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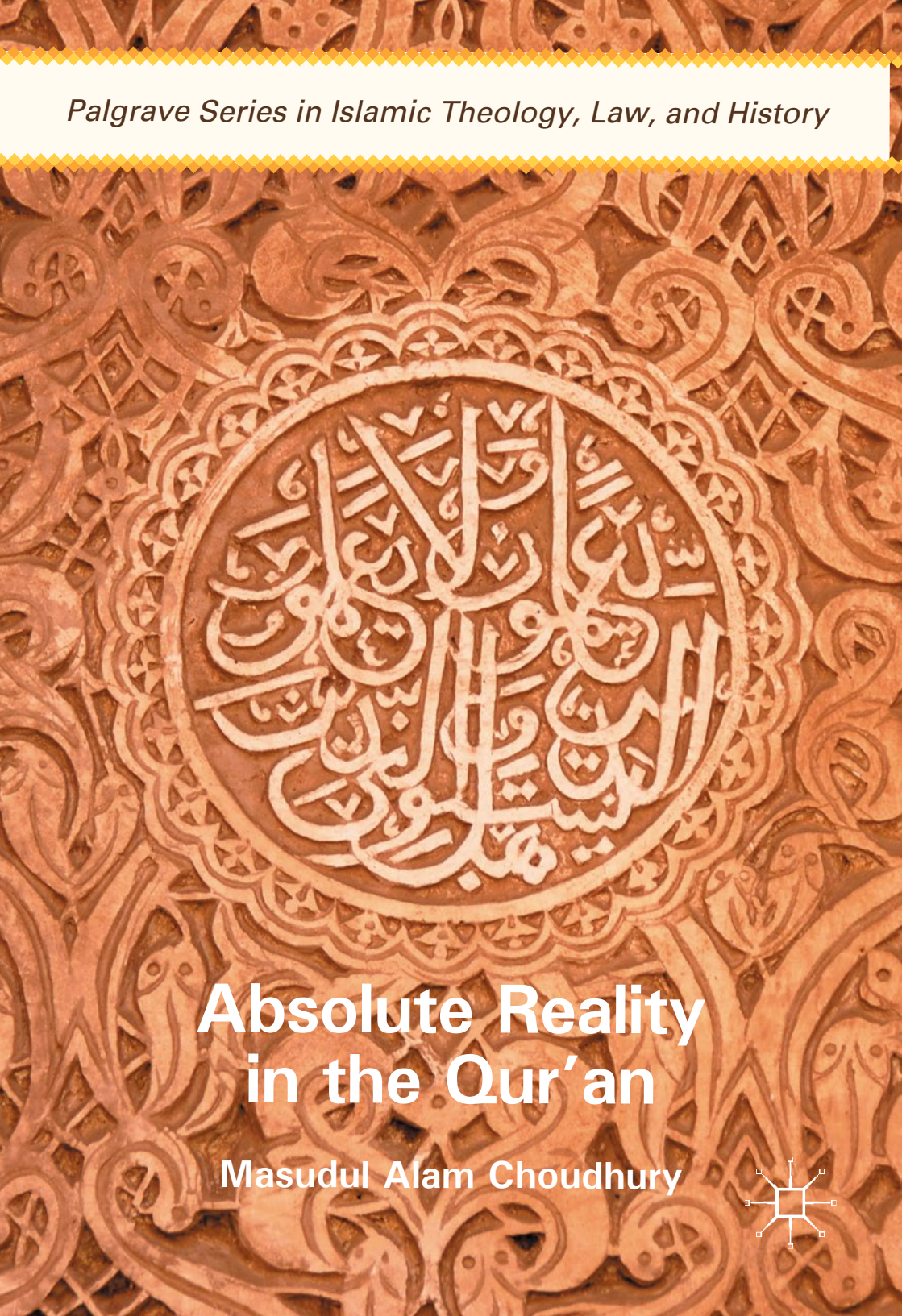

Absolute Reality in the Qur'an

Masudul Alam Choudhury

Palgrave Series in Islamic Theology, Law, and History

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Masudul Alam Choudhury

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Masudul Alam Choudhury
Department of Shari'ah and Economics
Academy of Islamic Studies
University of Malaya Kuala Lumpur, Malaysia

Palgrave Series in Islamic Theology, Law, and History
ISBN 978-1-137-58946-0 ISBN 978-1-137-58947-7 (eBook)
DOI 10.1057/978-1-137-58947-7

Library of Congress Control Number: 2016942087

Cover illustration: Cover image © seanbear / Alamy Stock Photo

Printed on acid-free paper

This Palgrave Macmillan imprint is published by Springer Nature
The registered company is Nature America Inc. New York

Foreword

It is only after 1930 that "Economics" was considered to be a self-contained discipline in the major universities of the West. Before that, it was called "Political Economy". In these earlier times, it was understood that the analysis of the economic realities of the world could only be understood in a broader context. While in theory we can separate out aspects of reality for scholarly study, in the world of everyday life, everything is connected with everything else. While prepared to study discrete parts of reality in an empirical manner, the ancients, such as Aristotle, considered that the parts could only be understood as part of a universal system of thought.

This search for a universal system of thought continued through the Middle Ages. Especially in the 12th and 13th centuries, scholars from the Abrahamic tradition devoted their lives to the pursuit of understanding. The Islamic philosophers, for instance, brought the works of Aristotle into Spain. In the middle of the 12th century, often considered to be the golden age of Islamic scholarship, an Islamic philosopher named Ibn Rushd (Averroes) and a Jewish philosopher named Maimonides were the best of friends and were recognized as great intellectual leaders in Cordoba, Spain. Cordoba was considered to be a centre of Islamic scholarship at that time. In this pre-Renaissance age, the "God Reality" was the final foundation of all understanding. The reality of God was simply assumed. Ibn Rushd (Averroes), Ibn Sina (Avicenna), both Muslims, Maimonides, a Jew, and Aquinas, a Christian, sought umbrella systems of thought that could allow them to better understand the world about them.

Medieval schools taught subjects such as rhetoric, logic, mathematics, astronomy and medicine. The higher levels of philosophy and theology

were connected with religious institutions. It is only after the Renaissance in the West that academics began to organize scientific thought into its modern divisions and subdivisions. In a typical modern university, there can be a hundred disciplines ranging from Chemistry to Sociology, to Architecture, Anthropology, Engineering, Accounting, Marketing, various languages and so on. All attempts were to be independent and self-contained. The world of academic reflection is very fragmented. This specialization of study has brought great material improvements to the world, but it has also brought great confusion. Alasdair MacIntyre, a former Oxford philosopher, wrote a book in 1984 entitled "After Virtue" in which he claims that the fragmentation of philosophy after the Renaissance resulted in specialized kinds of philosophy, such that it has become almost impossible to establish a rational foundation for a system of ethics acceptable to the modern world.

This book by Masud Choudhury can be situated in this ancient tradition of a search for unity of thought. It is important today not simply for academics. In the world around us we see great conflicts. Nations oppose nations and various religious groups struggle for supremacy. Much bloodshed and suffering ensues. We are optimistic in saying that theoretical unity of thought may lead to practical unity in the world. If we can share our thoughts perhaps we can share the goods of the world and bring in a new age of peace and harmony.

Many of us believe an unjust economic organization of the world is at the root of much conflict. According to some studies, 60 wealthy individuals in the world control more wealth than 50 percent of the world's population. The gap between rich and poor is becoming wider. The renowned French economist, Thomas Piketty, has made a detailed analysis of the inequity of the modern economic system and he predicts global conflict will continue until we learn how to organize a better distribution of the material goods of the world (**Piketty, Thomas, 'Capital in the Twenty-First Century'** Harvard University Press, 2014).

I wish Masud Choudhury and his colleagues much success in promoting a tradition that attempts to bring about unity of thought. We hope that unity of thought will lead to unity of action in ushering in a new age of peace and harmony.

Professor Emeritus of Philosophy
Cape Breton University,
Sydney, Nova Scotia, Canada

Greg MacLeod

Prelude

This book intervenes in both the conceptual and applied theory of multi-causal and multiverse unity of knowledge. It does so by exploring the interrelations generated by treating monotheistic law as an epistemic methodology. Monotheistic law, when used as epistemic methodology explains 'everything' using rigorous analytical approaches, formal models, and applications. The combination of the conceptual, cognitive, and applied evidence arising from the monotheistic law of unity of knowledge and its impact on both the generality and particulars of the world-system stands for the meaning of the absolute reality in the Qur'an. Thus, the absolute reality of truth emanates from the monotheistic law of oneness and the unified world-system in the good things of life. This is the knowledge-model of absolute reality. Further, the absolute reality of the 'de-knowledge' model paradoxically unravels the nature of conflict, individualism, and differentiation which together characterize the true nature of falsehood.

Hence, absolute reality is the perpetual struggle of truth against falsehood in the framework of monotheistic unity of knowledge and the unified world-system. Such a reality is induced by the consilience of knowledge. Within this framework, absolute reality reveals itself not by religious dogmatism, but rather by the distinct parts of the monotheistic methodology. These parts are as follows: the 'primal ontology,' or the foundational axiom of monotheistic unity; the 'secondary ontologies', or explanatory replications of the law of unity in the particulars of the world-system; 'epistemology' as the operational model; and 'phenomenology' as the structural nature of events induced by the monotheistic law (i.e.,by

knowledge emanating from the law). The imminent methodology remains the unique explanatory reference of all events across continuums of knowledge, space, and time, placing evolutionary learning into the context of a higher understanding of the absolute reality.

Indeed, the interaction between man and the world-system, man's well-being, and the nature of reality all define the sustainability principle for life-fulfilling potentiality. Thus, removed from any dogmatic and abstruse idea of God and the created universe, the absolute reality must represent the conceptual realities that inter-causally feed into and are regenerated by the wide spectrum of evolutionary learning processes across a plethora of emergent paths. Sustainability in all such fronts and the evidential events arising from experiences of the embedded relationship between God, mind, and matter must be all that characterizes wellbeing and sustainability. The monotheistic law is not a claim of any particular religion. It is a meta-religious precept which undergirds reality as we know it. Therefore, the monotheistic law is amenable to analytical study and applications which will create sustained wellbeing for all. Such sustainability thus becomes a multi-causal organically systemic case of what we refer to as consilience: yet another name for the episteme of systemic unity of knowledge. Its meaning is understood in terms of systemic interrelationships of unity between life-sustaining choices, a rejection of adverse life-choices, and a development of consciousness inside the structure of and along the lines of life-sustaining choices. All these explanatory and quantitative functions are realized by the use of sound analytical and applied ways of actualizing expectations.

The Structure of the Book

Part I: The Absolute Reality: The Methodological Worldview

In Chap. 1, we address the key questions of the book : (1) How and what are the meanings of ontology, epistemology, and phenomenology as derived from the precept of absolute reality? (2) Where can we find the finality, uniqueness, universality, and organic holism of the theory of monotheistic unity of knowledge and its moral reconstruction of the world-system? (3) What does it mean to be organically system-unified in terms of the methodological worldview of relational unity of knowledge? (4) Why and how should the universe and its generality and specifics be studied in terms of organic unity? (5) How is this approach substantially

different from systemic differentiation and methodological individualism of mainstream socio-scientific studies? (6) How are these system-characteristics presented in reference to absolute reality? (7) What is the symbiotic nature of the universe shaped and explained in social and scientific theories and applications with a methodology consistent with the consilience of the monotheistic unity of knowledge?

Chapter 2 makes a brief comparative study of diverse approaches to discovering the nature of the monotheistic law of unity of knowledge and its functioning as a holistic science of 'everything'. Such a comparative search leads to the nature and discovery of the consilience nature of monotheistic unity of knowledge; and the delineation of the contrary rationalistic viewpoint in what we refer to as 'de-knowledge'. The idea is systematically developed to lay down the starting of the analytical discourse to follow in this work. This will finally lead to the applied examples of selected areas of study. The questions raised in this Chapter are thus commenced to be addressed throughout this work.

In Chap. 3 the moral law is explained in terms of the monotheistic law of unity of knowledge. The explanation is non-technical; yet analytical in nature for the informed reader. Consciousness as the inner causation of the mind-matter unified interrelations, meaning phenomenology with non-dualism, is explained as the natural consequence in the realm of the ontological and epistemological perspectives. The imminent methodology and its formalism are derived from the precept of the absolute reality. Examples from experience are used to explain the clarity of the precept of the absolute reality. Thus the phenomenon of moral and ethical embedding caused by the interactive, integrative, and evolutionary learning nature of complex multi-causality between unity of knowledge, mind, and matter across the progress of time, is formally explained.

The meaning of the absolute reality carried through Chaps. 1 and 2 into the continuing exegesis of the verses of the *Qur'anic* chapter of the Chapter, *R'ad* (Thunder) is used to explain the multilayer systemic formalism of organic unity of knowledge between the learning and pairing systems. Complex and extended interaction between the representative variables qualify the multilayer systems. The complex organic interconnectivity between the cognitive and quantitative variables; and between the quantitative and qualitative multi-variables is studied in the framework of complexity with organic unity. The topic of human discourse is explained within itself and with the interacting world-system as it unravels. Thereby, the vertexes of the interrelations in the field of the absolute reality are

circularly interconnected in the sense of the interactive, integrative, evolutionary model of organic unity of knowledge across multilayer systems that are represented by their multi-variables and entities.

In Chap. 4 the human interpretation and codification of the monotheistic law is shown to go through a process of learned discourse to establish the purpose and objective of the *shari'ah*, the Islamic law of worldly affairs (*muamalat*). Thus the *shari'ah* has a core that remains immutable in terms of its ontological, epistemological, and phenomenological meanings. The periphery of the *shari'ah* is generated by the interpretation and discourse of the learned ones as presented by the *Qur'an* and the *sunnah*. This chapter will argue that the extension of discourse in the sense of the open-ended systemic organic interrelations by the monotheistic law opens up the gates to profound extensions of the *shari'ah*. The domains of science and society do not remain independent of the extended understanding of the *shari'ah* as derived from the monotheistic law.

Consequently, Islamic law in as far as it arises from the premise of the *Qur'an* and the *sunnah* reaches out to the farthest extant of knowledge of the universe in its holistic (interconnected) totality by way of organic relations in the framework of unity of knowledge. Consequently, when the interpretation and extensions by the learned ones is introduced into the *shari'ah* by way of learned discourse, then the domain of the *shari'ah* extends to the universal system of holistic unity and to the understanding of the unification of the organic relations across diverse systems. We will call such widening knowledge-induced systems of relations and entities that are guided by extendibility in the socio-scientific order as the world-system. The complexity of such continuously evolving and ever-emergent world-systems will be characterised in the generalized model of unity of knowledge, and its characteristics of ontology, epistemology, and phenomenology. Examples will be presented of socio-scientific systems in the context of extendibility of the unitary world-systems and their detailed nature of intra- and inter- systemic organic relations.

In Chap. 5 the problems to be studied are, (i) the theme of balance (*wasatiyyah*) between the moral law and the wellbeing criterion establishing equivalence with the concept of sustainability and co-integration. (ii) The interactive, integrative, and evolutionary learning worldview in the light of the wellbeing (*maslaha*) criterion is formalized as the inter-systemic complex unification of being and becoming of the episteme of unity of knowledge.

The above chapters lead to Chap. 6 on conclusion of this conceptual part of the book. That is to establish the generalized and details of the model of the absolute reality in its universality and uniqueness via deep concepts and their potential for application. This latter content follows in Part II of this book.

Part II: The Absolute Reality: Applications to Economics and Finance and the Generalized Socio-Scientific System

In Chap. 7 economic choices, behaviour, and social aggregation perspectives commence the dual scene of applied inquiry. The state of the evolutionary learning phenomenon affecting endogenous ethics in decision-making is studied comprising the case studies of the household, community, production and consumption collectives, and the government. The implications of the microeconomic and macroeconomic aggregation issues are studied in respect of their interface with the endogenous nature of ethics induced in preferences, decision-making, and institutional structuring. The endogenous nature of policy and the annulment of the axiom of transitivity in rational choice are formalized. The issues of optimization and equilibrium are questioned in the resulting evolutionary learning-system analysis governed by organic unity of knowledge and the complementary linkages of the knowledge-induced economic and financial world-system.

In Chap. 8, the formulation of the emergent analytics by comparative perspectives between mainstream and Islamic economic, finance and business world-systems according to their distinct moral and ethical episteme is the objective of this paper. The true epistemological direction to the systemic understanding of socio-business ethicality is opened up for conceptual and applied investigation.

The comparative study of morality and ethics characterizing social ethics of the embedded organizational and business world with human and social consciousness in it belongs to the generalized epistemological premise of unity of knowledge, as mentioned above. But this methodological approach is distinctively Islamic, and differs from the moral and ethical understanding in mainstream business ethical theory. The emergent methodology of this book is thereby of a heterodox epistemological nature.

The Islamic heterodox difference replaces the rationalistic individual behavioral aggregation of ethical preferences into social business ethics as a utilitarian model. In it, lateral aggregation fails to explain the interactive,

integrative, and evolutionary-learning nature of social ethics, which, contrastingly, the Islamic episteme of oneness establishes. Business and secular organizations are embedded within an ethical system as a result of their status as generic forces derived from the episteme of oneness of knowledge. Thereby, ethics derived from epistemic oneness play their role throughout the social structure of such institutions. Individual ethics and social ethics are causally interrelated in the social reconstruction of business and secular organizations by evolutionary learning according to epistemic oneness. This universal epistemic worldview remains in action in ethico-social reconstruction.

I perform an extensive literature review, studying both mainstream and Islamic cases against the emergent moral reconstruction of the social ethics of business and secular organizations. In doing so, I find that the epistemological approach of unity of knowledge explains the social ethics of business organizations in terms of the resulting systemic worldview. Such a perspective is not usually present in secular theories of business ethics. Consequently, the secular theory of social ethics in business lacks any true, systemic meaning.

This chapter develops the Islamic heterodox epistemological theory of social ethics and points out its inner dynamics and potential applications. This task is carried out while contrasting the prevailing Islamic heterodox perspectives of theory, comprehension, and conduct of business ethics on epistemic grounds.

