

## How does anyone change beliefs about anything?

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**Abstract:** I present a model for how people change their minds about both minor and major beliefs, based in part on the model of Thomas Kuhn's "revolutions," with input from both presuppositionalists and evidentialists in the Christian apologetics community. I apply this model specifically to the question of Christian "conversion" and "de-conversion."

### Introduction

At a recent meeting of Christians in science, the advertised theme was "Does anyone come to faith by a rational process?" I encountered two types of reaction to this title. Some people asked, "How can that even be a question? Why would anyone believe something they didn't think was true?" Other people reacted just the opposite way: "Of course nobody comes to faith by a rational process. Faith is the opposite of reason!"

Many books have been written on epistemology, focusing on how we can justify to ourselves that we know something. In this essay, I address a related but different problem, namely how we change our minds to believe different things. People change their beliefs about many things, ranging from the mundane ("I don't think that Jane likes me") to deeply held religious beliefs. People "convert" to Christianity from other religions or from irreligion, and avowed Christians "de-convert" and reject beliefs they once claimed to hold. Often these changes seem to come in a sudden jump, or leap, to a new viewpoint, which can make others think they have happened irrationally. I argue here that even the most sudden of these leaps can be quite rational, although people do not always think rationally.

The fundamental problem, recognized by many authors, including Kierkegaard,<sup>1</sup> Cornelius van Til,<sup>2</sup> Michael Polanyi,<sup>3</sup> and Thomas Kuhn,<sup>4</sup> is that all people have mental filters through which they see the world. New experiences and new ideas in many cases simply do not register or make sense; in what is often called "confirmation bias," one generally sees what one expects. This process of filtering is actually a valuable part of the learning process. For example, small children and others hearing a new language first just hear a babble, and must learn to identify what parts to pay attention to. This process of focusing on important parts simultaneously means filtering out unimportant parts. In the same way, someone learning to drive a car for the first time can be overwhelmed by all the signals from the car dashboard and the rapidly changing view through the windshield, but after some time, most people learn to filter out most of it and react only to certain key elements, driving without thinking consciously about it, no more than they would think about how to walk. But this general learning process also narrows our conscious experience. A person who doesn't care about sports will see a sports program on television as merely a random mix of activity; a person who doesn't care about politics will see political discussions as just a lot of sound and noise. Many who don't care about religion tune it out when it comes up as a topic of discussion.

Given this filtering process, how does anyone come to believe anything really new? One might get the impression that we are sealed into individual echo chambers in which no other viewpoints can ever enter. But we know that people do change their minds about important things all the time.

### Three models of world view development

Let us consider three models of how people change. The first model, illustrated in Figure 1, can be called the “classical” model. In this model, people start with a set of unquestioned axioms that guide their thinking, which have been called, among other things, “presuppositions,” “preconceptions,” “paradigms,” “assumptions,” or “basic beliefs.” These axioms provide filters for what new data from the external world can be considered. Once data are allowed for consideration, a person manipulates them by a set of logical operations, such as the law of non-contradiction, to arrive at logical conclusions. These conclusions are not necessarily true, but they have the same certainty as the axioms in the logical system.

As Kierkegaard<sup>1</sup> and van Til,<sup>2</sup> among others, have pointed out, this model suffers from the “garbage in, garbage out” effect. Nothing in this model allows a person to change axioms; the axioms control everything else. It might be possible to change some assumptions by *reductio ad absurdum*: if one derives a contradiction, then one of the premises must be false. However, in every logical system there will be some foundational axioms; if there are no alternatives to these, then the only option, given a perceived contradiction, is to assume that any experience that appears to contradict these axioms is wrongly interpreted.

Thus, for example, if one of a person’s axioms is “miracles are impossible,” then no logical process can ever allow that person to deduce that a miracle has happened. Evidence for miracles, whether seen with one’s own eyes or reported by others, will pass through a filter controlled by the higher axioms, so that it will be either ignored or explained away in terms of allowed explanations, such as deception, hallucination, or extreme luckiness, no matter how improbable.

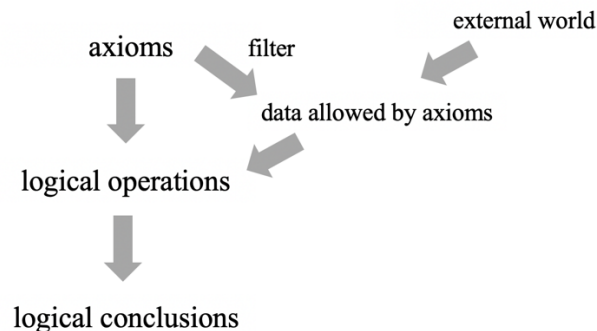


Figure 1. The “classical” model of world view development.

How does one get the controlling axioms, then? In the past few centuries, there have been three main lines of thought. In classical rationalism, represented by Descartes,<sup>5</sup> all legitimate axioms must be “self-evident” truths, such as “out of nothing, nothing comes,” or “I think, therefore I am.” The results of this approach can be impressive. For example, the geometry of Euclid starts with just a few apparently undoubtable axioms and derives a whole host of results in geometry. The elegance of Euclid’s work was one of the main motivations for Europeans adopting this approach as a model for all knowledge, after the rediscovery of the Greek classics in the Renaissance.

Many later writers, however, found that much of life remains outside the domain of this small number of apparently self-evident axioms. How do we know what is right and wrong, morally, or what is important to do? As I have argued elsewhere,<sup>6</sup> authors over the years have proposed numerous self-evident axioms which contradict each other; John Stuart Mill proposed that it is self-evident that we should seek the greatest good for the greatest number of people,<sup>7</sup> while Ayn Rand argued that the exact opposite is self-evident, that we should all seek the greatest good just for ourselves.<sup>8</sup> Some Christian authors have argued that belief in God falls into this category,<sup>9</sup> while atheists categorically rule it out.

In reaction to this seemingly arbitrary selection of self-evident truths, the existentialist and postmodern philosophies which dominated the West after World War II taught that we must create axioms by bare choice; in fact, this creation of axioms is the greatest act of human freedom.<sup>10</sup> This approach, however, means that no one has any tools of persuasion to change anyone else’s mind; if they have made an axiomatic choice to rule out what I believe, there is nothing more I can say.

More recently, critical theory has come to the forefront, which says that the axioms and basic assumptions of most people come from power brokers in society who make the rules.<sup>11</sup> This leads to a power struggle instead of an attempt to persuade. In general, the art of persuasion is all but dead in our society.

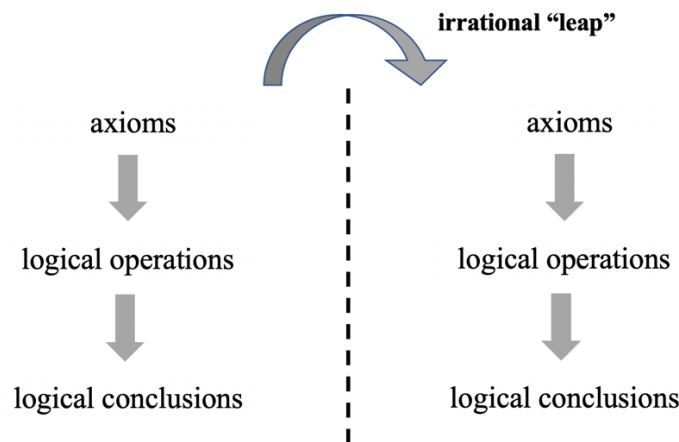


Figure 2. Presuppositional model of world view development. The same filtering of external data as shown in Figure 1 is assumed here, but not shown.

