit to the facility in competitive markets. There is also now, to top it off, growing concern, expressed in numerous recent publications, about the impact on the mental health and ethics of doctors under corporate control. Besides affecting the culture and ethos of healthcare application, concern should also be raised about the use of certain expensive medicines, without a significant or clear positive impact on overall healthcare outcomes in patients already burdened by financial constraints. Often biases and politics can affect the distribution and promotion of such defeasible medicines.

With the inarguable acceptance and realization of the interconnection between evolutionary aspects of cognition, knowledge and culture as a global but vulnerable cognition-gaining process affecting us all, as suggested by Campbell (1974); Lorenz (1977); Riedl (1984); Wuketits (1986), we can see the enormous and delicate moral responsibility we all now carry as, unavoidably, a *global unit*. Such obligations and responsibility are in urgent need of updating to meet universally acceptable progressive new moral demands.

From such understanding, the following three essential key areas emerge, then, in a search for a pragmatic and universal morality.

1) Evolutionary cognition—defined as an adaptable mental action or process of acquiring knowledge and understanding of a changing world through thought (ideas and genetic adjustments), experience, and the senses;

this involves the continuous evolutionary trial-and-error application of ‘ideas’ tested against the objective realities that an organism encounters in its physical world. Such *idea testing* can be

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broken down to the biological, physiological, biochemical, and atomic level and is conducted and best understood as part of a burgeoning interconnected network, evolving and operating under a sound universal ethic.

2) Knowledge—defined as facts, information, and skills acquired through experience as part of a progressive perceptive evolutionary process. Tested ideas, compliantly established in our Physical sphere of reasoning, improve our quality of life, understanding, and chances of survival within and as part of an interconnected evolving bio-unit— not merely as an aid in a struggle to survive or outcompete one another in isolated groups.

It is only once we accept and progress to see our world as an evolving non-fraudulent, highly interconnected system, in an expanding epistemology with an inbuilt tolerance and morality, that we can apply truthful knowledge and live ethical fulfilling lives without anger or fear.

3) Culture—defined as intertwined with our evolving knowledge, ideas, and belief systems (religions) such as the arts and other manifestations of human intellectual achievement regarded collectively. It is regarded as interconnected with our evolutionary epistemology and belief systems and with the potential to slow progressive knowledge when subject to restrictive hermeneutics or dogma but also the potential to extract new ideas from the Metaphysical and Logical spheres. This exists rather abstractly but as essential ‘ideas about ideas’ axiomatically in our Logical sphere of reasoning. Culture and belief systems have a marked impact on ethical behavior and an evolving epistemology.

1.4 Approach

Cognition

Inarguably, the most important part of our existence as humans is our ability to perceive. It is the only means by which we can gather

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knowledge about our world, formulate and relay our thoughts, and create ideas, art, or music. A biological epigenetic understanding of cognizance, being the key to any awareness, must therefore be included in any realistic and practical understanding of progressive ethics today. This cognition is now evident as products of an interconnected mind-body function in response to and interacting with a simultaneously co-evolving habitat, as a pliable living network.

In the neurosciences today, we can also discuss the issue of the specious present as dependent on the organism, the stimulus, and its physiology. Time is viewed as an individualized evolutionarily (physiologically) decided concept with variation between organisms depending on *what, where, and when* you are there. We may be staring at the spider on the wall and both live in the same time, but our perception and concept of time will vary markedly. We have evolved our concept of time because cognizance operates in a framework of time, sphere, and presence, driven by the physiological need to obtain food and shelter and evolve ideas in a constantly changing continuity. Time is also dependent on change, and change cannot take place independently of time.

A clear and updated concept of evolutionary cognition is needed where ideas related to ‘mind’ have traditionally focused on the meta-physics and epistemology of mind in creatures that have language, so were centered around semantics and humans. Today, due to advances in genetics, the biological capacity for language may be

more accurately described as a collection of evolutionary biological capacities, most of which we share with other species co-dependent on change, perception, and time.

Historically, researchers were also hindered by whether animals are minded or rational, and whether they have concepts or beliefs, but they have struggled with the issue of how to answer such questions given the inherent limitations of their investigations. The main reason for such bygone limitations was the lack of association and use of mainly behaviorism, the application of language, and psychology as principal tools for their research—all subjective and disjointed from the

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objective proof needed by science. In an era of genomics and backed by new technology, research in the epigenetics of neurodevelopment has decoded cognition and mind as an interconnected naturalistic phenomenon. In medical science and epidemiology, it can even be seen as detrimental to healthcare outcomes to not do so. The ‘lived-body’ notion maintains that bodies are not objects, but “multi phasic, experiential beings of living systems that have come to be seen as systems (of which mind and body are a unit) which are integral parts of larger systems, in *permanent interaction* with their environment and capable of constructing their own subjective realities” (Sprenger, 2005). Numerous publications in evolutionary biology now act in support of this concept.

