

Eternity in Their Hearts: Rationality's Linguistic Foundation

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Abstract

Of all the animal world, only humans have the ability to perceive current circumstance in the context of time and space, make moral judgments about right and wrong, and therefore be culpable for intent, which requires premeditation. Man's ability to reason is one aspect that fundamentally sets this "rational animal" apart to uniquely reflect the *imago Dei* (image of God). Finite human rationality is responsible for these differentiating characteristics, which will be demonstrated to be necessarily dependent on language. Language, then, becomes a necessary but insufficient condition for thought, serving as the fabric or material out of which rational thoughts are constructed. Our worldview, in a global sense, is consequently constructed out of our accumulated knowledge, which is based in language and thereby circumscribes our worldview's boundaries. Denied language, then, man's ability to think would be reduced to immediate, animal-like reasoning. Epistemology, as a subcategory of philosophy, historically has not yet recognized this relationship. Therefore, while nearly all of ancient and modern philosophy views language strictly as a tool for communication, which is necessary for socialization, the primary purpose of this paper will be to demonstrate that language serves a central, pivotal epistemological role in rationalization.

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He has put eternity in their hearts, except that no one can find out the work that God does from beginning to end. (Ecclesiastes 3:11, NKJV)

Introduction

God's first recorded intent regarding mankind was to reflect His image (Genesis 1:26), uniquely distinguishing Adam and Eve from the other animals. That finite humans could somehow reflect the image of an infinite, omnipotent, and omniscient creator seems outrageous but there it is. How is it, then, that finite humanity, irrespective of its fallible nature acquired thereafter, nonetheless fulfills God's intent in reflecting the *imago Dei*? Solomon's thoughts from Ecclesiastes 3:11 seem to capture the essence of this paradox in suggesting men *can* conceptually understand eternity but yet cannot *fathom* God or the sum of His works. Mathematician and philosopher, Blaise Pascal, is often associated with the claim there is a "God-sized hole" in every human heart. Whether Pascal (or someone else) uttered that phrase seems unclear, however, he did say,

All men seek true happiness...What then is this desire...which he in vain tries to fill from all his surroundings, seeking from things absent the help he does not obtain in things present? But these are all inadequate, because the infinite abyss can only be filled by an infinite and immutable object, that is to say, only by God Himself. (Pascal 1670, 425)

Similarly, Aquinas muses that rationality's eternal perspective is based in the sheer ability to reason for,

each thing naturally desires existence in its own way. Now in the case of things that are cognitive, desire depends on cognition. But the senses cognize only in terms of what is here and now, whereas the intellect apprehends existence unconditionally, according to all times. For this reason every thing that has an intellect naturally desires to exist forever. (Aquinas 1265–1274, 496)

Even atheist J. Anderson Thomson, author of *Why We Believe in God(s): A Concise Guide to the Science of Faith* and a trustee with Richard Dawkins' Foundation for Reason and Science, freely admits that "children will spontaneously invent the concept of god without adult intervention" (Thomson 2009). Is that due to Thomson's conjecture that belief in the supernatural is due to processes leftover from our evolutionary past, or is there a far more straightforward explanation? Could it be rationality *itself* somehow provokes conceiving of a Creator? By way of perspective, a pet dog will have no idea about next week, while the adult "rational animal" will have no problem speculating what might happen ten years after his death. What differences account for man's transcendent perspective, as compared to "non-rational" animals, and how might that be implied directly from our rational nature?

An Epistemology for Finite Rationality

Epistemology, as a field of study, tries to understand how humans are able to know things we obviously do and, occasionally, to demonstrate

limits on our ability to know. Without question, one of the most systematic thinkers in this philosophical subcategory was Thomas Aquinas, who borrowed heavily on Aristotle in the tedious reconstruction or modeling of rationality’s internal building blocks. So, to help facilitate this discussion, fig. 1 provides a unified, albeit greatly simplified, system block diagram for human rational thought generally patterned after Thomistic epistemic categories, with some of this paper’s conclusions added.

One of the most distinctive characteristics defining Aristotelian/Thomistic philosophy is its passionate devotion to representative realism, which insists human experience is fundamentally derived *from* the world we live in, and not invented in or by the mind (which is notably characteristic of Cartesian and nearly all subsequent modern philosophies). What is known as Aquinas’ “Peripatetic Axiom” explains that, “Nothing is in the intellect that was not first in the senses” (Aquinas 1256–1259). And so, the entryway to the mind for everything (including language) is via the five senses.

The functional gateway controlling these physical senses is what Aquinas referred to as the *sensus communis* in Latin, which is often translated “common sense” but is better translated “sense commons,” describing an area common to all senses. The idea here is, when we think of memories, we do not remember colors, smells, shapes, and sounds in isolation. Rather, we remember an event, completely integrated with all the sensory pieces, set in the context of time. Crudely speaking, the subsequent output of this sense commons could be thought of as similar to a video taken by a smart phone, complete

with sounds and smells. (Thomistic purists may protest such an analogy, but additional clarification is forthcoming.) As such, it turns out that being awake means, by definition, that this streaming, memory-generating engine is running. According to Lisska, who begins quoting Aquinas,

“The internal sense [called the *sensus communis*] is called ‘common’ not by predication, as if it were a genus, but as the common root and principle of the external senses...[which] extends to all the objects of the five senses.” This last passage illustrates wonderfully the necessity of postulating the *sensus communis* in Aquinas’s philosophy of mind. This entails that the *sensus communis* is the source of consciousness. Sleep as well as unconsciousness are due to the non-functioning of the *sensus communis*. (Lisska 2016, 209)

Moreover, according to Lisska, it serves as the “seat of consciousness” (2016, 209). Thus, if this sense commons is not running, the individual is either asleep, anesthetized, or dead. This seems reasonable looking at fig. 1 because there is no sense bypass path around the sense commons into the mind. Also, according to note 25 at the bottom of that page Lisska says, “It follows that dreaming is an act of the imagination and not the *sensus communis*.”

