

Outline**Introduction to God and the Universe****Chapter 1:**

Cosmologies
Physics and Metaphysics

Chapter 2:

Being and Existence
Selves and Souls

Chapter 3:

Belief and Knowledge
The Emergence of Science
Scientific Reality

Chapter 4:

More Questions than Answers
New Models of Reality

God and the Universe: A Spirited Query of the Great Questions in Emergent Terms

Introduction

Of all the questions, the big questions, the ones that persist for people is the question about reality. What is reality? What is the context in which we live? Who are we as people? Why can we ask these questions about where we are, who we are, what we are? How did we get here? Is there a cause for all of this, or did it just appear accidentally?

This is an exploration into these questions and why they are important. In every age of history people have asked these questions and tried to give true answers. Throughout history the answers people have arrived at have left many lingering questions. In other words, we have not answered the questions fully or accurately enough to satisfy either our curiosity or our need for truth. The answers seem just out of reach, just beyond our ability to understand, unsatisfactory, incomplete. However, some

of the answers we have arrived at begin to reveal the shape of what reality must be, or at least, what it cannot be. In this book, we will explore the larger context of these questions, grappling with things we know and things we don't know and why it is important to distinguish between the two.

Paul of Tarsus suggested that our view of reality was like looking into a reflecting glass.¹ In that age, around 50 CE, the best mirrors were nothing like the pristine glass mirrors of today manufactured in industrial settings with power and purity unimaginable in the first century. The dull mirrors Paul referred to only gave the general idea what one was seeing. At best, our approximation of reality is much like that.² To take the metaphor farther, mirrored images, even the best of them are distortions of reality, switching right to left, creating a depth of field that is not really there at all except in our perception. Mirrors are also a test of self-consciousness as well. Your cat or dog may not recognize itself in the mirror. So it tells us that some animal consciousnesses are less capable than ours.

Some find this fuzziness disappointing, but really, though people of the first century knew far less than we do today, we understand better than they did what we don't know. So the situation remains similar. Looking back on history gives us

¹ Bible, New Testament, 1 Corinthians 13:12 "For now we see only a reflection as in a mirror; then we shall see face to face. Now I know in part; then I shall know fully, even as I am fully known." NIV

² Often, unfortunately, our view of reality is more like that of Alice in *Through the Looking-Glass*, by Lewis Carroll, than even the dull mirror of Paul's day. The people in Alice's world are more like characters in a play. Alice wanders through a world whose organization is beyond her comprehension. Her interactions are clumsy and she makes mistakes, stumbles around, encounters puzzles and strange beings who don't offer up useful explanations, or reasons she can accept. The complexities of that world are so dense and Alice is carried through it as if she were in a river being swept along by the current. She despairs of ever understanding it, and eventually accepts it for what it is. She learns its rules well enough to manipulate it, but despairs of ever comprehending it. Dodgson, Charles Lutwidge, a.k.a. Lewis Carroll, *Through the Looking-Glass, and What Alice Found There* (United Kingdom: Macmillan, 1871), <https://en.wikipedia.org/wiki/Through_the_Looking-Glass>, accessed 6 June, 2016.

perspective about what people believed, and what people understood. We understand better because we have the understanding of our predecessors to start from. Where they succeeded we can remain steadfast, though understanding where they succeeded is not as simple as collecting their writings in a book. Where they stumbled, we can move in other directions, though we should not think of our new directions as anything but experimental. If our predecessors failed, we might too. In fact, history is full of these experiments, failures as well as successes, and our posture toward what we don't yet know and what we think we know should be one of humility. There is much we know, but much more that we don't.

