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"Faith Seeking Understanding" as an Intellectual Approach to Twenty-First-Century Cosmology

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The credo of Anselm of Canterbury, faith seeking understanding, is examined within the context of twenty-first-century cosmology. To begin, the credo is situated within the varieties of its broad usage, primarily within a Christian context but also within the realm of philosophy. Specifically, the approach is developed that faith is the volitional posture for continued understanding, rather than the idea that faith is the precursor and a forerunner to the higher ground of understanding that replaces faith. While understanding is an aspirational goal, the sustained, mutual presence of volitional "faith" and rational "understanding" are necessary.

Next, the vast gains in understanding within the astronomical sciences are briefly reviewed, leading naturally to the crescendo of the "dark component" discoveries and the unresolved tensions that remain. Specifically, the concept of quintessence is explained as a volitional placeholder that motivationally drives a better understanding of a dark energy mechanism; "understanding" is put forth here as a deeper and more focused set of questions that replenishes and strengthens our volitional posture. Such concepts fall into a pattern and manner of doing science in which "faith" leads to deeper insight and understanding.

Where cosmological sciences are viewed rightly as a complicated process involving an ever increasing set of questions, cosmology always incorporates volitional components in proportion to its established epistemic understanding. In this view, materialistic scientism lacks an all-encompassing scaffolding, and science provides only one means of knowing reality. While Christian faith shares a volitional component with cosmology, it also retains an epistemic faith that is never fully alleviated, nor is it ever fully rationalized.

I. The Credo of Anselm and Its Meaning

Anselm of Canterbury lived and flourished as a Benedictine Father around 1100 in Bec, France. He is best known for the *Proslogion*, *Why God Became Man*, and specifically the "ontological argument" for the existence of God. Another famous statement of Saint Anselm is found in the *Monologion* as *"fides quaerens intellectum,"* faith seeking understanding (FSU). Both ends of the phrase overlap and situate themselves within the realms of theology and epistemology, separately and jointly. Because the idea of reason fits integrally with understanding, and as modern Christianity always hopes to be more reasonable, FSU has become an important phrase within Christian

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theology. Similarly, epistemology finds itself officially as a branch of philosophy, and "faith" and "understanding" both have the acquisition of knowledge within their scope. However, the usage of FSU has a panorama of meanings and interpretations, both originally within Anselm as well as within its modern, Christian context. A few modern interpretations are introduced below and a specific meaning is established for the purpose of this study.

A. Replacement Phenomenon (Understanding Supersedes Faith)

One manner of interpreting the phrase "faith seeking understanding" is that one begins in a state of "faith," in which belief in a proposition has little foundation, and then as reason is applied that original faith is transformed into "understanding." Similarly, as understanding is established and solidified, it replaces faith. Because the arguments of Anselm are developed as a matter of logical deduction, "understanding" is viewed as the higher epistemological ground. Faith is made surer by the establishment of a firmer understanding. In this case, "faith" is viewed as an understudy, an epistemic mechanism for acquiring knowledge until "understanding" is established as a basis for the knowledge. To quote, "faith seeking understanding … is a mode for turning one kind of knowledge into another kind … faith-knowledge into understanding-knowledge."[1] Through reason, "a process of unfolding" occurs whereby knowledge once acquired by faith is matured into a deeper understanding.

Along similar lines, the end of "understanding" is packaged as an "actualization" and/or "realization" of faith. In discussions such as this, it seems that Anselm's arguments satisfied his curiosity for the existence of God and the incarnation of Jesus. Although Anselm's arguments are sound, complete, and logically satisfying, Anselm is not satisfied despite his best efforts to reason for God's existence (see below). This particular view is somewhat muddled by the confusion of the sciences as "positive disciplines in which one arrives at knowledge via sustainable proof."[2] In order to live up to the need for certainty, we view Anselm as the champion of transforming belief into reason. The human longing "to finally arrive at … the ultimate realization of our faith" misconstrues Anselm's faith as well as the epistemic processes of science.