Now, looking again at fig. 1, after this sense commons commits these unified bits of information to memory, the other large question relates to how sense information is consumed and utilized. From Aristotle’s time (fourth century BC), classical philosophers have recognized the cognitive difference between man and other animals, referring to man’s unique rational ability as “cognitive power” (*vis*

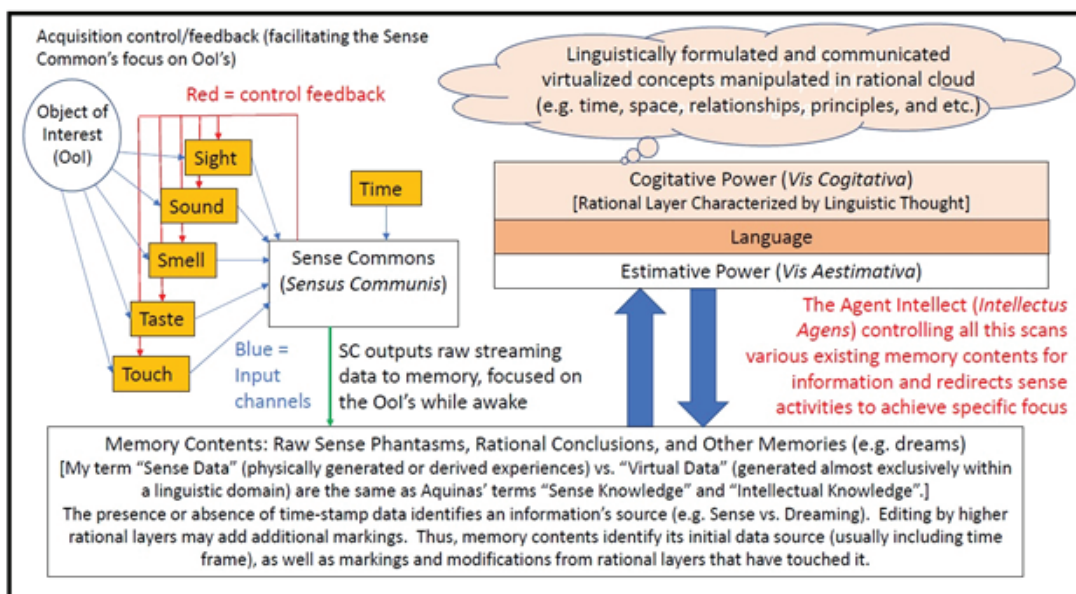


Fig. 1. The Sense Commons (*sensus communis*) intakes information considered first by the Estimative Layer (*vis aestimativa*), while the Cogitative Layer (*vis cogitativa*) virtualizes information found in the Estimative Layer, so that information can be evaluated rationally.

cogitativa), while claiming other lifeforms merely possess “estimative power” (*vis aestimativa*). As Lisska explains,

With the *vis aestimativa*, this faculty functions something like what a contemporary zoologist would call some form of ‘instinct’. The wolf, which makes the sheep run, is perceived through the external sensorium of the sheep only as a dark object of a certain shape making certain sounds in the near distance. The sheep, so Aquinas suggests, is aware directly of this dark, moving, sound-producing object of a particular shape as a ‘thing to be feared’. The fact that the sheep is aware of something beyond what is sensed immediately, according to Aquinas, indicates that there is a need for postulating a sense faculty that is able structurally to account for this kind of awareness. The same evidence accounts for the bird’s gathering certain straws in order to build a nest. (Lisska 2016, 239–240)

It has generally been accepted without question that animals do not possess Aristotle’s cognitive power, but debate has persisted for centuries whether humans have only cognitive power, or possibly some combination of this estimative power (whatever that is) and cognitive power. Moreover, the exact difference in nature between Aristotle’s cognitive power in humans and estimative power in animals has been somewhat of an epistemological mystery, as well. For example, Lisska comments,

Aquinas established two faculties whose function on the sense level is to provide an awareness of *intentiones non sensatae* [i.e. concepts or indirectly sensed impressions]: the *vis aestimativa* and the *vis cogitativa*. The former is associated with brute animals; the latter is specific to human perceivers but is in some way analogous to the *vis aestimativa*. However, the exact nature of this awareness is not always spelled out clearly. (Lisska 2016, 258, emphasis added)

Moreover, not everyone has held the same view.

In Avicenna’s texts, human persons also have a *vis aestimativa*, which is one internal sense faculty where Aquinas calls for two: the *vis aestimativa* and the *vis cogitativa*. Klubertanz notes that Averroes claimed that human persons have what he called a ‘*virtus cogitativa*’; moreover, Averroes interpreted the function of the *vis cogitativa* as being so important that he referred to this inner sense faculty at times as ‘intellect’ or ‘reason’. (Lisska 2016, 242)

But, what exactly does this uniquely human cognitive power do? Lisska explains,

The analysis so far suggests that the *vis cogitativa* has two cognitive functions: (a) to be aware of an individual as an individual; (b) to recognize an individual as a member of a kind. Aquinas writes: “Hence, the *vis cogitativa* is aware of a human person as this human person.” (Lisska 2016, 249)

Or, in more plain language, Lisska states, “In other words, the *vis cogitativa* is not aware of ‘human nature as human nature’, but rather as Megan the human person and Elin the human person” (Lisska 2016, 253).

Finally, *here* we find a more practical set of criteria by which to evaluate what distinguishes *cognitive* power from *estimative* power. Interestingly, epistemic philosophy has volumes of commentary on single-point perception (for example, a squirrel on a tree in the backyard), but surprisingly little on the role of language in facilitating rational apprehension. (Language is certainly discussed extensively as a method of communication and, thus, critical for socialization, but is never considered as a component of rationality.) Moreover, the focus is on sense perception itself, as opposed to what is done with that perception, as if the point of rationality is physical perception. A dog can certainly recognize a squirrel in the backyard or a specific human as an individual—especially if that person feeds him! However, whether Elin is the daughter of Megan, or Megan is approaching menopause, or whether Elin has six hours left to live because of third degree burns due to her heroic efforts to save an infant from a burning house, must all be described using words. Words, moreover, can only be perceived in the context of a whole, functioning language base.

Intent (as opposed to instinct or immediate desire) can only be conceptualized and/or understood by way of language because intent entails *premeditation*. Dogs, for example, can preplan activities only in the very short term and can generally be easily distracted simply by redirecting their attention. Moreover, animals are not judged as immoral for acts of violence, they are either put down or relocated out of harm’s way. Humans are different. Courts decide human guilt or innocence based on intent, and evaluating intent necessarily entails the use of language, which does not innately reside within the human but must be acquired. What words are used are conventions of men but what they point to must be something far more substantial.