The presuppositional school of thought<sup>2,12</sup> can be seen as a variation of existentialism, with roots in Kierkegaard.<sup>13</sup> Both of these can be represented by the model shown in Figure 2. The left side of this figure represents a system very much like that of Figure 1. It is possible, however, to leap to a new set of axioms, after which one operates rationally within a new view of the world. In this model, no logical process deduced from the original axioms can overturn those axioms, and therefore the adoption of new axioms must be a fundamentally irrational process.

This model has the appeal that it makes any favored belief system an impregnable fortress. If I presuppose that Christianity is true, then by definition, no evidence can get through my filters to cause me to deduce that Christianity is untrue. I can have a sense of absolute certainty without any possibility of refutation.

The problem, of course, is that anyone can use this approach to defend anything.<sup>14</sup> Not only Christians, but Mormons, Muslims, new-age spiritualists, and anyone else can also make their core beliefs into unassailable presuppositions. As in the postmodern approach, the art of persuasion is killed; one can only proclaim the truth. This may be appealing for those who do not like arguments with give and take, but it cannot account for the fact that many people do indeed have the experience of being persuaded to change their beliefs. Many a young Christian has been told to “Just presuppose it—just believe!” but has found this approach entirely unsatisfying. It is fundamentally a defensive posture, with little persuasive power.

This brings us to the third model, proposed here, with roots in Thomas Kuhn’s view of scientific revolutions, but with much broader application. The first aspect of this model is illustrated in Figure 3. Instead of having absolutely certain conclusions based on undoubted axioms, this model accounts for the fact that people have increasing and decreasing degrees of certainty about their basic assumptions, according to their experience. This arises from several causes. First, the set of assumptions in a person’s axiom list is not necessarily self-consistent. People quite frequently assume many things which cannot all simultaneously be true, because they do not follow every thought to its logical implications. Second, no one’s filters are perfectly

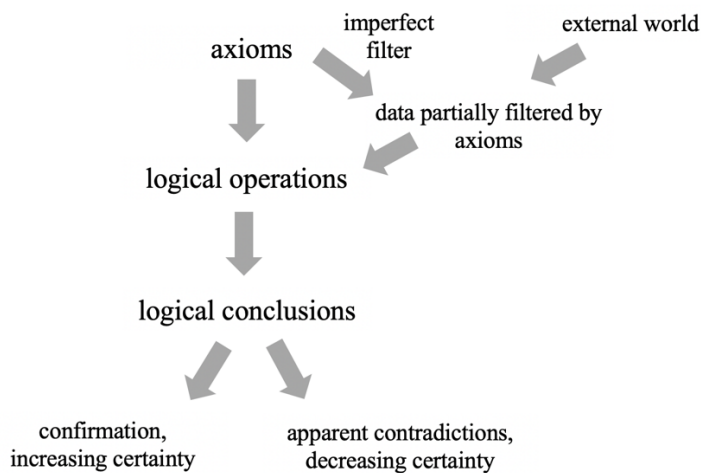


Figure 3. The “tentative consideration” model, Part I.

able to keep out all unexpected data. Some things register with us because of our human nature, whether we like it or not. For example, I may want to tune out a person yelling at me, but the sound will get through to me in some fashion, even so.

This implies that as we live life, our sense that we know how to negotiate the world can increase or decrease. Experiences that agree with our initial axioms lead to a sense of increasing certainty that the world makes sense, as interpreted through our filters. Experiences that seem to contradict our basic axioms lead to a sense of tension, that the world doesn't make sense. Often this sense of unease is not explicit or conscious, but exists as a subconscious tension. *All* world views have some degree of tension, because the world is a big and complicated place, and none of us can completely understand all of it. Even if we could prove that we had the right axioms, we could still fail to work out the implications of those correctly, due to failures of our logic; also, we have only partial experience with the world.

The second part of this model is shown in Figure 4. A person living within one system, shown on the left, encounters a different world view. Without committing to that view, the person possesses the ability to imagine that he or she does hold that other view of the world. This is a fundamental property of the human imagination, to be able to put ourselves in the place of others. The rival world view may be encountered by meeting a person with that viewpoint, by reading or hearing about it, or by an act of private imagination. For example, Einstein imagined what physics would be like if one did not assume that space and time were absolute, even though no one else tried to persuade him of this.

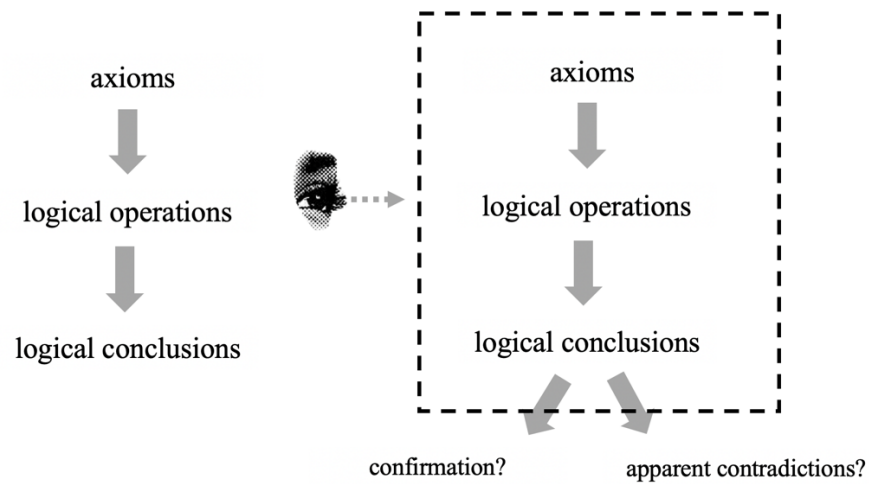


Figure 4. The “tentative consideration” model, Part II. A person holding one set of axiomatic assumptions (left) may consider the implications of believing a different set of axiomatic assumptions.

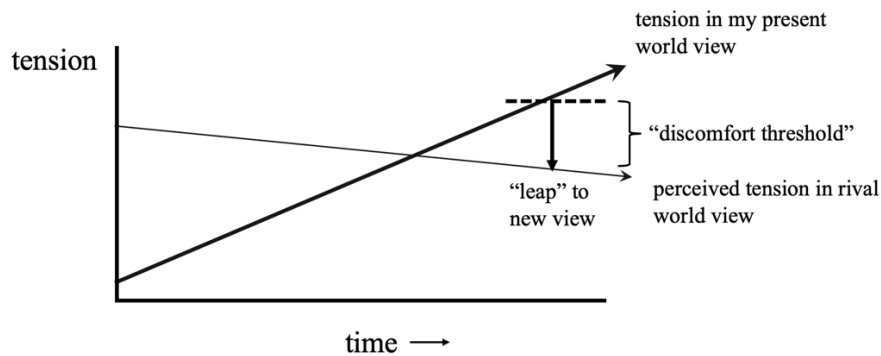


Figure 5. The “tension gap” in comparing two world views.

A person may go quite a long time, perhaps years, considering a rival world view without committing to it. A person may consider more than one alternative world view, as well. During this time, tension in his or her own world view may rise, until such a point that the perceived tension in the rival view is significantly less, as illustrated in Figure 5.