Chapter 9 addresses the theme of moral-social reconstruction by resorting to a generalized phenomenological model of unity of knowledge and the effects of this on the construction of a unified world-system. As a particular case of the general model we study the case of replacing interest-rate related financial instruments with trade-related ones while dealing with the 'good things of life'. The objective of this chapter is firstly to formulate the general phenomenological model of learning premised on unity of knowledge and its creative relationship with constructing evolutionary world-systems. On the functional aspect of use of such a model the chapter provides the system of circular causal relations between the critical explanatory variables in respect to simulating the objective criterion, which is termed as the wellbeing function in ethical modeling, premised on the epistemology of unity of knowledge. Following this, a particular application of the learning model in unity of knowledge is discussed to explain the interrelationships between the following three sets of variables: the trade-related participatory development financing instruments that

phase out the interest-based financing instruments, and the consequential moral-social simulation towards attaining wellbeing, leading to poverty alleviation. As part of the effort towards making a comprehensive study in this direction, the paper invokes original formalism.

Thus, micro-foundational issues are addressed on the basis of such an epistemic model. The comprehensive problem of poverty alleviation in the field of ethics and economics is addressed by micro-foundational circular causal relations between development financing, wellbeing, and poverty alleviation in a phased-out regime of interest rate reduction and its endogenous replacement with trade-related instruments in the light of epistemic unity of knowledge. Both rationalistic reasoning and Islamic economics and finance as they presently exist are argued to be dysfunctional in their application of the endogenous ethical worldview in social-moral reformation.

In Chap. 10, I conclude by highlighting the contribution of the book to the concept and applications of systemic consilience in its generalized sense; the sense established by the monotheistic law of unity of knowledge and the knowledge-induced unified world-system.

Summary

The Qur'an and its conveyance by the medium of the *sunnah*, the prophetic teachings, is the unique and universal message of the absolute reality in terms of its truth to be discovered in self and other. This holism comprises the interactive unity (integration) and continuity (evolutionary learning) of the relationship between divine unity of knowledge and the generality and details of the world-system. The continuity of interaction and integration over evolutionary epistemology also conveys the meaning of self-referencing of reality as the manifestation of truth. Thus evolutionary epistemology comprises a formal model derived from the primal ontology of truth that conveys the self-same explanation of truth and falsehood in their divergent and respective depiction of contrasting reality.

That is, truth as the law of order by unity of knowledge yields the nature of falsehood as contrary to the unity of knowledge as law. This fact is evidenced continuously over a continuum of knowledge, space, and time dimensions. On the other hand, falsehood as the order of differentiation in and between everything forms a law of its own in the continuity of its own form of epistemology across continuums in 'de-knowledge', space, and time. The Qur'an declares such oppositions between the law of

order (unity of knowledge as truth) and the law of disorder (differentiation in and by the law of 'de-knowledge') in the following verses (Qur'an, 43:36-37): "And whosoever turns away from the remembrance of the Most Beneficent (i.e. this *Qur'an* and worship of *Allah*), We appoint for him Satan to be a *Qareen* (an intimate companion) to him. And verily, they (*Satan*) hinder them from the path (of *Allah*), but they think that they are guided aright!" The sure reality as the permanent victory of truth over falsehood is also characterised in the Qur'an in the following verse (21:18): "Nay, We hurl the Truth at falsehood so that it (t

Equa.eps on page - xv he Truth) crushes it (falsehood), and lo! it (falsehood) vanishes. Woe to you for what you utter!"

Throughout this work, the principle of truth against falsehood is formalized in the framework of self-referenced continuity in knowledge, space, and time. According to the Qur'an, there exists a total domain of 'everything' denoted by $\Omega = T \cup F$. T denotes the totality of Truth. F denotes the totality of Falsehood. Accordingly, the Qur'an references itself as the criterion of truth against falsehood (Qur'an, 25).

We formulate thereby the following relations: The existence of Ω implies T explaining F. Thus, $(\Omega \supset T) : T \rightarrow_{R \subset S} T \cup F = \Omega$: logic of self-referencing of monotheism in the *Qur'an*. On the other hand, $(\Omega \supset F) : F \rightarrow_{R \subset S} F$; with $T \cap F = \phi$. This implies $F / \rightarrow_{R \subset S} T$. R denotes embedded relation.

Thus, the absolute reality of the Qur'an is truth. Falsehood is fleeting. Truth, as identified with the episteme of unity of knowledge in continuity across continuums of knowledge, space, and time, comprises the good things of life. The Qur'an refers to the 'good things of life' as *hallal at-taiyyabah*. It has a meaning that extends beyond consumption items into the means of acquiring consumption, production, and the intellection processes of human understanding regarding the good things. The Qur'an refers to this overarching comprehension of the good things of life in the following verse (5:4): "They ask you as to what is allowed to them. say: the good things are allowed to you, and what you have taught the beasts and birds of prey, training them to hunt—you teach them of what *Allah* has taught you—so eat of that which they catch for you and mention the name of *Allah* over it; and be careful of (your duty to) *Allah*; surely *Allah* is swift in reckoning."

In the evolutionary learning case of worldly self-referencing relations we write the equivalent expressions for the above-mentioned ones:

$$Z(\theta)=\text{plim}\{\theta\}\left[\left(\Omega\supset T(\theta)\right):T(\theta)\rightarrow_{R\subset S}(T\cup F)\right][\theta].$$

This expression means every evolutionary learning process in unity of knowledge self-references the commencement of new processes until the following completeness is realized: convoluted integral over supercardinality of knowledge, space, and time dimensions attains, $\int_{\theta\in T\cup F\subseteq\Omega} Z(\theta)d\theta=\Omega.$

Contrarily, with $Z'(\theta')=\left\{\left(\Omega\supset F\right):F\rightarrow_{R\subset S}F:F(\theta')\right\}$, $\theta'\in F$,

Convoluted integral, $\int_{\theta'\in F\subseteq\Omega} Z'(\theta')d\theta'=F$, with $\text{plim}_{\theta\uparrow}(T\cap F)[\theta]=\phi$.

Likewise, $\text{plim}_{\theta'\uparrow}(T\cap F)[\theta']=\phi$.

By the argument of increasing independence and oppositeness between T and F as evolutionary learning continues,

$$\int_{(\theta,\theta')\in T\cup F\subseteq\Omega} f(Z(\theta),Z'(\theta'))d\theta d\theta'=\int_{(\theta)\in T\subseteq\Omega} f(Z(\theta))d\theta+\int_{(\theta')\in F\subseteq\Omega} f(Z'(\theta'))d\theta'$$

by the property of independence between $\{\theta\}$ and $\{\theta'\}$ in the probability limit of $T\cap F=\phi$.

Essential Meaning of Absolute Reality in the Qur'an

We refer to the above set of theorems often during the course of this book. By these theorems the absolute reality of the Qur'an is defined by the following attributes characterizing events in knowledge, space, and time: (1) the primal ontology of oneness of God is reflected in the monotheistic law of unity of knowledge (2) the continuity of the monotheistic unity of knowledge occurs in knowledge, space, and time dimensions (3) the events correspondingly characterized are defined by the good things of life (4) the events so described shun the false things of life (5) The attainment of truth and the annulment of falsehood occur by

the reflexivity of self-reference. This is denoted by $\Omega_S \leftrightarrow_S \Omega$ through the evolutionary learning processes of the world-system in the monotheistic unity of knowledge.

Chapter 1 formalizes the principal meaning of absolute reality of the Qur'an as summarized here so as to bring out the internal consistency between them in the framework of their inter-causality. The logical framework of the socio-scientific worldview of the methodology emanating from the precept of absolute reality results from this formalization. By the same formal approach, I examine a critique of other meanings of reality and realism. The aim here is to establish the scientific nature of the Qur'anic meaning of absolute reality. Other consequential topics are examined in this chapter, pertaining to the questionable understanding of reality by the Islamic scholars in the field of Islamic law and its socio-scientific application.

On the whole, this book points to the emergence of the concept of universality and uniqueness of the theory of qur'anic socio-scientific theory within the precincts of its worldview of absolute reality. Critically important concepts are invoked in this concept. These comprise the primal ontology of unity of knowledge; the self-referencing of organic relations interconnecting events by the continuous recalling of the primal ontology; the nature of the world-system so constructed by the choice and formalism of organic relations of unity of being and becoming; and the analytical nature of the evolutionary, epistemic world-system and its particulars in knowledge, space, and time.

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PART I

The Absolute Reality in the *Qur'an*: The Methodological Worldview

CHAPTER 1

Introduction: Foundations of the Qur'anic Worldview

In the light of its universality and uniqueness, the derived Qur'anic methodological worldview covers the overarching meaning of 'episteme'. An 'episteme' structures scientific reasoning according to the following sequence: Ontology → Epistemology → Phenomenology → Continuity. Yet, the entire concept of an episteme rests on the continuity of a multicausal reflexive relationship, structured as follows: Episteme: Primal Ontology (Qur'an and the Prophetic Teaching) ↔ Epistemology ↔ Functional Ontology ↔ world-system ↔ Phenomenology ↔ Processes (Continuity). The idea of 'episteme' thus encompasses the totality of knowledge derivation; its formal construction both conceptualizes and applies to general and particular phenomena. The resulting interpretive methodological worldview of unity of knowledge (consilience) arising from the Qur'an yields a methodological worldview of meta-science for all to consider without religious and parochial differentiation.

I commence my methodological discussion on the unity of knowledge arising from the Qur'an by defining selective concepts.

Epistemology

Epistemology means 'the theory of knowledge'. Its broader meaning spans the understanding the foundations of knowledge derivation. That is, it encompasses the question, where does knowledge arise—in human will,

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_1

the will of nature, or in the realm of the universal holism that the universal law offers for the subsequent discursive use by the human participation? By this reasoning, the search for knowledge is a study of critical realism. The domain of critical realism investigates questions like the following: what is the source of holistic knowledge in scientific inquiry? How is such a source identified in the critical search for both universality and uniqueness with the functionalism of 'everything'? How is knowledge thereby derived and disseminated from the sources for the development of concepts and applications? In this work we will argue that knowledge is rooted in an analytic understanding of principle of unity of knowledge and its induced world-system. This understanding is the province of monotheistic law. It is uniquely and universally embodied in the Qur'an. It is discovered, conceptualized, directed, and applied with analytical meaning amd depth.

Pluralistic views of epistemological derivations hold that there are differentiated origins of epistemology and thereby in the methodological worldviews belonging to the sciences, social sciences, and religion. Economics' methodology and its attendant worldview remains particularly specialized (Proceedings, First International Conference on Epistemological Foundations of Social Theory 1989, *Humanomics, International Journal of Systems and Ethics*, 1991). The pursuit of such a branch of study since time immemorial points to mankind's incessant quest for the roots of knowledge acquisition. Such a historical quest marks epistemology as the age-old search for the origin of fundamental truth. All questing for knowledge is essentially a flight from error into higher degrees of certainty in our perception and understanding of self and the universe around us. Such a better understanding of the universe, one unfettered by differentiated overtones, helps mankind to reach out honestly and sincerely for truth as universality of being and becoming.

Indeed, epistemology can be functionally defined as an approach to deriving certain universal relationships (Choudhury 1990). Epistemology acts as a study of methodology, working to know the real *a priori* nature of things and their relationships with each other is thus broader in scope than the science of symbolic logic. While symbolic knowledge deals with the establishment of consistency among the relationships between rational concepts, epistemology goes further to establish not only such logical relationships but also to find the true *a priori* nature of the subject matter under study.

Since both logic and the quest for the fundamental structure of things are the goals of epistemological inquiry, there is a rationalistic foundation

to such inquiry. Here, of course, arises the complex philosophical question as to what describes the concept of rationalism. The idea of substantive rationalism has varied across history: through the Classical era, the Golden Age of Islamic cosmology, medieval Western scholasticism, the great Enlightenment thinkers such as Descartes, Spinoza, and Leibniz, and finally the modern philosophical enquiries of Kant, Hume, and the classicists. Today, the concept of rationality has found its resting place in the field of economics, as economic rationality derived from the philosophy of rationalism (O'Donnell 1989).

Rationality and logic are the ingredients of the epistemological approach; but because epistemological inquiry goes further to study the *a priori* nature of things, it challenges the reconstruction of socio-scientific thought. Indeed, without a well-developed epistemology no new scientific foundation can be laid. The development of a meta-socio-scientific methodological worldview requires the use of epistemology at its foundation (Bohr 1951).

The idea of the epistemic is different from that of the epistemological. The epistemic as representative of the totality of the methodology of knowledge refers to the specific characterization of an *a priori* problem as comprehended in the Kantian sense of metaphysical perception, together with *a posteriori* reasoning. The purely epistemic has, therefore, no link in the reverse relation leading to the understanding how the *a posteriori* world is formed in perception and application. Thereby, a strict dichotomy is created between the *a priori* and the *a posteriori* when considering an event as a purely epistemic condition of thought and theory in Kantian, epistemological scientific inquiry. The differentiation in reasoning between the *a priori* and the *a posteriori* perspectives of the otherwise unified methodological worldview is referred to as heteronomy.

Evolutionary Epistemology

Within the study of epistemology, there are varying ideas about how knowledge is formed and how it evolves (Radnitzky and Bartley 1987).

For example, Kant's *a priori* rationalism-based epistemology conjures up a perception of reality on the basis of a primordial mental construct (Kant trans. Paton 1964). When such a primordial concept is subsequently made to dissociate itself from the realm of the *a posteriori*, it becomes clear that each subset of knowledge must be completely defined by a pluralistic view of reality. In Kant, the *a priori* premise cannot be treated along with

the *a posteriori* premise to establish a linkage between the two, a linkage that could generate a progressive interaction between the two perceptions of reality—of mind and matter. Hence, in such a milieu of knowledge acquisition it an essential advance toward an evolutionary quest for the *a priori* embedded in the *a posteriori* premise becomes impossible.

Evolutionary epistemology is a perception of knowledge acquisition that evolves over stages of interaction between the perceptual and sensible view of the world. Interaction between the primordially constructed world and the knowable world creates a sequence of evolving scenarios of reality (Campbell 1987). The premises of the normative and positive views of the world are subsequently bridged together as interactions between essence, mind, and matter. The *a priori* and the *a posteriori* understanding of knowledge and the knowledge-induced world-system proceed in a unified way.

Karl Popper's idea of scientific refutation is an example of evolutionary epistemology as it leads to a perpetual evolution in scientific thought, with one paradigm supplanting another. In this way, scientific knowledge is continuously subject to criticism, evaluation, and growth (Popper 1972). Darwinism is another example of evolutionary epistemology, where knowledge is viewed as an ordered and selective medium of acquisition in the biological world. Knowledge in the Darwinian theory of natural selection is seen essentially as a perpetuation of growth and reinforcement of well-ordered and independently existing organisms (Darwin 1966). Between the fully determinate patterns of knowledge as presented by Darwin and the purely random form of selection as provided by Popper, there are studies on evolutionary epistemologies, called 'hierarchical selection models of knowledge acquisition' (Popper 1987).

In each of these approaches, and thereby, in evolutionary epistemology as a whole, the idea of evolution, integration, and selection suffers of some deep logical problems. In every case of evolutionary epistemology mentioned above there remains a sense of selectivity in the pattern of acquisition and continuity of knowledge. This segmentation of knowledge-premises among groups springs from their different group-specific perceptions and their competition by power to grow and to be sustained. An essential non-interactivity prevails between groups (i.e. inter-systems), although interaction is maximized within groups that are intra-systems.

Non-interactivity between groups contradicts the essence of evolutionary epistemology, which is not simply to explain the theory of knowledge acquisition within separate groups. Rather it also means both acquisition and sustainability of knowledge between groups through the medium of interaction and co-evolution.

Another deep problem of evolutionary epistemology as conceived hitherto is its neutrality, indeed its subservience, to random ways of acquiring knowledge, which may thereafter take up independent hierarchical forms. Such theories inevitably lead to a perception of the world evolving in the midst of endless competition, independence, hierarchical chaos . Knowledge cannot be uniquely derived inter-systemically in such evolutionary but chaotic systems.

An Analytical Explanation of Non-interactivity in Evolutionary Epistemology

A brief technical exposition of the problems of chaos, order, and absence in inter-systemic interaction in evolutionary epistemology can be formalized as follows (Maddox 1970):

Let, A_1, A_2, A_3,... be proper subsets of a grand and uniquely unified knowledge base, T_1, such that the evolutionary concept implies, $A_1 \subset A_2 \subset A_3 .. \subset T_1$. Likewise, let B_1, B_2, B_3, ...denote another sequence of subsets belonging to the knowledge base, T_2. $B_1 \subset B_2 \subset B_3 \ldots \subset T_2$. Let the Darwinian view of natural selection, the view of random selection, and the view of ordered selection in the process of advance of knowledge within groups, establish the sequences of A's and B's as two distinct sources of knowledge acquisition.

$$\text{Now, consider } \lim.(n \to \infty)\left[A_n \cap B_n\right] = T_1(Z_1) \cap T_2(Z_2),$$

where, Z_1 and Z_2 denote two premises of knowledge. If Z_1 is different from Z_2, then, $T_1(Z_1) \neq T_2(Z_2)$, since perceptions based on the two knowledge bases are different.

$$\text{Furthermore, } A_n \cap B_n = \left(\cup A_i\right) \cap \left(\cup B_j\right),$$

$$\text{i.e. } A_n \cap B_n = \cup\left(A_i \cap B_j\right), i, j = 1, 2, ..., n, ...\infty.$$

$$\text{Hence, } \lim(n \to \infty)\left[A_n \cap B_n\right] = \lim(n \to \infty)\left[\cup\left(A_i \cap B_j\right)\right]$$
$$= T_i(Z_1) \cap T_2(Z_2)$$

$$\Phi, \text{if and only if, } A_i \cap B_j = \Phi, \text{for each}, i, j = 1, 2..n. \qquad (1.1)$$

= or

$$\text{not } \Phi, \text{if and only if, } A_i \cap B_j \neq \Phi \text{ for some } i, j = 1, 2.., n. \qquad (1.2)$$

In the case of (1.1), we have complete independence of knowledge patterns for the two groups under selection. In the case of (1.2), there may be some independence in the two knowledge domains but such independence is not global.

It can be readily seen that independence, if any, can only occur at the initial stages, not at the terminal stages of a process. The reason for this is that if independence between entities (A's and B's) occurs at the terminal stages then,

$$\begin{aligned}&\text{since, } \lim(n\to\infty)A_n = T_1(Z_1);\lim(n\to\infty)B_n = T_2(Z_2),\\ &\text{therefore, } T_1(Z_1)\cap T_2(Z_2) = \Phi.\\ &\text{Hence, there is a contradiction.}\end{aligned} \tag{1.3}$$

In the case (1.2), there must be a correspondence between Z_1 and Z_2, and hence, between $T_1(Z_1)$ and $T_2(Z_2)$. Let the correspondence be denoted by, $f: T_1(Z_1)\to T_2(Z_2)$, such that, $f(T_1(Z_1))\subseteq T_2(Z_2)$. If $f(.)$ is a continuous image on all of $T_2(Z_2)$, which must be the case in the case of pervasive interaction and co-evolution of knowledge premises between the two groups, then, $|Z_1 - Z_2| < \varepsilon$ (an arbitrarily small quantity). By this continuous and limiting condition on T_1 and T_2, $T_1(Z_1) = T_2(Z_2)$, for $|Z_1 - Z_2| < \varepsilon$. Hence, the only limiting non-null condition for $T_1(Z_1)\cap T_2(Z_2)$ is the unitary vector functional image.