Think of it this way, if a bit of birthday cake is set in front of Fido, the pet dog, he will become very excited as the plate is set in front of him. Perhaps a greater level of excitement may be seen, however, when five-year-old Barbara’s mother tells her on Monday that Aunt Mary will bring her birthday cake on Friday, in four more days—and will bring a present. Perhaps the calendar is even marked, so that Barbara can mark off each day as it passes, only increasing the excitement. Now, how is it Barbara has the same or greater response than Fido without having seen the birthday cake, the present, or Aunt Mary? If Fido is told the same thing, he couldn’t care less. However,

in Barbara's mind, she is already experiencing the event. Yet, all this would be impossible unless Barbara knew:

- (a) the days of the week,
- (b) what a birthday cake was,
- (c) how to count, and
- (d) who Aunt Mary was.

Moreover, if she cannot currently, that would all the more be the point of putting up the calendar to teach her those skills. If she knew none of those words, she would have nothing to tie the concepts to. Barbara has been learning those words for five years and is now beginning to reason conceptually with them.

This fact caused me to predict in 2018 that denying a person of words, which represent the smallest elements within language, would reduce one's cognitive abilities to that of an animal (Chisham 2018, 246), collapsing the *vis cogitativa* into the *vis aestimativa*! So, the primary innovations added in fig. 1 are

- (a) that man has *both* estimative power and cognitive power and
- (b) that *language* transparently *overlays* the estimative layer, allowing information found in the estimative layer to be virtualized for cognitive purposes.

One does not actively think about language, one looks *through* language to access information found below the linguistic line.

Rationality has to act against something. Language serves as the underlying fabric or material out of which rational thoughts are constructed. Consequently, the absence of language would prevent matters of time, space, relationships, principles, and logic from being evaluated with any rational depth. To be certain, the autistic savant able to recall vast amounts of information but unable to practically apply that knowledge is a demonstration that the ability to acquire language alone is insufficient for effective (that is, "normal") rationality (cf. Chisham 2015, 8–11). In any case, philosophy, in general, views language strictly as a method of communication, meanwhile simply presuming the *presence* of language and acting as if the mind is capable of forming concepts and principles on its own (which seems almost Cartesian). What appears to be universally missing from all philosophical discussion are the consequences of language deprivation on rationality.

Now, it is certainly true in later life that we often discover concepts for which we devise words. This is the basis of scientific research, for example. However, by way of analogy, it is easy enough to see that a single brick is missing from a solid brick wall. It is much harder to discern the need for a single brick if the entire wall of words is missing.

One can only conclude that the reason for this omission is that acquisition of language at the dawn of one's rational worldview formation happens at such a young age that adults engaged in philosophical pursuits have long since forgotten their simple, humble beginnings regarding where and how they obtained their ability to reason. Moreover, by the time advanced philosophical thinking is introduced, rationality has become so basic that its most fundamental elements are never questioned.

A Brief Historical Review Demonstrating the Presumption of Language

Obviously, broad generalizations suggesting philosophy has historically missed something fundamental really demands substantiation. For that reason, several ancient, medieval, and modern philosophical examples follow, some of which are technical and difficult to read. Unfortunately, little interpretation can be provided without sinking into significant philosophical background, which is beyond the scope of this article. Therefore, readers unfamiliar with philosophy proper may wish to skim or skip portions of this brief historical cross-section and move on to more practical examples that follow, demonstrating the consequences of language deprivation.

Starting with Ancient Greek philosophy, "Man's gift of speech shows clearly that nature destined him for social life, and social life in its specifically complete form is, in Aristotle's [384–322BC] view, that of the State" (Copleston 1993, 351). In a very similar vein, regarding Aquinas [AD1225–1274] Copleston comments,

But the most evident sign of the social nature of man is his faculty of expressing his ideas to other men through the medium of language. Other animals can express their feelings only through very general signs, but man can express his concepts completely (*totaliter*). This shows that man is naturally fitted for society more than any other gregarious animal, more even than the ants and the bees. (Copleston 2003, 413)

While it is certainly true the "medium of language" facilitates communication, these statements (and those to follow) also clearly presume the singular final cause for language is for socialization when, as will be demonstrated shortly, language equally serves as a necessary condition—a *medium*—for rationalization.

In Platonic style dialog Augustine asked his son Adeodatus, "When we speak, what does it seem to you we want to accomplish?" (Augustine 389, 9) Augustine and Adeodatus later conclude, "Then we are in agreement: words are signs" (Augustine 389, 10). The rest of that dialog attempts to exhaust

what words mean by way of various methods of communication, including dialog with the deaf, who use signs instead of words. For example, Augustine says,

Haven't you ever seen that men "converse" with deaf people by gesturing? That deaf people themselves, no less by gesturing, raise and answer questions, teach, and indicate all the things they want, or at least most of them? *When this happens, they show us without words not only visible things, but also sounds and flavors and other things of this sort.* (Augustine 389, 12, emphasis added)

Unfortunately, Augustine fails here to consider whether visual signs might serve the *exact same role* as spoken words, forming a visual language, nor does he entertain how one could *conceive* of ideas in the absence of a working language of some form. We have no knowledge of how sophisticated this ancient sign language was or was not, but modern sign languages (for example, ASL, SEE, etc.), regardless of what uninformed hearing people might think, are legitimate languages in their own right (cf. Higgins and Lieberman 2016).

Commenting on Aquinas' medieval epistemology, Copleston notes,

Brutes have sensation, but they have no grasp of general ideas. The phantasm or image, which arises in the imagination and which represents the particular material object perceived by the senses, is itself particular, the phantasm of a particular object or objects. Human intellectual cognition, however, is of the universal: the human being in his intellectual operations apprehends the form of the material object in abstraction; he apprehends a universal. (Copleston 2003, 388–389)

A particular is *rationally* known to humans by a noun. In the same way, universals exist in reality, but for them to exist cognitively requires a referent that the mind can call. In much the same way as programming languages use "handles" to call subroutines or methods, words provide all the parts that allow rationalization to take place by defining the subject, object, and action or logic. What is missing from Copleston's account, then, is that apprehension of a universal is impossible in the *absence* of language, which seems like a significant omission. (Having said that, as a faithful historian interpreting history, he missed it because it was missing in Aquinas.)