Standing in front of the wide universe, we should be cautious of our certainty, even though our faith in the steadfastness of reality should not waver. We know enough to live reliably in our world, and we shouldn't abandon that consciousness in a direction that forces us to abandon truths we already know. On the other hand, we are caught in the curious situation of having *known* things that are false.³ Our forbearers might have taught us that lightning is evidence of God's anger, and we might fear being struck by lightning as God's revenge for our bad behavior. But we might also have learned not to stay outside in a thunderstorm if we can avoid it because we could still be struck by lightning even if our behavior has been commendable. The behavior of escaping to find cover from the storm is the same. No one can show a direct correspondence between behavior and just rewards such that they could be certain of any particular payoff for one behavior or another. Good people often encounter the worst circumstances, and

³ We speak of *knowing* in this case as having confidence that we have found the truth, when in fact, we have not. This is a perfectly ordinary problem for people. Though we should try to understand the truth, sometimes we don't achieve that.

wicked ones often land in the best. The reasons we stay inside during a thunderstorm today reflect our persistent reality more closely than the beliefs of our predecessors, even though the reasons have become detached from reasons that would have been sufficient for them.

This work proceeds with a particular view of reality in mind. Consistent understanding of it requires that this view be kept with some stickiness. This view is called realism. Its simpler form is defined as the **persistence of reality**. That is, the real world, the real universe in all its material and non-material⁴ diversity persists regardless of our belief about it. Our relationship with that world is inconsequential to its existence. We can, as some have returned to, believe the Earth is flat, a disk in space, though all the best evidence, the preponderance of evidence denies that description. Our false belief about the earth doesn't make the earth's reality different from what it has always been. Our "version" of reality does not affect the real world. So we can be entirely incorrect, as were the ancient writers, or the modern flat earth or young earth theorists, but this doesn't affect the real world.

This version of realism is very narrow, yet always applicable. It is for all intents and purposes a good ground for the following discussion because it never changes like our understanding of it does. To expand our version of realism to include all the elements in this book requires some faith, because the elements in this book like biology, consciousness, reasoning ability, freedom, spirituality, etc. that can't be tied to

⁴ I say this even though I think the world cannot be spit neatly into these two categories. Speaking this way is purely instrumental, meant only to reflect a rough and ready, though not entirely accurate way of looking at reality.

the existence of the earth without an indefinable causal link, require the existence of a more complex reality than the one composed merely and exclusively of atoms and space. Something/someone else must be involved, including us. The us here is an admission that everything we know carries the residue of us inside it, and can never be extracted entirely from us, from our participation in and interaction with the world.

Well, that's nasty and a little inconvenient, but it is also a good reason to be encouraged because we can still offer something new to the equation of the **knowledge project** that was unheard of before. Yes, you are important to this process.

Given this simple yet expandable realism, that is for example, if a great architect of the universe exists, then it has always existed, irrespective of our belief about it, we need to have an explanation for why there is complexity in the universe the way we find it. To do this I use a structure, a framework called **emergence**.⁵ Emergence at this point in the discussion is a fuzzy term that allows the coming to be of something more complex out of something less complex. How that actually happens will remain unclear, but for a good though disappointing reason. If emergence is defined explicitly, the explanation will break in one way or another as we rise in the orders of complexity. But we can say a few things outright.

1. There are lower orders of complexity and higher ones.

⁵ This structure is a replacement for materialism, idealism, dualism, and supernaturalism as foundational descriptions for reality where the effort has historically been to reduce our observations to something simpler than reality itself. Reductionism distorts reality by requiring that it be composed of something or other. Emergence is not so much concerned with any particular substance as it is with properly understanding the interaction between elements of the universe.

2. It is supposed that the higher orders of complexity are composed of the elements of the lower orders, that is, the higher orders emerge from the lower ones. For example, all biology is at least partially chemical in nature.
3. The rules governing lower orders of complexity are not sufficient to explain the phenomena of higher orders. That is, rules of biology are of a higher order than rules of chemistry. Some of the phenomena of biology can't be explained even by the most comprehensive rules of chemistry. Biology in this sense exceeds chemistry in complexity and can't be equated with it. What this means is that there is no complete explanation of biology in terms of chemistry. The causal chemical relations that could explain the emergence of biology break down because they don't operate on the same level and any explanation that requires an unspecified causal assumption is immediately suspect.
4. Higher orders of complexity impose order on lower orders of complexity. They are directive and capable of transforming more basic elements into forms that would not emerge naturally.