With such understanding emerging in biological sciences, neuroscience, and genetics, the ‘living systems,’ phylogenetic aspects, mind-body unit, and interconnection of cognition now act as *a priori* support for our interconnected evolutionary links. This is further backed by new techniques in Magnetic Resonance Imaging (MRI) of active brains in different mammals and humans, showing only minor differences. Innovative technology, having mapped the genes in a growing number of species, is also showing that only subtle changes on the genome resulted in escalating perceptive abilities between species with transgenerational adaptations.

Briefly reflecting on the early history and influence of Western philosophy here, it showed a tendency to focus on the Aristotelian ‘rationality’ of humans and to see animals as lacking rationality and therefore, as is well known today, somewhat confused the issue of animal welfare. Aristotle defined “human” as “the rational animal,” thus rejecting the possibility that any other species is rational (Aristotle, *On Metaphysics*) and so setting a Western tradition of neglect of other sentient beings in this regard. Later, St Thomas Aquinas (1225–74) followed this tradition by claiming that animals are irrational because

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they are not free (Aquinas, *Summa Theologica*). Centuries later, Descartes defended a distinction between humans and animals based on the belief that language is a necessary condition for mind and, based on this, concluded that animals are “soulless machines.” Looking for objectivity to back his concept, he allocated this significant duty to the pineal gland as the seat of the ‘soul’ (Descartes, *Discourse on the Method*). John Locke agreed that animals cannot think, because words are necessary for comprehending universals (Locke, *Essay Concerning Human Understanding*, 1689). Following in this tradition, Emmanuel Kant with emphasis on his Categorical Imperative concluded that “since they cannot think about themselves, animals are not rational agents and hence they only have instrumental value” (Kant’s Lectures on Ethics). Yet simultaneously, the main theme of Kant’s argument was duty as the end goal in ethics, this in an era where the ox still harrowed the land that produced most of the food people consumed. Kant continued in support of his claim by equating the moral doctrine as “following principles *a priori* in pure practical reason and therefore clearly separated from the doctrines of an empirical based physical natural world.” He specifically singled out anthropology; the conflict in this argument is easy to see today in an era of genomics. The lack of a developed science at the time can perhaps be offered as a crestfallen excuse for such mistaken philosophical concepts, but the resultant needless suffering in all forms, including vivisection without anesthetics, is hard to forgive. The hurt that other sentient beings had

to endure since then and until recent years, however, hardly satisfies as appeasement or ongoing excuse for any ignorance today.

Fortunately, there were also early dissenters proposing different but equally subjective philosophies, sadly overshadowed as always by the dogmatic ordinance of contemporary ruling culture and fashions. Voltaire criticized Descartes' view that humans but not animals have souls and hence minds, by suggesting that there is no evidence for the claim (Voltaire, *Philosophical Dictionary*). The philosopher David Hume, considered by some the father of cognitive science, was more openly dismissive of the animal mind skeptics when he claimed:

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Next to the ridicule of denying an evident truth, is that of taking much pains to defend it; and no truth appears to me more evident than that beasts are endowed with thought and reason as well as man. The arguments are in this case so obvious, that they never but escape the most stupid and ignorant.

Hume, *Treatise of Human Nature* (1738)

Hume's statement perhaps was more empirical, lacking enough scientific evidence at the time. However, with new proof today there can no longer be found any deficiency in his claim. Today in a post-Darwinian world with neuroscience exploding with innovative ideas backed by modern technology and discoveries in phylogenetics and epigenetics, and with enough objective evidence, it would be extremely hard to philosophically or on any other level defend non-animal-linked origins of our evolution-driven cognitive functions.

With more evidence of the biological aspect and evolution of our cognitive abilities, we may also discover and understand what is required of us and how we should behave, and what sort of an ethic is evident in nature (if any). The Quinean (1969) view that we should abandon epistemology for empirical psychology is no longer widely accepted due to recent work done in the biological and neurosciences. On the other hand, the concept of **enaction**, the manner in which a subject of perception acts out the requirements of its situation, is entirely valid to present and develop a framework from. This is in support of the concept postulated by Varela, Thompson, and Rosch, in *The Embodied Mind: Cognitive science and the human experience* (1993, p197): "much of what an organism looks like and is all about is completely *underdetermined* by the constraints of survival and reproduction. Thus adaptation (in its classical sense), problem solving, simplicity in design, assimilation, external steering, and many other explanatory notions based on considerations of parsimony, not only fade into the background but must in fact be completely reassimilated into new kinds of explanatory concepts and conceptual metaphors."