As an example, it is impossible to know a tornado hit your town if you do not know the word "tornado" (or its equivalent in some language). Moreover, understanding and avoiding the effects of a tornado involves knowing several associated principles, which are all learned, communicated—and rationalized—via language. Copleston then continues describing Thomistic epistemology,

How, then, is the transition from sensitive and particular knowledge to the intellectual cognition effected? Although sensation is an activity of soul and body together, the rational and spiritual soul cannot be affected directly by a material thing or by the phantasm: there is need, therefore, of an activity on the part of the soul, since the concept cannot be formed simply passively. (Copleston 2003, 389)

Here again, the mechanism by which this information is virtualized is language (and the smallest resolution in a sentence is the word), so I tend to use the term "virtual" rather than "spiritual" in describing cognitive activities because I reserve the term "spiritual" to indicate the supernatural realm. Continuing again,

St. Thomas thus speaks of illumination, but he does not use the word in the full Augustinian sense (not at least according to what is probably the true interpretation of Augustine's meaning); he means that the active intellect by its natural power and without any special illumination from God renders visible the intelligible aspect of the phantasm, reveals the form and potentially universal element contained implicitly in the phantasm. The active intellect then abstracts the universal element by itself, producing in the passive intellect the *species impressa*. The reaction of the passive intellect to this determination by the active intellect is the *verbum mentis* (*species expressa*), the universal concept in the full sense. (Copleston 2003, 389–390)

Now, is it not interesting that the output of this massively complex process is *verbum mentis* (*word of the mind*)? In short, that is because the active intellect's ability to perform nearly every rational operation would literally be rendered impotent in the absence of language. It is precisely the presence of language that makes this whole convoluted process possible.

Finally, Copleston continues, "The only sense in which ideas are innate is that the mind has a natural capacity for abstracting and forming ideas: as far as actual ideas go, the mind is originally a *tabula rasa*" (Copleston 2003, 392). As discussed later in this paper, "*tabula rasa*" (blank slate) has a contentious, storied history in trying to establish exactly what is or is not originally missing, however, it should be self-evident that newborn infants *at least* are missing a native language. Moreover, examples to follow will establish the fact that, denied access to language, while an individual may gain sense knowledge, his or her ability to rationally apprehend meaning in the context of reality is effectively and cruelly snuffed out.

If the previous examples were not clear enough, *implying* language is for communication only (while some other cryptic cognitive process mystically takes

place facilitating rationality), medieval philosopher William of Ockham states it outright using the words of Augustine,

A written term is a part of a proposition written down on some physical object, which [proposition] is seen by the bodily eye, or can be [so] seen. A spoken term is part of a proposition spoken by the mouth and apt to be heard by the bodily ear. A conceived term is an intention or passion of the soul naturally signifying or consignifying something [and] apt to be part of a mental proposition and to supposit for the same thing [that it signifies]. Thus, these conceived terms and the propositions put together out of them are the “mental words” that Blessed Augustine, in *De Trinitate* 15, says belong to no language because they abide only in the mind and cannot be uttered outwardly, although utterances are pronounced outwardly as signs subordinated to them. (William of Ockham 1323, 608, emphasis added)

To be clear, suggesting “the language of the mind cannot be outwardly uttered” is factually false. In fact, it obviously false because all that is necessary to think out loud is for him to simply speak his thoughts, which is common practice and sounds very much like words. The fact we think in the language we speak is easily demonstrated and would have been immediately evident to him had he said to someone something on the order of, “I was just thinking....” By simply reflecting on his last thought, he could have realized that it was by thinking *in his language* that he was able to engage others in conversation about his thoughts. Likewise, “becoming absorbed in a good book” provides a similar experience. The reader forgets he is (but obviously is) reading the words, as the book directly engages his imagination. Because he does not hear words either when he thinks or is absorbed in a book, the mechanics become transparent. Moreover, language translation only works because these different language conventions can and do point to the same objects in reality. Likewise, if you do not know another language, you are unable to become absorbed in a good book in a foreign language because not knowing the language precludes you from rationalizing in that language.

Moving on to Enlightenment era philosophy, mathematician, philosopher, and devout Christian René Descartes (1596–1650) made a philosophical mistake fundamentally responsible for misleading modern philosophy in failing to understand his rational dependence on realism. Lawrence Bonjour describes the significance of Descartes’ impact in saying,

It is this concern that apparent knowledge might not be genuine which motivates the French philosopher René Descartes, often described as both the father of modern philosophy and the father of epistemology,

at the beginning of his famous *Meditations on First Philosophy* (1641): “Several years have now passed since I first realized how numerous were the false opinions that in my youth I had taken to be true, and thus how doubtful were all those that I had subsequently built upon them. And thus I realized that once in my life I had to raze everything to the ground and *begin again from the original foundations*, if I wanted to establish anything firm and lasting in the sciences.” (Bonjour 2010, 6, emphasis in the original)

Later, this severe skepticism led the way to modern skeptical mental exercises like Brain-in-Vat (BIV), which asks whether anything is real, and whether we could even tell the difference if we were simply a brain in a vat, running a reality simulation much like the movie *Matrix*. The fundamental problem with Descartes’ skepticism was that he spoke at least two languages, being a Frenchman and having published *Meditations* in Latin. What missed his attention was that he had acquired those languages *from* reality, by *trusting* his senses. Thus, it was through his senses that he acquired the linguistic ability he later used to question the same reality which gifted him those languages. Indeed, to “raze everything to the ground” would be to question whether his parents who taught him to speak even existed or that the language they taught him was even meaningful. The fact is, to question everything would mentally paralyze any individual. In reality, we question very little of what we learn, and our default is to *trust* our senses, through which we are able to learn. The fact of the matter is that all Descartes really identified was *one* method (among many, some negative like this and some positive) for error-checking.

Finally, in the Modern era, Bonjour’s platonic look at *Epistemology: Classic Problems and Contemporary Responses* (2010), as well as Plantinga’s analytic approach to epistemology, *Warrant and Proper Function* (1993), do not even contain the word “language” in their table of contents, index, or glossary (that is, Bonjour).

Only one recent philosopher, Mortimer Adler, seemed even close to identifying the link between language and rationality,

Viewed in terms of necessary and sufficient conditions, it can be said of man’s prepositional language and his power of conceptual thought that each is a necessary condition of the other, but that neither is the sufficient condition of the other. In other words, the fact that a man’s concepts, viewed dispositionally, consist, in part at least, in his ability to use words significantly, and the fact that his ability to make up names and to frame sentences greatly enhances his conceptual thinking, do not, taken together, show that language and thought are inseparable; nor do

they show that man's having the power of conceptual thought can be fully explained (sufficient condition) by his possession of a prepositional language, or that man's having articulate speech can be fully explained (sufficient condition) by his possession of conceptual thought. What is reciprocal here in the relation of language and thought is only that each is a necessary—a *sine qua non*—condition of the development of the other: man could not exercise his power of articulate speech unless he had the power of conceptual thought; he could but barely exercise his power of conceptual thought did he not have the use of words and sentences. (Adler 1993, 139)

Now, while it is true Fido the dog can be taught to recognize certain words and it fails to follow that he can therefore rationalize, contrary to Adler, as will be demonstrated shortly, denying humans of language absolutely *will* prevent a human from conceptualization on any normal level and, in fact, will negatively impact physical brain development. Proving *language* necessarily precedes *concept development* is not as difficult as it may at first seem. Indeed, many studies are abundantly available, if one thinks for a minute about what one is looking for.