In summary, "faith seeking understanding" is often taken within Christian communities as the process of making surer intellectual commitments through the process of reason. While logical and rational thinking are important and essential to following Jesus, it is not clear that this view fully captures the meaning of the FSU phrase, nor of the typical processes of learning (science, included). While we may wish that the tension and struggle of our doubts would subside, a supplement of faith with reason does not have the magical effect of alleviating the need for faith. Some of the confusion between faith and understanding can be cleared by viewing Anselm's faith as a volitional undercurrent in the search for understanding. This particular idea is now addressed.

B. Faith as a Volitional Posture for Understanding

It is evident from Anselm's writings that the desire to know and understand is uppermost in his thinking. The following excerpt is exemplary and demonstrative:

> Lord, I am not trying to make my way to your height … but I do desire to understand a little of your truth which my heart already believes and loves. I do not seek to understand so that I may believe, but I believe so that I may understand; and what is more, I believe that unless I do believe I shall not understand.[3]

It is the nature of Anselm's believing and the meaning of faith within the FSU phrase that heightens our attention. While it is not prudent to seek to establish the concrete differences between volition and cognition, it may be enough to hold volition as a measure of resolve while cognition signals a level of knowing. In my view, this measure of resolve seems to connect more fluidly with Anselm's "belief" as a measure of his "desire to understand," rather than "belief" as a means of knowing that gives way to solid understanding.

Because the works of Anselm are ubiquitous in both secular philosophy studies and Christian theological works, the volitional nature of the FSU mantra is highlighted by both spheres of study. Within the realm of philosophy proper, this view is addressed most directly by the *Stanford Encyclopedia of Philosophy* (SEP). To provide their full explanation,

> But Anselm is not hoping to replace faith with understanding. Faith for Anselm is more a

> volitional state than an epistemic state: it is love for God and a drive to act as God wills. In fact, Anselm describes the sort of faith that "merely believes what it ought to believe" as "dead" (*Monologion*, 78) … So "faith seeking understanding" means something like "an active love of God seeking a deeper knowledge of God."[4]

Here, "faith" (in FSU), "love" (from the SEP), and "desire" (from Anselm's confession above) are terms that imply a volitional undercurrent not only supporting and guiding one's rational inquiry, but also providing the will in the midst of confusion, paradox, and struggle. This volitional undercurrent as a "drive" will be explored in what follows.

In his book with the same title, *Faith Seeking Understanding*, Daniel Migliore's view of FSU definitely fits the mold of faith as an active pursuit subsisting in the will. For Migliore, "faith" ventures, dares, struggles, fights, and calls. In this context, faith persists through the unresolved questions of Christian theology into new fertile ground, rather than being replaced by assured understanding.[5] In fact, faith of the kind described by Migliore journeys into deeper intellectual water and more-difficult questions. For Migliore, as for Anselm, faith and understanding symbiotically interplay with each other as will and intellect, instead of as competing degrees of intellectual ascent.

Karl Barth's work with the same title (this time in Latin), *Fides Quaerens Intellectum*, lays out a similar scope in its initial claim. Here, Barth goes to great lengths to remind his readers that "the aim of theology cannot be … to deliver their faith from doubt."[6] This statement corroborates the idea that, for Anselm, understanding serves a greater purpose than the replacement of faith. Further within Barth's thought, "according to Anselm's psychology, faith is in effect primarily a movement of the will."[7] Though there is more to Anselm's faith as Barth interprets, this view into Anselm's mind reveals that "faith" collaborates in the process of "understanding" with volitional overtones of guidance.

Specific Anselm studies also draw attention to the volitional tendency within the FSU credo. Eileen Sweeney describes the interplay between faith and understanding as a "double-reliance," in which again both subsist and are strengthened in the interplay in order to address the impossible, to understand the one "which none greater can be conceived." For her also, Anselm activates faith as it motivates reason independently in "an intense desire to know about the subjects he explores by reason."[8] In some of our Christian contexts, perhaps by taking out the active portion of the credo ("seeking"), we have mistakenly associated the terms ("faith" and "reason" are both types of mental processes) instead of keeping them separate as distinct entities, as Anselm intended. In the end, Sweeney sees Anselm's dissatisfaction with the logical ends of his reasoning as the ultimate vindication for the separation of volition and cognition. In the completion of the ontological argument, "[Anselm] has moved to a sense of God as beyond his grasp and has *increased* rather than satisfied his desire" (my emphasis).[9]