Most people do not quickly change views on the basis of a simple assessment that another view has less difficulties. In general, people can endure a certain amount of tension, that is, a sense of inconsistency to some degree. However, most people have a threshold of discomfort which, if passed, will lead them to jump to a viewpoint with significantly lower perceived tension. This transition has much in common with phase transitions in physics, in which a sudden jump in properties of a system occurs as a parameter is changed continuously over time; for example, the change from water to ice or the change from a non-magnetic to a magnetic solid. To an outsider, this change of views may appear to be an irrational leap, but it is often actually the result of a lengthy time of tentative consideration and sense of tension.

Note that a single inexplicable experience almost never causes such a transition. Karl Popper argued<sup>15</sup> that a single contradictory datum will overturn a scientific theory, but for such to occur, one would have to absolute confidence in the new datum, namely, that it was recorded and interpreted correctly, and scientists almost never have that high a degree of confidence in experiments. For example, a few years ago, a reputable group of scientists reported a measurement of faster-than-light signal propagation.<sup>16</sup> Almost all other physicists assumed that they had made a mistake somewhere in their measurements, because Einstein’s theory of relativity is so well established by thousands of experiments, including the Global Positioning System used by everyone’s smart phones. A mistake was finally found,<sup>17</sup> although the original experiment had been done very carefully. Had the evidence continued to mount for faster-than-light signal propagation, however, physicists would have started to take it more seriously. In the language of the model we are considering, the tension would have risen, possibly to the point that it might have driven a “Kuhnian revolution.”

Thomas Kuhn envisioned this type of transition as occurring only rarely, once in a lifetime perhaps, with all scientists the rest of the time doing “normal science” without questioning any of the established axioms of their field. However, as pointed out by Tony

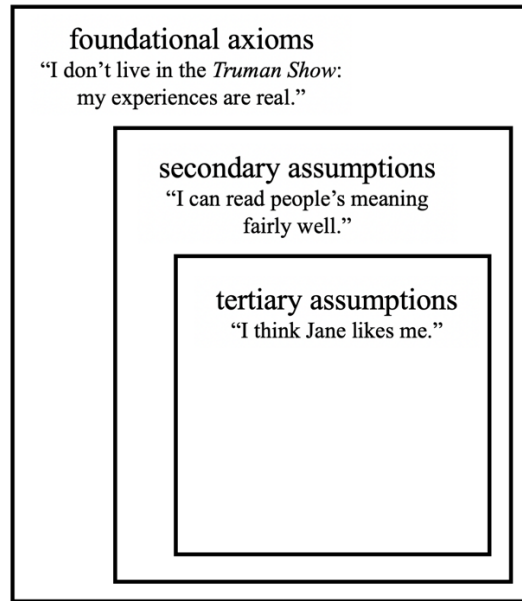


Figure 6. Different levels of assumptions embedded within more basic axiomatic frameworks.

Leggett,<sup>18</sup> many mini-revolutions also occur on a regular basis in science. There are very basic assumptions about how the whole world works, but there are also subsets of science with their own paradigmatic assumptions which can be quite stable until they are overturned. In my own field of solid state physics, for example, it was assumed that superconductivity was an intrinsically low-temperature phenomenon until new experiments showed high-temperature superconductivity.<sup>19</sup> To this day, there is no consensus on how the new high-temperature superconductivity works. This type of mini-revolution continues all the way down the line, to a graduate student who is stumped how to solve a problem until dropping a wrong assumption, and to a first-year undergraduate who at first doesn't believe an introductory physics textbook,<sup>20</sup> but then is suddenly able to "get" it.

Figure 6 illustrates this type of hierarchy of assumptions. At a very shallow level, I may assume something (e.g., that another person likes me), and come to change my view based on new evidence (such as the person repeatedly ignoring me). That change does not challenge my deepest assumptions, although it may be painful. At a deeper level, I may come to doubt my entire approach to interacting with people, and make a change in my whole personality. At an even deeper level, I may begin to doubt my fundamental assumptions about how to interact with reality. In the area of religion, at the shallowest level a person may realize that a Bible verse or passage can be interpreted validly in a different way. At a deeper level, a person might switch schools of theology; for example, to embrace Calvinism (a traumatic transition for many Christians I have known) or to believe in ongoing miraculous gifts of the Holy Spirit. At the very deepest level, a person may question whether God exists, or whether any claim to truth by anyone can be believed.

Because of this hierarchy of assumptions, a change of viewpoint is often accompanied by "throwing the baby out with the bathwater." A person may bundle several higher- and lower-level assumptions into one package, and throw out the whole bundle in favor of a new world

view. For example, a person raised in a legalistic or anti-intellectual church may reject Christianity altogether. Instead of questioning whether that church represents authentic Christianity, that person gives that church his or her highest allegiance by making it the true representative of Christianity, and rejects the whole. In the same way, an atheist who becomes a Christian may feel everything he or she learned earlier was lies, and adopt all manner of conspiracy theories or fringe religious views after becoming a believer.

The model of tentative consideration presented here allows many sources for unquestioned assumptions at every level. Some might be inborn; there is good evidence that all people start out life with the basic tools of logic and inductive learning, perhaps with a predisposition to trust parents, and perhaps with a predisposition to believe in God.<sup>21</sup> Some tacit assumptions may be learned at a very early age, from parents and culture. Some may be self-taught (for example, coping mechanisms by abused children). In every one of these cases, unspoken assumptions can be overturned. This is true even of the inborn basic assumptions we associate with rationality, such as the law of non-contradiction or the trustworthiness of the senses. We know these can be rejected because people throughout history have convinced themselves to adopt views like mysticism (embracing contradictions) and solipsism (skepticism about all experience).

The model presented here also does not require that people are rational all the time, or as rational as they can possibly be. To the contrary, as discussed above, most people do not understand the implications of every tacit assumption they have made. People also possess the ability to turn off their rationality and allow themselves to be controlled by emotion and feelings (or drugs) for a time. Even in this context, they can feel more or less tension to the degree that they think rationally. Tension may increase in a person's life based on new experiences, or without any new experiential data, solely from that person becoming more rational and thinking through the implications and inconsistencies of assumptions already held.

Finally, this model does not presume that every person is aware of a viable rival model. In cases where there is no viable alternative, tension can still be experienced as a pervasive feeling that the world does not make sense. Some people may actually be driven to mental illness by this feeling. People who experience tension but are not aware of any rival views may switch immediately to a new rival view as soon as they hear of it, because it makes sense of what previously had no explanation.

### **What counts as data?**

In presenting this model for world view development, I have described tension rising due to new experiences, which we can call "data." What counts as data? In a nutshell, in this model, everything that a person experiences counts. Our experience can be divided into three categories: *external experience*, *internal experience*, and *testimony*.

*External experience* includes what most people think of as "scientific" data. However, it includes not only the detailed studies of academic science, but any experience of the world that we have through our physical senses. Science is not sharply demarcated from this type of



experience; science merely extends the range of our experience, with specialized equipment and more methodical recording methods, and it tightens and quantifies our descriptions. For example, any person may experience things coming back to earth after being thrown, and make the inductive conclusion, “What goes up, must come down.” Science quantifies this same experience into the law of gravity. Common experience and science differ only in the degree of methodical carefulness of measurement and degree of mathematical description.