A Historical Linguistic Working Example

—Helen Keller

Helen Keller's famous story illustrates this perfectly. Helen did not learn a language until she was seven, having been blind and deaf from 19 months due to an illness. Because of this, she was old enough to remember the process of learning language and describe the transformation it brought. (Indeed, by the time she finished college cum laude in 1904, she was literate in English, German, French, Latin, and Greek and able to read many classics in their original languages.) As will be seen, however, had Helen's acquisition of language been pushed out even three to four more years, this story would in all likelihood not have been either famous or repeated more than 100 years later. Prior to learning language, her only recourse was to throw an angry fit when she was unable to directly access what she wanted. Helen describes the day that she came to understand words (which started with her first finger-spelled word "w-a-t-e-r") in this way,

I learned a great many new words that day. I do not remember what they all were; but I do know that mother, father, sister, teacher were among them—*words that were to make the world blossom for me, "like Aaron's rod, with flowers."* It would have been difficult to find a happier child than I was as I lay in my crib at the close of that eventful day *and lived over the joys it had brought me, and for the first time longed for a new day to come....*

I recall many incidents of the summer of 1887 that

followed *my soul's sudden awakening*. I did nothing but explore with my hands and learn the name of every object that I touched; and *the more I handled things and learned their names and uses, the more joyous and confident grew my sense of kinship with the rest of the world*. (Keller 1924, 24–25, emphasis added)

Listen to how Helen retrospectively describes two train rides she took to Baltimore,

How different this journey was from the one I had made to Baltimore two years before! I was no longer a restless, excitable little creature, requiring the attention of everybody on the train to keep me amused. I sat quietly beside Miss Sullivan, taking in with eager interest all that she told me about what she saw out of the car window.... (Keller 1924, 43, emphasis added)

Although she was not completely mentally disabled without language, notice the substantial emotional stability brought to Helen's spirit when she could finally visualize, perceive, and apprehend a world that she still could neither see nor hear. Consequently, it seems obvious that humans do have both estimative powers (*vis aestimativa*), as well as cogitative powers (*vis cogitativa*), which essentially consists of one's language faculties transparently overlaying and allowing one to virtualize information identified by their estimative powers.

Obviously, in Helen's case her two most information-rich sense mechanisms were effectively disabled, which constitute the normal twofold path of language acquisition. This denied her of the verbal fabric or material (that is, words), out of which rationality could create and manipulate thoughts, until her teacher successfully backfilled Helen's vocabulary by way of her touch faculties. On this point, it seems the standard evolutionary narrative of man slowly acquiring the ability to talk and then later creating language fails, as her language was finger spelling. Clearly the human mind has the ability to rationalize, independent of hearing or sight. Conversely, teaching Fido the dog, or a chimp, words does not imply either has the capacity to rationalize about next week or what is happening 100 miles away.

Words, in whatever form, point to virtualized ideas and concepts. Indeed, consider all the different types of languages known to man, uniquely created by and for man, and used for both communication and rationalization (for example, spoken, sign, Morse code, voluminous computer, and mathematical languages, etc.). If the prerequisite rational mechanisms are not there, words could do nothing, which is why monkeys still have not developed an educated class of evolutionary primates (despite musings from the *Planet of the Apes* movie series), even after being introduced to sign language, and dogs still do not

know about next week. While awareness in the general population continues to lag regarding the universal *failure* of efforts to teach animals sematic language, that evidence is nonetheless abundant (cf. Adler 1993; Bergman 2008; Cheney and Seyfarth 1997; Terrance 2019). For humans, on the other hand, language represents the difference between responding to life, given *immediate* circumstances, and perception of its *meaning* in the context of *time* and *space*.

Vocabulary is Both a Requirement for, as well as a Finite Limitation to, Rationality

Consider once more what accounts for the difference between a dog and a human? A dog will never know about next week. In fact, a dog does not even reason to its next meal. Moreover, a typical six-month-old baby is little different. At that point there is rationally little difference between the pet and the baby. When either wants something, they simply pursue it or demand it. Yet, just two to three years later, humans are normally able to look forward to their next birthday and normal ten-year-olds can easily conceive of an event transpiring two years after their death. The explanation for this is obviously based in the virtualizing nature of language. However, our ideas are *both* described by *and* constrained by the words we have available to define and describe those ideas. Only by way of language are we able to form higher-level cumulative thought. For example, who would trust a surgeon to perform a surgery before he was able to verbally describe what he intended to do and why? Therefore, it seems apparent humans do have Aristotle's animal-like estimative power but their rational layer, constructed from their vocabulary and manipulated by their intellect, serves as a transparent cognitive laminate overlaying all available information. This provides the ability to virtualize sense information and logically manipulate sense-based observations in a virtual manner. Again, by denying a person of language, all rational ability would be brought to its knees.

This fundamental human need to both rationalize and socialize is why (respectively) sensory deprivation and solitary confinement are used as forms of both punishment and torture. In counterbalance to this, however, if language is not somehow anchored in actual reality, which is accessed through the senses, language would be meaningless. Here again, as Aquinas' Peripatetic axiom states, "Nothing is in the intellect that was not first in the senses" ("*Nihil est in intellectu quod non sit prius in sensu*") (Aquinas 1256–1259).

On a more practical level, try this mental experiment: recall some emotionally significance

event in your own recent past. Do not read further until you have that event identified clearly in mind. In fact, remember and think on it for just a minute before proceeding. Perhaps some argument with a spouse, parent, or child, or maybe some especially wonderful social event with relatives or a friend might come to mind. Now reimagine the same event without words! Not only do you not have words for communication (as in a severe case of laryngitis), but you do not even have words to think about the event! When I occasionally present this thought experiment to audiences, a normal response to the question is a smile or even spontaneous laughter, which are involuntary responses to the ridiculous futility of the exercise.