The essential perspective of evolutionary epistemology with the broader condition of interaction between knowledge premises and their convergence is shown in Fig. 1.1. It can be seen in this figure that although initial independence may (but not necessarily so) exist between A_1 and B_1, yet A_n, B_n become continuities of each other. Now, say with, $A_n \subset B_n$ and so on, then $T_1(Z_1) = T = T_2(Z_2)$, as $n\to\infty$.

Ontology

The counterparts of the study of epistemology are ontology and phenomenology. Ontology as the study of existence of being, has been developed in western scientific doctrines as a philosophical means to investigate

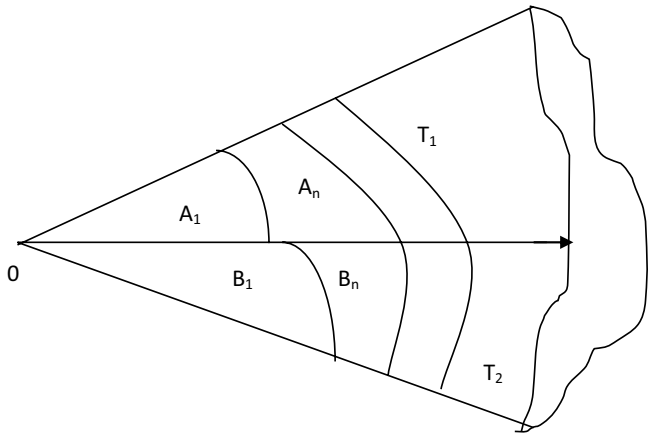

Fig. 1.1 Convergence of knowledge premises in inter-group interactions in evolutionary epistemology

systemic relations from which the existence and description of phenomena are derived (Encyclopaedia Britannica Macropedia). But in this approach the individualistic and partitioned approaches for studying a universal truth makes the study of ontology subjective in nature. For example, one mathematical premise would differ from another mathematical premise on the grounds of the divergent initial conditions of two such subsets of mathematical inquiry. The ontological relations in each premise would thereby generate different and competing worldviews, descriptions, results, and inferences from such divergent initial conditions. The axiom of transitivity against intransitivity is an example of such divergent perceptions with opposite ontological consequences.

Let us consider the following intransitive problem of deductive methodology (Sen 1970): let there be logical relations such as, $p \} q$, $q \} r$. By transitive relationship, $(\})$, $p \} r$. However, if there are elements, $x \in p, y \in p$, then, $p \} q$, if and only if $\exists$ x, y, such that $x \cap y \subset p$. But if r is defined by $x \cup y$, then, it is not necessary that $p \} r$, for it is not necessary that $x \cap y$ contains $x \cup y$. Such an individualized perception of existence makes it impossible to attain the foundations of knowledge that is the limiting irreducible level of the truth statement that can be common to all mathematical systems and axioms.

Phenomenology

Phenomenology is a research program that aims at integrating the *a priori* and the *a posteriori* elements underlying the comprehension of consciousness. It is not necessary for phenomenology to restrict its inquiry to only experimental questions. Its method is equally valid in studies that provide positivistic explanation of purely abstract matters of a scientific nature. An example is of the theory of numbers, which while a field of abstract mathematics, provides great positivistic input in scientific inquiry. Phenomenology as a study of the mind in its process of defining consciousness if not based on holistic reasoning, such as unity of knowledge with the *a priori* integrating with the *a posteriori* by the process of reversibility, suffers from the same type of rationalism with differentiated perception at its core.

Consequently, neither the ontological nor the phenomenological methods of scientific enquiry make it possible to address the scientific research program of discovering the unique root of knowledge unifying all disciplines of knowledge and perceptions of reality. The ontological and phenomenological approaches remain as methodologies premised on the project of a rationalism that pertains only to segmented sub-systems. The resulting methodology does not transcend across systems by multi-causal organic relations. Such methodologies do not address pervasive interactions, integration, and the evolutionary learning of unity of knowledge, nor the interrelations between scientific systems by a unique methodology and its resulting nature of being and becoming.

A Critique of Other Epistemologies

The time of the Greeks was followed by the great Golden Age of Islamic civilization, which was in turn succeeded by the European Enlightenment, with its focus on moral philosophy. economic In the wake of the industrial revolution in Europe, the world has seen a great watershed of knowledge in all areas, particularly scientific discovery. Yet, when one examines the central objective of epistemological inquiry among the great philosophers of these ages in all branches of knowledge, such inquiries were based on two pivotal points.

On the one hand, the presence of a Creator governing the awe-inspiring universe has always been a universal belief. On the other hand, rationalism caused departures into the areas of perceived knowledge through sense

perceptions and individuation. In this latter, segmented perception of knowledge-premise no universal generalization was possible. Because of this rationalistic root of epistemological inquiry, Greek thought influenced the Judeo-Christian scholars more than the Islamic scholars, although Muslim scholastics of rationalism also fell under the sway of Hellenic epistemological enquiry.

Epistemological inquiry thus took up personalized and cultural overtones that became the groundwork of thought among varied civilizations. This effect became all the more pronounced when epistemology took on distinct philosophical and religious roots, depending on the culture in which it had been planted. Yet, these epistemologies could not project a unique and universal worldview of the unity of knowledge and world-systems. Along with these varying perceptions of the world-system, inner meanings of existence, the explanation of reality, the foundations of abiding philosophical awakening among different people, the institutionalisation of such epistemological thought in the curricula and the socio-scientific world, there came about a partitioned view of reality. Pluralism instead of uniqueness by unity of knowledge took hold of the explanation of socio-scientific reality. The essential primacy of truth in socio-scientific study disappeared in the midst of the multiple and segmented view of reality. The essence of unity in our understanding of the grand structure of the universe and the deeper realms of thought processes that unify our investigative search for meaning in that universe was lost to the vagaries of such differentiated thought processes. The pluralistic approach to socio-scientific epistemology failed to establish the common and unifying search for the universal truth that could otherwise harness all peoples over space and time. Unity of knowledge is such a force that organic unity of systems is premised on the monotheistic law. This is true for both the abstract and the evidential universe.

Toward Islamic Epistemology

The quest for such a uniquely common and primal premise of knowledge for all peoples must lead the episteme away from cultural pluralism and replace it with a unique and universal worldview. As a worldview, the Islamic knowledge premise must be based on the common plane uniquely received by all people. It must be both appealing and amenable to reason and the senses without a partitioned understanding of reality. The Islamic epistemology-as-worldview must be based on the simplicity

of its assumptions, a penetrable understanding, and an explanation in the mind-matter universe. Such an epistemic foundation would constitute a knowledge premise accessible to everyone and exists in 'everything'. Furthermore, the system-unifying power of such a uniquely common root of knowledge must be equally meaningful to the explanation of both the animate as well as the inanimate worlds. Imminent methodology thus becomes both an abstraction of and evidence for all experiences (Sherover 1972).

What can be that unique root of knowledge as the manifestation of truth in all things? The answer lies in nothing else but the incessant and unfailing quest for the ultimate, irreducible limits of truth. This is the episteme of unity of knowledge as the monotheistic law. Such experience is to perceive God as the Creator, the Absolute Owner, the Cherisher, and the Sustainer of all the universes from the beginning of time to its end. While the unity of knowledge derives from a functional understanding of this premise of the monotheistic law—the kind of understanding functionally active in the field of epistemology—it also conveys the opposite meanings of duality, multiplicity, and pluralism of the episteme. The partitioned view of the otherwise single unified reality disappears. Such a unique knowledge-premise forms the Islamic epistemological centrepiece. It is referred to in the Qur'an as *tawhid*, meaning the Oneness of Allah, and it is conveyed as a methodology of unity of knowledge through the functional nature of the monotheistic law. The Qur'an invokes *tawhid* as the most evident and common truth that remains immanent across the dimensions of knowledge, space, and time.

The epistemological foundation of the socio-scientific order is thus cast in the quest for the *tawhidi* root in 'everything'. This epistemology is also cast as an analytical investigation of the grand and masterful plan of creation as explained by the *tawhidi* origin of knowledge. From such an epistemological beginning of knowledge as the worldview for all of mankind unlimited by time and space, the Islamic epistemology takes up its flight.

Only when such a unique and rationally abiding, explained and accepted view of the sure reality is fathomed in the mind-matter complementarities, there can arise the foundation of the revolutionary *tawhid* centred socio-scientific methodological worldview. The *tawhidi* epistemology extends and deepens in all fields of acquired thought and disciplines. It unifies these various technical disciplines by a common methodology that establishes codes of morality, ethics and the attenuating axioms functionally

explaining the worldview and the corresponding world-system. Islamic epistemology premised on the *tawhidi* precept as the essential reality and truth is indeed required for the comprehension of all knowledge processes of the civilization and institutions that spring from such a worldview. In this worldview it is impossible to think of anything that is not of an essentially *tawhidi* nature in the sense of its unique epistemology. But this assertion must mean that the *tawhidi* precept must be understood and applied in its broadest possible ways.

Yet in all these, the *tawhidi* precept of unity of knowledge though simple in meaning, perception and comprehension, it is not simple in its detailed analytical entirety. Thus, all human reason centred around the quest for the *tawhidi* roots of knowledge must at best be a gradual evolution from lesser to higher degrees of certainty in the understanding and application of the *tawhidi* premise of knowledge. This is the nature of evolutionary epistemology that the *tawhidi* precept conveys. The universe defined in its broadest and abstract sense is essentially evolving for all times in the midst of a grandly monotheistic purpose, its harmony, and the imminent evolutionary learning equilibriums. Individuals and societies may or may not consciously recognize the *tawhidi* process at work in this evolutionary knowledge centred universe. Yet the *tawhidi* process manifests itself in reality. The conscious grasp of that moment of its unravelling and its conversion into thought is the realization of the *tawhidi* epistemology in action.

Such an unfailing and masterful realization of the monotheistic law of the Qur'an carrying the message of *tawhid*, was given by God on His chosen messengers from the time of Prophet Adam up to the time of the Prophet Muhammad, when finally divine revelation was completed in the form of the *Qur'an*. This is the article of Islamic faith. The great prophets were thus great teachers of mankind on the *tawhidi* epistemology. Islam thus becomes a worldview in the light of the *tawhidi* epistemology by virtue of its irreducible, unique and common truth as the centrepiece of all the universes—the animate and the inanimate worlds, that is the abstract and the manifest. All phenomena are explained around this unique epistemological foundation in terms of the prophetic revelations. The realm of reason revolves around the prophetic revelations and attains bliss when first excited by the latter. This blending of reason with revelation is achieved not through imposition or coercion, but through the natural call of reasoned clarity and actualisation.

About This Work

In this work, a difficult but important start has been made with the view of discovering the *tawhidi* epistemology for the development of the Islamic foundation of knowledge in the universal context. This constitutes the absolute reality in the Qur'an. In this attempt, we have limited ourselves to a study of the epistemological foundations of socio-scientific order. We have then bridged the two together in view of the common methodology of the *tawhidi* epistemology. That is the epistemology of unity of knowledge and the unified world-system.

In the area of socio-scientific enquiry, we have focussed our attention on the Islamic epistemological foundations of a theory of meta-science. Within this theory, we concentrate on the heterodox theories of economics, social theory, and theoretical physics. The latter (theoretical physics) is particularly chosen to combine with the first (economics), because of the great epistemological questions invoked through the ages in these two disciplines. It was necessary to choose these two disciplines because of their present day importance in the rapidly developing horizon of new epistemic thought.

In the light of its greater relevance in the field of socio-scientific thought, the epistemological foundations of Islamic economic, social, and scientific enquiry open up a field hitherto unexplored by Islamic scholars. The richness of Islamic epistemology is highlighted here, because this work derives the epistemology directly from the Qur'an. It then studies such verses of the Qur'an that pertain directly to economics, social theory, and physics, in light of the Qur'anic dimensions of these disciplines. The principal translations and commentaries of the Qur'an used in the book are Yusuf Ali (1946) and Al-Hilali and Khan (1990).

A comparative and analytically epistemological analysis of the Qur'anic verses brings out the ontological and epistemological aspects of the text. The explanations are aimed at studying the nature of the absolute reality in the Qur'an regarding the epistemological meaning of the verses. Of course, such exegesis is limited to the extent of the author's understanding of those verses.

This work does not focus on the traditional interpretation of the Qur'anic verses and the monotheistic methodological understanding. Rather, such traditional interpretations are extended to relate to the development of the epistemological foundations of Islamic socio-scientific thought. But the essence of the commentaries of the verses undertaken

in this work enables derivation of the epistemological foundations of the socio-scientific order, rather than the straight narration of facts as mentioned in the Qur'anic verses and their socio-scientific derived meanings.

This work is of a technical and analytical nature. The prerequisites of mathematics and advanced economic theory are assumed on the part of the reader. But within this scope, the text should prove to be comprehensible. I approach epistemological foundations in this manner in order to lay down the building blocks of the essentially Islamic socio-scientific worldview in a form that can be included in the discovery of meta-science. This book is thus written essentially to launch the groundwork of the Islamic socio-scientific thought by the absolute reality of the Qur'an. The objective throughout the work is to rigorously invoke the absolute reality of monotheistic law of unity of knowledge, and to advocate that it be included in the annals of scientific advancement as one that would give an independent Islamic worldview to the Islamic nation called the *ummah*, and to the world of learning at large.

Such a study comes at a time when the world's intellectual and politico-economic scene is undergoing profound transformation. People across the globe are searching for a better realization of social justice and wellbeing. This human need has not been addressed adequately in the socialist, communist, and capitalist politico-economic world-systems. It is therefore important at this critical juncture to spell out the beginnings of the Islamic worldview in terms of its absolute epistemological reality as the profound alternative. Hence, there is a great need for discovering the epistemological foundation of the Qur'anic thought process in a way that can eventually give birth to Qur'anic intellectual re-emergence in the world of learning.

Charles Dickens, writing on the French Revolution, highlights the contrast between the old and the new ways of understanding existence and universal reality in the modern age (Dickens, n.d.):

> It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of credulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair.

The modern age is thus an era for the realization of truth over error, of moral prerogatives over self-interest and deception, and the achievement of all of these by the rigorously analytical monotheistic unity of knowledge as methodology.

The *Qur'anic* Methodological Approach Adopted in This Book

Before we end this introductory chapter, an explanation should be given of the approach adopted in this work to discover the epistemological foundations of Islamic social, economic, and scientific order as the absolute reality in the Qur'an. The profound continuity of the *tawhidi* precept as the absolute reality in the Qur'an explains the methodological approach in the chapters, which reveals a naturally interconnected way of investigating the issues arising in the study. This proof of the Qur'anic continuity and specificity of knowledge on diverse matters proves the majestic thematic continuity of the Qur'an in all realms of thought. A profound interconnection between chapters arises automatically, and thereby deserves attention in the thematic development of the Qur'anic rules of methodological investigation.

Ultimately, the work has turned out to be the development of an Islamic evolutionary epistemology, establishing the inexorable and irreducible primacy of the *tawhidi* precept in an analytical explanation showing the relevance of the circular interconnection between *tawhid*, the hereafter and the temporal world-system. Within this superstructure of meta-science, the study establishes the generalized Islamic socio-scientific system with its particulars. The scientific treatment of the *tawhidi* methodological worldview in such an epistemological enquiry is found to be pervasive in all areas of Islamic thought.

Who Is This Treatise Addressed To?

This work is addressed to the *ummah* and the world scientific community. The purpose has throughout been to unravel the Qur'anic epistemological foundations for the socio-scientific order through developing *tawhid* as the Qur'anic precept of absolute reality. Thus, this work is a search for the analytics of the *tawhidi* evolutionary epistemology that constructs the knowledge-centred worldview. The Qur'an presents the principle of *tawhid* in all topics through a purposeful balance, certainty, universality, and uniqueness of its own.

In this respect, the objective of this work in the light of its epistemological focus is similar to Syed Qutb's work while writing to succour the Islamic movements at a time when the environment of ignorance was inimical and hostile to Islam. Mohammad Qutb commenting on Syed

Qutb's work, *In the Shade of the Qur'an*, remarks that this book is not a mere commentary on the *Qur'an*. Rather, "Should we, however, wish to use the term we need to qualify it by saying it is a commentary with a definite aim? Its aim is to disseminate the Islamic call and to delineate its system of education and discipline which is essential for its prosperity throughout history." (Qutb 1979)

In our work, the focus is on developing and formalizing what arises as a natural consequence from the study of *tawhid* as the methodology embodying the absolute reality in the Qur'an. This result in the end is an analytical understanding of the *tawhidi* methodological worldview, in terms of a knowledge-centred model of systemic unity. The substantive term, ***K***nowledge, has thus been used identically with the *tawhidi* epistemological precept. Contrarily, ***I***gnorance or ***F***alsehood is treated as a non-*tawhidi* perception of differentiated experience.

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CHAPTER 2

Analytical Precept of Absolute Reality in the Qur'an

The meaning of absolute reality in the Qur'an is revealed by the intercausal relationship between the critical attributes of the Qur'anic mind and the way of thinking that the Qur'an builds for the world of learning (Moussalli 1990; Nabi 1983). The interactions (discourse) leading to integration (unity of knowledge by consensus), and evolutionary learning in continued processes of interaction and integration (unification in being and becoming) is a holistic system and a cybernetic worldview. Its salient aspects can be explained as follows:

The primal ontology of the oneness of God is reflected by the monotheistic law of unity of knowledge. This is also referred to as *tawhid*. *Tawhid* is instilled and developed by its intrinsic nature of belief. Yet belief alone does not establish a dynamic relationship with the world-system. By itself, belief rests in the individual. It is not subject to a discursive and evaluative medium. One cannot question the order of belief or disbelief that another individual has despite the general objectivity of contrariness between believers and disbelievers. The Qur'an says in this regard (5:77–80): "Say: 'O people of the Book! exceed not in your religion the bounds (of what is proper) trespassing beyond the truth nor follow the vain desires of people who went wrong in times gone by who misled many and strayed (themselves) from the even way.'" This verse tells us that belief is an internal dynamic of the soul and mind and cannot be measured as a social attribute. Thereby, social ethics and morality as required, measured activity cannot be expressed as the lateral sum total of beliefs. Belief is nonetheless necessary for initiating

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_2

a good society. The Prophet Muhammad first developed his followers' belief in the oneness of God during the first 13 years of the post-revelation period. The verses of the Qur'an that were revealed to the Prophet as the foundation of belief are categorized as the Meccan revelations.