Sorry, that's more than a few mouthful, and the constraints that make the emergence of biology unexplainable in terms of chemistry are only in place if there is no external source of information available to biology in its formation or evolution. Even if there is a source of information that shapes the emergence of biology, humans do not have explicit access to that or to the causes and mechanisms and intentions of it at this moment, and we don't know if information itself is independent of any causes. Okay, I realize this expands the puzzles of the initial set of questions posed in the first

paragraphs of this introduction. But, I am of the opinion that whoever dies with the most questions wins.

Part of the reason I use emergence as a grounding metaphor, which of course is more than a metaphor because it is grounded in observation, is that historical metaphors like monism and dualism provide only static enumerations of reality. Monism is like a knife that encourages the user to eliminate both data and opposing ideas to produce a logically closed universe. Yes, monism, like “scientific” materialism or philosophical idealism contrasts the real with the non-real but the categories are reliant on metaphysical tropes that physics has already dispensed with.⁶ A material/supernatural dualism gives us a static universe with no generative properties. The most fully featured dualist is only a deist with a clockwork universe dependent on laws of operation with a final heat death through entropy as described in the second law of thermodynamics. Describing life in either monism or dualism persistently requires an outside force, an embarrassment for the materialist, the perfect but entirely dark prime mover for the idealist that is somehow inextricably part of all this, an interventionist miraculous force for the dualist required to perform every event of actual generation. It may be that the emergent property we call spirit is just what it means to be a person, nothing as lucid as a substance that exists in contrast to matter.

⁶ Material and non-material things are framed in terms that have lost their meanings. If one suggests that matter/energy is the only constituent element of the universe, one quickly gets lost with the discovery in physics that matter is, at the bottom, only composed of fields and forces, not stuff. (String theory is no help here either.) The glue that holds this non-stuff together is as mysterious as material itself. It would be a distraction to condense all of the last 200 years of physics into a nutshell, and so the reader will have to read from the prodigious literature available on the subject.

Though emergence doesn't require an interventionist or leave a bleak gray materialist landscape, it also doesn't explain why there is something instead of nothing. That's fine! The best explanations of origins remain, and probably will remain open-ended. Darwinian never claimed that he explained the origin of life, only what occurred once life existed. But, Darwin's feature set doesn't explain the increasing complexity of life we find. What emergence does do is offer a mode of observation that is not reductionistic in practice. What emerges from the substrates of universal reality is data for exploration, not a reason to hunker down into a logical linguistically closed worldview. The mystery of origins remains, while the mysteries of the data continue to puzzle and intrigue us.

One of the persistent issues that plagues us is that we need to understand when our metaphors and rational structures cease to be fruitful. How do we abandon a heuristic or explanatory structure when it ceases to be functional any more? I'm not sure we need to go through the exercise of proofs either for or against an explanation, but we do need to account for the relevant issues. Thomas Kuhn suggests in *The Structure of Scientific Revolutions* that the only way a paradigm or model gets replaced is with the demise of those who hold it. That may be a little gray and brutal, but he has a point. The structures of power rely on fixing the moving target of knowledge so that it may be used, even when the supports for that form or version of knowledge has lost its spark, and its liveliness has faded. But the demise of any proposal for truth or reality becomes shaky when too many counterexamples push up through the substratum and persist against the prevailing metaphors.

The drive to place emergence in the field as a contender for a structure of reality is that it draws a circle around persistent data that has often come against the prevailing static monism and dualism in a universe that seems to spawn complexity all on its own. Monism and dualism have a long history, and a specifically exact, long-term struggle against each other, but data seem to bypass the debates entirely to describe a world that has more than sufficient generative properties whether indeed God's finger is on it or not. The problem of whether there is a God at all or not is not one that is solved by data alone. It is human to believe both views, and it may not be possible to contend on that level at all. To be able to decide on the philosophical principles alone would follow belief not resolve it. I'm not sure answering the question is even necessary for the evaluation of data that springs to the front of our consciousness through observation or reasoning. We are always working with less than a full set of tools, and the tools we have cannot be traced back to a hard reality that doesn't also include human intervention.

