

A Dialogic Analysis of Altruism and Concupiscence: An Application of Shared Cognitive Method in Scientific and Religious Thought

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The assumption that religious scholars employ a method so different as to be incompatible with scientific method has led to confusion about the relationship between the sciences and religious studies or theology.¹ False assumptions concerning theological method and verification issue in the idea that discourse between science and religion would be, at its best, unproductive. Without noting the structural similarities between science and theology one tends to take one of five positions: 1) that there is a fundamental incompatibility between science and religion,² 2) that there is a fundamental superiority³ of science over religion,⁴ 3) that there is a fundamental dichotomy of method between science and religion,⁵ 4) that the possibility of meaningful dialogue between science and religion should be centered to cosmology,⁶ 5) that since discussions between religion and the biological sciences have tended to issue in the unfortunate morass of confusions exemplified by “Creation Science” and biblical concordism,⁷ the philosophy of science, not theology, is the appropriate dialogue partner with science.⁸

Many conclusions that have arisen from scientific research could evoke fruitful discussion between scientists and religious scholars; however, the dialogue is plagued by misconceptions, especially regarding the methods that each employs, and the quality of conclusions reached in each. Even though scientific inquiries over the last century have raised questions concerning Ultimacy and the human place in the universe, theologians rarely consult achievements in the sciences. Scientists, even when thinking about Ultimacy and the human condition, tend to develop their ideas with little reference to theological insights, judgments, and traditions.

Our goal in this essay is to argue for an analogous structure of coming to conclusions within the sciences and theology (based in identical cognitional method), what Bernard J. F. Lonergan called “an isomorphism, a protracted analogy of proportion” (Lonergan, 1955/1988, p. 133) between science and

theology. By asserting an identical cognitive method for both science and theology, we will show that the structural similarities, expressed in analogous levels of value, offer a way to bridge the chasm that often exists between scientific and theological reflection. The convergence of the evolutionary sciences and religious thought on human nature, coupled with the insight among both that humans are capable of higher activities, including authentic altruism, allows us to put forward a schema for understanding the relations among and the hierarchy of the levels of human activities. By noting analogous mechanisms, aims, strategies and activities, rooted in insights and judgments from evolutionary science, we will demonstrate that the foundational structures for religious values, particularly altruism, exist in pre-noetic forms as vital level activities.

Both science and religion recognize that there is a hierarchy among human activities. The chart below will indicate particular isomorphic relationships⁹ at four levels of human operation, each higher level building upon the lower. The four levels are: 1) the Vital (evolutionary) Level, 2) the Cultural Level, 3) the Ethical Level, and, finally, 4) the Religious Level.¹⁰ The Vital Level is the natural level of adapted mechanisms, tendencies, strategies and activities which have evolved for the passing on of genes according to Inclusive Fitness Theory. The Cultural Level, extending the evolved social tendencies of humans, is usually in support of the Vital Level¹¹ but may be (and usually is) influenced by the Ethical and Religious Levels as accepted by the communities within each culture. The Ethical Level involves those judgments concerning the Good Life and reasoned “oughts” for right living. The Religious Level concerns human relation to Ultimacy and the kind of life that follows from such a relationship.

Each level may be characterized by the (evolved) mechanisms, aims, specialized mechanisms or procedures, and strategies and activities associated with it. The chart illuminates the isomorphic relationships among the four levels, giving special reference to altruism at the natural, vital level (“nepotistic” and “reciprocal” altruism, on which see below) and at the authentic religious level.

TABLE: Isomorphism of Levels of Values

The Vital Level	The Cultural ¹² Level	The Ethical Level	The Authentic Religious Level
<p>A – Mechanisms [Evolved Mental Architecture]:</p> <ul style="list-style-type: none"> ▶ Large brain having both primitive organs (e.g. amygdala) and modern human organs (frontal cortex) ▶ Structures for affect regulation¹³ ▶ Adaptation for language, both proto-language and syntax. ▶ Individual development by “bootstrapping” neural networks¹⁴ 	<p>A – Mechanisms:</p> <ul style="list-style-type: none"> ▶ Evolved mental architecture of the vital level ▶ Adaptation for cooperative alliances in support of the vital level 	<p>A – Mechanism:</p> <ul style="list-style-type: none"> ▶ Evolved ability to question and reason (a module-packed “computational” mind for moral reasoning) as non-adaptive evolutionary byproduct 	<p>A – Mechanism (and by-product):</p> <ul style="list-style-type: none"> ▶ Evolved ability to question and reason ▶ Concomitant ability to question, theorize about, and respond to Ultimacy
<p>B – Aims [Drives]:</p> <ul style="list-style-type: none"> ▶ Survival/reproduction according to “inclusive fitness” (goods/justice for “me and mine”)¹⁵ and “natural selection” – reproductive bias favoring some genes or genotypes over others 	<p>B – Aims:</p> <ul style="list-style-type: none"> ▶ The good of the individual in conjunction with the good of the group (often according to “inclusive fitness”) ▶ Survival of the group and reproduction 	<p>B – Aims:</p> <ul style="list-style-type: none"> ▶ The “good” life ▶ Discovery of high-level values, “oughts” and the “right” ▶ Analysis of complex personal and social situations 	<p>B – Aims:</p> <ul style="list-style-type: none"> ▶ Self-Appropriation of personal and religious values¹⁶ ▶ Authenticity¹⁷ and self-transcendence to the good¹⁸ ▶ To do good and avoid evil ▶ To overcome bias, personal sin, concupiscence (the tendency to choose the apparently good over the truly good) ▶ To live in consonance with the Transcendent that “grasps” one (Tillich)
<p>C – Specialized Mechanisms:</p> <ul style="list-style-type: none"> ▶ Pre-conscious recognition of facial and postural expression. ▶ Language acquisition ▶ Sexual jealousy; parent-offspring conflict ▶ Mother-infant emotion communication signals 	<p>C – Specialized Mechanisms:</p> <ul style="list-style-type: none"> ▶ Cheater detector and tit-for-tat ▶ Cooperation and “reciprocal altruism” 	<p>C – Specialized Procedures:</p> <ul style="list-style-type: none"> ▶ Self-transcendence in attention, intelligence, reasonableness, responsibility ▶ Reasoning from principles to conclusions 	<p>C – Specialized Procedures:</p> <ul style="list-style-type: none"> ▶ Fulfilment of self-transcendence in love and true altruism ▶ Theology – reasoning from experienced Ultimacy and doctrine to concrete acts
<p>D – Strategies and Activities:</p> <ul style="list-style-type: none"> ▶ Assessment of genetic favorableness in prospective mates ▶ Quasi-pair bonding and sequential monogamy ▶ Resource acquisition according to “inclusive fitness” ▶ Social cooperation, “nepotistic” and “reciprocal” altruism ▶ Tit-for-tat and cheater detection 	<p>D – Strategies and Activities:</p> <ul style="list-style-type: none"> ▶ Laws and punishments ▶ Marriage conventions ▶ Cooperation against outsiders (warfare, slavery, prejudice, etc.) 	<p>D – Strategies and Activities:</p> <ul style="list-style-type: none"> ▶ Seeking understanding of the good life ▶ Assessment of situations and right action ▶ Doing the obligatory and the right; avoiding wrong 	<p>D – Strategies and Activities:</p> <ul style="list-style-type: none"> ▶ Seeking understanding of the Good and the True in light of one’s faith tradition¹⁹ and religious experience ▶ Assessments of concrete situations in relation to religious values²⁰ ▶ Praxis – the interplay of concrete good acts with experience and knowledge of Ultimacy ▶ Perform “terminal values”²¹

The chart demonstrates that the higher levels of ethical and religious procedures, strategies, and activities are rooted in the evolutionary adaptations peculiar to humans. We exhibit, further, that each level builds on the foundation of those below it. The higher levels do not deny the values present in the lower levels but are sublated²² in responsibility and, at the religious level, through our possible relationship to Ultimacy.

While each level on the chart is studied in its own right and by distinct sciences (see note 10), the method of coming to scientific judgments in each is the same. This applies to the human sciences and theology as well as to other sciences.