It is a misnomer to call this “objective” experience, because all of our experience is filtered through our assumptions, as discussed above. External experience is, however, experience that can be shared with others relatively easily. As I have argued elsewhere,<sup>22</sup> it is not crucial that this experience be reproducible, but it is crucial that experiences can be shared in some way, in coming to common beliefs with others. For example, an astronomer cannot reproduce a supernova, but the data collected from a supernova can be openly shared with others. Reproducibility is just one way for data to be shared.

The category of external experience also includes, for example, whatever scientific data one would put in the class of evidence for “fine tuning” or “intelligent design.”<sup>23</sup> It also includes the basic experience of people of simply walking in a forest or looking at a starry sky and thinking, “This can’t all just have happened by coincidence!” Some people are uncomfortable with fine tuning and intelligent design arguments as evidence for the existence of God, because not every person knows enough science for these arguments to make sense. But fine tuning and intelligent design arguments aim simply to tighten up our perception of intentionality in the world around us, in the same way that the law of gravity tightens up our experience that what goes up, must come down.<sup>24</sup>

External experience has great value because it is shared, and therefore we can discuss it with others to check our own rationality. One of the baseline assumptions made at a deep level by most people is that we are not crazy. Processing external data with other people allows “iron to sharpen iron.” Even if a person has had compelling *internal* experience that leads to belief in God, as discussed below, the validity of that internal experience can be doubted. Consideration of external experience in addition to internal experience can increase our sense of confirmation, discussed above.

*Internal experience.* In addition to external experiences, all of us have internal experiences that are not easily comparable. These experiences include our feelings of joy, sadness, anger at injustice, appreciation of beauty, sense of right and wrong, guilt, shame, anxiety, and so on, as well as, for some people, a perception of direct communication from God, a sense of God speaking through Scripture, or gut feelings of the “rightness” of a belief system.

Since the time of the Enlightenment, those viewing themselves as having a “scientific” approach have rejected the validity of internal experience, but as many counselors will say, “feelings are facts.” We ignore our internal experiences at our peril. And, as eloquently argued by Thomas Nagel,<sup>25</sup> ignoring our internal experience is not even very scientific. We all spend most of our days dealing with our internal life of the mind; how could it be scientific to dismiss this huge sector of data?

The Enlightenment thinkers moved away from these “subjective” experiences because they are hard to quantify and because they can easily be abused. People can use their imaginations, and can outright lie, to create fantasies that they tell others. Mental illness, sleep deprivation, or drugs can lead to hallucinations, hearing voices, false memories, and other departures from proper mental function, so that a person might tell of imaginary experiences, convinced they are real. Without an easy way to compare internal experiences, it is an easy rule (one might say, a simplistic rule) to dismiss the validity of all such internal experiences out of hand.

Yet we can compare notes about such experiences, and we can, most of the time, distinguish between hallucinations, dreams, and reality. Just because it is harder to get at the truth in this area of our experience does not mean there is no truth to be gotten at. People also lie and fabricate scientific data, or interpret it wrongly, but we generally have ways of finding out when this has happened. Every relationship with another person, one might say, is an exercise in learning how to interpret the other person’s narrative of internal experience and compare it to our own. Perhaps it is no coincidence that people favoring Enlightenment-style dismissal of internal experience tend to be people who have a hard time reading other people and/or communicating emotions, giving rise to the stereotype of the scientist or philosopher as a social misfit.

*Testimony.* The third category of experience is communication from other people about their experiences in the first two categories. In practice, trusting the testimony of other people is a huge part of everyone’s experience. Scientists rely to a high degree on the reports of other scientists; without such reports, they would have to reinvent the wheel constantly. A significant fraction of every scientist’s day is spent reading journal articles by others, with no intention of reproducing their results. Although it is traditional to talk of reproducing the data of others, much data is not reproducible. For example, the vast, \$20 billion effort at the CERN laboratory in Europe that found that Higgs boson<sup>26</sup> is unlikely ever to be repeated, and certainly cannot be repeated by any one scientist, who instead trusts the reports of others. Historical events also cannot be repeated, and yet we can come to believe that certain events really have happened. At the personal level, we regularly trust advertisements that tell us the price of products, traffic and weather reports, and many other types of messages from other people.<sup>27</sup> As with the first two categories of experience, we have tests we apply to determine how to treat testimony. Lawcourts codify this to a higher degree, with such tests as corroboration, consistency, lack of conflict of interest, and so on. We generally do not need to reproduce the experience of others to conclude that their testimonies are reliable. At the same time, as with any other experience, we can ignore testimony because of filters we have, which affect how we interpret what we encounter.

Our trust of testimony is sometimes called argument from authority, but authorities are just one type of testimony, namely people we give high credence to, almost automatically, based on the type of tests listed above. In general, we all have a continuum of degrees of trust in the testimony of other people, from high authority down to hearsay.

The Bible comes to us in two of the above three categories of experience. At its base level, it is the testimony of other people about events that they claim were external experiences for them. Although many of the events recorded are non-recurring, including one-time acts of God and direct communications by God, the nature of the Bible’s testimony about these claims

of the miraculous is on the same continuum as testimony about science, history, and other types of experience by others. (In theological terms, experience of the miraculous can be called “special revelation,” while our experiences of the beauty and wonder of the physical world in daily life can be called “general revelation.” Special revelation of miracles would count as external experience for the original observers, and as testimony to the rest of us, in the terms defined here.)

At the same time, the Bible also can induce internal experience for some people, which can include, among other things, gut feelings about the truthfulness of the texts, conviction of guilt, a sense of joy, or the impression that God is directly speaking. As discussed above, there is no good reason to rule out any of these internal experiences as invalid. But the model presented here also says that no internal experience automatically compels a change of our axiomatic beliefs, any more than any external data or testimony of someone else does. *All* of our experiences are interpreted through the filters of our overall framework of the world—thus the Pharisees could reject Jesus after seeing the same miracles that believers did, attributing them to a devil, and Richard Dawkins can say that even if he had a vision in which God appeared to him directly and spoke to him, he would reject it as a hallucination. But in the model of belief change presented here, all of our experiences, including internal feelings of joy and guilt and the impression of the truth of Scripture, can lead to either rising confirmation or rising tension for a person’s world view. In some cases, a religious internal experience can be the final push that causes the world view transition presented in Figure 5.

Without the context that a prior world view had uncomfortable tension, a single religious experience might indeed just lead a person to suppose he or she had an inexplicable hallucination. Although the apostle Paul had a dramatic vision of Christ, Jesus said to him “It is hard for you to kick against the goads,”<sup>28</sup> indicating that Paul had struggled with his prior world view, like a donkey poked by goads on a cart. King Saul had a religious experience,<sup>29</sup> yet seems to have remained an unbeliever.

It is possible that some people may have little sense of tension until they have an internal religious experience, after which a perception of tension zooms up rapidly, because this experience doesn’t fit with their materialistic preconceptions. In general, people can react to all three of the above categories of experience, in any order, in their path from one world view to another.