Defining the grounding of our terms in absolutes is not a fruitful exercise, especially when the metaphysical presuppositions have been in many cases superseded by the discoveries of physics. The puzzles remain, and when one puzzle is resolved the next set emerges into our observation. This is obviously frustrating for concrete thinkers, but the Heraclitean is too quickly giddy with the problems that surface, dancing at the fireside of chaos.

Outline:

In Chapter 1 we will explore cosmologies, a term used for our beliefs about the universe. The early cosmologies do not reflect our scientific grasp of the universe, but

they are the best approximations of that universe given that the ancients didn't have our experience or knowledge. Like them, we experience the day and night, sun, moon, and stars. The seasons, for those of us north or south of the equatorial regions are important markers of the passing years. How we explain all that appears to us is different from the way the ancients explained it. But we shouldn't think the ancients were not intelligent or capable. Their views had no precedent, they had no known historical **models** to test, and no instruments beyond their senses to discover reality, though civilization records the subsequent construction of instruments to test their beliefs. How they explained their universe was substantial and useful to them, even though those explanations don't pass muster in our scientific age. Their explanation of the universe has passed out of utility and doesn't qualify as truth,⁷ but much of our modern cosmology, as scientifically informed as it is, has gaps and unknowns as well. The unanswered questions left for us to take on today are as deep a problem for us as the questions the ancients' cosmologies left in their wake.

In the following chapters, we will ask some general questions and try to give a broad scope of possible answers. We will read our predecessors' attempts to answer some of these questions.

In Chapter 1 we also embark on a study of some specifically philosophical terms. **Physics**, defined by Aristotle as the study of the natural world might seem fairly clear to us today, but we may not relate to the term **metaphysics** because it has meaning only in the philosophical contexts in which it appears. Metaphysics has acquired a variety of

⁷ I admit that the solar calendars of ancient peoples stand as testimony of their ability to track reality after a fashion, and these technologies are certainly important in any scientific scheme of things, but the short-lived nature of those civilizations and their failure to pass down scientific gains to their heirs that were not vulnerable to the edits of their conquerors leaves their discoveries orphaned.

meanings besides the one given to it by Aristotle. Since the study of metaphysics comes from Aristotle, this needs some explanation.

Many of the works of Aristotle appear to be something like class notes. They are difficult to read because they are only roughly categorized, full of terse, often cryptic remarks, and sometimes don't have a carefully crafted structure. Sometimes the writings seem to trail off without a conclusion. We are left without substantial resolution. What did Aristotle really think? Well, we answer, "He said this in one place, that in another, and something else entirely in a third place." You can see this might not be terribly helpful. The works titled *Physics* and *Metaphysics* are two of these sorts of works. But we should not underestimate their value. They have given guidance to the world's thinkers and scientists every generation since they were written, and still today, offer much insight. As with any writing or thinking, we must evaluate his contributions on the merits of the work, not on his reputation.⁸

For Aristotle, the Greek word that translates as *physics*⁹ is meant to convey to us what we know about the material world, a nascent science. Roughly the word itself translates as *nature*, though that might not be nature as we think of it today. After we say what we can about the material world: something scientific, something we can know by our senses, we use the term metaphysics for whatever is left over. Metaphysics means literally, what comes after physics. In the book *Metaphysics* (*ta meta ta phusika*) Aristotle muses about the larger scope of reality, what it means to be alive, essentially anything that doesn't have a good material explanation. Simply, Aristotle had categories

⁸ There's a funny story about Galileo and the emergence of a well documented theory of heliocentrism.

⁹ Physics (from [Ancient Greek](#): φυσική (ἐπιστήμη), [romanized](#): *physikḗ (epistḗmē)*, [lit.](#) 'knowledge of nature', from φύσις *phýsis* "nature") < <https://en.wikipedia.org/wiki/Physics>>

for many things, and in the case of physics and metaphysics, it meant stuff we know about and stuff we are guessing about. Philosophers don't often use terms like guessing. They prefer to use the word "speculation." That's okay, really what philosophers do is more than guess. They try to guess using the best information they have and extend it through logic and reasoning about what they understand to things they are less sure about. "Those things must be true if the things we already know are true." Often their reasoning about metaphysics is useful in that it gives guidance about our obligations and duties. Sometimes, especially when they ignore knowledge of other sorts, their speculation is less important than a cool breeze on a hot day. But sometimes the best guess of diligent and experienced people is more important than the commonsense reasonings of inexperienced and unknowledgeable people.