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These earlier contributions suggesting that the experienced world is portrayed and determined by mutual interactions between the physiology of the organism, its sensorimotor circuit and the environment are invaluable in bridging the human experience and a more objective neuroscience.

Knowledge

By the nature of what it stands for and what has already been said, knowledge is continuously evolving and has a direct effect on how we exist. Knowledge contained in our Physical sphere of reasoning is both temporal and temporary and a direct spinoff of our evolving perception in a changing environment. As an interconnected concern, this also influences how we live, quality of life, religious belief, and our political structures. We are, however, slower to change the latter two arrangements because of the dogma that secures such communal structures and the familiarity they present. The effect of greed and fear is a considerable influence and of major concern, not only in misdirecting the application of new knowledge but with the dangerous potential of setting a misguided epistemology in *repressed knowledge*. The still-existing biases in research and healthcare, and corporate influence through funding on our educational institutions today, are more responsible for knowledge

displacement than most of us are perhaps aware. Previously, science philosophers such as Thomas Kuhn, *Criticism of Scientific Revolutions* (1962), also raised concerns, albeit from a different angle, but expressed concern about a science lacking transgenerational continuity as being reductionist and vulnerable to culturism.

The positive impact of beauty, altruism, and interconnection as a drive for knowledge is also overshadowed by the harmful biases seen when profits, creationism, and politics at times can overshadow reality and honesty.

Our current concern here is also that our initial interpretation of an evolutionary theory may have been responsible for establishing a culture with an unnecessary iniquitous survivalist mentality, in sub-dis-

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ciplines and people in general. This causes a form of harsh egoism to appear, affecting all aspects of our society, including business and healthcare. In now discovering a more *benign interdependent* version of our evolutionary roots we are also more likely to direct and develop a more realistic, trustworthy, and pragmatic science, and subsequently moral society. This indeed sets a better platform for survival on a global level with science then securing its place as invaluable in creating a better world for all of us in a universal morality.

Culture

Culture emerges with a society and its epistemology, and inevitably has a strong influence on ethical and moral behavior. Expressing itself as representative of social groups with similar beliefs or interests and acting like a social glue, it subsequently may also create division between dissimilar cultures. Culture can also be a great manipulator of current knowledge; often centered around similar beliefs to gain support for members of such a group, it can become disfranchised from more universal needs. More positively, a progressive cognition constantly in search of workable contemporary ideas can employ culture to have a significant impact on the way we think, behave and act on a larger scale—perhaps as an emerging new culture in science in an age of interconnectionism. Culture also extends into the metaphysical and into the arts (discussed in later chapters). We also must acknowledge our existence in an era where cultures inevitably are all merging into a new globally interconnected ‘hi-tech’ society, where we are already busy evolving a culture of smartphones, social media, and Artificial Intelligence. Culture can sway our Logical sphere of reasoning with significant influence on our Physical sphere of reasoning, this potential also affecting science.

Culture through the arts can also bring us closer to the beauty of this world and life (see chapter 4, section 3). Expressing understanding and respect for each other’s suffering through the arts, culture should never be ignored as one of our more noble endeavors and evolutionary recruits of a progressive human intellect—as long as it stays true to its

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search in creating better understanding of each other’s needs and hurt in a combined destiny.

The Metaphysical

Historically, ethics and moral guidance securely belonged to the Church under God’s influence. The Church, belonging to God, secured its power in the Metaphysical. Kant again on this topic in his *Critique of Pure Reason* (2:66.1–6) referred to the Metaphysical as, “A dark ocean without shore and lighthouse, on which it is all too easy to lose one’s way.” Traditionally defined as the philosophical inquiry of a non-empirical character into the nature of existence, by its speculative nature, the Metaphysical is now seen as *vital* to steer us clear from remaining entrapped in the narrow confines of our interpretation of the objective world. In other words, as mentioned, it helps us steer clear of reductionism by stimulating our, at times, incommodious Physical sphere of reasoning. It would therefore be unwise to exclude the concept of the Metaphysical and not see its value as a

vital driving force for a progressive cognition. This *synergy between the metaphysical and physical world is critical* for progressive knowledge-development, as will be explained in a later chapter.

Any attempt at formulating a progressive theory, *or* an evolutionary epistemology, functioning in a fixed physical or objective world without allowing for change and the lure of the unknown would be impossible. Constant change and motion are essentials needed to create a continuum of life and knowledge. Evolution, as an evolving perception of continuous change, constantly challenges the unknowns. Conative and adaptable to harmonize with this process of change, we are cognitive and alive.