One seemingly cute, superficial story that makes Genesis 1–3 both reasonable and credible as a literal history is Adam's first task of naming the animals (Genesis 2:19, 20). God created those animals, why would God need Adam to name them for Him? In truth it was not God who needed the names, it was Adam who could not rationalize about God's creation unless Adam had names to identify, think, and speak about them. God had just created a rational being, so logically He first needed to prime Adam's rationality by walking him through the mental experience of rationalizing about the things he observed. (We do the same with a toddler, for example, "can you say 'dog', Billy?") Once Adam was primed with the discipline of rationalization, he was then naturally able to share his ideas with his wife—and the fledgling society was birthed. In fact, Adam may well have found the acquisition of language every bit as transformational as Helen Keller described above.

John Locke's famous *tabula rasa* ("blank slate," cf. Uzgalis, 2024) was his idea about human epistemological development that denied innate human knowledge, claiming experience and perception were the only sources of human knowledge. The dispute between empiricism and nativism has a long, notable history (cf. Samet, 2024). What seems missing from the dialog, however, is the identity of what specifically was missing that Locke was reaching for. The underlying principle and true *tabula rasa* is the fact that humans lack a language base at birth, along with every idea communicated by language. Normally, our parents, family, and neighbors begin that process.

Language Deprivation Syndrome

Some might object that these claims of a direct language/rationality connection are unfounded or unconvincing. Perhaps Helen Keller's story is too extreme? Perhaps it was a one-off, non-representative example of actual human experience? Obviously, her story ended well but perhaps we cannot use it as real

evidence because she died a hundred years ago and thus it is difficult to know how much of her story is even true, versus made-up or embellished to some extent by those who surrounded her? This response, unfortunately, could only be offered from a position of personal ignorance or perhaps even calloused indifference to the plight of children who, for various natural and/or intentional reasons, are denied normal, healthy, and necessary access to language. Hall, Levin, and Anderson argue for a diagnosis category for what they call “language deprivation syndrome,” in which they “argue that language development, or the disruption of language development, is another social factor that contributes to the epidemiology of mental illness—as observed in the deaf population” (Hall, Levin, and Anderson 2017, 761). The following will include extensive quotations, so that the reader can be assured that what has been discussed thus far in this paper is not in the least hypothetical or hyperbole.

Language deprivation occurs due to a chronic lack of full access to a natural language during the critical period of language acquisition (when there is an elevated neurological sensitivity for language development), approximately the first five years of a child’s life. Language deprivation during the critical period appears to have permanent consequences for long-term neurological development. Neurological development can be altered to the extent that a deaf child “may be unable to develop language skills sufficient to support fluent communication or serve as a basis for further learning.

Exposure to a fully accessible language has an independent influence on brain development separate from only the auditory experience of hearing loss. Indeed, recent neuroimaging studies indicate the presence of adult neurostructural differences in deaf people based on timing and quality of language access in the early childhood. (Hall, Levin, and Anderson 2017, 761–762)

Helen Keller, above, noted her own behavior differences with and without language. Hall, Levin, and Anderson’s findings would argue that this is the norm, not an exception.

Clinical descriptions of patients often referred to “problem behaviors of deafness,” invariably including some reference to immaturity, impulsiveness, explosiveness, and general lack of skills (e.g., “soft skills”) that promote success in society. Since that time, criticism of this sentiment in the literature—in which there appeared to be an underlying belief that these behaviors were actually characteristic of deaf people themselves—has redirected these “problem behaviors of deafness” as a consequence of language deprivation or other adverse developmental experiences. (Hall, Levin, and Anderson 2017, 765)

Or, again,

Deaf patients have been described in the historical psychiatric literature as having more negative personality traits than the general population, such as denial, lack of insight, immaturity, impulsivity...as well as increased rage and aggression. This is echoed by Cooper who proposed that the most common disorders in the deaf psychiatric literature at the time were “problems of behavior and maladjustment apparently related to deafness.” The view of deafness has historically been heavily negative, seemingly attributing various psychiatric symptoms to the experience of being deaf itself. *Instead, it is possible that these various observed symptoms are more accurately attributed to language delays.* The case study of a patient with language dysfluency specifically mentioned the “inference” of unstructured language implying unstructured thinking, suggesting that gaps in language access create similar gaps in thinking processes. Deaf individuals do generally appear to be at heightened risk for various psychiatric issues compared to the general population. This risk is likely partially magnified due to language deprivation, which is a rarity in the hearing population....Additionally, a study of deaf individuals with schizophrenia found better linguistic ability (via earlier ages of sign language exposure) to be associated with greater functional outcomes. (Hall, Levin, and Anderson 2017, 767, emphasis added)

So, lacking the early habituation of language, even the ability to mentally structure an argument later in life is negatively impacted. Regarding my claim above that, “the absence of language would prevent matters of time, space, relationships, principles, and logic from being evaluated with any rational depth,”

Languages in either modality (auditory or visual) have rules and structures that make them languages; some suggest that language dysfluency may cause disruption in these rules and structures. Descriptions of psychosis-related sign language dysfluency suggest that it follows “classic” symptoms seen in hearing patients including neologisms, clang associations, and content poverty, among others. One clinician’s case study of a deaf inpatient with suggested non-psychotic language dysfluency highlights limited vocabulary, lack of time referents, disturbed spatial organization, and lack of syntax as possible key features of language deprivation-related dysfluency in sign language. A language dysfluent patient’s vocabulary may be limited to “concrete objects, actions, and descriptions [a person] has experienced directly....” While telling a narrative, typical time markers (i.e., day, week, month, year) may be missing. Temporal organization may be extremely disturbed to the point where patients may

struggle with general awareness of time.... Overall, language dysfluency is described as resembling a “series of pictures in the present tense, organized loosely as a kind of collage....almost a stream of consciousness” with an emphasis that these features are not a part of psychosis phenomena. (Hall, Levin, and Anderson 2017, 765–766)

Or, again,

Hearing children’s language skills are strongly predictive of ToM [Theory of Mind] skills (specifically, false belief understanding), and the quality of language input facilitates and may be necessary to acquire ToM skills. It is not surprising, therefore, that DHH [Deaf and Hard of Hearing] children’s general language levels also associate with their performance on ToM tasks. Importantly, there is a robust set of findings that DoDP [Deaf of Deaf Parents] children who are native signers and whose language development is generally age-appropriate demonstrate ToM skills comparable to those of their age-matched hearing peers. Having a visual (instead of auditory-based) language does not affect acquisition of fundamental social cognitive skills. This is consistent with research that shows that hearing children’s ToM development is not affected by the specific (spoken) language being learned. In contrast, at least in the past, DoHP [Deaf of Hearing Parents] children typically showed a severe delay in ToM, with the minimum average delay reported to be about 4 years. Like hearing children, DoHP children’s language skills, regardless of modality or specific language (e.g., spoken or signed English, or ASL), predict ToM performance. (Lederberg, Schick, and Spencer 2013, 22)