## **Two examples**

Let us consider how this works out in practice. As a first example, consider a person raised as a Christian who leaves the faith. Such a person might have the following rising tensions: 1) being raised in a legalistic church in which everyone seems to hate or fear each other; 2) being raised in an anti-intellectual church where everyone seems uneducated; 3) having a desire to do things the Bible forbids; 4) having little or no sense of personal guilt, or any sense of joy in the freedom of Christ’s forgiveness; and 5) having a sense that the Bible is ancient, in the midst of a culture in which the modern is all-important. By contrast, that person, looking at the secular world from a tentative standpoint, may feel 1) many secular/atheist people seem to be

intelligent and self-assured; and 2) there seems to be a complete explanation of the world via physics and biological evolution, without the need for God. Such a person might mull these things over for years before finally reaching a tipping point. Telling that person to just “presuppose” Christianity, without addressing these concerns, is unlikely to help. Those Christians who are helped by the presuppositional approach described above seem primarily to be those who already feel lots of confirmation of their world view on the basis of internal evidence, testimony, and external evidence such as walks in the woods, but who think that such evidences are invalid and therefore seek a supplement.

As George Campbell argued many years ago,<sup>30</sup> children raised in Christian homes are not necessarily acting irrationally if they trust the teaching of their parents (nor children who go to school who trust their teachers). A person can rationally conclude that parents or other purported authorities are trustworthy, based on years of experience with that person telling the truth. Of course, that trust in testimony may be misplaced—authorities can err—but trust in internal religious experiences or in scientific claims can also be misplaced. As discussed above, one scientific error does not usually overturn a well-established scientific theory, *contra* Popper; in the same way, one erroneous teaching by a parent or teacher does not automatically overthrow that person’s trustworthiness. A severe breakdown in the perceived coherence of the teaching one has received, however, can raise internal tension to the point of a world view shift.

As a second example, consider a person raised in a secular, non-Christian home who becomes a Christian; this also happens on a regular basis. Such a person might feel the following rising tensions: 1) looking at nature and perceiving that it seems well designed, scarily so; 2) having a strong perception that good and evil, and justice for society, are real and important, while the secular world view says these are just social constructs; 3) inescapable feelings of guilt and shame which seem objective, not merely fictional; and 4) a feeling that one’s circle of secular friends consists of people who are shallow, arrogant, and self-centered. On the other hand, that person may look at Christianity from a distance and feel that 1) many Christian people seem to be intelligent and loving; 2) thinking about the Gospel brings feelings of joy and freedom; and 3) when people explain the ancient context of the Bible, it makes more and more sense. Such a person might have a “conversion” experience after some final straw.

Note that in both of the above cases, all three categories of evidence—external, internal, and testimony—come into play. A non-Christian who automatically dismisses all internal experiences, such as guilt feelings or a sense of awe at nature, may nevertheless experience rising tension due to them.

How can both people be acting rationally yet move in opposite directions? It is disconcerting, and our tendency is to assume that one or both act irrationally. It is possible, of course, that people do fail to think rationally to some degree; all of us fail to think rationally at some times. People may not understand the logical implications of their beliefs, may give way to their emotions, may be hardened by sin, and so on. But according to the model presented here, two different people can both act rationally and yet come to different conclusions based on other differences, such as different experiences (in all three categories), different internal levels of tension that can be accepted, and different exposures to alternative viewpoints. This has some overlap with Bayesian analysis, in which each person asks, “Given what I have experienced so

far, and my prior conclusions, what can I say is highly likely to be true?” Far from leading to a postmodern view that anyone can believe anything, the Bayesian approach is known to lead rapidly to actionable conclusions.<sup>31,32</sup>

If people can rationally conclude different things, how can I be sure what I believe is true? Of course, one implication is that we often need to be humble about our level of certainty about some things. But we can indeed become certain of many things. Most people are quite certain that gravity exists, that speeding cars can kill people, and slapping strangers in the face is a bad idea. One way to proceed to is do basic self-tests to check one’s overall rationality. We can ask questions to ourselves, such as:

- Am I in “denial” about certain things? Do I tune out or ignore whole categories of experience, such as internal feelings, or anything that seems miraculous?
- Am I letting my passions for something I want to have or to do overrule my mind? Is there an outcome that I must have, so that I am forcing my thought process to allow that?
- Is fear of what other people will think of me affecting how I think? There is a legitimate value in considering the opinions of others we think wise, and there is also an illegitimate concern for having everyone in my circle of influence approve of me.
- Am I more interested in winning arguments and showing off my intelligence than in finding out what is really true?
- Am I using a lack of perfect certainty as an excuse not to do something? Or am I insisting things are more certain, more black and white, than I know is the case, because I don’t want to have to think hard about nuances?

Those who apply these tests to themselves will not all come to exactly the same conclusions about everything, but it can narrow their range of options.

## **What does the Bible say?**

While the above discussion may resonate with many readers, some will be uncomfortable up to this point because I have not explicitly discussed the role of the Holy Spirit. The Bible tells us that the Holy Spirit plays a crucial role in anyone coming to faith in Christ. Is the role of the Spirit to make us become irrational, at least for some period of time?

The Bible speaks just the opposite way: it is the unbeliever who is irrational, and a “fool.”<sup>33</sup> Those who reject God are “blind” to reality. This is the experience of many believers today, as well: “I was blind, but now I see.”

There are several ways in which the Holy Spirit can make a person less “blind.” First, in the area of external experience, the Bible tells us that God’s existence is clear from the created natural order;<sup>34</sup> the Holy Spirit breaks down our denial of these things and lets us see what is

there to be seen. Second, the Holy Spirit can give us new internal experience, such as joy, a sense of the attractiveness of what is good and the justice of God's moral laws, or the conviction of sin. Such experiences, like all internal experiences, can be rationally weighed for their validity against other explanations such as mental illness or demonic influence. Third, the Holy Spirit can open our eyes to the validity of testimony by others, including parents, the church, and the Bible. In this case, the person believes rationally that the sources of the testimony are credible, whether by the general feeling that they have the "ring of truth" or by study of church history.

Above, I argued that people can come to opposite conclusions about major issues, even while each acts rationally. If God were in the position of sitting back and waiting for people to come to certain knowledge, and then rewarding them for that knowledge, this would seem unjust. But if we see God as proactive, drawing people to himself, then this is not the case. God can use any tools from his palette that he chooses: experience in the natural world, dreams, friends who are Christians, a sudden clarity of mind, exposure to evangelistic arguments or the Bible, "resets" of our thinking such as car accidents and natural disasters, and so on. As the apostle Paul said, faith is "not of your own doing; it is the gift of God." (Ephesians 2:8)

This brings us to the definition of faith. For some people, faith is the opposite of reason; in effect, faith is a virtuous act of the will by which we believe something for no good reason. Consequently, some people reject any role of reason in coming to faith precisely because it removes our sense of virtue in our faith—it becomes just believing what seems to us to be clearly true.

The Bible does not present faith as a virtuous act. The Bible always presents a picture of faith that consists of resting on what is known (rationally) from one's past experience, and then moving to step out in confidence and commitment in an area that is not known, namely the future and God's plans for it. The virtue in faith, if there is any, is in not suppressing the truth when we might want to, out of fear or rebellion. In the Old Testament, the Exodus, with its Passover, is the anchor of past experience, reported by testimony from generation to generation, while in the New Testament, the Resurrection takes that role. In each of the famous stories of Hebrews 11, the protagonists stepped out into an unknown future based on a rock-solid confidence in their past experience with God, whom they knew. While there is an element of the unknown in faith, it is the unknown future, not a complete absence of rational justification for belief. We trust God for our future precisely because we are convinced that he is trustworthy, based on everything else we have experienced so far. In the words of Paul, made into a classic hymn, "I know whom I have believed, and am persuaded that he is able to keep that which I've committed unto him until that day."<sup>35</sup> Paul didn't say, "I don't know him, and have no experience with him or his works, but I make an irrational leap to posit his existence as an axiom!"