In summary, FSU is a mental process not only of varying degrees within the same type (cognition) but also of varying degrees of complementary types that strengthen in degree (volition and cognition). According to several thinkers, both those within Christian theology and those more generally across philosophy, what Anselm refers to as "faith" actually resides in the will and presents itself as a volitional undercurrent. This undercurrent presupposes understanding, is strengthened by the attainment of understanding, and yet extends beyond the present form of understanding. Demonstratively, this type of "faith" exists independently of cognition and does not subside when "understanding" is achieved. In this form, FSU exhibits the qualities of a method of learning rather than a mental process of knowledge acquisition and transformation. Having substantiated the method of FSU, I test the similarities of FSU to science learning in application to twenty-first-century cosmological studies.

II. Twentieth-Century Cosmology Revisited

It is almost unfathomable that less than one hundred years ago the question of whether the Milky Way galaxy stood alone in the universe was debatable. Even the champion of "island universes" in the Great Debate of 1920, Heber Curtis held to an anti-Copernican model that placed our solar system at the center of the Milky Way. Hubble's discovery of Cepheid variables in the Andromeda galaxy not only destroyed Harlow Shapley's single-galaxy universe,

but also revolutionized our picture of the universe as static and evident. Humbled to the outskirts of our own galaxy, we became a mere leaflet in the unconcerned flow of the stream of cosmic time.

Moreover, even in the mid-twentieth century when astronomers had narrowed their studies to the "search for only two numbers" (the precise values of the Hubble and the deceleration parameters), the ghost of Fritz Zwicky and other dark apparitions dealt another slice of humble pie to cosmologists. Astronomers reasoned by the 1970s that the "deceleration parameter" (q_0) was less than one-half, which implied that there was not enough mass-energy in the universe to slow the expansion. This conclusion was in combination with the observation that there was much less matter in the universe than assumed. In fact, even with the amount of "missing mass" (read, dark matter) set at unprecedented levels, there was still no closing the universe, as measurements were still short by a factor of five. In their history of twentieth-century astronomy, Jeremiah Ostriker and Simon Mitton correctly summarize that "the quantitative evidence was simply too uncertain to make definitive statements at this time."[10]

From the late 1970s onward, most cosmological studies considered the possibility of an open universe with a non-zero cosmological constant (Lambda, Λ). As an example, the ingenious and visionary Beatrice Tinsley authored "Accelerating Universe Revisited" in 1978.[11] Here, she surmised various cosmological scenarios that involved contributions from a constant that opposed gravitation, that is, a negative pressure contribution. The resurgence of the cosmological constant, originally assigned the moniker "Einstein's greatest blunder," arose due to the fact that the density of matter was too little (even with the assertion of large amounts of dark matter) but that the universe seemed very "flat" (no curvature). The curvature of the cosmos as flat implies that the amount of matter in the observable universe (that is, the current density parameter, Ω_0) is extremely close to the critical density (ρ_{crit}, the density at which universal attraction and expansion completely balance). As one introductory textbook puts this balance, "our very existence depends on the fanatically close balance (1×10^{-60}) between the actual density and the critical density in the early universe."[12] The flatness of the universe was also observed by microwave probes and remains a fixture in most cosmological models. These two seemingly observational facts (that is, the lack of gravitating matter, yet the persistence of cosmological flatness) imply the existence of some other contribution to the mass-energy budget of the universe. The stage was finally set for the Nobel Prize winning observations of 1998–1999 that brought Dark Energy into the everyday conversation of all who have an interest in cosmology.