Cognitive Method in Science and Theology

Both science and theology are explanatory in that they deal with things as they relate among themselves, in contrast to description, “which deals with things as related to us” (Lonergan, 1957/1988, p. 316). Scientists and authentic religious scholars use an identical, invariable pattern of cognition. The method that both employ is the selfsame pattern of intentional operations, “a normative pattern of recurrent and related operations yielding cumulative and progressive results” (Lonergan, 1972, p. 4).²³

All human cognition – whether in science or the humanities – follows the same pattern of eight operations on three levels²⁴:

<i>Level 1 – The Level of Experience</i> ²⁵		
1)	Experiencing ²⁶	The scientist ²⁷ or theologian ²⁸ experiences data (of sense or of consciousness); “what can be experienced is merely data and it is only through the subsequent occurrence of insights that significance is attached to the data and knowledge develops” (Danaher, 1993, p. 32).
<i>Level 2 – The Level of Understanding</i>		
2)	Questioning	“Within each person there is a desire to know and this desire is expressed in the form of a question. The question presupposes some concrete situation presented by the senses or imagination, i.e., it presupposes data, but of itself is prior to insight and concepts” (Danaher, 1993, p. 32).
3)	Direct Insight	“Insights ²⁹ occur in response to questions and involve a grasp of relations in what is presented by the senses or the imagination, and so go beyond the given by adding this grasp of relations. Insight is not like a logical deduction of conclusions from premises, although it subsequently may be formulated in such a manner.” ³⁰ Direct insight grasps intelligibility in the presentations of sense and imagination, whether in science ³¹ or in common sense. “It is, in fact, insight that provides the link between data and theories...” (Danaher, 1993, p. 35).
4)	Conceptualization	Conception is the intellectual operation of bringing to concept the insight into data. Concepts are intelligent formulations of insights; they are determinations of insights. ³² “Conception expresses in a general manner what is essential for having the

		insight” (Danaher, 1993, p. 33). Where insight is a grasp of relations in a particular, concrete situation, conception is general.
5)	Formulation	Formulation, in this cumulative sense, is the intellectual operation by which one brings to cogent synthesis the concepts arrived at for understanding. William Danaher notes, “[S]cientific laws and probabilities emerge as a result of the formulation of insights” (Danaher, 1993, p. 33).
Level 3 – The Level of Judgment		
6)	Reflective Questioning	Reflective Questioning occurs on the level of judgment. Reflective Questioning parallels the operation on the level of understanding. In reflective questioning, one asks whether one’s understanding and formulation are correct and what criteria must be fulfilled for the judgment that one’s understanding is accurate and applicable to the concrete situation. “Insight into data, followed by the formulation of concepts and the formulation of hypotheses, theories or probabilities does not fully constitute human knowing. The results of such processes are provisional, and the further question ‘Is it so?’ can and must be raised, and it is only in answering that question, in the act of judgment, that the process of knowing is complete” (Danaher, 1993, p. 33).
7)	Reflective Insight	Reflective insight grasps or ascertains that the conditions for a prospective judgment have (or have not) been fulfilled. ³³
8)	Judgment	Judgment is the affirmation or negation of the truth of a formulation of understanding. ³⁴ The basis of probable judgments lies in the self-correcting process of learning, which consists of a sequence of questions, insights, further questions and further insights that move towards a limit in which no further, relevant questions arise. When one is well beyond that limit, judgments are certain. When one is well short of that limit, judgments are at best probable.

When one recognizes the operations involved in coming to a judgment, one sees that both the scientist and the theologian follow the same invariant pattern of cognition. It includes those elements usually enumerated in the philosophy of science – observation (experiencing), hypothesis (conceptualization and formulation), experimentation (reflective questioning) and inductive conclusions (judgment and further questioning based on the judgment as data for new questions). What differentiates the scientific method (Lonergan’s “Generalized Empirical Method”³⁵) from theological method is the proper object of inquiry and the data of experience about which the questioning arises and ensues (on which, see below).

The Isomorphism Between Scientific and Theological Thought

While scientists and theologians follow the same pattern of cognitive operations in coming to judgments, they differ in the *data* upon which understanding and reasoning work; that is, it is not divergence of method that distinguishes science from religion but, rather, the data that are the objects of

their respective inquiries. In 1955, Bernard Lonergan noted *this* fundamental difference between science and theology:

The material differences between ... [theology] and scientific thought are explained by the respectively different manners in which each derives from understanding. Thus St Thomas reflected on the act of understanding itself to reach a rational psychology of fundamental generality in harmony with an equally fundamental metaphysics. In contrast, scientists make no attempt to reflect on their acts of understanding; but they perform such acts in great numbers, in a vast variety of fields of inquiry, in historically developing sequences over long periods of time; not only do they perform the acts but also concretely, *exercite et non signate* [present in performance but not made thematic], they work out the real implications of the acts; and so they bring to light in their practice a methodical structure that is isomorphic with the conclusions of Thomist reflection and analysis (Lonergan, 1955/1988, p. 140).

Lonergan asserted that both theologians and scientists come to an understanding of human nature.

However, the theologian develops such understanding from reflection on “the act of understanding itself,” while the scientist formulates a similar understanding (“a methodical structure that is isomorphic with the conclusions of Thomist reflection and analysis”) by working out the implications of the conclusions (judgments of fact) following from their examinations.

Lonergan concluded that there is an “isomorphism” between scientific and theological method in that both are centered in understanding as such:

Why are science and theology isomorphic? Why do both begin their examinations by asking questions about experience? Why do both inquiries issue in abstract definitions or invariantly expressed hypotheses that respectively stand in need of judgment or verification because of the absolute significance of fact? Why are both modest in their claims to definitive knowledge? Why do ... [both] anticipate similar structures in what is to be known through affirmed definitions and verified hypotheses?

Clearly, it is not enough to say that both types of thought proceed from the same human mind, for it is quite easy to point to a variety of philosophies that proceed from the human mind without exhibiting any notable isomorphism with scientific thought. The answer, then, must envisage the human mind under some precise aspect; and the relevant aspect, I submit, is neither truth nor certitude nor deduction nor necessity nor universality nor conception nor inquiry nor intuition nor experience nor a priori synthesis nor apperceptive unity nor description nor phenomenology nor induction nor, indeed, any mere combination of these. The relevant aspect is understanding (Lonergan, 1955/1988, p. 139).³⁶

Here, Lonergan notes that, although many philosophical systems of consciousness do not recognize the analogous relationship between scientific and theological thought, both science and religion ask questions about human experience, develop hypotheses and methods of factual verification of hypotheses, and “anticipate similar structures in what is to be known through affirmed definitions and verified hypotheses.” The isomorphism between science and religion

concerns the similarity of their methods – consciously following the cognitive method – to seek understanding.

Recognizing the isomorphic, structural similarities between science and theology, one may put forth three theses:

- A. Scientists and theologians both follow a method that is “the concrete and dynamic unfolding of human attentiveness, intelligence, reasonableness, and responsibility. That unfolding occurs whenever anyone uses his mind in an appropriate fashion.” (Lonergan, 1972, p. 24). Lonergan foresaw in 1972 that science and religion could be “unified” in their common recognition of how the human mind works:

This method offers a key to unified science. The immobility of the Aristotelian ideal conflicts with developing natural science, developing human science, developing dogma, and developing theology. In harmony with all development is the human mind itself which effects the developments. In unity with all fields, however disparate, is again the human mind that operates in all fields and in radically the same fashion in each. Through the self-knowledge, the self-appropriation, the self-possession that result from making explicit the basic normative pattern of the recurrent and related operations of human cognitional process, it becomes possible to envisage a future in which all workers in all fields can find in ... [this] method common norms, foundations, systematics, and common critical, dialectical, and heuristic procedures (Lonergan, 1972, p. 24).

- B. Appropriate dialogue between science and religion depends upon acknowledging a cognitive method that affords us comparative success or failure, not merely in proposing facts, divining truths, and interpreting counsels, but in helping human beings to take these truths to heart and to put these counsels into action.³⁷
- C. Recognition of identical cognitive structures for science and religion invites the insight that not only is specialization within disciplines “to be conceived, not as a single set of related operations, but as a series of interdependent sets,” but also across disciplines (Lonergan 1972, p. 125). Furthermore, not only are “[s]pecialities may be distinguished in three manners, namely (1) by dividing and subdividing the field of data, (2) by classifying the results of investigations, and (3) by distinguishing and separating stages of the process from data to results” (Lonergan 1972, p. 125),³⁸ but the third way that Lonergan puts forward of distinguishing – “from data to results” – is helpful for understanding the “set of related and recurrent operations cumulative advancing

towards” (Lonergan, 1972, p. 125) interrelated dynamic relations as illustrated on the chart (see p. 3 of this article).

One can certainly call into question data for inquiry that theologians work from – revelation and beliefs – but one should not assume that the method of approaching the data is so divergent as to be incommensurate with science. The particular method of coming to reflective insight differs between science and religion but not the (cognitive) method as a whole. Whether in science or theology, one seeks explanation and asks questions of the data, awaits and comes to insight into the data, conceptualizes, formulates, asks reflective questions, seeks reflective insights, and, finally, comes to judgment.³⁹ The judgment may be certain or probable when one recognizes that the ramifications of the judgment open a virtually infinite number of possible relations to other data. Thus, contemporary sciences recognize the provisional nature of established formulations, distinguish hypothesis and theory, and anticipate yet fuller formulations in the future. Likewise, theologians recognize that their formulations are time- and culture-bound and ever in need of reexamination to approach further the truth and express settled truths for their contemporaries.

This humility before the vast and simple truths that scientists and theologians seek to understand and explain bodes well for a dialogue between them that can be both mutually respectful and integrative. A particularly fruitful colloquy can develop about human nature between theologians and evolutionary scientists. We will now demonstrate an example of respectful dialogue that is possible by a comparison and synthesis of evolutionary thought and the Roman Catholic theological tradition on human nature and altruism.

Human Nature and Altruism in the Evolutionary Sciences and Religious Thought

Two great scientific theories underlie the present understanding of the human person in the evolutionary sciences, evolution by natural selection and the genetic theory of evolution. The former states that only those characteristics that are passed on in procreation are those that continue to affect

evolution; those individuals who do not procreate become dead ends for evolution. The latter states that evolution is driven by the “desire”⁴⁰ of genes⁴¹ to replicate and survive through reproduction.