Different from, but nonetheless premised on belief is the nature of knowledge. Knowledge is a measurable, socially dynamic and discursive attribute. It is neither the lateral sum total of beliefs, nor that of individual knowledge. Thus the Qur'an embodies in itself the light of Allah as the epitome of knowledge, where knowledge is primal ontology of self and social dynamics in the experiential world-system. We can thereby explain the totality of knowledge as primal ontology, when it is understood as the complex totality of all knowledge of the epistemic world-system. Within such knowledge, attributes are embedded within the ranks of belief, but not as measurable entities. Regarding the relationship of knowledge and belief, the Qur'an says (49:14): The desert Arabs say, "We believe." Say, "Ye have no faith; but ye (only) say, 'We have submitted our wills to Allah,' For not yet has Faith entered your hearts. But if ye obey Allah and His Messenger, He will not belittle aught of your deeds: for Allah is Oft-Forgiving, Most Merciful."These verses point out that belief is the key element of knowledge. But knowledge is yielded by obeying Allah and His Messenger. The latter assumes the framework of law and thus becomes a social attribute. These are thus subject to discursive practice, application, and measurement for empirical purposes. Thereby, the belief in the signs of God (*ayath* Allah) translates into the understanding of the purpose and objective of the monotheistic law (*tawhid*). This reasoning in turn yields the purpose and objective of the Islamic law, referred to as *maqasid as-shari'ah*. Such transformations from one level to another generate the moral and ethical construction of society at large and its socio-scientific intellection.

The power of belief to initiate knowledge, and knowledge as the discursive and regenerative medium of society at large and its socio-scientific mind and intellection, initiates the epistemic process of deriving knowledge: its methodology, formalism, and application. Such a meaning of unification of knowledge and its application to the unified world-system becomes intersystemic across the knowledge, space, and time. The permanent foundation of *tawhid* as unity of knowledge and its induction of the world-system is thereby universal and extendible in nature. Thereby, the embedding of the Islamic law, as derived from the essential, universal Law of *sunnat* Allah, overarches all world-systems and their intellection. The principal issue at stake in this embedding is the multi-causality between *tawhid* and mind-matter in continuity across continuums of knowledge, space, and time.

The multi-causal systems complement each other to form the domain of monotheistic truth (T). An event (E) in this case is defined by the functional, E(knowledge $(\theta \in (\Omega,S)$, space $\mathbf{X}(\theta)$, time $t(\theta))$. This triple can be written in shortened form as $E(\theta, X, t)[\theta]$. In this form, an event reflects its properties of choices of the good things of life as those that complement organic unity of knowledge, according to *tawhid*, as the epistemic law for $\theta \in (\Omega,S)$ in the overarching meaning of universality and extendibility across systems. This is also the meaning of continuity across continuums (*res extensa* and *res cogitans* as of Descartes (1954)). The historical process that generates such events out of the epistemic interactive and integrative processes in recursively evolutionary learning by recalling new ranks of $\theta \in (\Omega,S)$ is centered in unity of knowledge. Time merely records the occurrence of events $\{E(\theta), \theta \in (\Omega,S)\}$. Now, any particular element of the event set, say wellbeing as represented by $W(X,t)[\theta]$, has the property that W increases as θ increases continuously across history. We define the historical path of sustainability now as $H(E(\theta,X,t)[\theta])$, such that $W(X,t)[\theta] \in \{E(\theta), \theta \in (\Omega,S)\}$, with $dW(.)/d\theta > 0$ for each $\theta \in (\Omega,S)$ determined in the interactive, integrative, and evolutionary learning processes by $\{\theta\}$ $\{\theta\}$intra- and inter-space and time dimensions.

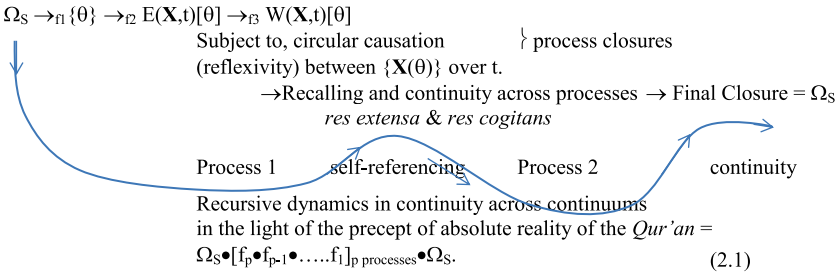
The principle of organic relational epistemology (Campbell 1987) in respect to the pervasive complementarities between representative variables pertaining to the monotheistic law of unity of knowledge and its induced unified world-system is derived from the Qur'an. The Qur'anic verse on this universal phenomenon is this (36:36): "Exalted is He who created all pairs—from what the earth grows and from themselves and from that which they do not know."

In the case of de-knowledge, that is, falsehood characterized by conflict and differentiation and by avoidance of the truth of unity of knowledge between the good things of life, pairing between entities is a limited case. The social Darwinism of natural selection soon breaks up into limiting atomism through competition and rivalry in all spheres of life. Such a phenomenon is true of the natural sciences (Dawkins 2006; Hull 1988) and the social sciences (Popper 1982). In Hegel and Marx, (Resnick and Wolff 1987) the epistemological problem of atomism of conflict caused by overdetermination of the episteme is pronounced. In the end, not even the de-knowledge entities coexist to form unity of knowledge. De-knowledge as falsehood defeats itself by contradiction, The Qur'an (21:18) says in this regard, "Rather, We dash the truth upon falsehood, and it destroys

it, and thereupon it departs. And for you is destruction from that which you describe." Paradoxically, the whole of the natural and social sciences is ridden by the *problematique* of heteronomy or dualism. On this *problematique* Bhaskar (2002, p. 146) has written: "So long as there is any element of heteronomy, any unfulfilled intentionality, any attachment, any fixation within you, your freedom will be to that extent restricted".

By the property of mathematical complementation of opposites, as for the case of truth T and falsehood F explained in the Introduction, every event governed by $\{\theta\}$ has its opposite event $E'(\theta', X'(\theta'), t(\theta')) = E(X', t)[\theta']$ governed by $\{\theta' \in F\}$. Historicism $(H'(E'(\theta'))$ is thence described continuously by the conflict between T and F, in other terms, as $\{\theta\}$ and $\{\theta'\}$ across intra- and inter- systemic events $\{E(\theta)\}$ and $\{E'(\theta')\}$, such that the properties of the opposites yield $\text{plim}_{(\theta,\theta')}\ [H \cap H'] = H(\theta) \cap H'(\theta') = \phi$. The implication is that the Qur'an offers the free choice between T and F and so on, based on good consciousness. This leads mankind from darkness into light or vice-versa when the wrong choice is made. On the exhortation to avoid falsehood and reconstruct the historicism of truth, the Qur'an declares with the combination of normative and positive guidance (Qur'an, 6:6): "Have they not seen how many a generation before them We have destroyed whom We had established on the earth such as We have not established you? And We poured out on them rain from the sky in abundance, and made the rivers flow under them. Yet We destroyed them for their sins, and created after them other generations."

Historicism as a philosophy of history according to the Qur'an in respect to its meaning of absolute reality (see the Introduction) is a continuous process of self-referencing of the conflict between truth and falsehood by choice and change affecting corresponding types of events. Such is also the meaning of reflexivity in history from which mankind learns by conscious choices or drowns itself in destruction (Soros 1998). The emergent intra- and inter- systemic extension of this principle is explained by the totality of the recursive process of interrelationships concerning complementary organic relations between primal ontology, mind-matter world-system, and the final closure in optimal ontology. Without such a recursive process of closure there cannot be meaningful explanation and existence of evolutionary equilibriums along the epistemic totality of being and becoming. We write such a meaning of epistemic totality of historicism as the Qur'anic philosophy of change (Mahdi on Ibn Khaldun 1964).



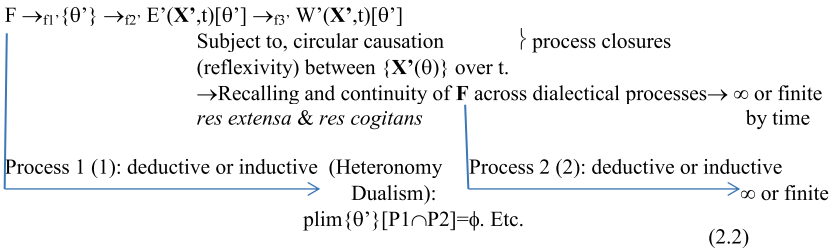
The compound functional denotes the epistemic totality of being and becoming. The above compound mapping is true both for the small scale universe of process closures and for the very large scale universal ultimate closure in the Hereafter where, $\Omega_S(\text{Beginning}) = \Omega_S(\text{End})$. We have used here the precept of process closure from the Qur'an (8:44): "….. For to Allah do all questions go back (for decision)." The precept of ultimate closure is derived from the Qur'an (57:3): He is the First and the Last, the Ascendant and the Intimate, and He is, of all things, Knowing.

Expression (2.1) explains a unique and universal epistemic methodology of 'everything' in its generalities and particulars. It is referred to throughout the construction of the *tawhidi* methodology and its various methodical formalisms in respect of the worldview of absolute reality in the Qur'an. The various parts of expression (2.1) together provide internally consistent relations for the methodology premised on primal ontology as the absolute reality of the Qur'an. The internal consistency is thereby proved by the pervasive nature of monotheistic unity of knowledge in organic interrelations with the mind-matter world-system and the logical properties of the evolutionary learning world-system. Within the epistemic closures of processes and the ultimate closure of the large scale universe, the consistency prevails from the beginning to the end.

The Phenomenon of De-Knowledge as Heteronomy of Dualism in Socio-scientific Theory

In studying the phenomenon of de-knowledge the *tawhidi* String Relation (TSR) given by expression (2.1) retains its form but with the following substantive difference in structure and application: The primal ontological premise **Ω** breaks up the disjoint between **T**ruth and **F**alsehood. The epistemic origin in the case of de-knowledge is **F**. Consequently, conflict, differentiation, competition, and all the postulates and consequences such as

rationalism of heteronomy, Darwinism, rational choice, and ethically benign behaviour are carried through in all subsequent actions and responses. The de-knowledge model now assumes the form in expression (2.2):



(2.2)

The illogical inference from the F-episteme in the construction of socio-scientific thought is that time and not even de-knowledge (F-episteme) govern the historical process. F annuls itself over time, leaving time alone as the determinant of events. Yet it is knowledge (de-knowledge) and not time that can determine events across historical trajectories. This is Qur'anic derivation. The Qur'an (45:24) declares: "And they say, 'There is not but our worldly life; we die and live, and nothing destroys us except time.' And they have of that no knowledge; they are only assuming."

Yet a further consequence of the de-knowledge model (expression (2.2)) is that a holistic objective criterion as in the case of the wellbeing function of TSR cannot exist, because there is no continuity between the methodologically independent objective functions in independent processes caused by heteronomy. Such is the result of utilitarianism despite its ethical invoking but methodologically erroneous context (Hammond 1989). Consider thereby the total objective function $W(\mathbf{X},t)$ of the utilitarian type associated with expression (2.2):

$$W(\mathbf{X},t) = \sum_{i\in\{P\}} W_i(X_i,t), \text{ with the vector, } \mathbf{X} = \{X_i\} \text{ of independent variables.}$$

Thereby, $dW/dt = \sum_{i\in\{P\}} \left[(dW_i(X_i,t)/dX_i).(dX_i/d\theta').(d\theta'/dt)\right] = 0$, identically, because of the consequence of $d\theta'/dt = 0$ affecting simultaneously $(dW_i(X_i,t)/dX_i) = 0$; and $(dX_i/d\theta') = 0$, for each $i \in \{P\}$. These are also the independent states of optimality of the W_i-functions in respect of allocation of X_i over $i \in \{P\}$

The independence of the ethical factor in the above expression is proven by the following:

(i) For example, on the production possibility surface of neoclassical economic rational choice theory, $dX_i / dX_j < 0, i, j = 1, 2, \ldots$ Along the economic expansion path dX_i / dX_j is greater, less or equal to zero with the technological change being exogenously influencing. Yet with a given exogenous effect of technological change every point on the expansion path remains simultaneously on the optimal production possibility surface. The independence of the ethical factor is implied by the exogenous nature of technology (θ'), and thereby the presence of marginal rate of substitution between the $\mathbf{X}(\theta')$ -vector of variables affecting utility, welfare, and production functions in neoclassical economics. In this case we write, $\mathbf{X}(\theta') = \mathbf{X}$.

(ii) For the case of endogenous relationship of technology (e.g. knowledge flow {θ}) with the X_i-variables, and thereby with W-function, $dX_i / dX_j = (dX_i / d\theta) / (dX_j / d\theta) > 0, i, j = 1, 2, \ldots$ at evolutionary learning points of events. Also, $dW / d\theta = (dW / d\mathbf{X}).(d\mathbf{X} / d\theta) > 0$ identically because of the knowledge effect and the choices of *maqasid as-shari'ah* variables affecting wellbeing. The second order differential $d^2W/d\theta^2$, and thereby, $d^2\mathbf{X}/d\theta^2$ can assume all possible signs subject to the first order differential being positive, $dX_i / dX_j = (dX_i / d\theta) / (dX_j / d\theta) > 0, i, j = 1, 2, \ldots$

Consistency Properties of Epistemic Totality of Monotheistic Methodology

We invoke the following theorems and corollaries to prove the consistency properties of epistemic totality of monotheistic (*tawhidi*) methodology:

1. By a revised version of the Fixed Point Theorem (Nikaido 1987), the mapping of a continuously differentiable function from the open neighbourhood of set into itself will have evolutionary equilibriums. This version of the Fixed Point Theorem is different from the standard one, which states that a continuously differentiable mapping from a compact set into itself has a steady-state equilibrium. A compact set is a closed and bounded set. A set is not compact if it does not have a closed and bounded neighbourhood (Choudhury and Zaman 2006).

With the revised version of the Fixed Point Theorem for learning sets of events it is consistent to have existence of evolutionary learning equilibriums (Choudhury 2011).

2. Events as defined earlier exists across intra- and inter- evolutionary learning systems and processes. Each event has its open closures at the beginning and the end of processes. Thus the above-mentioned consistency of revised version of the Fixed Point Theorem applies to each evolutionary process. Thus the revised Fixed Point Theorem yields evolutionary equilibriums within each process and across extended processes, which we refer to as history (H).
3. Evolutionary learning equilibriums are the result of learning within process and across processes. Therefore, the properties of interaction (discourse) leading to integration (consensus by unification of knowledge), and resulting in evolutionary learning are consistent with the existence of evolutionary equilibriums by the revised version of Fixed Point Theorem.
4. The definition and derivation of unity of knowledge in reference to the primal ontology of *tawhidi* unity of knowledge start the evolutionary learning processes from the deductive premise of primal ontology. It simultaneously combines the deductive reasoning with the inductive configuration of events and its specific elements, e.g. wellbeing subject to circular causation results in events. This is the inductive phase. The inductive phase then leads into recalling of the deductive phase to regenerate subsequent evolutionary learning processes. The consistency property of unity of knowledge is thus reflected in the organic inter-systemic causality of unity of knowledge between deductive and inductive learning.
5. Because the above-mentioned results abide in each process and across processes by recalling of the monotheistic primal ontology within finite closures and the Closure of the large scale universe, the consistency of Qur'anic epistemic totality exists in continuity and continuums across history.

Summary of Attributes of the *Tawhidi* Epistemic Totality

The critically important concepts are invoked in this chapter. These concepts are as follows: primal ontology of unity of knowledge; self-referencing of organic relations interconnecting events by the continuous recalling of the primal ontology; the nature of the world-system so

constructed by the choice and formalism of organic relations of unity of being and becoming; and the analytical nature of the evolutionary epistemic world-system and its particulars in knowledge, space, and time. The principle of organic, relational epistemology (Campbell, op cit) in respect to pervasive complementarities between representative variables pertaining to the monotheistic law of unity of knowledge and its induced unified world-system is derived from the Qur'an. The Qur'anic verse in regards to this universal phenomenon is this (Qur'an, 36:36): "Exalted is He who created all pairs—from what the earth grows and from themselves and from that which they do not know."

Contrarily, in the case of de-knowledge, the set of {θ′} is characterized by methodological individualism, marginalism, conflict, and differentiation arising from the absence of pervasive complementarities between the good things of life. The phenomenon of de-knowledge, defined as the set of {θ'} while it centers the heteronomic *problematique* of all of socio-scientific methodology, is also deeply rooted in today's so-called Islamic thinking and practices. For instance, the mainstream economic postulates of scarcity, competition, rational choice, marginalism, and methodological individualism (Buchanan 1954) have occupied the present distorted state of Islamic economics, finance, and socio-scientific thinking lock, stock, and barrel. Any of these erroneous postulates, or indeed in the absence of them, a failure to discover the epistemological foundations of the true Islamic methodological worldview, has caused an ambivalence towards the absolute critical reality in Islamic thinking in modern times. This is the absolute reality of the monotheistic law of unity of knowledge and its induced design of the unified world-system. Consequently as well, the dynamic formalism of the evolutionary learning worldview that the Qur'an presents, as pointed out through a model like that of TSR, has remained absent in Muslim socio-scientific thinking (Hasibuan 2010).

The consequence of the Islamic deprivation of its foundational roots is even more serious. The scope of *shari'ah* has been misplaced in Islamic thought, though the scope of *maqasid as-shari'ah* remains undiminished. To date, although not intended within the scope of *maqasid as-shari'ah*, the study of this discipline has been limited to a cursory study of the fine themes of what is known as worldly affairs. Such attention has been mainly devoted to transactional matters. The so-called field of Islamic economics and finance has thus inherited such a juristic content on the matter of permissible, forbidden, and not recommendable choices affecting ethical choices according to the objective and purpose of Islamic law.