III. Dark Energy and Its Proposed Origins

Dark energy is a concept conceived to explain the accelerating nature of the cosmic expansion. It was coined by cosmologist Michael Turner as a means to describe any component of the universe that provides a positive acceleration to the universal expansion.[13] Though it had been known for decades that the universe was expanding, most cosmologists (and astronomers in total) assumed that the universe was "closed," that is, the amounts of gravitating matter were greater than the critical density, and that the universe would re-collapse at some future epoch. When two independent teams of cosmologists in 1998–1999 both observed that distant supernovae were "fainter than would be expected *even for an empty universe*," the results were a "dramatic surprise."[14] Because the supernovae were dimmer than predicted, it was interpreted that the universe had stretched further apart than assumed for constant expansion (no acceleration). In 2011, the Nobel Prize in Physics was awarded to three scientists "for the discovery of the accelerating expansion of the Universe through observations of distant supernovae."[15]

It is now commonly accepted among the astronomical community that dark energy comprises approximately 68% of the mass-energy density universe. Of course, this quantitative accuracy betrays the lack of assurance that this number satisfies the requirement for a cosmologically flat universe (no curvature) because the matter density is 32% (85% of this is dark matter) and the total density of the universe is very close to 1.0 (remember, the critical density). A common expression holds to display this relationship:

$$\Omega_m + \Omega_\Lambda = \Omega_{0_{total}}$$

or in numerical form,

$$0.32 + 0.68 = 1.0.$$

The current situation leaves astronomers in the precarious position of not knowing the physical nature of 95% of the universe's constituents, while being able to explain the influences within the cosmos. What is the nature of dark matter? What is the nature of dark energy? Is there a connection between these two "dark components" of our universe? Being able to accurately account for the effects of the universe does not imply understanding. Certainly, scientists discovering the answer to any of these questions would warrant the receipt of a Nobel Prize in Physics.

The propositions for the origin of and/or the mechanism for dark energy remain plenteous. Although recent measurements from the Planck mission of the cosmic microwave background[16] and the Dark Energy Survey[17] allude to the possible dominance of a cosmological constant, many interpretative models persist.[18] Many proposed mechanisms utilize previously understood concepts in other areas of physics and apply them to the arena of cosmology. For the purposes of this article, I mention only two such mechanisms briefly.

The first is the concept of negative kinetic energy within an equation of state. As you may remember, kinetic energy is required to maintain a positive scalar value due to the squaring of the velocity and the nature of mass (always being positive). However, due to the repulsive nature of dark energy, a model of negative kinetic energy (since the field is dynamic yet repulsive) is sometimes put forth. This is a phenomenological model designed to provide a conceptual picture in order to motivate an equation of state. An equation of state establishes a relationship for characterizing a fluid such as an unknown diffuse field (for example, dark energy).[19] Although scientists are not actually seeking to measure a negative kinetic energy, the term does add meaning and motivation due to the conceptual familiarity of the kinetic energy term.

A second concept that is often used to describe dark energy is that of quintessence. Again, a familiar idea, namely that of a new and unearthly substance in the form of a scalar field, serves as a placeholder until new observations are made and models probed.[20] As the name suggests, quintessence is a specific form of matter that is minimally coupled to gravitation.[21] Quintessence can vary as a function of time in so-called "thawing" (becoming stronger with increasing time) and "freezing" (becoming weaker with increasing time) models. It suffices to show that quintessence is a malleable and somewhat amorphous concept, one that presents a specific picture while also preserving the opportunity for future flexibility.[22]

In summary, persistent observations imply the existence of a repulsive energy term responsible for the accelerating cosmic expansion. Familiar constructs used in new ways stand as surrogates until further data can be gathered. Dark components (energy and matter) beg the existence of new physics, new matter, or even paradigm-shifting revolutions in the way reality is perceived. In the words of the Planck (Telescope) Collaboration, one of the world's authorities on dark energy, "we currently lack any compelling explanation for its value [the cosmological constant], or a natural mechanism to produce it."[23] Despite the lack of foundational understanding regarding the phenomenon of dark energy, cosmological scientists maintain resolve that continued pursuit will produce the understanding they seek. In this way, scientists exert volitional strength in willing cosmology forward without significant understanding currently present.

IV. Cosmological Connections with FSU

While the proposition of attributing "faith" to scientists is usually met with great skepticism, we revisit one aspect of faith as practiced by Anselm. As presented in Section I, the faith portion of FSU was seen as a desire and a volitional undercurrent motivating the search for understanding. Similarly, as scientists face the reality of not knowing what the vast majority of the universe comprises, most are unshaken in their commitment to the proven methods of science in order to reveal greater knowledge. In this case, as is documented by philosophers of science, scientists often proceed with intuition and presupposition even in the face of anomalous data.[24]

Drawing further on the similarity to Anselm, science continues its further search for understanding as new vistas are realized. Science does not have the characteristic of being satisfied once new understanding is achieved. Much like Anselm, greater understanding fortifies the will with a deeper volitional resolve.