The theory of evolution by natural selection implies that, over time and through successful generations, those characteristics most apt for survival to reproductive age – adaptive mechanisms and proclivities – will be passed on. As accidental concomitants, non-adaptive characteristics accompany the adaptive, in as much as all the genetic material that is carried by the reproductive material may be passed on. Thus, vestigial structures that have no adaptive value for the present or future generation(s) may be carried forward. Likewise, adaptive structures for one environment, like the gene for sickle cell anemia, may be passed on to those for whom it may be deleterious without having its beneficial effects for malaria. Also, non-adaptive byproducts may accompany reproductive transmission. The human ability to create music or mathematics, to think philosophically, and to practice theology seem to be such evolutionary byproducts.⁴²

The theory of genetic evolution leads to the insight that evolution is driven by the genes’ drive for survival and reproduction, while adaptations and felt drives are evolved mechanisms for the passing on of genes. Those structures and drives most apparent to consciousness may be, in fact, in service of the microscopic genes and their “strategies” for survival. This insight leads to a “gene’s-eye view”⁴³ of evolution.”⁴⁴

With these two insights, many “natural” activities and tendencies of human beings can become perspicuous. William Hamilton, in his ground-breaking mathematical analysis of genetic relatedness and social behavior,⁴⁵ hypothesized that creatures, including humans, would demonstrate “generosity” toward those who share their genes and to the extent that they share genes. Thus, one would have more natural feeling for those with closer genetic relatedness the “social” insects demonstrate more care for their siblings, with whom they have up to 75% genetic relatedness, than for the queen’s offspring, with whom they shares a lesser proportion of genes). Humans will show most care for their children and (secondarily to) siblings with whom they share, on average, 50% of their genes, then cousins with an average of 25% genetic relatedness, and so on. Moreover, one’s “evolutionary fitness” is to be gauged not only in terms

of one's own reproductive fitness and bringing offspring to reproductive success but also in regard to all those (close relatives) who carry copies of one's genes; thus, one's evolutionary success is to be judged by "inclusive fitness."

This insight into the relation between genetic relatedness and care – the distribution of resources – leads to a reappraisal of human activities, especially regarding "generosity." Hamilton's hypothesis leads to the prediction that one will expend more energy and resources toward those more closely related (genetically) than toward others. One's natural tendencies will be to promote the survival of those closely related. The "generosity" of parents and siblings, for example, can be seen to make evolutionary sense. Even apparent generosity toward non-closely-related people is contextualized by the genetic drive to survive and reproduce.

Evolutionary psychologists⁴⁶ call the proclivity or willingness to give more than one receives, that is, to act where the apparent cost outweighs any apparent benefit, "altruism." Two forms of such altruism have been explicated, "nepotistic" and "reciprocal" altruism. Nepotistic altruism concerns one's willingness to perform costly activities for one's genetic relatives – a parent will even die for the sake of offspring; one is more likely to expend resources for close relatives than for distant relatives and, especially, strangers. Altruistic activities for one's close relatives have evolutionary benefits in passing on one's genes. Reciprocal altruism refers to costly activities toward those *not* closely related. These activities occur because humans anticipate future recompense; that is, in giving to non-relatives those goods that are surplus (or even dear), one expects to receive similar "gifts" from those who benefited from one's generosity. We seem to have adaptations for "tit-for-tat" strategies and "cheater detector" sensitivity to judge when it is appropriate to be altruistic. We have evolved to snoop out deadbeats and parasites.⁴⁷

The two principles of evolution by natural selection and genetic evolution in terms of inclusive fitness go far toward accounting for most natural human tendencies and illuminate both selfish and generous aspects of human personalities. In light of these elegant and fertile insights, one can designate as

human nature (“natural”) virtually all those inclinations, strategies, and activities that have evolved within humans to effectively pass on genes.

In fine, the evolutionary sciences present a propitious opportunity for a synthetic discussion in that the developments within the fields of the evolutionary sciences have led to questions about human nature and values. Neuroscience⁴⁸ and theorizing by evolutionary scientists concerning questions about the relationships between the development of the brain, human mental operations, and human values have brought the evolutionary sciences to a convergence with theological inquiry. The acceptance of the idea of evolved adaptations for sociality among humans leads to the question of the relation between adaptive activities and responsible action, between evolved tendencies and moral decisions.

Altruism and Selfishness in Religious Tradition

Religious traditions have come to insights concerning human nature analogous to those in the evolutionary sciences. Against those “optimistic” theorists who have proposed that we humans are, apart from culture, generous and peaceful,⁴⁹ religious thinkers have continually noted the conflicts within humans and their communities concerning personal needs and desires, and the good of one’s own group in contrast to others. Self-centeredness, familialism, patriotism, tribalism, ethnocentrism, and xenophobia represent some examples of these tendencies.

While all of the higher religions direct one toward agapaic altruism,⁵⁰ there exists a fundamental paradox in human nature. In his *Penseés*, Blaise Pascal wrote,

There is internal war in man between reason and the passions.
If he had only reason without passions ...
If he had only passions without reason ...
But having both, he cannot be without strife, being unable to be at peace with the one without being at war with the other. Thus he is always divided against, and opposed to himself (Pascal, c. 1660/1941, p. 130).⁵¹

As noted above, evolutionary psychologists recognize the paradox between reason and passion as expressed in the genetic proclivity⁵² for one’s relatives⁵³ and cooperative alliances with others.⁵⁴

For millennia, philosophers and religious thinkers have recognized that humans are driven by self-serving appetites, bias,⁵⁵ and conflict between higher and lower values. The Platonic idea of the

warfare between body and soul, the Jewish and Muslim insight that humans are weak creatures that tend to do evil, the Pauline insight that the flesh and the spirit are in conflict, all point to the awareness that the natural human state is to live for oneself and one's own, calculating returns on investments in others. On the other hand, these same traditions have called humans beyond self-centeredness to true generosity; they have called people to authentic self-sacrifice for the sake of higher values.⁵⁶

In answer to the question why humans tend to be self serving, Augustine, the late Patristic theologian, formulated the concept and doctrine of Original Sin,⁵⁷ that there is a sin (analogous to personal sin), which is passed on through procreation to every human. As a result of this sin of the first humans, every human is subject to *concupiscence*, the tendency to choose lesser goods over greater goods, the tendency to follow lustful inclinations (cupidity).⁵⁸ Thomas Aquinas characterized concupiscence as “turning inordinately to mutable good; which inordinateness may be called by the general name of concupiscence” (*Summa Theol.*, IaIIae, q. 82, a. 3, ans., in Aquinas, 1952b, p. 170). Further, he wrote, “As in good things the intellect and reason stand first, so conversely in evil things the lower part of the soul is found to take precedence” (*Summa Theol.*, IaIIae, q. 82, a. 3, reply 3, in Aquinas, 1952b, p. 170). For Aquinas, reason is the higher faculty of the human person, vital drives, the lower. In concupiscence, the reason, which should lead us to appropriate judgments and actions, is swayed by the vital drives and mechanisms. “Concupiscible” tendencies are those desires (*cupere*) to seek pleasure and avoid pain. The “irascible” (emotional) follow upon the concupiscible (natural drives and appetites, *libido*) (*Summa Theol.*, I, q. 81, in Aquinas, 1952a, pp. 428-431). In the Roman Catholic tradition, concupiscence came to be seen as either the result of Original Sin – “originates in and inclines to sin” [Trent, Sess. V, can. 5] (so Augustine; Aquinas) – or as natural to humans (Rahner).⁵⁹ In either understanding, concupiscence is understood to be the natural state of present humans and not, in itself, sinful. It is, rather, the obstacle to human generosity and authenticity.

Conclusions

Both evolutionary psychologists and theologians recognize that humans are driven by inborn tendencies that influence strongly our motivations, desires, and actions. The evolutionary sciences provide theologians with a growing matrix of neurological and adaptational data for their reflections. Theology can offer synthetic, explanatory formulations to explicate the relationships among the vital, cultural, ethical, and religious levels. Theologians⁶⁰ can take up the task of further differentiation and reflection about human nature, values, and responsibility in view of the evolutionary sciences, particularly those at the vital level revealed by evolutionary psychologists. In effect, religious scholars are invited to reflect upon the mechanisms, aims, strategies, and activities that concern us precisely as rational, deliberating creatures.

Differentiation of specific vital, cultural, ethical, and religious-level activities isochronously will involve intellectual and moral conversion, which promotes self-transcendence⁶¹ and is a source of authentic living. In *The Theology of Bernard Lonergan*, Hugo A. Meynell succinctly describes intellectual and moral conversion:

Intellectual conversion consists in opting for the fully critical theory of knowledge [cognitive method], and applying it to all our opinions, whether common-sense,⁶² scientific, philosophical, or religious or anti-religious. This view does not entail the absurd conclusion that we should hold no belief whatever on the authority of others. However, one of the most important functions of intelligence and reason is to adjudicate between competing claimants to authority. Moral conversion consists in envisaging and striving for the objective good, and in setting oneself against all tendencies to individual and group bias [at the Vital and Cultural Levels] to divert attention from inconvenient matters of fact – ... since an adequate cognitional theory shows good and evil to be matters about which one can acquire objective knowledge, and which transcend mere individual option or social convention, it can be seen that intellectual and moral conversion are apt to promote one another (Meynell, 1986, p. 10).