The psychological term “Theory of Mind” has to do with the ability of an individual to understand that other people have mental states, such as beliefs, intentions, and knowledge that may be different from their own. For example, predicting how someone else might act if they have a false belief about a situation is a typical Theory of Mind task. Not being able to predict well means the individual tends not to be able to empathize and/or relate well with others in social settings because their worldview does not expand large enough to include the thoughts and feelings of others. Lederberg, Schick, and Spencer end with the conclusion that,

there is no evidence that children cannot learn language via multiple modalities or that using a visual language will hinder the development of a spoken language, but there is strong evidence that

not having access to language has long term negative developmental effects. (Lederberg, Schick, and Spencer 2013, 25)

Indeed, it would appear that the brain itself physically adapts to the presence of language (Sidonie Pénicaud et al. 2013). Moreover, in short, the determining factor of whether a child can develop into a normal rational adult is not *what* language he or she learns or what *mode* of communication is used, but *whether* the child has ready access to a functional language in which to learn about his or her world, using *whatever* senses are available. In a practical sense, it often plays out like this,

Deaf epistemology notes a dinner table syndrome in which deaf children and adults are frequently left out of conversations with hearing family members and friends in many everyday settings, including at home and in school. This consistent lack of exposure to everyday opportunities likely results in an overall loss of understanding of how many aspects of society function, such as school interactions, government functions, healthy personal behaviors, and many others. The dinner table syndrome phenomenon, coupled with the chronic effects of language deprivation and dysfluency, is likely to also exert a significant lifelong impact on deaf individual’s physical, mental, and social health—partially mediated through a chronic lack of health literacy and knowledge. (Hall, Levin, and Anderson 2017, 767)

For a hearing person, the experience of dining at a table where everyone else is speaking an unfamiliar language is a direct equivalent to the sort of isolation a deaf person feels at a hearing table. As a brother to an autistic, profoundly deaf sister, raised in the 1960s when families were shamed if they learned sign language, I can attest that this “dinner table syndrome” is a real and common, albeit regrettable phenomenon. (Justification for this recommendation was the ridiculous, mistaken notion that signing would negatively impact a deaf child’s lip-reading skills. What hearing, policy-making bureaucrats at that time did not understand is that lip-reading, under best-case scenarios, is notoriously inefficient and ineffective.¹ Rather than everyone learning sign and encouraging both modes, this failed policy blocks the most effective medium for the deaf person.) For this reason, I personally recommend family members of deaf learn sign language and make every effort to include deaf family member(s) in normal family discussions.

¹ For example, while lipreading is encouraged in combination with other hearing aids (cf. <https://pubs.asha.org/doi/10.1044/2021-AJA-21-00112>), both the National Deaf Society in the UK (<https://www.ndcs.org.uk/information-and-support/language-and-communication/spoken-language/lip-reading/>) and CDC (https://www.cdc.gov/hearing-loss-children-guide/parents-guide/building-languages.html#cdc_report_pub_study_section_10-speech-reading) report that under the best conditions only 30-40% of sounds can be successfully lip read. Moreover, the National Institutes of Health reports that visual-only mean lipreading scores to only be 12.4% correct (<https://pmc.ncbi.nlm.nih.gov/articles/PMC3155585/>).

It seems no coincidence that biblical references to meals, particularly those Jesus participated in, were always in very relational settings, whether individuals were affirmed or rebuked. There are no occasions where the Bible mentions a meal by saying, “they ate together and sat in stone silence, scowling at each other.” Indeed, the above findings would indicate that such meals with children represent lost opportunities to interact and, thus, naturally nurture intellectual development and encourage critical thinking skills in a *non-threatening* setting.

Technological Analogies to Linguistic Rationalization

Looking again at fig. 1, since the vast majority of rational processes occur above the linguistic boundary, one primary implication would be to help differentiate between human estimative (*vis aestimativa*) versus cognitive (*vis cogitativa*) processing. When you flinch because of a ball thrown at your face, that almost involuntary movement to avoid being hit would seem to be an estimative operation, as would the response to the sudden, urgent outcry of a child, for example. Whereas, changing investments, choosing a mate, and moral decisions all process above the linguistic boundary, by way of a lifetime of linguistically-judged life experiences that inform your global worldview perspectives.

Several useful computer-design analogies can be seen here. Estimative (*vis aestimativa*) activities are, by nature, prelinguistic, cause-and-effect responses to direct sense information, resulting in immediate stimulus/response calculations (for example, an involuntary smile of a child who learns to do something for the first time, or the sudden horror of an infant the first time he or she looks at a clown's face). This would be analogous to predefined behaviors executed by a computer in hardware or firmware. These responses can be quite fast because they are “hard-wired” but have a limited range of operational capabilities, although aspects of estimative activities can be learned by conditioning (for example, a drummer having independent use of his limbs). At this basic hardware design level, one can point to specific hardware or low-level programmable integrated circuits required to carry out basic operations, typically controlled by the BIOS (basic input/output system) in a laptop or desktop computer.

Whereas, operating system (OS) software (for example, Microsoft Windows, macOS, or one of the many forms of Linux) would be analogous to the language layer, which facilitates processing in the virtual domain. This is a much more free-form environment where far more sophisticated programming methods facilitate virtually unlimited application solutions to be created. At this level, logical and mathematical operations are done using programmatic virtual logic rather than physical hardware. To be sure the lower level hardware has to exist for these higher-level virtual applications to run, but there are no specific physical components one can point to in explanation of an application's features, generally speaking. This layered design facilitates applications like word processors, spread sheets, presentation, and music creation software, as well as CAD (computer aided design) software to be portable between computers of various form-factors and manufacturers. It allows the output from one computer to be compatible with other corporate computer assets used by other employees. Moreover, certain sophisticated OSs even use techniques like “distributed programming” that look at available hardware resources, evaluate requirements from the application being launched, and then distributively deploy different parts of the application to appropriate bits of available hardware. As noted above, it would appear the brain has a similar reaction to language because brain scans show changes depending on the age at which language is introduced (Pénicaud et al. 2013). Taking this analogy one step further, because information above the linguistic line (fig. 1) is virtualized, it can then be communicated to other individuals in a manner that could be analogically compared to “cloud computing” techniques, which explains why communication (and thereby socialization) and rationality naturally use the exact same linguistic mechanisms. Aristotle would have dubbed all of these capabilities as “spiritual” that happen virtually in the rational layer.