Chandrasekhar supports this idea by providing many historical examples in which scientists exhibit anticipatory passion and joy as deeper disciplinary connections are potentially realized.[25] In this way, FSU presents a model for learning and advancing in any intellectual pursuit, including cosmological science.

Cosmology in the twenty-first century exhibits many potential avenues for future development. Aligning the idea of FSU as an able, working analogy for the rhythm of science progression neither diminishes the results of cosmological science, nor hinders the embrace of science as a means for truth seeking. Rather, FSU supplements our traditional views of science as proceeding strictly by the scientific method.[26] In fact, many philosophers of science and history call into question the traditional scientific method as the main method for propagation of our understanding.[27] FSU provides a framework for viewing science as a discipline that proliferates through volition as well as through cognition.

V. What Is the Difference?

In summary, the famous credo of "faith seeking understanding" is presented as a volitional undercurrent supporting and motivating theological inquiry. As was true for Anselm as well as for modern-day theologians, the volitional undercurrent is strengthened and deepened in the achievement of increased intellectual understanding. Therefore, FSU should not be misinterpreted as a progression and culmination of intellectual cognition, in which faith is replaced by understanding. Cosmological science exhibits many characteristics that parallel any field of questioning. Though many achievements have been obtained, the nature of the dark components of the universe is still unknown with any degree of confidence. This situation presents the opportunity to observe FSU as it unfolds within cosmology because science continues with volitional resolve to deeper understanding. Dark energy studies demonstrate volitional resolve as established concepts are re-used for the purpose of new understanding, for example, quintessence.

Yet, differences between the underlying nature of the sciences and theology persist despite the similarities of volitional resolve in both fields. In the sciences, there is expectation that perception becomes clearer as more experiments and observations are made. For example, though the volitional resolve was high regarding the general theory of relativity in the original eclipse experiment measurements and interpretations, repeated and demonstrated observations continue to show support for the veracity of the theory. Therefore, the understanding produced in the sciences is epistemological in nature. Volition subsists but its logic is strengthened through observation and experimentation.

Conversely, in the realm of theology and Christianity, faith remains along with hope and love.[28] Though volition accords with the seeking of knowledge, and understanding results within the life of following Jesus, epistemic faith does not subside or become replaced with logical certainty. Confidence is built as trust increases and understanding forms, but the object of trust continues to be held in faith experientially. Beyond the quotes from Anselm earlier and the reference to Paul above, a few other examples will be offered.

Seen as the birthplace of creativity and courage, vulnerability requires the persistence of epistemic faith in order to grow. If vulnerability depends on uncertainty and risk, then certitude is anticorrelated with this desirable quality. In more explicitly religious contexts, the thought of both Blaise Pascal and Søren Kierkegaard thrive on the persistence of faith and trust in proportion to the growth of understanding. Pascal's "certainty" in his conversion gave way to the clear imperative of "the wager" as it requires an element of faith.[29] Similarly, Kierkegaard's "leap of faith" (as in many other places) reveals the necessity and perseverance of faith despite the emergence of new knowledge and understanding. It is when science and theology are viewed as complementary that the similarities and juxtapositions can be fully appreciated. When polarization and exclusivity are favored, wholeness is impossible. ☼

Notes

[1]Gregory E. Ganssle, "Thinking about God and Time," in *God and Time: Four Views,* ed. Gregory E. Ganssle (Downers Grove, IL: InterVarsity Press, 2001), 11–13.

[2]Luke Lin, "St. Anselm on Faith Seeking Understanding: Transforming the Belief of Faith into the Seeing of Understanding," Pew/Paideia Conference at Dallas Baptist University, April 2, 2005, 5–7, https://www3.dbu.edu/Naugle/PCS_Papers/Luke Lin/2005 PEW Anselm.pdf.