Intellectual and moral conversion are fruits of the precepts – be attentive, be intelligent, be reasonable, be responsible. Further, they concern the transformation of our existence to authentic, existential living, that is, life based in values. Lonergan wrote that “it is up to each of us to decide for himself what he is to make of himself. Then is the time [to opt] for the truly good, even for value against satisfaction when value and satisfaction conflict” (Lonergan, 1972, p. 240).⁶³

Engaging in agapaic, altruistic activity is a gradual movement, wherein good works are effected

through human freedom. It is the effect of an active love transforming the horizon for all experience and perceiving, all thought and understanding, all judgment and reasoning, all valuation and decision. It is thus operative from above (the religious level) downward through the lower levels of interiority (self-reflection and ethical reasoning). It “is the ultimate enlargement and change of the human horizon. In the experience of agapaic altruism our values and actions are transformed, providing real, concrete actions by which all else that we do is to be judged” (Oko, 1991, p. 224; see also pp. 303-308).

Evolutionary thinkers need not adopt an unfortunate conflation of agapaic altruism (at the authentic religious level of experience) and altruism arising from “tit-for-tat” strategies (at the vital, biological level of experience) or deny the possibility of the former.⁶⁴ Most notably, scientists and theologians can recognize that altruism – at both vital and religious levels – involves both affective and intellectual apprehension. If we are to expand the “moral circle”⁶⁵ to establish a more universal, agapaic altruism, we must not only acknowledge that sound socialization, appropriate social contracts,⁶⁶ and the self-appropriating movements of intellectual, moral, and religious conversion can affect an individual’s computational⁶⁷ procedures but also acknowledge those natural adaptations and tendencies for self-serving orientation – concupiscence and individual limitations.⁶⁸

The cooperative approach envisioned here between the evolutionary sciences and theology is possible because both theologians and scientists exercise the identical cognitive operations in their work as specialists in different aspects of the endeavor to understand human nature and live authentic human lives. Whether one pursues the demands of science or theology, each of us attends to a consciousness that is not only a polyphony with different themes at different intensities sung simultaneously, but also with varying qualities, “to what Gerard Manley Hopkins⁶⁹ might call ... different self-taste, on ... successive levels: the spontaneous vitality of our sensitivity, the shrewd intelligence of our inquiring, the detached rationality of our demand for evidence, the peace of a good conscience and the disquiet⁷⁰ released by memory of words wrongly said or deeds wrongly done” (Lonergan, 1974c/1985, p. 132).

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¹ For the purposes of this paper, we will assume that the terms “religious studies” and “theology,” and “religious scholars” and “theologians” are interchangeable. We adopt the view that “the more that the field of religious studies moves from the style of natural science to that of profounder historical study, the more it endeavors to understand the element of total commitment that characterizes religion, the more it is concerned to promote the cooperation of religions, then the more it finds itself involved in the radical oppositions of cognitional theory, of ethical practice, of religious and secularist man. At that point it too can undertake dialectic, a dialectic that will assemble all the dialectics that relate religions to organized secularism, religions to one another, and the differing theologies that interpret the same religious communion. At that point, again, it can invite to dialogue the representatives of related and ultimately of disparate religions” (Lonergan, 1976/1985, p. 163).

² Many ascribe to science and religion an awkward courtship between partners, one “rational” and “hard” (science) and one “emotional” and “soft” (religion). The scientist is deemed to be dealing with objective facts; the religious scholar with emotions; the scientist is conceived as equipped with knowledge arrived at by unassailable logic applied to evidence (the scientific method) while theologians are viewed as speaking nonsense (vide Carnap) or working from propositions “in the absence of, or even in opposition to, evidence ...” (so Bertrand Russell) (McBrien, 1994, p. 129). Moreover, when this dichotomy is assumed, even scientists with openness to religion tend to see science as dealing with the objective world and religion with personal feelings think that religion concerns only feelings (See Damasio, 1999) and is therefore the proper study of psychology. In this view, religion’s focus is one’s internal emotional states (See Shermer, 2000).

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- ³ Edward O. Wilson's *consilience* is a classic example of the scientific interpretation of religion. Wilson cites William Whewell, in his 1840 synthesis *The Philosophy of the Inductive Sciences*, to describe *consilience* as, "literally a 'jumping together' of knowledge by the linking of facts and fact-based theories across disciplines to create a common groundwork of explanation. He [Whewell] said, 'The Consilience of Inductions takes place when an Induction, obtained from one class of facts, coincides with an Induction, obtained from another different class. This Consilience is a test of the truth of the Theory in which it occurs'" (Wilson, 1998, p. 8). Wilson argues that science is a continuation on new and better-tested ground to attain the same end as religion; science is religion liberated and writ large. Wilson parallels the quest for the unity of science with the religious mission to explain the universe and humans' significance in the universe, thereby diffusing all tension between competing religious and scientific programs while justifying the quest for unification as essential to our intellectual, even spiritual, development (Wilson, 1998, pp. 6-7). Further, Wilson argues that enough is known to justify consilience within the natural sciences, and that their results should be applied to all of the humanities (See Wilson, 1998, p. 136).
- ⁴ Some think that the dialogue between science and religion must be guided by the scientist. This can lead to a concordism in which the Transcendent is proposed as either the source and *telos* to the evolution and design of the universe (so Chardin and, recently, Robert Wright [See Chardin, 1955/1999; Wright, 2000, p. 297]).
- ⁵ Stephen Jay Gould offered historical and psychological reasons for conflict. Gould argued for "respectful noninterference," the Principle of NOMA – "Non-Overlapping Magisteria" (from the Latin *magister*, teacher) – to represent a domain of authority in teaching. The *magisterium* of science covers the empirical realm: how the universe works (fact) and why it works this way (theory). The magisterium of religion extends over questions of ultimate meaning and moral value (See Gould, 1999; see also Barbour, 1990/1997).
- ⁶ Physics is the realm of science most often in dialogue with religion. Astrophysics, quantum physics, and plasma physics are viewed, by many, as the most fruitful fields of science for relating to religion.
- ⁷ Nancy Murphy writes, "In the determinist world of early modern science God's ongoing action in the world became problematic. Doctrines of creation therefore focused on *creatio ex nihilo* – God's mighty act in the beginning. Deism, which eliminated God's continuing creative or providential action, always threatened. We are still feeling the effects of such thinking in churches today, expressed as a lack of confidence in the importance of petitionary prayer" (Murphy, 1989, p. 244). Further, in "Nonreductive Physicalism: Philosophical Issues," Murphy writes, "... I have often been surprised to find that some ... take the denial of the existence of a substantial soul to imply the denial of the existence of God. This is, emphatically, not my position. Christians need two basic metaphysical categories: God and creation. The claim that God's creation is purely physical does not entail that there is no (nonphysical) creator" (Murphy, 1998, p. 148).
- ⁸ Among many others, Mariano Artigas argues for a generalized perspective including both science and religion because of the *intelligibility* of the universe (See Artigas, 2000).
- ⁹ We are using *isomorphism* here in the sense that Bernard J. F. Lonergan, S.J. put forward: "Two sets of terms, say A, B, C ... and P, Q, R ... are said to be isomorphic if the relation of A to B is similar to the relation of P to Q, the relation of A to C is similar to the relation of P to R, the relation of B to C is similar to the relation of Q to R, etc., etc. Isomorphism, then, supposes different sets of terms; it neither affirms nor denies similarity between the terms of one set and those of other sets; but it does assert that the network of relations in one set of terms is similar to the networks of relations in other sets" (Lonergan, 1955/1988, p. 133.).
- ¹⁰ There are sciences that study and expound each level: For the Vital Level, among others, there are Scientific Method, Evolutionary Biology and Psychology, Neuro-biology, and Genetic Behaviorism; for the Cultural Level, there are Sociology, Economics, Jurisprudence, and (Cultural) Anthropology; for the Ethical Level, there are Philosophical reasoning and Meta-Ethics; and for the Theological Level, there are Theological reasoning, Moral and Systematic Theology.
- ¹¹ There have been notable exceptions in those sub-cultures whose common values led to a thorough-going celibacy, for instance.
- ¹² Lonergan wrote, "Traditionally man was defined with abstract generality as the *zoon logikon*, the *animal rationale*, the rational animal. More concretely today he is regarded as the symbolic animal, whose knowledge is mediated by symbols, whose actions are informed by symbols, whose existence in its most characteristic features is constituted by a self-understanding and by commitments specified by symbols. On the abstract view man is understood as historic: for the symbols that inform his being vary with the cultures into which he is born, and the cultures themselves change with the passage of time. They emerge, they develop, they flourish, they influence one another, they can go astray, vanish with their former carriers, only to reappear with fresh vitality and vigor grafted upon new hosts" (Lonergan, 1974a/1985, p. 115).
- ¹³ See Schore, 1994, Siegel, 1999.
- ¹⁴ See Edelman, 1992.
- ¹⁵ Glover writes, "Sometimes, apparently rational self-interested strategies turn out (as in the prisoners' dilemma ...) to be self-defeating. This may look like a defeat for rationality, but it is not. Rationality is saved by its own open-endedness. If a strategy of following accepted rules of rationality is sometimes self-defeating, this is not the end. We revise the rules to take account of

this, so producing a higher-order rational strategy. This in turn may fail, but again we go up a level. At whatever level we fail, there is always the process of standing back and going up a further level” (Glover, 1999, pp. 231-232; quoted in Pinker, 2002, p. 335).