Moreover, a modern technological engineering concept that is analogically descriptive of the operation of finite human rationality, in general, is known as Hardware-in-the-Loop (HIL) simulation. In this case, real-time computer simulations (to which our worldview is analogous)^{2,3} are given the

² “A reasonably accurate definition for worldview in toto would be: The mechanism by which finite beings perceive, assimilate, evaluate, and respond to infinite reality. Moreover, it is what it means for a being to be both finite and rational, which involves synthesizing a working model of reality of a size he can comprehend and, as a consequence, also defines him to be a moral being.” (Chisham 2015, 16)

³ “Worldview is our real-time, interactive working model for understanding current situational context and predicting proper responses [which]... would be undetectable if it matched reality perfectly. The so-called ‘coloring’ happens... because our finite working model has flaws and limitations. Set side-by-side with reality, imperfections in projections show up most profoundly at the edges and margins where consequences of our inaccuracies and estimations become most apparent. ‘Better design’ would not change or ‘fix’ this.... It is simply the nature of being finite.” (Chisham 2018, 250)

ability to provide predictive real-time feedback, so as to actively control and optimize the operation of a variety of often very technical machinery. In the same way, human finite rationality attempts to react to a comparatively infinite set of stimuli, however, the only way to do so is to simulate (which is what a worldview is) how you think the world actually is and respond accordingly. Thus, one's worldview is predictive of his behavior.

Explaining all of this from a materialistic standpoint where hardware and software are, by design, mutually dependent seems problematic from any evolutionary premise. Just as computer parts don't arise over billions of years from wind blowing across the desert sand until semiconductors spontaneously arise and somehow, perfectly in parallel, programmatic applications just happen to develop that are capable of running on this newfound hardware, so it would be even more miraculous that a biological computer would arise that could create its own applications and run them. In reality, technological hardware has to be conceived with the view to facilitate the required programmatic freedom and the software has to be written in such a way that it is compatible with available hardware and is capable of running on the available OS.

Returning to the idea that language "virtualizes" knowledge, it would appear man's linguistic capacity was designed to accommodate virtual reasoning by way of words (the smallest meaningful component of language), which equate to programming concepts like "handles" or "methods" used to call "subroutines" or "processes" or access memory locations. If the programmatic application has the handle to make the call, it can perform the operation. If not, it cannot. For example, verbs indicate actions and logical operators, like "and," "or," and "not," allow us to process things logically. Imagine, for example, if your vocabulary was missing any word capable of conceptually accessing just those three logical operators. Now imagine if those three operators were missing from the entire English language. Perhaps that helps explain why language deprivation is so destructive to human rationality. Moreover, all this would directly suggest that even logic is normally applied by Aristotle's *cognitive power* at the virtual level, as logic is more easily applied to word relationships and linguistically-described concepts than physical sense relationships (that is, without words).

Conclusion

Stories regarding what has come to be known as "the forbidden experiment," denying a child's intrinsic need for language in order to examine what "native" language capacities he or she may have remaining, have been reported from antiquity and through the

middle ages. The idea behind most of these folkloric events fell into the trap of confusing the falsehood that man *had* a native language with truth that man natively has the *ability to acquire* a language—at least when we are young. More recently, fascination with feral children (for example, Lane 1976) has dominated, since that appears to not deliberately violate the immorality of intentional language deprivation. The origin of their circumstances is sometimes surrounded with folklore, such as being raised by animals, while other cases are chilling examples of monstrous parental abuse. Moreover, "academic findings" from those legendary and modern accounts often tend to find what those investigating them wanted to find. What is clear from this discussion, however, is any such experiments or experiences are by nature profoundly cruel, causing irreversible damage to a young person's intellectual capacity, condemning them to some level of irrationality for a lifetime. In point of fact, *helping* children learn is far more instructive in every respect (cf. Saxe 2006).

Language gives man the unique ability to recast the immediate in light of a larger context by framing current circumstance in the context of time, space, relationship, principles, and logic. That being the case, the majority of human rationality happens above the linguistic boundary, as evidenced by individuals unfortunately caught, for a variety of natural and/or nefarious reasons, in circumstances preventing proper exposure to language and linguistic development.

Moreover, given that time, space, relationship, principles, and logic are introduced by way of language, it is therefore *because* man uses language that man cannot help but consider ultimate reality. It is an unavoidable consequence, for there are no lines in the sands of time saying that information before today or after tomorrow will not be important considerations when making decisions about immediate personal actions and reactions. So then, it is true that men have "eternity in their hearts" but, being finite, we cannot "find out the work that God does from beginning to end" (Ecclesiastes 3:11).

Several scriptural admonitions for child-rearing come to mind, such as Ephesians 6:4 and Proverbs 22:6, all of which are very relational, which makes perfect sense given how children develop intellectually and rationally. Perhaps most relevant to this discussion, however, is Moses' advice in Deuteronomy 6:6–7

And these *words* which I command you today shall be in your heart. You shall *teach* them diligently to your children, and shall *talk* of them when you sit in your house, *when you walk by the way, when you lie down, and when you rise up.* (NKJV 2020, emphasis added)

Indeed, it is the constant use of language that not only ties us to each other but also enables us to rationalize. It starts young—very young—and is intended to last for a lifetime, and beyond if we are to believe the Bible. If it was indeed God's intent to design us as relational beings, capable of relating to Him and to each other, no more perfect design could there be than to make rationalization and socialization mutually dependent.

Acknowledgements

Many life experiences have shaped my pursuit to understand worldview as a concept, a perceptual framework, and a finite mechanism for understanding, evaluating, and responding to life choices. Certainly, my career experience as an engineer will be seen in the flavor of much of my writing. My exposure to Thomistic epistemology and classical philosophy, in general, has been primarily informed by my experiences at Southern Evangelical Seminary. However, I would be remiss if I failed to recognize that many of the lessons in this paper started with experiences with my sister, Sherry, whose autism and profound deafness have provided a framework through which I have had to filter most of my approach to epistemology. Very often humans are not very creative, and we simply presume normality is necessarily just the way life works until we see bits of it broken. Only then are we able to be truly amazed and appreciate how precisely brilliant "normality" really is, in order to better appreciate all God has done.

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