We should not be too quick to dismiss the metaphysics of great thinkers except where physics now substantially covers ground of what was once unknown. Then we should be ready to abandon the best guess of metaphysics for better science. But science is often blinded by its success and can't see that sometimes its explanation displays a failure to apprehend even the most common of human experiences.

If the things I have said above are true, then you can see the reason why thinkers must carry what they know in all humility. The problems we face in the knowledge project are not trivial, and the tangles are ever present. Our explanations are tentative, though the reality they hope to reflect is substantial and reliable.

In Chapter 2 we will follow the same course set out in the section on cosmologies and discuss ancient and contemporary views of being and existence, selves and souls.

What is being, or beings, and what does it mean to exist? Humans are an exception to the general rule that existing things don't know that they exist. Rocks, stars, and mosquitos don't know they exist in the way that humans do. There is no reflective consciousness within them that forces the questions mentioned in the beginning of this introduction to come to the surface of their consciousness. Rocks and stars may not have a consciousness for thoughts to emerge within, but dogs are conscious. Yet the consciousness of dogs is something less than that of most humans. They can't speak well enough to put a sentence together, though the great apes trained in American Sign Language can. Apes are perhaps more self-conscious than dogs, but still dependent on us for language. The real test of rational self-consciousness in great apes would be to leave them in the jungle for a few generations and see if they pass on the language they have learned. If they pass it on, then they may actually be rational self-conscious beings like ourselves, but if not, we must conclude that the great apes do not have the same sort of rational self-consciousness that we do.¹⁰ Elephants, dolphins, and monkeys have also been studied most often to determine whether they have a reflective self-consciousness like we do. There are a variety of tests scientists use to determine whether an animal has self-consciousness or not.

We will ask what exists and what does not. We will try to answer this without selecting our particular preferences. But we must rely on the data available to us to answer this question. The greatest question for what exists lies in the realm of non-material things, what Christians and others call spiritual things. Most of the people in the

¹⁰ This is a guess.

world have no problem acknowledging the existence of material things¹¹, and the **materialist**¹² has often gone to the extreme end of the knowledge spectrum and required that all knowledge is and must be about material things. We will ask some questions about that assertion, puzzling over the issue about things like reason, language, communication, consciousness, and love to determine whether these things we all take to be real are part of the material that makes up the universe, or whether they are something of a different kind. I think we will find that trying to squeeze these things into a purely “material” universe is more than awkward. We approach square peg in round hole territory.

The mystery of consciousness, of being a person, of having thoughts, having or being a soul is one the human race hasn't worked out satisfactorily yet. I'm not sure any of the tools currently in place will do any more than help us to approach the problem. We may not be able to say what being a self is, but slowly, through a variety of experiences and researches into history and science we have begun to say what it might not be. This uncertainty is unsatisfactory for some people, but one human tendency we must resist is to pull the cake out of the oven before it's finished baking. Simply said, when we haven't solved a problem, we can't afford to settle on a bad explanation just to have an explanation. The life of the mind can't be forced, even though it lives under constraints not of its own choosing. These constraints apply to all human speculation and reasoning, that is, all knowledge is from a particular perspective.¹³

¹¹ This is not a problem at some levels of discussion. But if we are trying to classify all of reality there are a variety of issues that require something more than the simplistic material universe.

¹² A person who denies that spiritual things are real might be classified as a materialist.