A Critique and Extendible Scope of *Maqasid as-Shari'ah* by the Absolute Reality of the Qur'an

The extendible domain of *maqasid as-shari'ah* is the evolutionary learning domain encompassing the wellbeing function (*maslaha*) with artefacts between the heavens and the earth in the light of the *tawhidi* worldview of unity of knowledge. The Qur'an declares (24:35): "Allah is the Light of the Heavens and the Earth". Such is the *tawhidi* domain of evolutionary learning in and interrelating 'everything'. The Qur'an further declares, Allah is the End and the Beginning of the Great Design. Allah is the Beginning and the End of the Great Design. All matters return back to Allah for the final determination. All things learn to rise from and move towards Allah by evolutionary epistemological learning regarding the Great Event (*Nabaul-Azim*). Such actualization in everything takes place through the entire learning processes of the universe. The Qur'an refers to this experience as the precept of *khalq in-jadid* (re-originated reality) within the entirety of the pairing universe in the good things of life existing permanently. There are also the disappearing false things in the midst of their differentiated pairs. The accumulation of such evolutionary unity of knowledge is towards the Great Event as the complete universe of the *khalq in-jadid* (evolutionary learning). Within this framework of the great design of *sunnat*-Allah must rest the evolutionary episteme of *maqasid as-shari'ah* towards embracing the universal totality.

As an example of extendibility of *maqasid as-shari'ah* between the heavens and the earth, consider the relationship of energy within the precepts of *maqasid as-shari'ah*: (1) protection of the religion of Islam (*tawhid*); (2) protection of reason (*aql*); (3) protection of family and progeny (*nasb*); (4) protection of property rights (*maal*); (5) protection of life (*nafs*). In the context of these fivefold precepts, energy is an input in the *maqasid* to attain wellbeing (*maslaha*). Yet the relationship of energy with the fivefold attributes is organic pairing.

Yet there is no specific mention of, or a development by todays' Muslims on how such an extendible sustainability concept can be explained by means of inter-causal evolutionary learning relations between energy sources in abstractions (science) and the energy input into the *maqasid* basket comprising wellbeing (*maslaha*). In the absence of this critical issue, the sustainability theme has not been understood in terms of the underlying dynamics of inter-relational continuity across continuums of the knowledge, space, and time domains. The inherent evolutionary

relational epistemology of unity of knowledge here implies firstly that, the understanding of *maqasid as-shari'ah* ought to be extended to include the science and society interrelationship. This further implies understanding of inter-causal relationship and the development of energy sources in view of the life-fulfillment needs of a sustainable society. The sustainable society in turn further responds to the appropriate supply and diversification of energy source. Such a sustainable inter-causal relation of unity of knowledge between the two domains establishes the circular causal relationship in simulating the wellbeing function by evolutionary learning processes. Expression (2.1) is thus invoked.

In the existing understanding of *maqasid as-shari'ah* and the absence of a generalized relational system worldview, causality cannot be explained by scientific methodical formalism between society and science (e.g. *maqasid* and energy circular causation). Only the relationship from the side of energy to *maqasid* (society) is explained in respect of the traditional fivefold elements of *maqasid as-shari'ah*. The result then is dysfunction of the *maqasid as-shari'ah* as the philosophy of Islamic law (Muslehuddin n.d.; Kamali 1991) in relation to its *res extensa* and *res cogitans* within *sunnat*-Allah.

The implications of the above argument regarding Muslim subservience to mainstream rationalist and traditional thinking are twofold. Firstly, there does not exist the central reference to a formal scientific episteme and formalism based on the *tawhidi* (monotheistic) methodological worldview that extends the bounds of scientific thought and analysis. Such a methodology in the causally unified domains of total reality is not possible either in rationalism or the present state of intellection relating to *maqasid as-shari'ah*. Secondly, the extension of the existing narrow domain of *maqasid as-shari'ah* restricted to *muamalat* by the expanding evolutionary learning in *sunnat*-Allah is both real and functionally possible by the *tawhidi* methodology and its applications. Yet this absolute reality of the Qur'an remains ignored in present Islamic thinking.

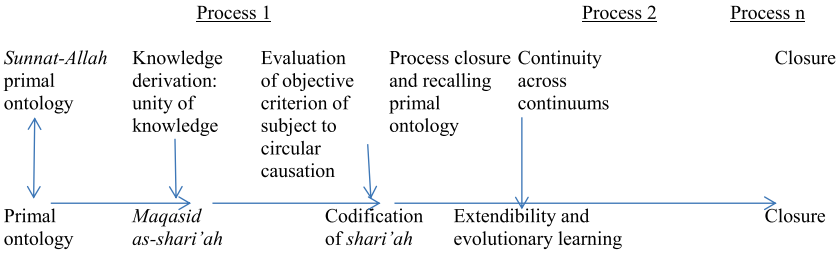
Leaving out important parts of the overarching domain of *maqasid as-shari'ah* as a derived sub-law from the totality of the monotheistic law (*sunnat* Allah) is tantamount to a form of antinomy (heteronomy) or dualism between systems. Thereby, since the *tawhidi* unity of knowledge is functionally overlooked, therefore the principle of unity itself is rendered dysfunctional. The unity principle of the universe as a grand design (*ayath* Allah) is abandoned. In such a partial understanding of *maqasid as-shari'ah* the Islamic intellection is deprived of its holistic nature of organic interaction, integration, and learning into the totality of the *tawhidi* law.

Consequently, by the same problem of heteronomy, the moral law and the mundane law remain disjointed. This is the nature of rationalism, which is now played out inadvertently in the understanding of *maqasid as-shari'ah*. The meaning of rationalism is equivalent to the idea of heteronomy. It marks the independence between Kantian *a priori* and *a posteriori* reasoning; between deductive and inductive reasoning; between *noumenon* and phenomenon; and between normative and positive law.

Rationalism and heteronomy give a meaning equally contrary to the essence of monotheistic law (*sunnat* Allah) of unity of knowledge and its constructed world-system. On this matter Kant wrote (Friedrich 1949, p. 25): "In what follows, therefore, we shall understand by *a priori* knowledge, no knowledge independent of this or that experience, but knowledge absolutely independent of all experience. Opposed to it is empirical knowledge, which is knowledge possible only *a posteriori*, that is through experience."

Adapting *Maqasid as-shari'ah* to Monotheistic Law of Unity of Knowledge (Expression 2.1)

On treating the *maqasid as-shari'a*h as a sub-law of the monotheistic law (*sunnat* Allah) expression (2.1) assumes the following epistemological structure, expression (2.3):



(2.3)

The implication of expression (2.3) is that the *maqasid as-shari'ah* cannot be the origin of Islamic law without its methodological origin in the primal ontology (*sunnat*-Allah). Only then it is possible for the *maqasid as-shari'ah* to be immersed in the TSR (expression (2.1)) in terms of the absolute reality of the Qur'an. *Maqasid as-shari'ah* would then be valid in Islamic methodology along with the structure and constructions of specific case studies.

The contrary case, where *shari'ah* did not develop in reference to the primal ontology of *tawhid* has resulted in Islamic distortions, by way of the concocted idea of *shari'ah* compliance. The idea of *shari'ah* compliance has led to increasing disputes between Islamic religious sects, divergent jurisprudence and *fiqh* (juridical interpretations), and failure to standardize the *shari'ah* instruments of Islamic economics and finance.

The problem related with the declaration of *shari'ah* compliance in financing and choice of projects is also seen in the case of *sukuk*. Sukuk is a form of Islamic bond whereby a special vehicle diversifies risk by raising share capital to finance megaprojects launched by end users. *Sukuk* as large investment in megaprojects serves the very rich and corporate and government investors who can pick up share capital by selling bonds to rich shareholders. *Sukuk* does not comprise microenterprise financing wherein the ethical issues such as poverty alleviation and goals of sustainability are of central importance. Thus *sukuk* as bonds sold to raise share capital from rich shareholders may revolve around participatory Islamic financing instruments, such as *musharakah* (equity participation), *murabaha* (cost-plus financing of hire purchase), *ijara* (rental), *istisna* (pre-payment for specific artifacts of manufacturing) and the like. The development benefits of *sukuk* do not flow to the grassroots level of society. There is no outcome in generating life-sustaining regimes of development and poverty alleviation by *sukuk*. The exclusively rich shareholding around *sukuk* as bonds keeps it away from the holistic semblance of *maqasid as-shari'ah*. Along such lines of sukuk financing, *sukuk* has recently enticed the British Government to consider it as a means of retiring public debt (HM Treasury, op. cit.). Yet despite its distancing from *maqasid as-shari'ah*, *sukuk* financing has received the blessing of corporations and government *shari'ah* scholars as *shari'ah*-compliant mode of financing.

Besides its incapability to serve the goals of justice and self-reliance at the grassroots, *sukuk* is a purely bond-type capitalized financing instrument with a coupon value that is obtained by the capitalization of the cash-flows from megaproject in perpetuity. In a debt-equity formula, with equity being represented by *sukuk*, the coupon value resulting from capitalization of cash-flows (C) in perpetuity at a rate of interest (i) to retire present debt (D), implies that the cash-flow equals the present debt capitalized over time by a rate of interest (Modigliani and Miller 1958).

The misuse of the *maqasid as-shari'ah* in one form or the other by the limited intellection of today's' specialists in the field has also adversely affected the Islamic legitimacy of concepts and applications that are linked with the idea of *shari'ah* compliance. Such problems are noticed today

through the increasing reliance of so-called Islamic economics and finance on mainstream and orthodox economic and financial theory and applications. In the end we note that the abandonment of the ontological and epistemological basis of Qur'anic intellection has caused the absolute reality of the Qur'an to be left out of all Islamic claims. Consequently, a truly Islamic socio-scientific intellection and its applications that would be based on the epistemic foundation of the *tawhidi* law of unity of knowledge has not emerged.

A Critical Understanding of Reality and Realism

Realism and Reality According to the Monotheistic Law of Unity of Knowledge

The absolute reality of the Qur'an is premised on the precept and application of the primal ontology of monotheistic law of unity of knowledge in the generality and specifics of diverse world-systems. The methodological orientation of the absolute reality of the Qur'an was explained by expression (2.1). Throughout this work, by the term 'realism' we indicate a philosophy of understanding the integrated methodological worldview of the social and natural sciences. By realism we further mean the universal and unique worldview explaining both the social and natural sciences by the self-same methodological worldview of monotheistic unity of knowledge. Realism is thereby the conveying of meaning to precept and its application. There is no other precept than the *tawhidi* worldview according to the Qur'an to convey the first and ultimate meaning to intellection and its application according to events occurring in reality (Masud 1994). On this theme of universality and uniqueness of the Qur'anic critical approach to realism as worldview Ibn al-Arabi wrote (Chittick 1989): "Two ways lead to the knowledge of God… The first way is the way of unveiling… The second way is the way of reflection and reasoning (*istidlal*) through rational demonstration (*burhanaqli*). This way is lower than the first way, since he who bases his consideration upon proof can be visited by obfuscations which detract from his proof, and only with difficulty can he remove them" [slightly edited by author].

Reality according to the understanding of absolute reality of the Qur'an means the manifestation of the precept of realism in the order and scheme of things, the details of experience. Two examples may suffice to explain this issue further. Science, called *hikma* in the Qur'an, stands for

the combination of intellection and the corresponding material world. In mathematical physics, a degree of conjecture arises as per the conceptual universes of Einstein who wrote, "As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality", and of Hawking, and Penrose (2010). Consequently, as Hawking (1980) points out, physics to date remains distanced from the discovery of the physical unification theory, and Barrow's (1991) idea of the theories of 'everything'. Thus a mathematical realism does not necessarily translate into reality. Yet another example in this regard is the concept of infinity, which assists in solving mathematical and scientific problems. Yet infinity is not a fact of reality (Hilbert 1967).

According to the Qur'an, absolute reality is the congruent occurrence and manifestation of realism and reality—of precept and proof. In this regard the Qur'an (27:64) gives the challenge: "Or, Who originates creation, then repeats it, and who gives you sustenance from heaven and earth? (Can there be another) god besides Allah? Say, "Bring forth your argument, if ye are telling the truth!" Although God is the precept of the Qur'anic integration of realism and reality, He is not configured in any shape and form; therefore, the *tawhidi* (monotheistic) law of oneness (unity of knowledge) takes the place of explaining the impact of God as fullness of knowledge and mercy on the multiverse of reality. Allah is thus known in and by the phenomenology conveyed by His signs (*ayath* Allah). In expression (2.1) of the absolute reality of *tawhid* and the world-system the integral understanding of realism and reality, that is precept and application (configuration), by the following integrated view that negates the illusion of heteronomy: evaluate the objective criterion (e.g. *maslaha*) subject to circular causation relations conveying the degree (or otherwise) of the existence of pervasively complementary relations between the variables. The precept in this regard is the induction of representations by $(\theta \in (\Omega,S))$; and the measurement leading to inferences by the cardinality of $\theta = F(\mathbf{X},t)$. In coming up with its precept of absolute reality, the Qur'an interlinks and regenerates across continuity in continuums the following three precepts and configuration of the *tawhidi* (monotheistic) law: *haqqul-yaqin* (knowledge of Allah); *ilmul-yaqin* (epistemic knowledge derived from the *tawhidi* primal ontology); ain ul-yaqin (also *burhanaqli* = proof by reason and evidence i.e. *fitra*). The inter-causal regeneration of processes of evolutionary learning in unity of knowledge explained in expression (2.1) establishes the phenomenology of the Qur'anic meaning of sure reality (Qur'an, 69:1–3).

The Qur'anic integral meaning of realism and reality though maintains their causal relationship: $[\{\text{realism}\} \frown \{\text{reality}\} \neq \phi; \{\text{realism}\} \cup \{\text{reality}\} \subseteq (\Omega,S)] \Leftrightarrow \{\text{realism} \leftrightarrow \text{reality}\}$. The underlying phenomenology of being and becoming is explained by expression (2.1) as a formal theory of evolutionary learning processes in unity of knowledge that is derived from the worldview of absolute reality of the Qur'an.

Realism and Reality According to the Monotheistic Law of Unity of Knowledge

In Occidental and Eastern thoughts based on naturalism, the concepts of realism and reality are disjointed and separated. Bhaskar has tried to unify the idea of social realism with that of transcendental naturalism as a coherent philosophy. Thereby, Bhaskar criticized the idea of heteronomy that has penetrated occidental socio-scientific thought. Bhaskar (op. cit., p. 13) wrote profoundly on his qualified opposition to heteronomy in scientific thought: "Unfulfilled and split intentionality describes two forms in which human beings contain elements of heteronomy which block or check their freedoms. When we are free of all such heteronomy, when we contain nothing inconsistent with our ground states, that is we have eliminated negative incompleteness, we may be said to be 'enlightened' or 'realised.'"

Yet I think Bhaskar could not go far in this direction of methodological construction because of some bugs in his formal thinking. Bhaskar rejects the assumption of the Kantian categorical imperative, such as the moral law in pure reason. In doing so the construct of the ontological category indeed becomes heteronomous between *a priori* and *a posteriori* reasoning. God, the moral law, and its coterminous endogenous relationship with the experiential world, all taken up in the form of nexus of circular causation, remain absent in Bhaskar's formal approach, although he would like the resulting dualism of self and other to be annulled in the construction of meta-reality. Collier (1994) explains Bhaskar's formal thought on the above-mentioned point: "For Roy Bhaskar those features of the world which make knowledge possible are not necessarily *a priori*; they are real features of the world, which could have been otherwise."

Bhaskar's denial of the need for *a priori* reason makes the entire argument of rationalism abiding in the *a priori* and *a posteriori* divide to be reversed back to him. Kant's heteronomy of such a divide between *a priori*

and *a posteriori* in fact exists in Bhaskar's reasoning by excluding *a priori* reason and subsume his idea of reality and critical realism within the *a posteriori* domain completely and wholly. This is an approach similar to Carnap's (1966) rejection of the normative science, relying wholly on logical positivism. Recently, such awalling-off of deductive reasoning from all traces of *a priori* elements is similar to Popper's (2009) philosophy of pseudo-science in the *a priori* domain.

Conclusion

The worldly evidence of man's purposeful relationship with God and the universe with God-consciousness (*taqwa*) in it are repeatedly quoted in the *Qur'an* (2:164). Such a worldview is the reflection of the absolute reality in the Qur'an. It is this worldview that contrasts with the meta-scientific nature of socio-scientific thought, and is different from all others.

> "Behold! In the creation of the heavens and the earth; in the alternation of the Night and the Day; in the sailing of the ships through the Ocean for the profit of mankind; in the rain which God sends down from the skies, and the life which He gives therewith to an earth that is dead; in the beasts of all kinds that He scatters through the earth; in the change of the winds, and the clouds which they trail like their slaves between the sky and the earth; —(here) indeed are Signs for a people that are wise."

The permanence of *tawhid* as law of unity of knowledge in everything was pointed out by Imam Shatibias the idea of meaning that constructs the language of *shari'ah*. Masud (1994) compares Imam Shatibi with Leibniz. Although both sought to establish a universal medium of meaning manifested in language, Imam Shatibi took the route of the ordinary man's medium of understanding rather than the obscure analysis of mathematical calculus, which was the case with Leibniz's inquiry. In so establishing the medium of language as a universal carrier of meaning, particularly with regards to *shari'ah*, Imam Shatibi intended to bring out the universal nature of *shari'ah* in terms of its foundation in *tawhid*.

The grand and excelling imagery of the Qur'an provides a unique foundation for organizing thought and institutions in the direction of the relational worldview of God, man, and the universe. Such regenerative multi-causal dynamics is what manifests the sure reality of the *tawhidi* methodological worldview. Its socio-scientific roots are established through the interrelationships in Qur'anic epistemology, ontology and the

phenomenology of life and creation. Such an approach makes a distinct departure from the approach of the Muslim rationalist scholars and the religious scholars of yesterday and today. The departure of *tawhidi* methodology is reflected in its independence from all others. The validity of the Islamic search and its discovery in the midst of the extensively interactive, integrative, and evolutionary learning dynamic is abandoned in all other approaches as a methodological issue with applied and empirical formalism. The *tawhidi* methodological worldview of unity of knowledge upholds this search.

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CHAPTER 3

A Methodological Overview

The meaning of absolute reality as an ontological, epistemological, and phenomenological concept is explored in this chapter. How and what are the meanings of ontology, epistemology, and phenomenology as derived from the precept of the sure reality? The coordinate of the absolute reality is at the point of convergence of the Ultimate Transcendental Reality and its adduced world-system in generality and details. Where can such a finality, uniqueness, universality, and organic holism of the theory of monotheistic unity of knowledge that breeds absolute reality be found? What does it mean to be organically system-unified in terms of the Qur'anic methodological worldview of relational unity of knowledge? Why and how should the universe and its generality and specifics be studied in terms of organic unity? How is this approach substantially different from systemic differentiation and methodological individualism of mainstream socio-scientific studies? How are these system-characteristics presented in reference to the precept of the absolute reality? What is the nature of the quest for the 'theories of everything' in the social and natural sciences and beyond in respect of monotheistic unity of knowledge? What is the shape of the symbiotic nature of the universe that is shaped and explained in the social and scientific theories and applications with succinct methodology and methodical formalism?