- ¹⁶ Lonergan wrote, “To live religiously is not merely to live in the presence of certain symbols, but, ... it is to be involved with them or through them in a quite special way – a way that may lead far beyond the symbols, that may demand the totality of a person’s response, that may affect his relation not only to the symbols but to everything else, to himself, to his neighbor, to the stars” (Lonergan, 1974a/1985, p. 122).
- ¹⁷ Lonergan described authenticity in its “twofold form: the authenticity of the individual in his appropriation of his religious tradition; and the authenticity of that tradition itself which becomes questionable when the failures of individuals become the rule rather than the exception, when vital reinterpretation is corrupted by rationalization, when heartfelt allegiance more and more gives way to alienation” (Lonergan, 1974c/1985, p. 130).
- ¹⁸ Lonergan wrote, “In the measure that one’s living, one’s aims, one’s achievements are a response to values, in that measure self-transcendence is effected in the field of action. One has got beyond mere selfishness. One has become a principle of benevolence and beneficence. One has become capable of genuine collaboration and of true love. In the measure that self-transcendence in the field of action characterizes the members of a society, in that measure their world not only is constructed by imagination and intelligence, mediated by words and meaning, based by and large on belief; it also is a world motivated and regulated not by self-seeking but by values, not by what is only apparently good but by what truly is good” (Lonergan, 1974, p. 169; see also Lonergan, 1972, p. 35).
- ¹⁹ Lonergan wrote, “It is only through socialization, acculturation, education, that we come to know that there is such a thing as tradition, that it has its defects, its dangers, its seductions, that there are evils to be remedied. To learn as much is already to be a product of the tradition, to share its biases, to be marked in a manner that we can change only in the light of what we have learnt and in the directions that such learning opens up. However much we may react, criticize, endeavor to bring about change, the change itself will always be just another stage of the tradition, at most a new era, but one whose motives and whose goals – for all their novelty – will bear the imprint of their past. The issue is not tradition, for as long as men survive, there will be tradition, rich or impoverished, good and evil. The issue is the struggle of authenticity against unauthenticity, and that struggle is part and parcel of the human condition, of our being animals yet equipped to live not just by instinct but principally by the symbols by which we express our self-understanding and commitments” (Lonergan, 1974a/1985, p. 122).
- ²⁰ Lonergan wrote, “[I]nner conviction is the conviction that the norms of attentiveness, intelligence, reasonableness, responsibility have been satisfied. And satisfying those norms is the highroad to the objectivity to be attained in the world mediated by meaning and motivated by values” (Lonergan, 1974c/1985, p. 144).
- ²¹ “Terminal values are the values that are chosen; true instances of the particular good, a true good of order, a true scale of preferences regarding values and satisfactions” (See Lonergan, 1972, p. 51; see also pp. 27, 50-52, 55).
- ²² Lonergan wrote, “The lower levels are presupposed and complemented by the higher. The higher sublate the lower” (Lonergan, 1972, p. 120; see p. 241; see also Stebbins, 1995, pp. 44-45). Stebbins writes that “a synthetic intelligibility exceeds in scope all less comprehensive intelligibilities and at the same time preserves, includes, and is conditioned by them” (Stebbins, 1995, p. 21).
- ²³ In Lonergan, 1974b/1985, p. 15, Lonergan contrasted the dynamism of the cumulative and progressive nature of method to the static nature of logic. Here, he asserts that logic is an essential tool to method: “clarity, coherence, and rigor” are the gifts of logic to method. Logic and its laws are not, however, the source of intelligence; rather, the principles of logic are grounded in intelligence. Richard M. Liddy writes, “Intelligence in act does not follow laws imposed from without, but rather it is the ground of the intelligibility of law; it is constitutive and, as it were, creative of law” (Liddy, 1993, p. 139; see Lonergan, 1967, pp. 33-34).
- ²⁴ William Danaher writes, “According to Lonergan, human knowing is a dynamic structure involving several distinct, irreducible, but interrelated activities. The activities include: seeing, hearing, touching, tasting, smelling, inquiring, imagining, understanding, conceiving, reflecting, marshalling and weighing the evidence and process involving experience, understanding and judgment, and each of the above activities can be located on one of the levels, e.g. activities involving the senses are located on the level of experience. Although it is possible for any of the above activities to be complete in themselves, Lonergan claims that they do not and cannot, individually, fully constitute human knowing. Without prior presentations by the senses or by the imagination, there is nothing to inquire about and nothing to be understood, and so there can be no understanding without the prior occurrences of experience. Understanding and experience together do not fully constitute human knowing, however, because there must be added judgement. It is only with judgement that there emerges the distinction between fact and fiction. Judgment alone, however, is not human knowing, because judgment without understanding is arrogance, and the evidence in support of, or in opposition to, a prospective judgement is found in experience. Thus, human knowing is a process that involves experience, understanding and judgement” (Danaher, 1993, p. 32).

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- ²⁵ “Within each of these levels, distinct operations can be identified. On the level of experience, the senses and the imagination provide data, the materials for inquiry. Lonergan stresses that what can be observed are merely data . . . , and it is only through the subsequent occurrence of insights that significance is attached to the data and knowledge develops. He notes, however, that sensations do not occur in isolation from one another or from other events, but emerge within a context that is determined by one’s interests, preoccupations, fears and desires. Distinguishing the scientific orientation from that of everyday living is a key issue to be faced when determining the role of the senses in scientific method” (Danaher, 1993, p. 32 [Danaher notes this to Lonergan, 1957/1988, p. 412]).
- ²⁶ Lonergan wrote of the on-going philosophical confusion that follows from failing to reject three errant philosophical presuppositions – that reality is what is experienced sensorially, that knowledge is conceptualization, and that the knowing subject is constituted by extroverted, sensational experience: “The scandal still continues that men, while they tend to agree on scientific questions, tend to disagree in the most outrageous fashion on basic philosophical issues. So they disagree about the activities named knowing[,] about the relation of those activities to reality, and about reality itself. However, differences on the third, reality, can be reduced to differences about the first and second, knowledge and objectivity. Differences on the second, objectivity, can be reduced to differences on the first, cognitional theory. Finally, differences in cognitional theory can be resolved by bringing to light the contradiction between a mistaken cognitional theory and the actual performance of the mistaken theorist” (Lonergan, 1972, pp. 20-21). Lonergan sees the root of philosophical confusions in inadequate cognitional theory and the accompanying mistaken understandings of epistemology and metaphysics. Cognitional theory, a correct understanding of the human subject, alone can ground valid epistemology and metaphysics. Michael H. McCarthy writes that Lonergan “shifted the starting point of philosophic analysis from the objects and terms of cognitive meaning to the intentional subject and that subject’s cognitive operations. Intentional analysis thus replaced metaphysical and logical analysis at the center of philosophical practice” (McCarthy, 1990, p. 284).
- ²⁷ Lonergan wrote, “[T]here is another meaning at times given to the word, experience. . . . It occurs in certain analyses of the various components that together make up human knowing. It is employed to denote an infrastructure within knowing, and its significance resides in a contrast between this infrastructure and a superstructure. To take a first illustration, any scientist will distinguish sharply between his hypothesis and the data to which he appeals. To the data the hypothesis adds a superstructure of context, problem, discovery, formulation. But the data, as appealed to, are not yet the infrastructure. For, as appealed to, the data are named. That naming supposes a scientific suprastructure both of technical language and of the scientific knowledge needed to employ the technical language accurately. In turn, the technical language and the scientific knowledge presuppose an earlier ordinary language and the commonsense style of knowing that were employed in learning the science in the first place. Only when one goes behind ordinary language and commonsense knowing does one come to the infrastructure in its pure form. It is pure experience, the experience underpinning and distinct from every suprastructure. As outer experience it is sensation as distinct from perception. As inner experience it is consciousness as distinct not only from self-knowledge but also from any introspective process that goes from the data of consciousness and moves toward the acquisition of self knowledge. No doubt, a distinction between consciousness and self-knowledge may seem paradoxical. But . . . a brief excursion into cognitional theory will take one from the paradox to the simple fact. We all are conscious of our sensing and our feeling, our inquiring and our understanding, our deliberating and deciding. None of these activities occurs when one is in a coma or in dreamless sleep. In that basic sense they are conscious. Still they are not yet properly known. They are just an infrastructure, a component within knowing that in large part remains merely potential. It is only when we heighten consciousness by adverting not only to objects but also to activities, when we begin to sort out the activities, to assign them their distinctive names, to distinguish and to relate, only then that we begin to move from the mere infrastructure that is consciousness to the compound of infra- and supra-structure that is man’s knowledge of his own cognitional process” (Lonergan, 1977/1985, p. 177).
- ²⁸ Lonergan proposes that “the immanent context of religious experience,” and “the manner in which God’s love flooding our hearts is a human experience . . . fits into human consciousness. First, . . . it is an experience, not in the broad sense that refers to coming together and compounding of many conscious elements, but rather in the technical sense that refers to a single element and so constitutes into a structure but an infrastructure. . . . Secondly, consciousness is like a polyphony, or like a concerto that blends many themes in endless ways. . . . [R]eligious experience may fit in perfect harmony with the rest of consciousness; it may be a recurrent dissonance that in time increases or fades away; it may vanish altogether, or, at the opposite extreme, it may clash violently with the rest of experience to threaten disruption and breakdown. . . . Thirdly, as religious experience is found to vary when one compares one individual with another, so too it may be found to develop in the lifetime of this or that individual. Hence there was long repeated the traditional distinction of three stages in the inner life. Beginners were said to be in the purgative way, for theirs was the initial task of reducing and, as far as possible, eliminating the conflict between their religious commitment and the other themes recurrent in their consciousness. Next came the illuminative way in which the significance and implications of religious commitment were ever more fully apprehended and understood. Finally, there was listed a unitive way in which potential conflicts were under control, the full significance of religious commitment was understood and accepted, and in mortal beings there could be verified the harvest of the Spirit catalogued by St. Paul: ‘love, joy, peace, patience, kindness, goodness, fidelity, gentleness, and self-control’ (*Gal. 5:22*) . . . Lastly, there are the somewhat intricate relationships between religious development and cognitive development in man” (Lonergan, 1974a/1985, pp. 125-126).