This can be formulated, where changes interpreted by organism *a* within its habitat *b* are perceived through various physiological means and cognition interacting and formulating ideas between *a* and *b* as,

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$\Delta a \approx \Delta b$.

Changes in both *a* and *b* are continuous and, based on simple de-

ductive logic, infinite. Change cannot be considered without time as mentioned. Without much argument needed it can also be deduced then that, once an object does not change and is fixed, it becomes finite. And when everything is obsolete, static, and fixed in a 'theory of everything,' there will be no need for a perceptive evolution to confront change or acquire awareness of, or any need for, time—and no evolution or life. It is similarly hard to imagine any atom to be inactive internally and non-reactive to surrounding atoms, and, isolated from molecules and energy forces surrounding it to change into anything more. The potential of an unchanging static and finite universe is inarguably with all the scientific knowledge available to us today, simply not possible. Neither is life, cognition, or evolution without the stimulation of constant change and interchange driven by unknowns (meta-physical) a workable concept. All of evolution and life is dependent on this infinite change and interaction, based on unknowns with some evolutionary means to perceive these ongoing changes in a *network*, growing in complexity—all changing in time.

Where *a* is the perceiver and *b* is the perceived with *a* and *b* interchangeable depending on whether you are the observer or the observed, we can see how all our actions have an impact on objects (inanimate or not) around us, and in turn them on us. Harmonizing these interactions as an interconnected network of ideas with vested interests is how we grow our perception and understanding to create a better world. This process is also how our morality evolves as our awareness increases. We can formulate this as a *moral evolution*, or *Ev(mo)* in this text so that:

$Ev(mo) = \infty \Delta a \approx \infty \Delta b$

We can conclude that morality is infinite and progressive.

A vital state of exchange exists between the metaphysical and phys-

ical world as follows:

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Perception of objects evolves between *a*'s and *b*'s continuously interacting and evolving in complexity as everything changes—perceptive and responsive to such change. With time and change interlinked (try again here to imagine having change without time) and our perceptive evolution dependent on change, we can see the inane aim of reductionist ideologies, set theories, and fixations. With *a*'s and *b*'s interacting and interlinking concepts in Logical spheres and Physical spheres (as revealed in the next chapter), confronting the metaphysical (unknowns), the network evolves in its own complexity. I think we can, with increasing evidence today in

quantum physics, claim that Newton's laws of gravity will fail to apply to all times and places in an evolving universe.

The sum of interactions between changing *a*'s, *b*'s, and unknowns networked together is where we co-evolve our perception and morality and can be formulated as:

$$\sum \Delta C(\Delta LSR \Leftrightarrow \Delta PSR) \Leftrightarrow \Delta \text{Metaphysical} \text{ *where } C = \text{cognition}$$

These two principles, emphasizing change, time and uncertainty, are introductory keys to a principled interconnected evolution, obliged to follow a universal ethic (code of conduct). This is also where we evolve *perception* and knowledge as we confront the never-ending changing metaphysical with infinite potential. Here we evolve cognition and morality, both internally and externally. Given then that we will never have the complete knowledge to which we might aspire, we must always strive to act accordingly in this twilight between certainty in our Physical sphere and uncertainty in the Logical sphere—between knowing and unknowing interacting with an evolving Metaphysical. This is where our morality also comes to the rescue.

Existing as progressively evolving perceptive beings interconnect- ed to other constantly evolving objects, the quest is still: How are we supposed to behave and interact to spend good, honorable, productive, and principled lives? And why should such matters halt us from ex-

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2

An Active Perceptive Evolution—Even Darwin Would Be Surprised

The hardest thing of all is to find a black cat in a dark room, espe- cially if there is no cat.
Confucius

I fear I am losing my mind, and what would I be without it?

Faraday (prior to his discovery of magnetic fields)

We have introduced three vital elements required to drive and explain an evolutionary cognition, with its ultimate product so far, the human brain. These are persistent *change*, the ability to *perceive*, and the impetus of the *unknown* (or uncertainty)—integral, not only to new understanding in evolutionary biology, but also to explain how the brain evolves (note tense as continuous) and functions. The latter points are unavoidable should we try to develop any realistic and pragmatic notion of the status, foundations, and scope of life, our morality, and our place in the universe. We inevitably always return to, and must ask ourselves: If the brain is not the source of developing all our current knowledge (present and past) and ideas about morality, where else can we *realistically* look?