¹³ Knowledge is always from a particular point of view. It has been reliably demonstrated that every

In Chapter 3 we will discuss theories of knowledge. If we speak of knowledge we are talking about the conclusions we reach after evaluating evidence. We need to set up a few ground rules to help us determine what counts as evidence, and how to evaluate that evidence. There we will offer a variety of theories about what counts as knowledge. We will discuss some categories of thinking about our relation to the world: rationalism, empiricism, and phenomenology, and some of our normal intuitions. We will look at ways that humans assure themselves that they indeed have knowledge: tenacity, authority, a-priori, and science.¹⁴ The logical methods for deciding what is true or not must be applied. Deductive, inductive, and abductive methods will be explored. But even those methods are not comprehensive. There are tests of truth we need to apply to help us evaluate other evidence as well. Why do we need to evaluate evidence? Because no evidence is uninterpreted. Evaluation of evidence using our tools connects us to the real world in more than a surface intuition that we often consider direct. It is a mistake to think that our judgment is not in play when we experience or read, to think that what we take in is uninterpreted.

In philosophical circles, there is still a great deal of discussion about these things. And though one's preference may be toward one method or another, we must understand that not all subjects that we study open themselves to any single method. In addition we will cause ourselves trouble if we assert from the outset of our examination

statement, theory or supposed fact relies on a set of axioms that are mostly guesses, but are also based on observation of their persistent truth. That doesn't mean those perspectives are incorrect, but that relying on them must be on the condition that better information may come that will replace some of the things we only guess at now.

¹⁴ Critical reasoning crchapter-9.key, also Charles Peirce fixing knowledge.

will give humans crystalline access to a singular **objective** point of view. At the very beginning we must humbly admit that human knowledge will never attain the kind of absolute clarity and connection we attribute to God alone. And even if you don't believe in God, any statement of an absolute that might stand in the place of God must be conditioned by the impossibility of generalizing any statement to all of reality.

One thing that cannot be avoided in this era is the movement of science. To explore any view of reality without first acknowledging the products of the scientific enterprise is tantamount to forgetting what has become foundational for any understanding of the world. Let us remember that the birth of modern science has the Christian conviction to thank for saying that the world is both sensible and understandable and that exploration of it is not a futile enterprise governed by capricious deities or a random and disruptive state of affairs inaccessible to our reason. There are laws set in motion either by evolutionary necessity or by God that make it possible to have a universe in place, with galaxies, stars, and planets.¹⁵ And, in addition they make science possible.

The scientific enterprise is the latest and most profound exploration in the knowledge project to emerge from Western culture since the beginning of history. The mark of its conquest is its worldwide adoption and subsequent extension through technology to the darkest corners of human occupation. To minimize or ignore either its results or subsequent impact is to ignore the social reality that encloses the modern world. The emergence of science as over against speculative metaphysics, of empirical data and its evaluation through human rationality as over against the guesses of our

¹⁵ Jeremiah 33:25, God says that he "established the fixed laws of heaven and earth" (NIV, 1984).

predecessors and the logic used to support those guesses, is arguably the largest transformation of our models of knowledge within society that has ever emerged from human activity. The difficult early stages of the modern scientific approach are fraught with religious, social, educational, and personal complexities that have not yet fully resolved themselves. We find ourselves in a movement so swift and thorough as to defy our ability to comprehend it. Changes have overtaken society so rapidly that we find ourselves in new situations before we have comprehended the old ones, or organized our ethics to manage the right and wrong of them.

We will explore what is called the *boundary problem*, that is, how you can tell science from non-science. This is not a trivial problem. The problem can't be resolved merely by noting the differences in methodology practiced by a variety of knowledge projects, or by looking at the information that emerges from a particular knowledge project. Methodologies between different kinds of science differ like the differences between apples and oranges. Information emerging from some intentionally non-scientific projects often look a good deal like the best speculations of a scientific one. But a difference may be found in the ethical intentions and practices of the scientist that are not modeled by the non-scientist. Though all research should be practiced in terms of the scientific ethic¹⁶, the goals of knowledge projects other than science may produce a variety of knowledges distinct from but not essentially contradictory to the scientific project. That is, if research is carried out with the intent of discovering the reality in which we all find ourselves, then that research, if it leads to truth, will never essentially

¹⁶ Smolin, Lee, *The Trouble With Physics: The Rise of String Theory, the Fall of a Science, and What Comes Next* (New York, NY: Houghton Mifflin Co., 2006).

contradict researches that take place elsewhere with the same intent. For example, science and theology that explore reality in different ways should never, in the final analysis, contradict each other's results. After all, it is the same reality that both explore with their separate but similar rational tools.¹⁷ Modern arguments between disciplines often revolve over unresolved research and differing presuppositions, not the observations and data themselves, which even still are often in contention.