[3]Anselm of Canterbury, *Proslogion*, in *The Major Works*, ed. Brian Davies and G. R. Evans, trans. M. J. Charlesworth (New York: Oxford University Press, 1998), 96.
[4]Thomas Williams, "Saint Anselm," in the *Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Spring 2016 edition (rev. December 21, 2015), https://plato.stanford.edu/archives/spr2016/entries/anselm/.
[5]Daniel Migliore, *Faith Seeking Understanding: An Introduction to Christian Theology* (Grand Rapids, MI: Eerdmans, 1991), 2–5.
[6]Karl Barth, *Anselm: Fides Quaerens Intellectum, Anselm's Proof of the Existence of God in the Context of His Theological Scheme* (Norwich, UK: SCM Press, 1960; reprint, Eugene, OR: Pickwick Publications, 2009), 17.
[7]Ibid., 19.
[8]Eileen Sweeney, "Anselm's *Proslogion*: The Desire for the Word," *The Saint Anselm Journal* 1, no. 1 (Fall 2003): 22.
[9]Ibid., 31.
[10]Jeremiah Ostriker and Simon Mitton, *Heart of Darkness: Unraveling the Mysteries of the Invisible Universe* (Princeton, NJ: Princeton University Press, 2013), 217.
[11]Beatrice Tinsley, "Accelerating Universe Revisited," *Nature* 273 (May 18, 1978): 208–10.
[12]Barbara Ryden, *Introduction to Cosmology* (San Francisco, CA: Addison Wesley, 2003), 193.
[13]Ibid., 56.
[14]Saul Perlmutter, "Supernovae, Dark Energy, and the Accelerating Universe," *Physics Today* 56, no. 4 (2003): 53–60.
[15]The Royal Swedish Academy of Sciences awarded the Nobel Prize in Physics 2011 to three scientists (one half to Saul Perlmutter and the other half jointly to Brian P. Schmidt and Adam G. Reiss), https://www.nobelprize.org/prizes/physics/2011/press-release/.
[16]Planck mission summary, European Space Agency (last updated May 13, 2015), http://sci.esa.int/planck/33333-summary/.
[17]The Dark Energy Survey: News and Results, "DES in the News," https://www.darkenergysurvey.org/news-and-results/des-in-the-news/.
[18]Keith Cooper, "The Dark-Energy Deniers," *Physics World* (June 2018), https://physicsworld.com/a/the-dark-energy-deniers/.
[19]Ryden, *Introduction to Cosmology*, 55.
[20]P. J. E. Peebles and Bharat Ratra, "The Cosmological Constant and Dark Energy," *Reviews of Modern Physics* 75 (2003): 559.
[21]Robert J. Caldwell gives a good but dated overview in "Quintessence," *Physics World Online* (November 1, 2000), https://physicsworld.com/a/quintessence/.
[22]Eric V. Linder, "Quintessence's Last Stand?," *Physical Review D* 91, no. 6 (March 15, 2015), https://journals.aps.org/prd/abstract/10.1103/PhysRevD.91.063006.
[23]Y. Akrami et al., Planck Collaboration, "*Planck* 2018 Results. I. Overview, and the Cosmological Legacy of *Planck*," submitted to *Astronomy & Astrophysics* (July 2018), https://arxiv.org/pdf/1807.06205.pdf.
[24]Mansoor Niaz, *Critical Appraisal of Physical Science as a Human Enterprise: Dynamics of Scientific Progress* (New York: Springer, 2009), 27–41.
[25]Subrahmanyan Chandrasekhar, "Beauty and the Quest for Beauty in Science," *Physics Today* 32, no. 7 (1979): 25–30.
[26]Matthew C. Fleenor, "The Ways of Jesus and Science at an IVGCF Meeting," *PSCF* 67, no. 4 (2015): 272–76.
[27]Niaz, *Critical Appraisal of Physical Science as a Human Enterprise*, 9–26.
[28]1 Corinthians 13:13, *The Hebrew-Greek Key Word Study Bible: NIV* (Chattanooga, TN: AMG Publishers, 1996).
[29]Blaise Pascal, *Pensées* (New York: Random House, 1941), 81–84.

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