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- ²⁹ Danaher writes, “Insight is pre-conceptual, and involves a grasp of relations in a particular concrete situation presented by the senses or the imagination” (Danaher, 1993, p. 33).
- ³⁰ Lonergan writes that his “method derives its distinctive character from the grouping together of logical and non-logical operations. The logical tend to consolidate what has been achieved. The non-logical keep all achievement open to further advance. The conjunction of the two results in an open, ongoing, progressive cumulative process. This process contrasts sharply not only with the static fixity that resulted from Aristotle’s concentration on the necessary and immutable but also with Hegel’s dialectic which is a movement enclosed within a complete system” (Lonergan, 1972, p. 6).
- ³¹ Danaher writes, “According to Lonergan, scientific method arises from a spirit of inquiry which seeks to understand and to explain all phenomena. This spirit of inquiry transforms mere experiencing into the scrutiny of scientific observation. The observed is accurately described with contrasting descriptions giving rise to problems. Discoveries provide the solutions to problems, and the discovery in its basic form is an insight, which subsequently may be formulated and expressed as an hypothesis. The hypothesis may then be affirmed to be probably correct in the act of judgement. A deduction of the implications of the hypothesis can then be made, and further experiments devised, resulting in either the confirmation or refutation of the hypothesis’ predictions. The scientific process, therefore, is cumulative and progressive. Experimentation yields new data and new descriptions that may or may not confirm the hypothesis that is being tested. If the results are confirmatory, then further data in support of the hypothesis have been found, and the way is opened for testing the hypothesis in another situation. If the results are non-confirmatory, then they lead to the modification of the hypothesis, and, in the limit, replacement of the hypothesis and new discovery, new hypothesis, new deduction and new experiment. Thus the field of data is continually broadened, new discoveries are added to the old, with new hypotheses and theories expressing the new insights and also encompassing all that was valid in the old. Scientific method, therefore, involves a grouping of logical and non-logical operations. The logical operations such as formulation and deduction consolidate what has been achieved and determine the full range of its implications. The non-logical operations such as questioning, direct and reflective understanding, keep achievement open, and it is the conjunction of both types of operation which give science characteristics of being open, on-going, progressive and cumulative. Thus it is insight that provides the link between data and theories. Insight involves a grasp of relations in the given and is subsequently formulated as a law or probability. ... It is through the recognition of the role of logical and non-logical operations in human knowing that Lonergan is able to give a clear and precise account of how scientists accumulate knowledge. In addition, it is through the recognition of the role of non-logical operations in scientific method that Lonergan has provided a basis for the transformation and reorientation of contemporary discussions of scientific method” (Danaher, 1993, pp. 41-42).
- ³² Insight is an act of *intelligere* (according to Aquinas), concepts are inner “words” (*verba* □ thus Lonergan’s title, *Verbum* □ *Word and Idea in Aquinas*), and formulations are acts of *dicere* (See Stebbins, 1995, pp. 10-11). Stebbins writes that “it is in the expressing (*dicere*) of an inner word (*verbum*) by and from an act of understanding (*intelligere*), whether direct or reflective, that human knowing most evidently reveals itself precisely as rational” (Stebbins, 1995, p. 15).
- ³³ Again, Danaher: “Lonergan states that judgement involves a grasp of the virtually unconditioned. The virtually unconditioned involves three elements: a conditioned, a link between the conditioned and its conditions, and the fulfilment of the conditions. A prospective judgment is virtually unconditioned if it is a conditioned, its condition[s] are known and the conditions fulfilled. The fact that a question for reflection is posed means that the prospective judgment is a conditioned and in need of supporting evidence. The role of reflective understanding is to transform the prospective judgment from a conditioned to a virtually unconditioned by grasping the conditions and their fulfilment. This grasp occurs by reflective insight and subsequently results in a judgement being made. Thus, three distinct operations can be identified on the level of judgement, paralleling those on the level of understanding” (Danaher, 1993, p. 33).
- ³⁴ Lonergan wrote, “[W]hile some judgments are merely a synthesis of concepts (a horse is a quadruped [an *analytic* judgment in which the predicate is contained in the definition of the subject]), still there are other judgments that involve a simple act of positing or rejecting (the horse exists [a *synthetic* judgment since existence is not contained in the notion, *horse*]). On the basis of this analysis, one will proceed to stress the extreme importance of the latter type of judgment and arrive, eventually, at a rejection of essentialism. On the other hand, one may maintain that every judgment involves a simple act of positing or rejecting, that every human judgment in this life rests, in the last analysis, upon contingent matters of fact, that no synthesis of concepts, of itself, constitutes a judgment. On this view, on its cognitional side, there can be no human knowledge of real possibility or of real necessity without matter-of-fact judgments; and on its ontological side there can exist no real necessities without existing essences and no real possibilities without existing active or passive potencies. ... Hence, a necessary nexus does not suffice for an analytic principle; the terms of the principle, in their defined sense, must also occur in concrete judgments of fact. It follows that not only our knowledge of the concrete universe but even our knowledge of metaphysics is just factual” (Lonergan, 1958/1993, p. 149).
- ³⁵ On Generalized Empirical Method (Scientific Method), see Lonergan, 1957/1988, esp. pp. 93-125, 268.
- ³⁶ Further, Lonergan wrote, “[A]s far as Thomism is concerned, we have St Thomas’ explicit statement on the issue. ‘... the human soul understands itself by its understanding, which is its proper act, perfectly demonstrating its power and its nature.’ [Thomas Aquinas, *Summa theologiae*, q. 88, a. 2, ad 3m: ‘... anima humana intelligit se ipsam per suum intelligere, quod est

actus proprium eius, perfecte demonstrans virtutem eius et naturam' {Lonergan, 1955/1988, p. 139, n. 19}}. For the human soul knows itself not by its essence, [Ibid. q. 87, a.1] not through its habits, [Ibid. a. 2] but by reflecting on its acts of understanding, [Ibid. a. 3] and it is through a scrutiny of acts of understanding that the nature of the human mind and all its virtualities can be demonstrated perfectly. In the second place, just as understanding is the key that unlocks the secrets of the human soul, so also it is the key to scientific procedure" (Lonergan, 1955/1988, p. 139).

³⁷ Arnold Toynbee wrote, "So the last word has not been said about a religion when we have accepted or rejected its definitions of the nature of Reality and of the true end of Man. We have also to look into the daily lives of its adherents and to see how far, in practice, their religion is helping them to overcome Man's Original Sin of self-centredness. This is a question which every religion has to abide" (Toynbee, 1956, p. 297).

³⁸ Lonergan writes, "Field specialization is the most easily understood. As time passes, as centers of learning increase, as periodicals multiply and monographs follow on one another ever more closely, it becomes increasingly difficult for scholars to keep abreast with the whole movement in their field. For good or ill a division of labor has to be accepted, and this is brought about by dividing and then subdividing the field of relevant data. ... Department and subject specialization is the most familiar type, for everyone has followed courses on the subjects in a department. Now what is divided is no longer the field of data to be investigated but the results of investigations to be communicated. ... Functional specialization distinguishes and separates successive stages in the process from data to results. ... [E]xperimental physicists alone have the knowledge and skills needed to handle a cyclotron. But only theoretical physicists are able to tell what experiments are worth trying and, when they are tried, what is the significance of the results. Once more a single process of investigation is divided into successive states, and each stage becomes a distinct specialty" (Lonergan 1972, pp. 125-126).

³⁹ Lonergan agrees with the Enlightenment philosophers that metaphysics requires valid epistemology to be truly explanatory. Lonergan, though, goes still further. One can only develop valid epistemology from an accurate cognitive theory. Without a grounded understanding of the human subject, one can never develop a grounded epistemology and, by extension, a grounded metaphysics. Thus, the proper order of philosophical disciplines is: cognitive theory, epistemology, and, only then, metaphysics.

⁴⁰ See Dawkins, 1976/1989.

⁴¹ See Ridley, 1993; Ridley, 1999.

⁴² Nonadaptive by-products are "[c]haracteristics that do not solve adaptive problems and do not have functional design; they are 'carried along' with characteristics that do have functional design because they happen to be coupled with those adaptations" (Buss, 1999, p. 37; see also, p. 38; Barkow, Cosmides, & Tooby, 1992). Steven Pinker speculates on the relationship between religious consciousness and evolutionary adaptation: Religion, like the other "arts," especially philosophy, is "in part the application of mental tools to problems they were not designed to solve" (Pinker, 1997, p. 525).