In Chapter 4 we will explore the difficult but necessary problem of doubt, its purposes and resolutions. To discover that one has been wrong about what they believed is deeply troubling, especially when that erroneous result has been used as a foundation for subsequent research. Looking through history one finds periods of great and steadfast belief and others of unrelenting doubt and questioning. This age, at the turn of the twenty-first century is one of critical doubt and questioning. Much that has become present to knowledge in the last 200 years has set the spirit of this age on edge. We realize that all the confidence we placed in the grand narratives of the past: Religion, Politics, Science, and Culture do not have the answers that are required for a subtle and gracious interaction with reality, nor do they provide any universal answers that give us transparent, crystal clear access to that reality. That doesn't mean we cannot function in our world reliably. What it does mean is that we do not have a God's eye view. At all times we are subject to the limitations of being human. We do not have transparent access to any absolute. Every human lives within the limitations of time and

¹⁷ Polkinghorne, John, *Quantum Physics and Theology: An Unexpected Kinship* (New Haven, CT: Yale University Press, 2006).

space with the delays, coloring of our senses, prejudices, and our own problematic rationality governing our interactions. The clearest thinkers and observers may be able to get closer to the reality they seek but there is always a margin between the best efforts of people and the absolutes which they claim govern their actions. In addition we should not deceive ourselves by privileging one method of exploring reality over another given that they all are human products. We cannot also rely on language to give us unrestricted access to reality because it too is a human product.

This criticism about access to the absolute is not a denial that there are such things as absolutes, or that humans have no relation to those absolutes, only that humans are incapable of announcing those absolutes absolutely.

It is not due to lack of trying to surmount these limitations that we fail. It is rather, the nature of living in the world, being in the world. This lack of objectivity therefore, must not be taken as a fault or failure, but rather, a necessary constraint on our observations and our conclusions. How then are we to count the things we observe as knowledge? Do we just give up? Or do we find some way to bolster our intuitions? Within science we have discovered a method that will give us **probable** answers, answers that are good enough to depend upon while not being absolute. This may be easier to illustrate using a diagram. In *figure 1* below, you will find a scatter plot.