The perception of tension, with rising or falling sense of certainty, is evident throughout Scripture. Jesus frequently talked of faith being great or small<sup>36</sup> —his description of faith was not all-or-nothing. Perhaps one of the clearest examples is the tension the disciples felt after Jesus had had a major conflict with the crowds. Jesus claimed to be God, but refused to give them more miraculous bread, and instead told them to feed on him.<sup>37</sup> His disciples said to themselves, "This is a hard teaching, who can listen to it?" after which Jesus asked the Twelve, "Do you want to go away as well?" Peter famously answered him, "Lord, to whom shall we go? You have the

words of life.”<sup>38</sup> In the language of the model presented here, Peter felt tension in statements by Jesus that were inexplicable (to Peter), but still felt that what he had experienced with Jesus could not be explained by any rival world view. Many Christians have the same experience of feeling tension of one or another thing that cannot explain, but still overall finding that Christianity makes the most sense of the world compared to any alternative. It is not irrational to believe, in such a situation; as discussed above, every view of the world has some elements that we cannot explain.

### **Can I be secure?**

Perhaps the greatest difficulty that some people will have with this model can be stated this way: If I can move by a rational process into faith in God, can I move by a rational process away from faith? This is the question of the “security” of our faith. If we affirm a rational basis for Christian faith, does that leave us open to blowing with every wind of doubt?

Actually, this model can help us to understand how we can be stable while being rational. Perceived tensions do not automatically undermine Christian belief (or any other belief system) unless they reach the threshold of crisis, illustrated in Figure 5. Having such a threshold is healthy and rational, because we must live life without re-justifying every day each belief we act on.

There are two sides to our sense of security. One is what God does; the Bible does not present him as passively waiting to see what we believe, but actively working to stimulate faith through his Holy Spirit.<sup>39</sup> It is reasonable to expect that God will continue to bring to our mind sufficient reasons to believe in him. Indeed, believing that we must assert to ourselves a presupposition that he is there, by an act of will or choice, actually undermines our confidence, since it seems to imply that God is unable to bring sufficient confirming experience to our minds.

The experience that God brings to us may include the internal experiences discussed above, such as gut feelings of the truthfulness of the Bible, conviction of sin, or joy in looking at the natural world. Accepting such as evidence is not irrational, unless one dismisses all internal experiences as invalid, following the path of the Enlightenment thinkers; as discussed above, this is a simplistic (and ultimately unscientific) approach to the totality of our experience. But none of these internal experiences is beyond questioning, either. We often question our internal experiences, whether we admit it or not; for example whether they were the result of mental illness or a dream-like flights of fancy. The model presented here allows us to consider the totality of our experiences and weigh whether, overall, they fit with our basic assumptions and commitments.

The other side of our sense of security comes from our own sense of commitment. Asking whether I might be convinced to forsake my belief in Christ is very much like asking whether I might someday fall out of love with my wife and leave her. Marriage is a good analogy for our relationship to God, one adopted by Scripture itself.<sup>40</sup> Another is a pledge of troth to a feudal lord or king, an image also used in Scripture.<sup>41</sup>

In both of these analogies, there is a rational process that leads to a definite commitment for the future. There are two parts to this. The first part is rational confidence in our interpretation of past experience. Kierkegaard famously said that a believer can no more give reasons for believing in God than a lover can give reasons for his love, but this glosses over the great amount of rational, but often tacit, thought that goes into committing to a love. A lover may feel a high degree of direct internal experience of joy in the presence of his love, but such would not last long if the lover became convinced of any of the following: 1) that the beloved did not actually exist, but instead was a fictional character played by an actress, as in the movie *The Truman Show*, 2) that those feelings were demonstrably induced by an aphrodisiac chemical secretly given to him, or 3) the beloved had secretly hidden an agenda of pure evil, to use him for nefarious purposes. Such possibilities would seem ridiculous to some lovers precisely because they tacitly believe there is overwhelming evidence against such bizarre scenarios. Many other lovers do weigh consciously such rational considerations as whether the beloved is available (not married to another, for example) before making a lifelong commitment. Indeed, Kierkegaard's appeal to irrational love comes directly from the influence of the Romantic movement, which was a reaction to the rationalism of the Enlightenment, which dismissed the validity of all internal feelings. The Romantics did not feel they could challenge this simplistic exclusion of internal experience on rational grounds, and therefore simply appealed to unreason to justify the validity of internal experiences. Ever since, we have had the notion of "love at first sight" as an unchallengeable presupposition that has led, for example, to people feeling they have no choice but adultery, and a whole genre of literature celebrating that. A "leap to faith" is the same type of thing.

Once a person believes rationally that a lifelong commitment to another is right and good, it is not irrational to take a second step, namely a commitment to be faithful, to move forward and not look back. In the language of the model presented here, by this commitment one sets a new, very high threshold for change. There is no reason to expect to be blown about by every wind of doubt after making such a commitment. But no one has an infinitely high threshold for change. If, indeed, I became convinced that I was really living in the world of *The Truman Show*, all of my commitments based on my prior premises would be open to question.

There is therefore no reason to think that being convinced (rationally) of the existence of God and the truth of the Gospel leaves me open to constant doubt about being deconvicted. I can include my mind in the process of commitment, and make a definite commitment to not look back again—to pledge my truth so to speak—because I have been persuaded that such a commitment is rational and good.

### **Applications: how to think about our own thinking and that of others**

These considerations affect how we relate to others and how we think about our own beliefs. First, in regard to how we as Christians relate to others:

- In aiming to be persuasive or evangelistic, aim to present a coherent world view, not to present an argument that takes people from unbelief into Christianity in one sitting. Recognize that almost no one makes a major belief change on the basis of one argument or one piece of



evidence, but on the basis of what overall framework of thought makes the most sense of the whole world for them.

- Recognize that people are almost always rational actors (though indeed we often depart from rationality by choice or otherwise), but have different filters for what counts as admissible evidence, different thresholds of allowable tension, and different experiences in life. Don't assume that if someone rejects your arguments, it is because they are thinking irrationally or sinfully (though that could also be the case).

- If someone does not change his or her views after a lengthy discussion, don't assume that you have made no impact, and that persuasion is pointless. Almost all changes of mind happen over time after to multiple experiences and assessments. Other points of view do register with us, whether we admit it or not.

- Often, getting a person to see the reasonableness of changing a single assumption is more impactful than a broad scattershot attack on all their views.

In regard to our own thinking, this model implies the following:

- Recognize that you will never be *absolutely* certain about any world view (if you change world views, you will not be absolutely certain about that new one either). The Bible recognizes faith that increases and decreases, and can be "great" or "as small as a mustard seed." But although "absolute" certainty is an unobtainable chimera, "great" certainty is possible and normal.

- Face doubts head on; don't be afraid to ask tough questions. You may not get all the answers you want, but you may get more answers than you think. In this, draw on the wisdom of scholars over the centuries. Almost every difficult question has been thought through at length by many wise people.

- Don't rule out the validity of internal experiences such as awe, joy, guilt, or a perception of direct experience with God, but don't make these an unquestionable category either; "test the spirits."<sup>42</sup>

- Don't create an all-or-nothing mindset in which everything you were ever taught must be all true, or all is false. Allow "mini-revolutions" that question one or another assumption.