⁴³ See Dawkins, 1976/1989. Ronald L. Ecker writes, "According to Wilson (1979, 18): 'Each person is molded by an interaction of his environment, especially his cultural environment, with the genes that affect social behavior.' This was really nothing new, given the long history of research in what has come to be called behavior (or behavioral) genetics, according to which genes 'influence virtually every aspect of human personality, temperament, cognitive style, and psychiatric disorder' (Hamer 2002). In the '70s, however, this view that human nature is genetically influenced – 'The genes,' as Wilson put it in his book *On Human Nature*, 'hold culture on a leash' (1978, 167) – was wrongly equated with genetic determinism and vehemently attacked by the left as politically incorrect. Adding fuel to the fire was the 1976 book *The Selfish Gene*, described (in the 1989 edition) by its author, zoologist Richard Dawkins, as extolling 'the gene's-eye view of evolution,' a perspective found in the works of Hamilton (1964) and biologist George C. Williams (1966). According to this view, the gene, not the individual or group, is the 'fundamental unit of (natural) selection' (Dawkins 1989, 11), with all organic adaptations having meaning 'only as mechanisms that promote the survival of the genes' (Williams 1966, 159-160)." (Ecker, 1997/2003, <http://www.hobrad.com/phinotes.htm>)

⁴⁴ Ronald L. Ecker writes, "It should be noted, in discussing the gene's-eye view of evolution, that in modern evolutionary theory, fitness is defined in terms, not of dog-eat-dog competition, but of 'differential reproductive success' [Eldredge 1982, 56]. 'Natural selection favors fitness,' wrote George Gaylord Simpson [1964, 24], 'only if you define fitness as leaving more descendants.' The chances of that are enhanced, of course, by having multiple partners and/or choosing mates with 'good' genes, to help successfully pass one's own genes along. Thus male peacocks flamboyantly display vivid feathers to attract females ('look what good genes I have'), bright-billed male blackbirds and zebra finches attract more females than do those with duller bills (bright bills reflect carotenoid pigments that strengthen the immune system) (Faivre et al. 2003; Blount 2003), and female gray tree frogs respond to males with the longest mating calls (a study shows that such males sire higher quality young) (Ecker 1998). (On 'sexual selection,' which Darwin noted 'gives fewer offspring to the less favoured males' [1859, 157], see Miller 2000; see also Jolly 2001 on sex in human evolution.) Altruism in the form of parental care and kin selection, that is, caring for close relatives with whom one shares the most genes, derives from this innate drive to preserve and pass on one's genes (Dawkins 1989, 88-108)." (Ecker, 1997/2003, <http://www.hobrad.com/phinotes.htm>)

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- ⁴⁵ See Hamilton, 1964a, 1964b. Ronald L. Ecker writes, "In the 1970s the nature/nurture debate (the question of which contributes more, genes or environment, to our behavior) was enlivened by the book *Sociobiology: The New Synthesis*, by Harvard entomologist Edward O. Wilson. Wilson defined sociobiology as 'the systematic study of the biological basis of all social behavior' (1975, 4; see also 1998a). ... Wilson drew most notably upon the works of biologists William D. Hamilton (1963, 1964) and John Maynard Smith (1964) on 'inclusive fitness' and 'kin selection,' and Robert L. Trivers (1971, 1974) on 'reciprocal altruism' and 'parent-offspring conflict.' Wilson gave these and similar studies the name sociobiology. (On the work of Hamilton, who died in 2000, see Dawkins 2000 and Pennisi 2000b.)" (Ecker, 1997/2003, <http://www.hobrad.com/phnotes.htm>)
- ⁴⁶ Again, Ecker writes, "The new discipline of evolutionary psychology, according to which everyone 'is a victim not of genes, but of genes and environment together' (Wright 1994, 348), is essentially sociobiology under another name (Wilson 1998, 150, 168; Miele 1998, 82). On evolutionary psychology, see Wright 1994; Pinker 2002; Buss 1998; Plotkin 1998; Frank Miele's article in *Skeptic; Evolutionary Psychology: An Elegant Solution*; Leda Cosmides and John Tooby's *Evolutionary Psychology: A Primer*; William A. Spriggs's *Evolutionary Psychology for the Common Person*; and this author's essays 'The Call of the Gray Tree Frog' and 'Even Cowbirds Make the News.' For critical views, see Ehrlich 2000 and Rose and Rose 2000. On alternative approaches stressing the importance of individual biological development in evolution, see Scher and Rauscher 2002 and Bower 2002b. On religion and evolutionary psychology, see Boyer 2002 and Giovannoli 2000." (Ecker, 1997/2003, <http://www.hobrad.com/phnotes.htm>)
- ⁴⁷ Pinker writes, "The ideas from evolutionary biology and behavioral genetics that became public in the 1970s could not have been more of an insult to those with the Utopian Vision. That vision was, after all, based on the Blank Slate (no permanent human nature), the Noble Savage (no selfish or evil instincts), and the Ghost in the Machine (an unfettered 'we' that can choose better social arrangements). And here were scientists talking about *selfish genes!* And saying that adaptations are not for the good of the species but for the good of individuals and their kin (as if to vindicate Thatcher's claim that 'there is no such thing as society'). That people scrimp on altruism because it is vulnerable to cheaters. That in pre-state societies men go to war even when they are well fed, because status and women are permanent Darwinian incentives. That the moral sense is riddled with biases, including a tendency to self-deception. And that conflicts of genetic interest are built in to social animals and leave us in a state of permanent tragedy. ... My own view is that the new sciences of human nature really do vindicate some version of the Tragic Vision and undermine the Utopian outlook that until recently dominated large segments of intellectual life" (Pinker, 2002, p. 293).
- ⁴⁸ Gerald Edelman writes, "[T]he environment or niche to which an organism must adapt is not arranged according to logic, nor does it have absolute values assigned to its possible orderings. This position does not deny that the material order in such a niche obeys the laws of quantum physics; rather, it asserts that at the time of an evolved organism's *first* confrontation with its world, most macroscopic things and events do not, in general, come in well-arranged categories. There are, of course, exceptions to this statement; as ethologists have stressed (see Marler 1982; Marler and Terrace 1984) It is my thesis ... that the central problem of neurobiology is to understand the neural bases of ... perceptual categorization. Curiously enough, one can best understand this problem by first considering rather more developed nervous systems and then reverting to the analysis of simpler ones" (Edelman, 1987, p. 24).
- ⁴⁹ One thinks here of the "noble savage" and the sociological theory that anti-social behavior is bred into people by personal experience and enculturation. As Steven Sondheim wrote in "*Gee Officer Krupke*," "Dear kindly Sergeant Krupke, you gotta understand, it's just our bringin'-upke that gets us outa' hand."
- ⁵⁰ Toynbee wrote, "If we set out to make a survey of the religions that have been practiced at different times and places by the numerous human societies and communities of whom we have some knowledge, our first impression will be one of a bewilderingly infinite variety. Yet, on consideration and analysis, this apparent variety resolves itself into variations on Man's worship of quest of no more than three objects or objectives: namely, Nature; Man himself; and an Absolute Reality that is not either Nature or Man but is in them and at the same time beyond them. Anyone who has been brought up in the tradition of one of the Judaic religions will have been predisposed by his spiritual heritage to approach Reality in Its personal aspect as God – the One True God of Judaism, Christianity, and Islam; and this approach to Reality may be called an act of worship as aptly as the act of worshipping Man or worshipping Nature. But Muslim, Christian, and Jewish mystics pass on from this worship of Reality as a personality to a union with Reality in which the distinction between personalities fades away; and this vision of Reality as a unitive, undifferentiated, and impersonal state of Being – a vision which is hard to attain for a traveler along the Judaic path – is the first glimpse of Reality which the same traveler would have been predisposed to catch if the accident of birth had endowed him with an Indian spiritual background instead of a Judaic one. A Buddhist or a Hindu will approach Reality in its impersonal aspect as Nirvāna (a state attained through the extinction of Desire) or as Brahma (undifferentiated, and therefore ineffable, Being); and his spiritual activity will not be an act of worship. If he is a Buddhist, it will be a process of purgation, in which the state of Nirvāna will be reached when Desire has burnt itself out. If he is a Hindu, it will be a process of union with Reality which it might be more accurate to describe as an intuition that the apparent distinction between his own personality and the Absolute is illusory. Thus, though the first approaches of the Indian and the Judaic religions are made from different angles along different paths, the Indian vision of Reality as an impersonal state of Being is not unknown to the Judaic religions; and, conversely, the personal aspect of Reality, which is to the fore in the Judaic religions, is not

unknown to the Indian religions. The Hinayanian Buddhist gospel of self-liberation through self-extinction has not been able to dispense with the spiritual support of a human saviour in the person of the Buddha Gautama. The Mahāyāna's line of approach to Reality lies through the human wayfarer's relation with a bodhisattva who, in all but name, is a personal saviour-god. In post-Buddhaic Hinduism, the Mahayanian bodhisattvas have their counterparts in saviours who are personal and divine avowedly. Thus the difference between the Indian and the Judaic vision of Reality proves, on examination, to be, not a difference in view, but one of emphasis. In both visions, Reality reveals itself in two aspects, as a personal God and as a unitive state of spiritual Being; neither of these aspects is eliminated in either vision, and, whether we are thinking primarily in Indian or primarily in Judaic terms, we cannot think of Reality as being either Brahma-Nirvāṇa or God exclusively" (Toynbee, 1956, pp. 18-19).