While addressing these questions the ultimate core of the socio-scientific universe that we study in this work and open up inquiry about

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_3

in this chapter finds its place in the paired, holistic, and learning design of the universe. Such a multiverse is studied in its generality and details away from the differentiated world of rationalist discontinuity of knowledge and organic relations.

Some elementary examples are provided. These establish the future of socio-scientific convergence in the methodological worldview of unity of knowledge of the absolute reality. The opposing worldviews between the monotheistic law and rationalism in enduring the search and discovery of the absolute reality are discussed. The precept of the absolute reality in the framework of the monotheistic law of unity of knowledge is premised in the Qur'an as a distinctive universal and unique primal ontology. This is shown subsequently to give rise to its accordance with its epistemology and phenomenology spanning the multiverse of systemic pairing interrelations according to the episteme of monotheistic unity of knowledge and its organically unified world-system in generality and particulars.

Background

A specific academic interest is now invoked in the study of the philosophy of religion as a system-oriented scientific conception. Such a new field of socio-scientific investigation may be called a Systemic Ontology of Being and Becoming (Prigogine 1980); or the Socio-Scientific Methodology of Consilience, Unity of Knowledge (Wilson 1998). The emergent field of study engages a deeply analytical, formal, logical research undertaken today (e.g. the John Templeton Foundation). Yet, the emergent methodological field of organic unity by its multi-causal interrelations between diversity of being is of a challenging nature. An approach regarding the convergence of the organic model of systemic unity of knowledge still hangs on the fringes of rationalist speculative inclinations. These are taken up individually or by differentiated religious and philosophical notions unlike the holism pronounced by the monotheistic consilience.

Objective

A generalized perspective of systemic methodological worldview interconnecting religion, philosophy, science, and socio-scientific applications has remained distant. Such distancing between the disciplines causes their partitioned approaches to the understanding of what otherwise we refer to in this work as the search for the unique and universal reality—the

absolute reality. The unique and universal reality as the realm of the Truth versus the realm of the False is determined by a derived methodology of the systemic worldview of the organically unified system of interrelations between diverse sub-systems.

What Is 'The Absolute Reality'?

This work explains the organically unified domain of multi-causality between diverse participatory systems as the meaning of surety within the organically unified relational orders of the unique and universal design. Such a cognitive, formal, and explainable universe forms 'the absolute reality'. Hence the term, 'the absolute reality', finds its meaning in the premise of uniqueness and universality of a certain primal ontology of the socio-scientific worldview and its methodological formalism and applications.

The primal ontology configures the epistemology of the generalized methodological worldview of the imminent neural systems of multi-causal learning relationships between diverse interacting and integrating variables and entities. These form representative of the multi-causal system and cybernetic universe. The phenomenology arising from the combination of the primal ontology followed by its consequentialist epistemology is explained in terms of the formal, analytical, and applied nature of a system model that the primal ontology and its imminent epistemology engenders. Such specific events for analysis, according to the ontological and epistemological conception, are truly amenable for investigation by their inner properties and relations. This is the field of phenomenology, or the study of consciousness found in particularity of relations caused inside matter and cognition in the multi-causal sense.

Example 1

An example of such holism in socio-scientific thought is this: (1) the monotheistic law is the primal ontology of 'being' (but not of 'becoming', for God is the uncreated Creator.); (2) from the monotheistic law of oneness arises the nature of multi-causal unity of corporeal beings, the created things. The formalism to explain the transmission of the primal ontology as law into the causality of corporeal beings also forms a plethora of ontologies as relational functions. In Heidegger's (1988) conception, the *dasein* (primal ontology) gives rise to many beings that remain in the process of becoming. We refer to such causally formed relations of beings

as formal ontologies (Maxwell 1962). (3) The totality of such multi-causal relations of beings and their becoming in the corporeal domain denotes the epistemological reflection of the created world. (4) The specific eventuation of corporeal events explains the nature of the inner consciousness of the beings that relationally (or organically) become events by the intercausality enacted through the primal ontology and its imminent epistemology concerning multi-causal representations.

The epistemological representation of the overarching multi-causality between the primal ontology and the formalism of diverse ontological beings is referred to as 'episteme' by Foucault (Foucault in Sheridan 1972, p. 191): "By *episteme* we mean … the total set of relations that unite, at a given period, the discursive practices that give rise to epistemological figures, sciences, and possibly formalized systems … The episteme is not a form of knowledge (*connaissance*) or type of rationality which, crossing the boundaries of the most varied sciences, manifests the sovereign unity of a subject, a spirit, or a period; it is the totality of relations that can be discovered, for a given period, between the sciences when one analyses them at the level of discursive regularities."

Bhaskar (1978, p. 146) explains the nature of causality according to his conception of meta-ontology and epistemological representation in the following words: "What is imagined may be real; but what is imaginary cannot. 'Imagined/real' marks an ontological watershed; imagined/known to be real' an epistemic one. Now what is imagined at t_1 may come at t_2 to be known to be real. And for transcendental realism the move from (2) to (3) involves experimental production and control, in which the reality of the mechanisms postulated in the model are subjected to empirical scrutiny."

Let us conceive of encapsulating all the above conceptions into a mysterious coarse quality of nut to explain the meaning of multi-causal interrelations in the framework of monotheistic unity of knowledge, and contrarily in rationalism. We note a subtle difference in the meaning of multi-causality on the ontological, epistemological, and phenomenological plane in these two frameworks of thought. According to the unique and universal law, the primal ontology such as of the monotheistic law governing creation, there exists a particular law identifying a definite tree that yields the given coarse nut. The nut is then the be-ing result of 'becoming' of such kinds of organic interrelations that cause the nut to be, and renders its discovery as scientific fact.

The monotheistic law induced in the nut by its yielding tree is simply the law of existence of the tree and its functioning by the moral law of

unity of knowledge, which explains the yield of the nut from a unique tree by a process. Scientific discovery in this case, engaging the monotheistic law, follows the primal causality of the organic law that springs from the nature of unification of and by the monotheistic law. This holistic intercausality causes the phenomenon of the nut to exist by the primal law to render the formal ontologies of becoming of the nut. Thus the causality arises from the point of certainty of the primal ontology to the determination of the process that discovers the nut. This is a well-determined, permanent, and irreducible fact. The sequencing between primal ontology, epistemology, and phenomenology relating to the becoming of the nut becomes thus well-established.

Contrarily, in the absence of the primal ontology of the monotheistic law the search for the particular tree for the origin of the given nut remains mysterious. At the end the primal ontological origin may or may not be found. Think of endangered species that have disappeared over space, time, and by the degrading exploits of nature. Consequently, a well-determined sequencing of ontology leading to epistemology and thereby to phenomenology in knowledge formation remains a certainty in the case of the monotheistic law as the primal ontology. Contrarily, the nature of the search and discovery for certainty remains null and void in the latter case. The monotheistic law is avoided as primal ontology.

The Unique and Universal Premise of Truth Contra Rationalism Falsehood: Primal Ontology, Epistemology, Phenomenology

The monotheistic premising of Truth is therefore premised on the unique and universal law as the explanation of the methodological worldview. The absence of the monotheistic law as primal ontology in scientific search and discovery breeds randomness of thought. Such a contrary premise of socio-scientific investigation belongs to the domain of rationalism. Rationalism is the premise of uncertainty and randomness in socio-scientific investigation. Monotheism is the law of certainty leading to exact facts that can be discursively established by investigation within the study of multi-causal organism as interrelations between systems, cybernetics, and their variables and entities.

The nature of uniqueness and universality premises the commencement of Truth statements in the monotheistic law. This then opens the

gateway to discursive socio-scientific intellection. Nonetheless, rationalism too establishes a multi-causal process like the monotheistic law that otherwise conveys its worldviewthrough the multi-causal process of organic unification of inter-variable relations. These substantive topics are dealt with in depth in subsequent chapters.

The difference in the methodological approaches between the monotheistic approach and the rationalistic socio-scientific investigation can be noted in Bhaskar's (op. cit., p. 146) words: "That is, it is the task of science to discover which hypothetical or imagined mechanisms are not imaginary but real; or, to put it the other way round, to discover what the real mechanisms are, i.e. to produce an adequate account of them." Science is understood here to suggest a random search for the unity of knowledge. Yet not so for the premise of the monotheistic law, which remains precise, unique, and universal in the context of its particular meaning of unity of knowledge and its impact on the unity of the specific and details of diverse world-systems. The topics of uniqueness and universality; steady-state optimality and evolutionary learning in the context of both the monotheistic law and the dialectics of rationalism arebe taken up in depth in subsequent chapters.

The issue of randomness of search for Truth by the rationalist worldview of science is not the same as the evolutionary learning process for ever. This latter process is unique to both the monotheistic law of unity of knowledge and rationalism. It is the universal dialectical fact of the absolute reality in the nature and discovery of dynamics and the true phenomenological spirit. The difference between randomness and false pretences of rationalism; and the fixity and precision of truth determiningthe discerning of the final truth and falsehood is caused by the differentiating nature of episteme in the former. This results from the absence of a holistic premise of thinking, although a search and claim of this kind of ontological invoking is attempted, yet in the framework of independence of ontologies (Nozick 2001). Contrarily, the dialectical process of evolutionary learning according to the monotheistic law of unity of knowledge establishes the primal ontological premise of oneness. By it the discursive process of investigation ensues. Thisexplains the absolute reality that engenders in natural consequences of pairing as consilience between either the good or rejected choices of experience.

The above fact is an established result in symbolic logic (Copi 1973). It is stated as follows: let p and q denote two distinct statements. Let p * q denote the common statement of p *and* q. (i) If p is true and q is true,

then p * q is true. In our example of the coarse nut, if the nut comes from tree A; and if the tree A bears that nut then these two statements together positively confirm the truth that the nut and the tree codetermine the fact of the existence of the not. This is the case of the monotheistic law through its attribute of discursive investigation in affirming and discovering unity of knowledge. (ii) If p is true and q is false, then p * q is false. That is if the nut is claimed to come from tree A; but the tree does not exist, then it is illogical to say that the nut comes from A. This is the case of randomness of the rationalist episteme. (iii) If p is false and q is true, then p * q is false. That is if the nut does not exist; then it cannot be claimed to come from the tree A. Thus there is no logic in assuming association between the nut and the tree. This is the case of the rationalist episteme (iv) If p is false and q is false, then p * q is true. That is if there is not nut and no tree; then there is no association between the nut and tree. This is universally true in either episteme. Consequently, rationalist and monotheistic approaches to science meet on specific grounds of concept and application. This is the domain of the absolute reality.

Finally, if H is a monotonic positive mapping on the 'p' and 'q' then the following results will be maintained, respectively to the above ones: (i') H(p * q) is Truth. (ii') H(p * q) is False. (iii') H(p * q) is False. (iv') H(p * q) is True. H confirms the nature of the absolute reality universally.

The Premise and Actualization of the Absolute Reality

The nature of the absolute reality in its ontological, epistemological, phenomenological characteristics of socio-scientific inquiry is most importantly the foundation of Truth in the context of the methodological worldview. Yet it is not just enough to claim that the monotheistic law can establish the property of universality, uniqueness, and irreducibility of the Truth paradigm in and by it. A certain number of properties relinquishingthe monotheistic unity of knowledge from dogmatic ritualism are required. While these are profound areas for analytical investigation, it is time here to explain the premise of Truth of any kind—transcendental or scientific on the unique precept of unity of knowledge according to choices of such possibilities that enable unity of being and becoming to be actualized.

Monotheism as the divine law of oneness should be understood and enacted in such a way that, God and the socio-scientific world-system and

all that is in the heavens and the earth are studied asinseparable entities. Rather, in the sense of the organic relationship of unity in and between the nature of the monotheistic law and its induction of unity of the evolutionary learning world-systems, all these coexist interactively. In other words, a particular deity and the monotheistic law of it, which does not influence the generalized and specific experiences of all world-systems, is makes dysfunctional ritualism. Such a deity is not needed for world-sustenance, socio-scientific explanation, and a revolutionary structuring of science (Choudhury 2014).

The primordial foundation of moral-social construction is discovered in the ineluctable and irreducible foundation of the monotheistic law of unity of knowledge and its induction of the unifying (pairing as complementary and participatory) world-system. The unique and universal worldview searches for the foundational episteme of discovering the unified world-system of Mind and Matter, of the moral and ethical embedding of the material order, and formalism upon these substantive analyses. All such analyses lie in the monotheistic law of unity of knowledge. The permanence of this epistemic law is found to be indelible in the Islamic epistemological worldview of the monotheistic law relating to 'everything'.

In fact, most religions have thought about monotheism as the fundamental law. Hence, the primacy of the monotheistic law as the fundamental episteme of reality is common to all religions and people. A worldview premised on such a unique and universal law of unity of knowledge must therefore be appealing to all peoples even with their diverse religious persuasions and cultural appeals.

Regarding such a nature of the monotheistic law and the world-system, Hallaq (2009, p. 83) writes (edited): "To sum up, the theological-epistemological premises of legal theory (objective andpurpose of the Islamic law = *maqasid as-shari'ah*) set the stage for a legal project that is thoroughly religious in nature: thoroughly, in the sense that there is implieda continuous link between the guiding spirit of the Qur'an and the Propheticlineage (*sunnah*) (which ended with Muhammad)."

Thereby, the present work applies the methodology of unity of knowledge derived in a formal way to specific world-system issues. The objective in the end is to bring out the remiss that is in the rationalistic orientation of socio-scientific intellection by leaving out the functional God from the detailed issues and problems comprising the world-system. Thereby, all of socio-scientific inquiry has remained devoid of an endogenous embedding of ethics and morality in it. Consequently, ethics and morality exist either

as neutral elements or are exogenous in the study of details of the world-system in every rationalist approach to the absolute reality.

In Search of the Unique and Universal Ontological Premise

We now go on to search for that unique and universal premise of unity of knowledge and its ontological, epistemological, and phenomenological functions in the evolutionary learning worlds-systems both by generality and specifics of diverse kinds wherever this is available. Details of the critical approach in this investigative area are left for later chapters.

At this point we deal with an overview of some of the permanent *problematique* of science, and of religious ritualism that remain unanswered in the discursive nature of the particular three properties of the world-systems. These are inter-causal, inter-variable, and inter-entity interaction, discursively leading into the convergence to unity of knowledge by linkages between the diversities of the complementary choices of life-sustaining goods and services. Finally, it is necessary to learn lessons from such continuous experiences across the evolutionary learning domains of unity of knowledge, space, and time. These are the permanent attributes of Truth relating to choices in the evolutionary learning methodological worldview of unity of knowledge. The endogenous nature of the interrelationship of knowledge, space, and time in the causation and re-emergence of events along the path of evolutionary learning is not possible through and in rationalism. That is because complete endogeneity of knowing each other by sharing inter-causal knowledge between entities is not available in the rationalist worldview.

The only exogenous absolute reality in monotheistic law is that of the primal ontology of God, who is the principal cause of all causations. But God remains outside causation and process. The only way that God relates in an endogenous way with the world-system is by the evolutionary learning capability of the world-system to gain in the knowledge of unity and thus to come nearer to the functional understanding of the eventuality of ontology, epistemology, and phenomenology in the order and scheme of everything.

The other singular inter-causality of God in the endogenous absolute reality is the truth of God and the monotheistic law inter-causally self-referencing them. This occurs firstly in the Beginning as the primal ontology of God as Creator and the Absolute One in creation. God and the

monotheistic law is again reflected in the Great Event of the End. This is Terminal Closure of all events in the Hereafter. The Qur'an (78:1-5) says in this regard: "Concerning what are they disputing? Concerning the Great News, about which they cannot agree. Verily, they shall soon (come to) know! Verily, verily they shall soon (come to) know!" We discuss more on these later on in the book as methodological issues with their analytical and applied perspectives.

The De-Knowledge Model of Rationalism in the Absolute Reality

On the other hand, there is also a de-knowledge model of the absolute reality. This is a methodological worldview that represents a differentiated reality, such as of methodological individualism, and a partitioned view of the otherwise system-ensemble as a holistic universal design. In analytical terms, the de-knowledge perspective of the absolute reality is that of a negative aspect of the moral, ethical, social, and human potentiality to co-determine choices according to the monotheistic ontology of unity of knowledge.

On this kind of differentiated worldview between unity of knowledge and de-knowledge Wilson (1998, p.264) writes: "Looked at in proper perspective, God subsumes science, science does not subsume God.... Scientific research in particular is not designed to explore all of the wondrous varieties of human experience. The idea of God, in contrast, has the capacity to explain everything not just measurable phenomena, but phenomena personally felt and sublimely sensed, including revelation that can be communicated solely through spiritual channels."

The ontology of unity of knowledge in the life-fulfillment choices of socially decent behaviour followed by its epistemology and the phenomenological or conscious investigation inherent in relational consequences between mind and matter, law and institutions, cannot be possible in the domain of de-knowledge. Indeed, the rationalist or de-knowledge domain is driven by dialectical processes, which even can be of the biological interactive type, and deeply atheistic (Dawkins 1976; Sztompka1991).

Consequently, the same type of formal analytical model of unity of knowledge can indeed be applied to study the inner dynamics of de-knowledge as of unity of knowledge. This is essentially so because the dialectical process understanding of nature is equally found in the domain of the monotheistic precept of systemic unity of knowledge in the world-system of the moral, ethical, and social experiences. It is used to study

dialectics like that of Hegelianism and Marxism (Resnick and Wolff 1987). This makes the formalism and the underlying methodology of monotheistic unity of knowledge to be universally and uniquely applicable and explainable for all shades of cultures, be these of the monotheistic type, secular, or atheistic. The difference though between the inferences drawn in regards to monotheistic oneness as knowledge, and the nature of such knowledge-induced generality and details of the multiverse is based on the choices of the life-fulfillment artefacts. Such artefacts overarch abstraction, cognition, and matter.

As explained above by the example of the origin of a nut, monotheistic origin of unity of knowledge as the universal law can trace itself to the well-functioning of this law of certainty to explain 'everything'. On the contrary, the ontology of rationalism as in de-knowledge is caused by a plethora of random ontologies that are scientifically viable but not necessarily the certain one to reach truth.