Above, I argued that the model presented here allows for a strong sense of security both on the basis of God's work and on the basis of my own commitment. Is there a difference, in the end, between saying that I have made a rational commitment to not look back, and a model that says I irrationally assert my belief in God as an axiom? For some, perhaps not, because in saying the latter, they really mean the former. But Christians who explicitly reject reason in the formation of our basic beliefs have undermined faith for some. Who among us does not know of a student who has left the faith, or who has moved into a sterile and nominal faith, after being told to "just believe"?

The model presented here has common ground with presuppositionalism in saying that we normally operate rationally on the basis of basic assumptions we do not question. But this model also says that it is possible to rationally compare overall systems of presuppositions on the basis of their explanatory value in making sense of our total experience; indeed, if we are honest with ourselves, it is impossible not to do so. By embracing the fact that we do so, we can decrease the tension that comes from thinking that any incongruent experience is a crisis.

## Appendix A. The relation of science and theology

Figure 7 illustrates several of the relationships of science and the Christian religion. Both have base-level “data” that are taken as credible; in the case of science these are measurable experiences that are, at least in principle, available to all people; in the case of the Christian religion, the data are testimonies of prophets and apostles recorded and passed on by the people of God, namely the Bible. From these data, both science and Christianity draw meanings and implications based on careful study; at a higher level, focused analyses are put together into broad logical structures, known as “theory” in the area of science and as “theology” in the case of the Christian religion.

In both cases, altering the “data” is considered dishonest, whether by falsification of experimental data or by alterations or deliberate mistranslations of the Bible; by contrast, the upper two levels are both subject to change as constructs of human thought. Change at the top level occurs much less often, however, because successful overarching logical frameworks act as axiomatic assumptions of the type described in the main text; changing these overall frameworks count as “revolutions” in our thinking.

	“general revelation”	“special revelation”
“meta-narrative”	universal theories	systematic theology
“analysis”	systematic model building and mathematical theory	biblical exegesis and hermeneutics
“data”	direct experience with nature	words of prophets and apostles. “testimony”

Figure 7. Science and theology in comparison.

Tensions arise within each domain and between the domains. Within the area of science, for example, there is tension in the perceived incoherence of interpretations of quantum mechanics; within the domain of the Christian religion, there is tension, for example, in the perceived incompleteness of explanations for the origin of evil. Both domains have examples of resolving past tensions; for example, the perceived tension between classical mechanics and

Maxwell's theory of electromagnetism was resolved by Einstein's relativity, and the perceived tension in conceptions of the Trinity was largely resolved by the formulations of the Athanasian creed. Between the two domains, there are also tensions, such as scientific concepts that challenge Christian claims and Christian theological beliefs that challenge scientific claims. For example, scientific evidence of the age of the earth challenges traditional interpretations of the Bible which many have taken to imply a recent creation, while Christian confidence in the moral nature of humans challenges scientific assertions that people are merely complicated patterns of atoms.

Without resolving every one of these tensions, we can still operate under the assumption that the God who created the natural order is the same God who gave the Bible, and that at least in principle, all cross-domain tensions are in principle resolvable just as intra-domain tensions are, and we can work toward this goal. This has long been called the "two books" approach, attributed to Francis Bacon, with the book of the Bible and the "book of nature" both given by God.

Some approaches to science-faith interaction take the position that Christians can accept all of science as neutral at the bottom two levels, and should only question the metanarratives told by some scientists at the top level; for example, "scientism," the assumption of a closed universe with no place for intervention by God, with no place for concepts such as guilt and purpose. But accepting the lower two levels, and only questioning the metanarrative, neglects the problem that our filters affect how we collect and analyze data in the lower two levels. It is not necessary to latch onto conspiracy theories to see this. For example, in establishing phylogenetic trees, use is often made of algorithms which produce a most-probable tree given a set of genetic data. This is a type of second-level analysis in the description of Figure 7. But these algorithms are constructed in such a way that it is not possible for them to come up with the result, "There is no tree." The algorithms will always produce a tree for any set of data; any data that do not fit the most-likely tree are identified as *de novo* genes or convergent evolution. This is not to say that there are not any trees of genetic descent, but we should be aware that top-level assumptions often drive the format of lower-level data collection and analysis. In the same way, top-level assumptions about theology drive the process of translation of the Bible into English and other modern languages (another mid-level analysis in the description of Figure 7); one cannot simply take the meaning of Bible verses as a given, with no regard to how theology affects the translation of Scripture.

## **Appendix B. Comparison to some presuppositional approaches.**

Several different approaches to epistemology can be called "presuppositional," and some of them would be compatible with the model presented here. As discussed in the text, many presuppositional approaches are primarily concerned with the question of "on what basis can I say I know, now?" as opposed to the question addressed here, "how do I come to know?"

Plantinga<sup>43</sup> and others have pointed out that some beliefs are "properly basic," that is, that they must be asserted as axiomatic and cannot be derived from other, prior premises; Gödel<sup>44</sup> and others have shown convincingly that every system requires some assertions or choices among options that cannot be derived algorithmically from within that system.

The model presented here says that we possess the ability to compare different world-view structures with different sets of properly basic beliefs. Within each framework, properly basic beliefs cannot be derived from other knowledge, but our overall choice of a framework, including its underived, properly basic presuppositions, can be compared with other frameworks for its overall fit to our experiences and its degree of internal coherence—which makes better sense of the whole world? Not only can this occur, we do it all the time.

This is a different question from whether people are born as *tabula rasa* or have inborn beliefs. It is clear that infants are not born with a full theology of the Trinity in their minds. But there is ample evidence that our minds are predisposed to certain ways of thinking from birth: for example, that personality is a real thing and is to be expected, that the world can generally be made sense of, that repetition leads to increased certainty about how things will go in the future (the validity of inductive arguments), that someone who contradicts prior statements is speaking nonsense, and so on.

Each of these inborn thought patterns contributes a base-level approach to the world which can be called axiomatic. Yet each of these can also be rejected by the adoption of a new framework of thought with a different set of axioms. People fairly often reject the law of non-contradiction, for example, and adopt versions of mysticism that explicitly embrace self-contradiction. People who learn language inductively, as all children do, can later reject induction as a legitimate ground of any knowledge. Abused children can stop thinking that the world is a reasonable place.

When moving from justifying knowledge to the realm of apologetics and evangelism, the model presented here sharply differs with the approaches of some presuppositionalists. John Frame<sup>12</sup> has argued that we cannot adopt the premises of a man mad in trying to convince him to be sane, with the implication that we do not acknowledge the validity of the knowledge of a non-Christian, leading some people to evangelistic approaches that amount to bare assertion of Christian truths. There are at least two flaws with this. First, as a Christian I can affirm that some, though not all, of what a non-Christian experiences and believes is valid, because all people are made in the image of God. As discussed in the main text, no one is actually able to perfectly filter out unwanted experiences. This fact seems to be lost on many presuppositionalists as well as many postmodernists.

Second, an approach that simply calls people to faith is flawed because it misses the fact that people can tentatively hold in their minds alternative views. As a Christian I can adopt a non-Christian view not as my own committed viewpoint, but for the sake of argument, and I can ask the non-Christian to do the same with my views. I do not need to create a logical chain that leads from the non-Christian's set of assumptions directly to Christianity. Showing that the Christian world view has less overall tension, given the totality of our experience, is the essence of good apologetics, and some authors calling themselves presuppositional, such as Francis Schaeffer,<sup>45</sup> have routinely taken this approach.