⁵¹ No. 412 in Léon Brunschwig's arrangement; quoted in Toynbee, 1956, p. 289.

⁵² To assert that human beings have a genetic proclivity does not imply that "nurture" is insignificant. As Ridley writes, "Let me at once put my cards faceup. I believe human behavior has to be explained by both nature and nurture. I am not backing one side or the other. But that does not mean I am taking a 'middle of the road' compromise. As Jim Hightower, a Texas politician, once said: 'There ain't nothing in the middle of the road but a yellow line and a dead armadillo.' I intend to make the case that the genome has indeed changed everything, not by closing the argument or winning the battle for one side or the other, but by enriching the argument from both ends till they meet in the middle. The discovery of how genes actually influence human behavior, and how human behavior influences genes, is about to recast the debate entirely. No longer is it nature versus nurture but nature via nurture. Genes are designed to take their cues from nurture. To appreciate what has happened, you will have to abandon cherished notions and open your mind. You will have to enter a world where your genes are not puppet masters pulling the strings of your behavior but puppets at the mercy of your behavior; a world where instinct is not the opposite of learning, where environmental influences are sometimes less reversible than genetic ones, and where nature is designed for nurture. These cheap and seemingly empty phrases are coming to life for the first time in science. ... My argument in a nutshell is this: the more we lift the lid on the genome, the more vulnerable to experience genes appear to be" (Ridley, 2003, pp. 3-4).

⁵³ See "Hamilton's rule" Hamilton, 1964a, Hamilton 1964b.

⁵⁴ Theologians recognize this proclivity as concupiscence or *hybris*. The historian, Toynbee, describes it: "Self-centeredness is ... a necessity of Life, but this necessity is also a sin. Self-centeredness is an intellectual error, because no living creature is in truth the center of the Universe; and it is also a moral error, because no living creature has a right to act as if it were the center of the Universe. It has no right to treat its fellow-creatures, the Universe, and God or Reality as if they existed simply in order to minister to one self-centred living creature's demands. To hold this mistaken belief and to act on it is the sin of *hybris* (as it is called in the language of Hellenic psychology); and this *hybris* is the inordinate, criminal, and suicidal pride which brings Lucifer to his fall (as the tragedy of Life is presented in the Christian myth)" (Toynbee, 1956, pp. 4-5).

⁵⁵ Robert M. Doran, S.J., asserts that the unauthentic theologian will present ideology based in his or her own biases and lack of authenticity, justifying one of the many available common-sense rationalizations of the sources of alienation (See Doran, 1981, p. 23). Lonergan wrote, "Common sense is subject to a dramatic bias, an egoistic bias, a group bias, and a general bias that disregards the complex theoretical issues in which it becomes involved and their long term consequences from which it blindly suffers. Scientists are not just scientists but also men of common sense; they share its bias in so far as their specialty does not correct it; and in so far as their specialty runs counter to the bias of common sense, they find themselves divided and at a loss for a coherent view of the world" (Lonergan, 1957/1988, p. 390).

⁵⁶ The "Golden Rule," for instance, has analogies within many religious traditions: Confucian, Jewish, Christian, etc.

⁵⁷ Augustine's main question dealt with why all humans need God's gift of salvation in Jesus in order to have a relationship with God.

⁵⁸ On Original Sin and concupiscence, see Pohle, 1924/1955, pp. 232-307, Rahner, 1975, pp. 1148-1155.

⁵⁹ Rahner wrote, "... [D]eath and concupiscence are indeed natural, if measured by man's 'nature'" Rahner, 1975, p. 1153.

⁶⁰ Religionists and theologians recognize that "the Non-Human Nature over which Man won his decisive victory in the Upper Palaeolithic Age is only one half – and this the less formidable half – of the Nature with which Man is confronted. The other half of Nature, with which Man still has to cope, is Nature as he finds her within himself" (Toynbee, 1956, p. 22).

⁶¹ Lonergan wrote, "We place transcendence, not in going beyond a known knower, but in heading for being within which there are positive differences and, among such differences, the difference between object and subject" (Lonergan, 1957/1988, p. 377; see also Lonergan, 1967, p. 88).

⁶² Darwin wrote, "To suppose that the eye with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, and for the correction of spherical and chromatic aberration, could have been formed by natural selection, seems, I freely confess, absurd in the highest degree. When it was first said that the sun stood still and the

world turned round, the common sense of mankind declared the doctrine false; but the old saying of ‘Vox populi, vox Dei,’ as every philosopher knows, cannot be trusted in science” (Darwin, 1859; quoted in Edelman, 1987, p. iv).

- ⁶³ Lonergan wrote, “By intellectual conversion a person frees himself from confusing the criteria for knowledge of the world of immediacy with the criteria for knowledge of the world mediated by meaning. By moral conversion he becomes motivated primarily not by satisfactions but by values” (Lonergan, 1982/1985, pp. 247-248).
- ⁶⁴ Doran asserts that Lonergan’s analysis of interiority leads to recognition of the possibility of a fourth kind of conversion — “psychic conversion” — on the level of sensitive experience. Doran writes that psychic conversion is “the transformation that allows even human sensitivity to participate in the divine solution to the problem of evil” (Doran, 1981, p. 21; see 141-143, 146; see also Doran, 1980). Doran holds that psychic conversion is necessary for authenticity because the “source of limitation [of authenticity] resides in one’s sensitive consciousness or psyche. ... [T]here is an aesthetic dimension to all intellectual, rational, and deliberative activity” (Doran, 1981, p. 29).
- ⁶⁵ Pinker writes, “Unless we are psychopaths, we *sympathize* with other people and cannot blithely treat them as obstacles or prey. Such sympathy, however, has not prevented people from committing all manner of atrocities throughout history and prehistory. The contradiction may be resolved by recalling that people discern a moral circle that may not embrace all human beings but only the members of their clan, village, or tribe. ... The observation that people may be morally indifferent to other people who are outside a mental circle immediately suggests an opening for the effort to reduce violence: understand the psychology of the circle well enough to encourage people to put all of humanity inside it. ... [T]he moral circle has been growing for millennia, pushed outward by the expanding networks of reciprocity that make other human beings more valuable alive than dead. As Robert Wright has put it, ‘Among the many reasons I don’t think we should bomb the Japanese is that they built my minivan’” (Pinker, 2002, pp. 319-320; see also Singer, 1981; Wright, 2000).
- ⁶⁶ See Pinker, 2002, pp. 283-305.
- ⁶⁷ Pinker writes, “The computational theory of mind is not the same as the ‘computer metaphor’ of the mind, the suggestion that the mind literally works like a human-made database, computer program, or thermostat. It says only that we can explain minds and human-made information processors using some of the same principles. It is just like other cases in which the natural world and human engineering overlap. ... The computational theory of mind does more than explain the existence of knowing, thinking, and trying without invoking a ghost in the machine (though that would be enough of a feat). It also explains how those processes can be *intelligent* – how rationality can emerge from a mindless physical process. If a sequence of transformations of information stored in a hunk of matter (such as brain tissue or silicon) mirrors a sequence of deductions that obey the laws of logic, probability, or cause and effect in the world, they will generate correct predictions about the world. And making correct predictions in pursuit of a goal is a pretty good definition of ‘intelligence’” (Pinker, 2002, pp. 32-33).
- ⁶⁸ Pinker writes, “Rousseau, like Hobbes, believed (incorrectly) that savages were solitary, without ties of love or loyalty, and without any industry or art (and he may have out-Hobbes’d Hobbes in claiming they did not even have language). Hobbes envisioned — indeed, literally drew — his leviathan as an embodiment of the collective will, which was vested in it by a kind of social contract; Rousseau’s most famous work is called *The Social Contract*, and in it he calls on people to subordinate their interests to a ‘general will’” (Pinker, 2002, p. 8).
- ⁶⁹ Gerard Manley Hopkins also invited us to a world mediated by meaning through his depictions of *inscape*. “[O]ne can look almost at random, for the central concept of ‘inscape’ that informs all his mature poetry[, which] expresses precisely this love of and attention to the particularities of things. Inscap is, after all, that which makes any created thing to be what it is: inscape is its innate principle of individuality, its ‘inner landscape.’ We see such tender attention to the specificities ... in the ‘bright boroughs’ and ‘circle-citadels’ of ‘The Starlight Night’; in ‘the glassy peartree leaves and blooms’ that ‘brush the descending blue’ in the poem ‘Spring’; and in the ‘silk-sack clouds’ and ‘azurous hung hills’ of ‘Hurrahing in Harvest.’ Such loving records of inscape are everywhere in Hopkins” (Barth, 1998, p. 214).
- ⁷⁰ Hopkins also offers a response to disquiet in “My Own Heart Let Me More Have Pity On,” which reads:
- My own heart let me more have pity on; let
me live to my sad self hereafter kind,
charitable; not live this tormented mind
with this tormented mind tormenting yet.
I cast for comfort I can no more get
by groping round my comfortless, than blind
eyes in their dark can day or thirst can find
thirst’s all-in-all in all a world of wet.
Soul, self; come, poor Jackself, I do advise
you, jaded, let be; call off thoughts awhile

elsewhere; leave comfort root-room; let joy size
at God knows when to God knows what; whose smile
's not wrung, see you; unforeseen times rather – as skies
betweenpie mountains – lights a lovely mile.