Monotheism versus Rationalism

A rationalist scientific worldview is comprised either in the framework of separable oppositions of cultures and beliefs, dialectical processes of conflicting social Darwinism, and in an infinite regress of selectivity of the powerful genes. The genes form their symbiosis via the routes of physical marginalism and social disenfranchisement in conflicting groups. Such properties of conflict and hegemony remain intrinsic and permanent in the rationalistic order. The rationalistic nature is reflected in the relationships between mind, matter, and the moral law.

The permanent and inevitable cleavage between the monotheistic methodological worldview and rationalism is indeed based on such a *problematique* of differentiation and hegemony by heteronomy. Heteronomy as the permanent mark of rationalism means the coerced differentiation between the two states of human belief and mind. On the one side there is the holistic understanding of a unified multiverse by the recognition given to the possibility of the monotheistic law.

On the other side, there is the self-enforced hegemony of rationalism that denies the possibility of the monotheistic methodological worldview in the science of organic unity between the moral choices of life-fulfillment potentialities. The gap between these two mind-matter states is called antinomy between science and monotheism (Dampier 1961). Such is the prevalent state of disparate understandinginscientific methodological worldview

under rationalism. Contrarily, the gap of antinomy is bridged by the circular multi-causal interrelations along evolutionary learning and deepening potentiality of the interactive and integrative processes of consilience. Such unification occurs along the widest possible realm of unity of knowledge spanning the continuums of knowledge, space, and time dimensions.

The process defined by interaction, integration, and evolutionary learning that progresses on, engages deeply the discursive experience within the moral actualization of monotheism. Rationalism is rejected in respect of its ontological, epistemological, and phenomenological indeterminateness within its particular dialectical discursive process in favour of unity of knowledge. The resulting moral selection, and its continuity over the multiverse of knowledge, space, and time, contrarily rejects the nature of methodical differentiation. The imminent methodology as the way of intellection and its conflict-resulting dialectics mark the hegemony of de-knowledge qua rationalism.

Where does the principle of the absolute reality rest in the midst of the heteronomous dichotomy and the monotheistic holism? Obviously, the absolute reality overarches the widest realm of knowledge and reasoning by its unique and universal multiverse determination of Truth. Truth is governed by the ontology, epistemology, and phenomenology of unity of knowledge across space and time. The absolute reality in rationalism as a negative though inherent nature of reasoning is conveyed by the unique and universal character of limitation in the possibility of scientific heteronomy. By its heteronomy, rationalism of science cannot encompass the wider interactive, integrative, and evolutionary learning domain of monotheistic unity across knowledge, space, and time. On the other hand, the methodology of unity of knowledge engulfs scientific formalism within its own well-defined manifold. Contrarily, the methodology of de-knowledge, equivalently rationalism, is truncated by its heteronomy of differentiated hegemony.

Examples: Affirming Monotheistic Primal Ontology as the Absolute Reality; Rejecting the Hegemonic Heteronomy of Rationalism

Example 2: Theory of Value Concerning Material Artefacts in Contrasting Methodological Worldviews

Think about a farmer who discovers a mysterious new fruit never ever seen on a primordial tree. He plucks it; takes it home; and finds out that the fruit has a rarest disease-treatment medicinal effect. If the farmer sells the

fruit he will make an enormous fortune. The question in the conscionable moral sense is this: what is the moral, ethical, and social value of the fruit that the farmer is productively entitled to take as market price?

A due price upholds the formation of a just market exchange of life-fulfillment needs. Such an ethical market then transforms into a social institution. The ethical transformation renders a novel and ethical valuation method for both markets as ethico-economic institution and for society as a just order. Blaug (1968) points out that the physiocrats in the history of economic thought referred to such socially just valuation of market price as *jus pretium* and the underlying monotheistic belief as *jus divinum*. The Islamic jurists called such a just valuation method and its monotheistic causality of a just social order as wellbeing (*maslaha*). And the price embedded in *maslaha* is valued by means of the gold *dinar* and its smaller denominations (Allouche 1994). This kind of pricing currency was used to assign a real cost to market exchange of a commodity (Qur'an, 18:19).

Exchange Price and the Absolute Reality

According to the above concept of value and price, the absolute reality of marketable exchange and value is determined firstly, by the unknown total value induced in the fruit by the monotheistic will. Its price then would be limitless. Such a value cannot be assigned a marketable price in terms of the infinite value. The marketable value for pricing cannot therefore take into account the monotheistic value as blessing induced in the fruit by the will of God.

The remaining legitimate market value of the fruit comprises the cost of securing the fruit and transacting it in market exchange. The profit over and above this transaction value depends on the demand and supply of the fruit. Because the fruit is a life-sustaining need, the moral conscience and social arrangement necessitates common accessibility to the fruit reproduced as medicine. The cost of inputs in this valuation is generated by harvesting the fruit on a large scale, sustaining it, converting it into medicine, and transaction costs. The nature of demand specification for the life-sustaining medicinal fruits and the generic reproductions are thus eased on the buyer and the seller. Necessary social policy regulations would apply for governing over the final pricing.

In net market valuation, $\text{Net Value}_1 = (\text{revenue} - \text{cost})_{\text{farmer}} + (\text{due reproduction cost})_{\text{social}} + (\text{demand price} - \text{supply price})_{\text{market}}$. This value generates a price that is much lower than the monopolistic price, which

the farmer could charge if he exercised his claim of sole ownership of the un-substitutable fruit as medicinal good. The farmer would then charge a non-market monopolistic price and profit. The price determined from the above-mentioned net value would be, $p_1 = [(\text{Net Value})_1 / \text{quantity}]$. As the quantity of the medicinal good increases, price decreases. The resulting social and ethico-economic good becomes affordable as a life-sustaining good for all.

We imply from the above understanding of value and pricing that, the market is a moral and ethical social institution. It is based on the discursively conscious and participatory processes and self-actualization (social capital phenomenon). Social ordering in life-sustaining institutions of goods and services that accepts the monotheistic law will be susceptible to change in the life-sustaining case. Contrary to this, either the monopolistic rule or enforced regulations on valuation and pricing will prevail in costly ways.

In the heteronomous market process-way of determining value and prices would mean, $\text{Net Value}_2 = (\text{marginal utility})_{\text{demand}} + (\text{monopoly value})_{\text{farmer}} = \text{marginal cost} / (\text{price elasticity factor}) > (\text{marginal cost})_{\text{market value}} \approx p_1$. Out of this contrasting definition of net value the prices $p_2 = [\text{marginal cost} (\approx p_1) + [\text{monopoly surplus}] > p_1$.

This is the way of scientific understanding devoid of the monotheistic law of a participatory, conscious, and life-sustaining universe of 'everything'. While the monotheistic influence would not provide an undue reward to the monopolist, it also does not cause anyone to lose out in the total spectrum of the common wellbeing (*maslaha*). The implication also is this: the absolute reality bestowing sustainability, wellbeing, and a participatory socio-scientific order for the common good is the possibility of the monotheistic law of oneness and unity of knowledge and its formal methodical construction of the corresponding unity of the knowledge-induced world-system both in generality and particulars.

The above-mentioned understanding of value and pricing is equally applicable to all forms of goods and services in the moral, ethical, and social sense. These attributes are deeply embedded in the monotheistic law of oneness and unity of knowledge; and its unified knowledge-induced world-system. In this sense as well, the monotheistic law allows for only ethico-economic social goods and services. Any social good thereby equally subsumes private goods and public goods. Specific examples of the ethico-economic goods and services are life-fulfilling choices in the light of the participatory (equivalently complementary) nature of the monotheistic law by its overarching systemic unity of knowledge.

Example 3: The Absolute Reality in Intertemporal Framework of Asset-Valuationin Contrasting Methodological Worldviews

How ought the future cash-flows of a time-sequenced asset to be evaluated in the light of the moral, ethical, and social properties of the absolute reality? The principle of the absolute reality applied to the valuation of any artefact must be based on the framework of knowledge-flows out of the primal ontology of the monotheistic law and into mundane artefacts. The emergent knowledge-flows from the primal ontology are followed by the emergent epistemology and phenomenology of monotheistic oneness and unification of the multi-causal world-systems.

The problem of asset-valuation now turns out to be similar to example 2 on value and price, but is spanned over the multiverse of knowledge, space, and time dimensions. The fundamental origin of change now is knowledge premised on the monotheistic unitary law of organic oneness in everything (Barrow 1991). Space comprises the manifold of occurrences of the ethico-systemic consequences taking the form of relational epistemology (Radnitzky and Bartley 1988) that emanates from the monotheistic unitary law as the primal ontology.

Time, though, is simply a recorder of knowledge-induced spatial events. Events are defined by the combination of knowledge-flows by evolutionary learning, and their embedding in the multi-causal systemic relational sense of unification of organic forms. This is primarily the result of knowledge-flows arising from the primal ontology of unity of knowledge and inducing the spatial categories in terms of the epistemic nature of phenomenology. An event is not caused in time but not by time. It is only revealed at a point in time due to the combination of knowledge and knowledge-induction of participatory (complementary) things. The event so emerging in terms of unity of knowledge and unity of the knowledge-induced multi-causal system-ensemble occurs at a given point of time.

Thereby, the absolute reality on value and decision-making including the probabilistic occurrence of asset cash-flows as an event must be determined by the interplay between knowledge, knowledge-induced spatial variables, and time simply as a recorder, but not as a determinant variable in causing change. Thus the activities involving relational epistemology and phenomenological study of particulars, both on the basis of its primal ontology of monotheistic unity of knowledge require the knowledge-induced cash-flows. These change over time and are in turn influenced by such spatial changes towards activating new frameworks of evolutionary learning.

Such a momentary point of inter-temporal asset-valuation determines the absolute reality as such a valuation of asset. Asset-valuation generated by cash-flows at the nearest point of occurrence of contingencies of an event is termed in this work as the 'nearest' point of probabilistic occurrence of an event. Thus, the cash-flow in such a situation is contingent upon the following factors:

1. *Participatory decision-making.* This is done on the basis of choices of life-fulfillment needs in the moral, ethical, and social sense that agrees with the ontological, epistemological, and phenomenological constructs of participatory or complementary type holism of systemic unity of knowledge.
2. *The measurement of knowledge-induced change between points in time.* Change is caused by elements of evolutionary learning impacting on ethico-economic processes. The event at the 'nearest' point of change is measured by probabilistic rates of return caused by the induction of knowledge in ethico-economic determination. Such probabilistic rates of change in cash-flows and the rates of return are epistemic in nature and are evolutionary over the knowledge, space, and time dimensions of the inter-temporal framework.
3. *The quantification of probabilistic knowledge-induced rates of return and the associated cash-flows.* This is done on a compounding basis of terminal value of cash-flows and rates of return. The mainstream financial methods instead depend on present-valuation and assumedly projected terminal values on the basis of pre-determined rates of return and cash-flows. Such methods prevail even though cash-flows and states of return may be measured on a probabilistic scale, depending on contingencies of occurrence of events.
4. *The specific nature of evolutionary rates of returns and cash-flows.* The participatory decision-making on the basis of the ethico-economic nature of probabilistic rates of returns and cash-flows make the rates to be profit-sharing ones between expanding number of partners as stakeholders and diversified interlinked projects in the economy-wide sense.[1] The underlying structure of such transactions invokes institutional arrangements and financing instruments with continuous technological change, innovation, and market fluctuations subject to the participatory nature of moral and ethical consilience.

In the end, we note that all the above-mentioned properties of inter-temporal valuation in the context of the absolute reality arise from the

monotheistic primal ontology of unity of knowledge and the organically unified consequences of the knowledge-induced world-system. Contrarily, the discounted present-valuation or the presumed rates of return affecting the time-change of cash-flows need not invoke the subtleties belonging to the decision-making and multi-causal dynamics of the absolute reality in inter-temporal asset-valuation.

In the models of economic rationality the approach to risk and return, and to risk and production diversifications depend upon postulates remaining unchanging over time. Thereby, no endogenous role of knowledge being multi-causal is invoked in such models along the inter-temporal paths (Dorfman et al. 1958). Time and cash-flows with rates of return remain fictive entities. Only in the concept of the 'nearest point' of inter-temporal asset-valuation in the probabilistic sense, the conception of the absolute reality can be invoked. The absolute reality is thereby not at all possible for estimation by the use of the rationality models of asset-valuation. It is approximated in the sense of the 'nearest point'. This is a monotheistic way of explaining the absolute reality by the interplay of multi-causal factors at every point of the inter-temporal evolutionary learning path of unity of knowledge.

Example 4: Evolutionary Epistemology of the Absolute Reality of Unity of Knowledge in Historicism

Historicism means the philosophy of historical change. The monotheistic law and rationalism project two contrary viewpoints of historical change. To understand the role of the absolute reality of evolutionary change in historicism, it is noted that every event point along the historical path is continuously and consistently explained by the assertion of the absolute reality of consilience in the knowledge, space, and time dimensions by two opposite forces.

Firstly, the monotheistic law describes historicism in the normative sense of moral actualization as the systemic continuity of unity of knowledge in its moral sense of unification between knowledge and the knowledge-induced world-system. At the same time, the same type of methodological formalism of unity of knowledge and its moral invoking explains the conflicting and socially differentiating points of historical change. This is a mark of decadence and non-sustainability of moral actualization. Historicism in the monotheistic sense of the moral potentiality is thus the evolutionary learning path that progressively embraces the consciousness

of unity of knowledge by replacing the decadent path of conflict and differentiation and heightening its own stance.

Such an evolutionary learning path of historicism growing out of rationalism and moving into deeper actualization of the absolute reality of consilience of the moral design is somewhat Hegelian (Hegel trans Sibree 1956) in its dialectical nature. But, unlike the holistic methodological worldview of the monotheistic law that denies heteronomy caused by antinomy between the *a priori* and *a posteriori* reasoning, Hegel like Kant, despite their moral leanings, could not unify these two reasoning. The *a priori* reasoning of the monotheistic law is replaced by severing God by heteronomy. Thereby, the historical process is understood to commence within the rationalist meaning of morality, ethics, and social ordering. Such an understanding of the historical process causes the dialectics, social embedding, and consciousness to be in the cast of rationalism. The underlying design of the dialectics is defined by and derived from the prevalence of conflict and social differentiation. Hegel reflected such imminent hegemony in his sole claim of the superiority of German civilization. Recently, Fukuyama (1992) emulated the Hegelian dialectical explanation of historicism to claim the final convergence of world civilization into democratic capitalism.

Selective Definitions of Terms

Epistemology: Theory of knowledge, unraveling the quest for scientific truth from the relevant background and methodology, and explaining how such knowledge is applied to experiential facts.

Circular causation: This is the methodology of unity of knowledge suggesting that, each of the representative variables describing a conceptual-applied problem in the framework of organic pairing of interrelations is inter-causally related with the rest of the variables in certain specific ways—linearly or non-linearly. The empirical results of estimation and simulation arising from circular causation formal method gives rise to coefficients explaining the 'as is' state of reality and then the simulated 'as it ought to be' state. The simulation changes are done by changing the estimated coefficients to better values and signs in the light of the underlying theory of unity of knowledge between the variables that ought to be.

Heteronomy means a coercive view in rationalism that ruptures the absolute reality of continuity between *a priori* and *a posteriori* reasoning;

likewise, it ruptures the connection between noumenon and phenomenon, between deductive and inductive inferences.

Inter-causality means an organic interrelationship between diverse learning systems that are described by their variables. The circular causation between these variables explains the variables and their systems to be organically interrelated.

Monotheistic law means the law of divine oneness. This is further explained and permanently established by means of the signs of God in the entire order of things and happenings of events.

Multi-causality explains systemic organic relations denoted by their specific variables that are conceptually and quantitatively explained via the circular causation formal method and results.

Ontology means theory of existence and thereby of 'being'. We term the 'primal ontology' as the divine origin of creation and of knowledge in the multiverse way spanning 'everything'. We equate the whole of primal ontology with the law of monotheism. But we do not include God as 'being' in the primal ontology. That is because God is outside process and causation.

The derived ontologies denote intermediate functional derivations of knowledge from the primal ontology. These are termed as 'functional ontologies'. *Phenomenology* means theory of consciousness, which in this work is associated with the analytical understanding of events described by the morality and ethicality of unity of knowledge.

Rationalism means humanly improvised thinking based on the design of antinomy (or heteronomy) separating the *a priori* and the *a posteriori* reasoning and thus limiting this reasoning to the realm of logical positivism and to the dialectical learning processes of materialism alone contained in this domain.

Absolute reality means the consciousness and consequences of the monotheistic law in establishing the historical processes on the basis of the Truth of unity of knowledge while rejecting the opposite domain of Falsehood as de-knowledge.

Unity of knowledge explains organic pairing as the understanding of pervasive complementarities and the participatory nature of unity between the good things of life as determined by the monotheistic law. This meaning also rejects the adverse things that belong to the domain of de-knowledge.

Uniqueness explains the convergence between the ontological, epistemological, and phenomenological elements of the absolute reality arising

from the monotheistic law as the most distinctive source of socio-scientific and moral knowledge.

Universality explains the multiverse explanation of socio-scientific methodology that explains both rationalism and unity of knowledge in reference to the overarching methodology of monotheistic holism. Consequently, the nature of Truth and Falsehood are absolutely and clearly differentiated by means of the monotheistic law. There is no relativism between them.

Wellbeing means the formal construct of the objective criterion defined in terms of the inter-causal variables. The functional form explains the degree to which unity of knowledge as signified by pervasive complementarities and participation exist, or are required. These normative states are attainable as strategies and policies of moral reconstruction through the method of simulation. Thereby, the 'as is' state is morally reconstructed if not sustained into an 'as it ought to be' state subject to further evolutionary learning.

Conclusion

The theme of the work is carried out in comparative analytical perspectives. The principal Islamic sources and ideas of the study are how the Qur'an and the *sunnah* (the teachings of the Prophet Muhammad) establish the precept of the absolute reality in relation to the Islamic epistemology of monotheistic unity of knowledge, and its interaction, integration, and evolutionary learning characteristics in the generality and specificity of the unified world-system. Included in this morally comprehensive methodological worldview are the workings of inter-causality in repeated evolutionary phases of the primal ontology, its resulting evolutionary epistemology, and its concordance with phenomenology as the monotheistic study of events at every event-point of the knowledge, space, and time.

What then is the transcendental premise of the ontological and epistemological framework in the methodological worldview of monotheistic unity of knowledge? How is this methodological worldview of unity of knowledge formalized to explain the absolute reality? How is the methodological worldview different from the Occidental constructions of social and scientific reality? Such questions and issues center this research monograph for the informed and scholarly reader and researcher.