To avoid equivocality and obtain some level of pragmatism, there is an obvious need to set clear barriers between representational ideas, the uncertain and metaphysical. To achieve this, we have introduced the value of staging these cognitive activities in the spheres of: Physi- cal sphere of reasoning (PSR), Logical sphere of reasoning (LSR), and the Metaphysical sphere (MS). Subsequently in this section we shall explore these locutions and explain how we can circulate concepts be- tween these spheres of perception.

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An Active Perceptive Evolution—Even Darwin Would Be Surprised

2.1 Evolutionary Origins of Our Cognition

Light is a major carrier of information in nature. The molecular machineries translating its electromagnetic energy (photons) into the chemical language of cells transmit vital signals for adjustment of virtually every living organism from its habitat. If we take a unicellular organism such as the primeval slime mold *Neurospora crassa* as an example, it will respond to an external light source, move toward a proteinaceous broth, find ‘comfort’ in an interconnected group of other molds and, if conditions are suitable, replicate. Based on new evidence and thanks to new technology, we now know that transcription of genes is initiated within minutes inside cells. Here an abundance of metabolic enzymes (proteins) and their interactions are harmoniously adjusted, and subsequently, levels of certain metabolites altered to interpret and respond appropriately. (In the case of the slime mold and light, urging it to move away from the desiccating effect it may have: Schmoll and Trisch in *Applied Microbiology and Biotechnology* 85(5) [November 2009].)

Should such actions not be conducive to changes in the organism’s environment, or should it start a novel action, a new belief or culture perhaps, such as moving into bright light or away from it too slowly, it would lead to the demise of its species and affect *others interlinked* to this infrastructure. Using this model, we can perhaps sense with some understanding of evolutionary biology how we are genetically primed to carry interconnected responsibility for our actions, even on a primeval level—and how these levels escalate as we progress. Importantly, this model extends all the way up the phylogenetic tree to eukaryotic organisms, where there is an abiding interplay between judicious decisions as an adaptable change favoring the best outcomes in a constantly changing network—this effect carried transgenerationally.

Everything is immensely interconnected and interdependent, relying not only on various physiological transmitters but also on a pattern of harmonious interactions to adjust, perceive, and aptly respond to change. In this we can already translate the origins and demands of an evolving ‘ethic’ (conforming conduct within a group) and moral code

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Spheres of Perception

(correct action in support of a network) emerging as an essential basis for the continuity of life and evolving intelligence. Now also firmly backed by new evidence in the neurosciences, all these fine-tuned molecular interactions escalating in complexity, seen here and elsewhere in nature, present us with the potential to serve as a model for moral evolution.

Jumping straight into another aspect of our existence, it also recently became evident that perhaps our current form of social hierarchy set in a tenet of capitalism is non-democratic and not matching the pattern set by our evolutionary design. We see this in a growing inequality appearing in the sharing of knowledge, resources, and information. Easily manipulated by power, egocentricism, and personal beliefs, it is not matching the demands of an interactive living network with interconnected concerns, as science is now revealing to us. Isolationism, or any structure growing exclusion, will also not match the future demands facing our current healthcare system, with a new era of genomics approaching fast. With survival no longer seen as a means to an end but a mere end to the greater means, that of interconnection and progressive perception, reductionism and isolationism now appear too parsimonious to develop a progressive knowledge and evolve a reliable epistemology.

New research has dramatically changed our understanding of evolution over recent years. “Charles Darwin would be surprised” is perhaps the most apt way of introducing the impact of all these changes, as declared in the opening paragraph of the book, *Mobile DNA: Finding treasure in junk*, by Haig H. Kazazian, Jr. (2011). We can now, supported by expansive new evidence, assume that all life emerged from single strands of RNA (a molecular arrangement) orchestrated by transcriptase enzymes (protein molecules) to produce strands of protein-encoding DNA, this cascading subsequently in our ability to perceive the world as we see it. Such a reverse transcriptase enzyme

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plotting the material world with attempts to outmaneuver each other in order to survive, reproduce, or perhaps merely for entertainment value, in such a 'dog-eat-dog' society?

This significant task is explained and simplified in the following chapters, steering clear of a dogmatic science, 'trends' in philosophy, or masquerading behind the uncertainty of deities set in the metaphysical. In this task, I endeavored to adhere to the principles of an open truthful science with the aim to still create scope for continuous and attentive discussions to follow while working within a flexible model. This pliability and avoidance of reductionism, I hope, is also where we will always secure our intellectual superiority over Artificial Intelligence as we evolve in perceptive complexity.

I asked Siri what the purpose of life is. Siri replied, "I cannot answer such a question...Ha, ha, ha..." and then referred me to Google links drowned in semantics and confusion.

Maybe we can now arrive at more pragmatic deductions, while we continue to evolve in our understanding...