Care must be taken to distinguish between how one justifies a belief within a single system, and how one compares systems as a whole. A presuppositionalist might argue that the assumption made here that people cannot filter out absolutely everything they do not want to

hear, which may be called the non-impregnability of the senses, is based on the belief that people are made in the image of God, which in turn follows from a properly basic belief in the existence of God. This is true for the Christian, but it leaves out the fact that other world views may justify the non-impregnability of the senses for other reasons, or may make it a properly basic belief on its own. Assuming the reliability of the senses and their non-impregnability does not reduce the set of allowed world views to just one.

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- <sup>2</sup> C. van Til, *The Defense of the Faith*, (Presbyterian and Reformed, Philadelphia, 1955).
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- <sup>7</sup> J.S. Mill, *Utilitarianism*, (Hackett Publishing Company, 2<sup>nd</sup> reprint edition, 2002).
- <sup>8</sup> A. Rand, *The Virtue of Selfishness* (Signet, New York, 1970).
- <sup>9</sup> R.C. Sproul, J. Gerstner, and A. Lindsley, *Classical Apologetics: A Rational Defense of the Faith and a Critique of Presuppositional Apologetics*, (Academic Press, Grand Rapids, 1984).
- <sup>10</sup> For a review of Nietzsche's world view, see A. Bloom, *The Closing of the American Mind*, (Simon and Schuster, New York, 1987).
- <sup>11</sup> Critical theory has received much attention lately; for a balanced discussion, see T. Keller, "A biblical critique of secular justice and critical theory," *Gospel in Life*, December 2020 ([quarterly.gospelinlife.com/a-biblical-critique-of-secular-justice-and-critical-theory/](http://quarterly.gospelinlife.com/a-biblical-critique-of-secular-justice-and-critical-theory/))
- <sup>12</sup> J.M. Frame, *The Doctrine of the Knowledge of God*, (Presbyterian and Reformed, Philadelphia, 1987).
- <sup>13</sup> E.g., Cornelius van Til quoted Kierkegaard favorably: "To use a phrase of Kierkegaard, we ask how the Moment is to have significance. Our claim as believers is that the Moment cannot intelligently be shown to have any significance except upon the presupposition of the biblical doctrine of the ontological trinity. In the ontological trinity there is complete harmony between an equally ultimate one and many. The persons of the trinity are mutually exhaustive of one another and of God's nature. It is the absolute equality in point of ultimacy that requires all the emphasis we can give it. Involved in this absolute equality is complete interdependence; God is our concrete universal." C. Van Til, *Common Grace and the Gospel*, ed. K. Scott Oliphint, 2nd edition (Presbyterian and Reformed, 2015).
- <sup>14</sup> See, e.g., Sproul, Gerstner, and Lindsley, *op cit.*, Section III.
- <sup>15</sup> K. Popper, *Logik der Forschung*, 7th ed., (Mohr, Tübingen, 1982).
- <sup>16</sup> T. Adam et al. (OPERA collaboration), "Measurement of the neutrino velocity with the OPERA detector in the CNGS beam," arXiv:1109.4897.
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- <sup>18</sup> A.J. Leggett, "Matchmaking Between Condensed Matter and Quantum Foundations, and Other Stories: My Six Decades in Physics," *Annual Review of Condensed Matter Physics* **11**, 1-16 (2020); A.J. Leggett, "The view from inside the zoo: a working physicist looks at some current philosophy of science," unpublished.
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- <sup>20</sup> Several studies have shown that the major difficulty that student have with physics is not the mathematics, but that they don't believe it is true. When asked what will happen in a given situation, a common reply from a student is, "Do you want me to tell you what I really think will happen, or the physics answer?" See, e.g., S. Tobias, *They're Not Dumb, They're Different: Stalking the Second Tier*, (Research Corporation, 1994).
- <sup>21</sup> E.g., D. Kelemen and C. DiYanni, "Intuitions About Origins: Purpose and Intelligent Design in Children's Reasoning About Nature," *Journal of Cognition and Development* **6**, 3 (2005); P. Bloom, "Religion is

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<sup>22</sup> D.W. Snoke, *Natural Philosophy*, (Access Research Network, 2003).

<sup>23</sup> E.g., S. Meyer, *Signature in the Cell: DNA and the Evidence for Intelligent Design* (HarperOne, 2009); *Return of the God Hypothesis: Three Scientific Discoveries That Reveal the Mind Behind the Universe*, (HarperOne, 2021).

Some people make a sharp distinction between fine tuning arguments of physics and fine tuning arguments in biology, i.e., intelligent design arguments, but I and others see no reason to make a sharp cutoff between these fields.

<sup>24</sup> D.W. Snoke, “The Apologetic Argument,” *Journal of the American Scientific Affiliation* **50**, 108 (June 1998).

<sup>25</sup> T. Nagel, *Mind and Cosmos: Why the Materialist Neo-Darwinian Conception of Nature Is Almost Certainly False* (Oxford University Press, 2012).

<sup>26</sup> G. Aad et al., (ATLAS Collaboration), “Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC,” *Physics Letters B* **716**, 1 (2012).

<sup>27</sup> Augustine of Hippo pointed this out in his *Confessions*, book 5, chapter 5.

<sup>28</sup> Acts 26:14.

<sup>29</sup> 1 Samuel 10:9-10.

<sup>30</sup> F. Campbell, *Dissertation on Miracles: An Examination of the Principles Advanced by David Hume*, (Thomas Tegg, 1839).

<sup>31</sup> See, e.g., J. Pearl and D. Mackenzie, *The Book of Why: The New Science of Cause and Effect*, (Basic Books, 2018).

<sup>32</sup> For a general discussion of reasoning from partial information, which does not require mathematical Bayesianism, see T. McGrew, “Confirmation, heuristics, and explanatory reasoning,” *Brit. J. Phil. Sci.* **54**, 553 (2003).

<sup>33</sup> Psalm 14:1, Job 12:7-10.

<sup>34</sup> Psalm 19:1, Romans 1:20

<sup>35</sup> 2 Timothy 1:12.

<sup>36</sup> Matthew 8:10, 15:28, Matthew 6:30, 8:26, 14:31, Luke 17:5, 2 Thessalonians 1:3, 2 Peter 1:19.

<sup>37</sup> John 6:41, 51.

<sup>38</sup> John 6:66-69.

<sup>39</sup> Ephesians 2:5, 8, Philippians 1:6, John 6:44, 2 Corinthians 3:5.

<sup>40</sup> E.g., Ephesians 5:31-32, Revelation 19:7, 21:2.

<sup>41</sup> E.g., Isaiah 19:18, 45:23.

<sup>42</sup> 1 John 4:1.

<sup>43</sup> A. Plantinga, *Warranted Christian Belief*, (Oxford University Press, 2000).

<sup>44</sup> See, e.g. D.R. Hofstadter, *Gödel, Escher, Bach: An Eternal Golden Braid*, (Basic Books, 1979).

<sup>45</sup> F. Schaeffer, *The God Who is There*, (Intervarsity Press, Downers Grove, 1968). Schaeffer says in this book, as I do, that “Scientific proof, philosophical proof, and religious proof follow the same rules.”