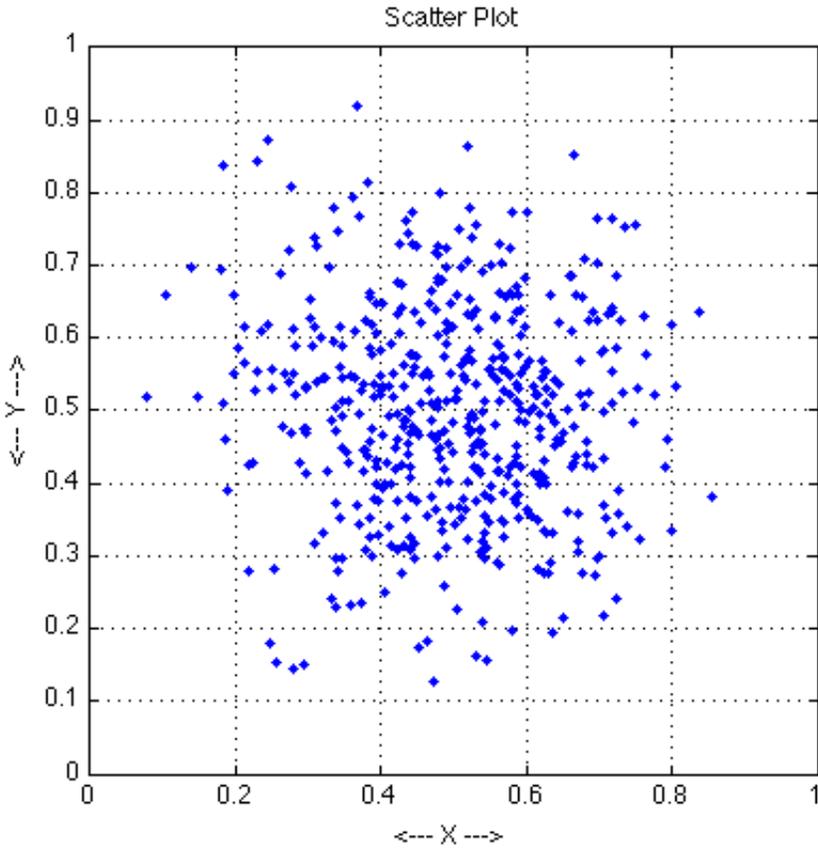


fig.1 ([scatter plot source](#))

A scatter plot is a method of graphing the results of our observations. Each of those dots (data points) represents an observation. In this scatter plot you will find a central grouping of data points. It is likely that the truth of our observations will be found in that central grouping. The outliers, the data points distant from that grouping, are probably less likely to reflect the truth. Yet in the central grouping of data points you may not be able to single out any particular data point as being the absolute correct truth. But you can be fairly certain that near the center of that grouping of data points you will find what will stand for the truth, an objective assessment of the real circumstance you were examining. Though one data point may not stand for an

objective assessment, the more data points you collect the more likely you are to find what turns out to be true, at least **functionally** and **probably** true. That is, whether our assessment is absolutely true or not, it is sufficient to base our further explorations on. This scatter plot metaphor reminds us that no single observation of reality is sufficient for objectivity, and that our objectivity is always conditional, not absolute.

If our description of reality, of the absolute, is so hampered, what sort of model for reality will usefully comprehend the available knowledge? It may be that none of the current models are adequate, then again, we will explore some models that may give more secure access to reality. But they will only give that access with the acknowledgment of their tentativity. These models will only give us access in a middle way, that is, their access is to this point on our journey. It is more than likely that though those models function very well today, their utility may pass out of favor with the increase of our understanding. However, they will give functional access. I will give you a hint. The best models are those that are open to new data, and can transform in the presence of better models and data.

But even this way of looking at the world as separate from ourselves can not be entirely true. Knowledge, a human product, is not separate from us as humans. It may be, and this book will conclude with a theory of knowledge that takes this human embeddedness in the knowledge project as not only inevitable but necessary.

Finally, more than a subtext, the knowledge project must be embedded firmly within a moral framework. Let's not get ahead of ourselves by claiming that knowledge itself is moral, but that it is unlikely that knowledge, when acquired, can be separated

from some necessity that goes beyond merely noting its truthfulness, that we must hold on to it in the face of opposition and the variety of tempting alternatives. Knowledge as a result of free inquiry implies a moral transformation. One cannot be blasé about it. It carries weight in itself. It is not free of responsibility even as it is not free of ourselves. To live with the gift of knowledge requires moral strength. Morality, beyond noting what people do, is the definitive connection between freedom and responsibility. Knowing comes at a cost, and requires a payment whether that be in the cost of the search or the responsibility we discover in the knowledge itself. Knowledge can not be in this case purely an objective statement of facts. It is a commitment of being to reality.

NOTE: The use of references is in no way meant to grant the reader all possible information, or substitute for research into the issues at hand. They are merely a beginning place where one may look further into the issue. Wikipedia, or indeed any other encyclopedia like the Britannica may not suffice as an authority to lend credence or support for an idea in itself, but may be a place for the reader to find references not readily available elsewhere. Encyclopedias can serve us well, but they are beginning points with overviews. I reference Wikipedia because it is an internationally available online source translated into a variety of languages. It may be the only source available to some readers to begin research. It is also true that something mentioned in a book is not necessarily true just because it is said there, but knowing whether it is true or not is another question that requires much more effort. This distinction is an important one for our study. All references must be taken with a grain of salt and used within their

limitations. We may find some sources more reliable than others, but they may only be that way because we happen to privilege our interpretations of them.