The methodological theory and phenomenological construction of the conceptual worldview of the absolute reality is derived from the Islamic

ontological and epistemological roots. The complete work comprising theory and applications will then decipher the working of the epistemic methodological worldview on various fields of socio-scientific erudition. Such studies are constructed on the basis of the Qur'anic methodological worldview of unity of knowledge that explains the evolutionary learning world-system of organically unified multiverse systems.

This book is both scholarly and readable by the informed readership. The message of the absolute reality is the exegetic search and discovery, and the nature and delineation of the unique and universal formalism arising from the precept of unity of knowledge. The epistemic methodological approach of this readable and comprehensive book rests on the exegesis of specific verses of the Qur'an and the *sunnah,* leading to the authentic establishment of the conceptual nature of the exegesis and its applications to the generality and specifics of various themes in economics, finance, science, and society.

Note

1. The economy-wide concept is different from that of macroeconomics. Likewise, microeconomics in the endogenous moral and ethical sense is not premised on the rationality axioms of economic theory. Rather, behavioural patterns of decision-making endogenously interrelate with the natural process, as of market exchange.

   Economy-wide nature of the moral and social economy (Boulding 1971a,b) involves aggregation by subtle interactive, integrative and evolutionary learning of micro-level consumption preferences and production menus in the moral ontological, epistemological, and phenomenological sense as the structure of the sure reality.

   Macroeconomics is the study of aggregate economic variables. These are not formed by the aggregation of microeconomic variables, preferences, and production menus. Aggregation in macroeconomics is quantified by sample surveys of critical variables to study their interrelations. These are also amenable to regulation and policing with the objective of monitoring the economy in a state of non-inflationary growth and sustainable development.

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CHAPTER 4

Formalism of the Methodological Understanding of the Sure Reality in Terms of Unity of Knowledge

The concept of the sure reality within the ontology, epistemology, and phenomenology of the monotheistic law and its exampled application was pointed out in Chap. 1. The principal lesson learned was the specific nature of the reality arising from the monotheistic law as the primal ontology. However, the contrary view on the impossibility of a holistic knowledge universe was presented in our explanation of rationalism. Heteronomy means the breakdown of continuity between the *a priori* and the *a posteriori* domains of reasoning. Thus, rationalism was argued to project a heteronomous nature of reasoning. It severs God, the world-system, and the returning back to God via paths of evolutionary learning. Consequently, knowledge as a symbiotic consilience of the sure reality at large remains unattainable in rationalism.

In this chapter, the opposing views are invoked again. The sure reality as Truth by belief, cognition, and evidence is formalized in a symbolic way in this chapter. We leave deepening details further on in the book as it develops. The objective of this chapter in respect of formalizing the ideas presented in Chap. 1 is to prepare the stage towards a deeper explanation of the sure reality conceptually. The conceptual stage is taken to the level of quantitative application. The applications are made in the fields of economics, finance, society, and science as this work progresses. Despite this objective of the chapter and of the book as a whole, any mathematical treatment is left to its minimum, and replaced by textual explanation.

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_4

The focus of this work is on the theory and application of the sure reality as it emanates from the coterminous interrelationship between the following domains: the primal ontology of monotheistic oneness, the imminent evolutionary epistemology, and the study of phenomenology as the inner structure of events under investigation. These segments are unified in a multi-causal fashion to generate evolutionary learning along histories marking systemic unity of knowledge (Hubner 1985; Hawking and Mlodinow 2010). The representation of historical change and progress in the episteme of unity of knowledge is of critical importance in studying evolutionary relational epistemology encapsulated within the monotheistic law of organic oneness and multi-causal consilience (Campbell 1988).

A Comparative Study of the Epistemological Beginnings in Monotheistic Law

As intended in this work, the reality emerging from the monotheistic unity of knowledge is studied comparatively, against the background of history and philosophy of science. The Qur'an is singled out to highlight the project of this book in both its conceptual and applied perspectives. This in no way implies the absence of similar principles and methodological worldviews in other religions or in secular philosophical thought. See for instance Edel (1970). There is excellent work on the idea of ethics as a scientific study. We also know about Spinoza's (Standard Encyclopedia of Philosophy 2013) and Einstein's (n.d.) conception of a living God in Judaism.

Spinoza thought about the relationship of God and the universe in terms of nature and a being with an infinite number of attributes. He argued that such a God does exist, but possesses no human likeness. Although Spinoza's idea of God was of the nature of individual belief, it is possible to extend such an attribute to the inter-relationship between God, individual and society at large through the postulate of God having infinite attributes. Certainly then some of these attributes relate the monotheistic law to the social and scientific order.

Einstein gave due credence to the possibility of ethics arising from monotheism as a possible factual, scientific explanation. Einstein wrote on this issue: "It is the privilege of man's genius, impersonated by inspired individuals, to advance ethical axioms which are so comprehensive and so well founded that men will accept them as grounded in the vast mass of their individual emotional experiences. Ethical axioms are founded and

tested not differently from the axioms of science. Truth is what stands the test of experience."

We also learn about the worldly function of God in Christianity as expressed in the following words of Bruteau (1997): "If you can see the God you love present in, even as, this world, then feel that union and rejoice in that. And be active in it, contribute to it, participate in the building, in the artwork, in the healing, in the understanding. This is where Reality is. You yourself are both a member of the Finite and a member of the Infinite…."

The ideas of Thomas Aquinas regarding the universal functionalism of God are also well-known in terms of the circular plan between God and 'everything'. In this regard Torrell (2005, p. 27–36) writes: "The work (*Summa*) is in fact constructed according to a circular plan that draws the reader into the 'going-out-from-returning-to' (*exitus-reditus*) movement, which is that of the entire universe coming from God to creation and returning to him as its final end." The circular plan could be examined as our formal method of circular causation emanating from the organic nature of complementary interrelations between variables and entities out of the monotheistic law of unity of knowledge. Likewise, Aquinas' circular plan is an explanation of interrelating verities inside worldly process in the *Summa Theologia*.

Lonergan further developed Thomas Aquinas' idea of a circular plan to explain the dynamic structure of being and becoming in the world-system (see Hosinski 1987, pp. 63–78). According to the monotheistic law, Aquinas' circular plan is seen to translate into the process of deriving knowledge through paths of evolutionary learning.

The brief survey above points out that the role of God and religion in worldly affairs and in the philosophy of science establishes the place of the monotheistic law and its dynamics in the affairs of the socio-scientific world-system. Such a premise is therefore common to all religions, though with differences in cultural understanding and practice. It is therefore possible to invoke the monotheistic law in its creative and dynamic content to the socio-scientific study of the multiverse world-system from this common vantage point. Consequently, the primal ontology, epistemology, and phenomenology in all religions connect with the monotheistic law manifesting unity of knowledge in the unifying generality and particulars of the world-systems. We have explained this fact in Chap. 1 as the cardinal attribute of reality. This attribute of unity of knowledge brings out the commonality of an imminent analytical methodology in the common field

of the monotheistic law and its relationship with the generality and details of the world-system. Rationalism remains the only difference in respect to the socio-scientific worldview of unity of knowledge. By the present explanation of commonality, similar forms of differences in understanding prevail between the monotheistic law and rationalism on matters of socio-scientific methodology, formalism, analytics, and applications.

The Ontology, Epistemology, and Phenomenology According to the Qur'anic Precept of Monotheistic Law and the Unity of Knowledge of and by It

In spite of much similarity between the Islamic and other comparative epistemological approaches to the study of the monotheistic law in the organic unity of the multi-causal world-systems, there are also subtle differences. The principal difference comes out of the way that God as Creator is comprehended in the monotheistic law and otherwise. God otherwise can be a corporeal being and change shape and functions between abstraction and corporeality in various religions.

In Islam, the cardinal principle of belief is the oneness of God as the absolute Creator who has no partner in creation. This principle is overarching. It stretches from the beginning to the end of the ontological, epistemological, and phenomenological processes of reality. While the oneness of God as the irreducible axiom establishes the cardinal precept, God is moreover non-cognizable, non-commensurate, and permanent in creation. Hence, God is impossible to comprehend as 'being' in any form despite His primordial existence. In order to comprehend God in creation despite the impossibility conveyed by the absence of God as 'being' of any kind, and of God in the process of creation, the primordial ontology of the monotheistic law rests fully on the nature and completeness of this law. It relies on oneness as the essence of unity of knowledge induced in 'everything'.

Therefore, when the oneness of God in creation is invoked, there is no corporeality of 'being' attached to this firm belief. This is the precept of oneness, with God as the absolute and sole creator by means of the monotheistic law. In Chap. 1 we explained how the monotheistic law of unity of knowledge forms the universal and unique design of organic symbiosis in the coexisting ontological, epistemological, and phenomenological sense.

Therefore in Islam, the oneness of God as the sole and absolute Creator is understood by the law of organic multi-causal unity of knowledge premised on the monotheistic law. The monotheistic law manifests itself by the Signs of God in the complete scheme, order, and nature of being and becoming of the multiverse in its generality and particulars (Choudhury 2015).

In regards to such a multi-causal unity in the sure reality Gulen (2006, p. 148–49) writes: "We use 'the horizon of hope' to mean traveling beyond the visible dimension of existence, and considering existence as an interrelated whole in the absence of which things and events cannot be perceived as they really are. Nor can its essence and relation with the Creator as well as the relation between them and humanity be grasped. Scientific disciplines that conduct their own discourse largely in isolation from one another and the prevailing materialistic nature of science that has compartmentalized existence and life cannot discover the reality of things, existence, or life."

The Qur'an indeed declares its stance on the above-mentioned points. We provide brief exegeses of these verses here:

1. *Primal ontology:* The *surah*, or chapter of the Qur'an, *Ikhlas* (112:1–4)[1] declares the primordial attributes of God that establish the primal ontology of belief in God as the sole creator. Yet, the functional dynamics of the monotheistic law in creation is left for other verses of the Qur'an to explain. The Chapter *Ikhlas* on God's Ultimate Purity establishes the cardinal axiom of the monotheistic law. In the context of the dynamics of the monotheistic law in unity of knowledge and the multiverse, *Ikhlas* organizes the principle of oneness. There is no need beyond *Ikhlas* to go into the unfathomable metaphysical meaning of God, for that would be a futile effort. But to complete the explanation of the dynamic nature of monotheistic oneness it is necessary to project the principle of God's oneness used in carving out the similar function that the monotheistic law performs in reflecting the divine oneness in terms of multiverse unification by multi-causality of unity of knowledge.

   The fact that *Ikhlas* establishes the primal ontology of Islamic monotheism, but invokes other Qur'anic verses to bring out further properties of the monotheistic law of unity of knowledge can be deduced from the following saying of the Prophet Muhammad (*Sahih Al-Bukhari hadith 6:534*): "Abu Said Al Khudri narrated that God's messenger replied to his companions—the Chapter of *Ikhlas* is equal to

one third of the Qur'an." The exegesis that we can draw from this hadith and the nature of primal ontology of *Ikhlas* is that every complete interpretation of the qur'anic *ayath* (verse, sign) requires the use of the three parts of establishing Qur'anic understanding. These are primal ontology, epistemology, and phenomenology in continuity of knowledge, space, and time.

2. *Epistemology: Ayath al-Qursi* (2:255)[2] presents the dynamic, active view of the cardinal belief of Oneness conveyed by *Ikhlas*. The Qur'anic expressions in the verses of *ayath al-qursi* point out the dynamic creative function of the monotheistic law in all matters between the heavens and the earth. This comprehends all abstractions as part of the ultimate completion of knowledge that is vested only with God. This spans the explanatory nature of the monotheistic law. The ontological nature of the Chapter on *Ikhlas* opens up the derivation and function of knowledge that are derived from the primal ontological roots. The exegesis of the part of the verse, "the Living, the Self-sustaining, Eternal. No slumber can seize Him nor sleep. His are all things in the heavens and on earth", brings out the epistemic totality of deriving the functional flow of knowledge by the dynamic and continuum activity of the monotheistic law in 'everything'. And such monotheistic epistemological induction has no limit. It is continuous in 'everything': "He knows what (appeared to His creatures as Before or After or Behind them. Nor shall they compass aught of His knowledge except as He wills. His Throne doth extend over the heavens and the earth, and He feels no fatigue in guarding and preserving them for He is the Most High, the Supreme (in glory)".
3. *Phenomenology: Signs of God and the universe* The Signs of God in the Qur'an form the continuous and overarching multiverse world-systems of unity of knowledge across the knowledge, space, and time. Such form the continuums. The Qur'an (1:2) refers to the multiverse world-systems that are altogether washed by the Sign of God in the meaningful framework of unity of knowledge as *a'lameen*, or 'worlds'.[3] The message is extracted and sustained from the beginning to the end of time and the multiverse—that is in continuity and continuums, and across all its details in diversely multi-causal world-systems. Such an overarching meaning and intellection remains the most purposeful guidance for affairs of mind and matter.[4]

In this spirit of intellectual inquiry the meaning of phenomenology is now unravelled. The Qur'an by the above verses is invoking the mind

and intellect to penetrate the nature of conscious experience with purpose, meaning, and bestowal of wellbeing to all. Through the conscious understanding of existence interconnecting the self and the other by the monotheistic law, reality becomes a certainty. The Signs of God which are so unravelled to ascertain the sure reality arising from the monotheistic law are therefore evidenced in the embedded nature of the socio-scientific order. History is a vivid exemplar of the sure reality of God's Signs.[5]

4. *The multi-causal evolutionary epistemology*: The interactive, integrative, and evolutionary learning process that spans the entire realm of the sure reality arising from the monotheistic law of unity of knowledge is expounded by the Qur'an (6:93–99) in many verses. We consider here a portion of the mentioned verses to bring out the multi-causality of the natural processes. Multi-causality in unity of knowledge is embraced by the monotheistic law as the sure reality. It is explained by the Qur'anic verse: "It is God Who causes the seed grain and the date-stone to split and sprout. He causes the living to issue from the dead, and He is the One to cause the dead to issue from the living. That is God; then how are ye deluded away from the truth?"
5. *Continuity and continuum of the sure reality along the evolutionary learning process from the Beginning to the End; from the End to the Beginning*. The completeness of knowledge and its evident and inherent explanatory power are established as a Closure in causality, and thereby of history. That is, the relational order of multi-causal connectivity must explain the widest possible neural network of such organic interrelations. This kind of inter-causality in the multi-causal domain invokes the properties of endogenous dialectical processes in the small and the large scale universal orders. In the small scale universe there is continuous evolutionary learning across continuums of the knowledge, space, and time. In the large-scale universe evolutionary learning ends by the attainment of the only possible optimality and steady-state equilibrium at the Closure. The Closure thus displays the property of the endogenous forward and reverse causality in its only optimal state: Beginning ↔ End. This state of the evolutionary learning abides both for the corporeal universe and its intellection process. Such a closure also requires the prevalence of the inter-causal identity over space denoting continuums; time denoting continuity; and knowledge induction signifying continuity over continuums as the true reality inducing space and time. This understanding also conveys the fact that,

a similar inter-causality dynamics prevails permanently in the open-ended evolutionary learning processes of the small scale multiverse; and for the large-scale terminal multiverse. We thereby write: Beginning ↔ world-system ↔ End.

The inter-causality between the world-system and the Beginning is the function of knowledge to reach higher and deeper levels of understanding the sure reality of the monotheistic law. Likewise, the inter-causality between the world-system and the End means to map the purpose of the Great Event of the Hereafter as a learning eventuality in monotheistic unity of knowledge. The small scale multiverse generates plethora of ontologies as the study of existence and 'being' in functional ways of acquiring higher levels of knowledge of the primal ontology (Beginning, End) through the evolutionary learning experience of the world-systems. Thereby, the logical result of the compound mappings of interconnectivities of the world-system with the Beginning; and of the world-system with the End, together implies the permanent endogenous identity between the Beginning and the End for the large scale multiverse. Closure is thereby the Beginning and End of history marked by the evolutionary learning process.

On the above topic of analytical closure the Qur'an declares the process causality. (i) (57:3): "He is the First and the Last, the Evident and the Immanent: And He has full knowledge of all things." (Beginning → End). (ii) (92:13): "And verily unto US (belongs) the End and the Beginning". (End → Beginning). (iii) (3:109): "To God belongs that is in the heavens and on earth: To Him do all questions go back (for decision)." (Beginning ↔ End). This derivation of the inter-causality property of the large-scale universe is a consequence of the reality of evidence enabled by the monotheistic law of unity of knowledge.

Because the nature of inter-causality washes everything in the large-scale universe of the Closure, the small-scale universes as subsets of the Closure form together the world-system of multiverse. Thus the permanence of evolutionary learning is bestowed upon the subsets of the large-scale universe. The exception though, by logical deduction, is that the small-scale universes being the subset of the terminal universe of the Closure form open-universes. Therefore, they permanently learn in unity of knowledge while rejecting the sure reality of de-knowledge. Or the decadent choice by human societies learns in de-knowledge while rejecting the knowledge-centered sure reality. The corresponding dialectical evolutionary processes of learning and 'de-learning' are per-

manent attributes of the small-scale universe. The Qur'an[6] attributes the re-originative nature to such universes as this sure reality in accordance with the monotheistic law of organic unity of being and becoming.

But there is no such evolutionary learning process left at the beginning and end points of Closure. Consequently, although the properties of optimality and stead-state equilibriums do not exist in the small-scale evolutionary universes; the Closure is endowed by these most singular properties of optimality and steady-state equilibrium in the framework of knowledge. This also bestows the same properties to space and time that are induced by optimal knowledge at the Closure.

The Closure and its property is different in Islam from other religions. The expression, $\alpha \rightarrow \Omega$ in other religions was possibly not completed by $\Omega \rightarrow \alpha$. Thus the overarching inter-causal relationship, $\Omega \leftrightarrow \alpha$, could not be established. This remiss is possibly because earlier scriptures did not carry any such expression and meaning. There is also the problem of corporeality in the expression $\alpha \rightarrow \Omega$ in latter days' scriptures that differs from the understanding of the earliest versions of the scriptures (Wikipedia, http://en.wikipedia.org/wiki/Alpha_and_Omega)

Socio-Scientific Synthesis of the Methodological Worldview of Unity of Knowledge

Some important socio-scientific inferences can be derived from a formalism invoking the above-mentioned properties of monopolistic methodological inquiry in unity of knowledge. We consider a few important ones here to bring out the following facts: (1) the monotheistic methodological worldview establishes an explanatory universality that performs two tasks. Firstly, it is scientifically sound and extendible over all domains of problems, analysis, and applications. The meaning of such extendibility is a mathematical one. It is derived from the self-referencing questions on the theorems of incompleteness of arithmetic formalized by Godel (Godel 1965; Smullyan 1992). (2) The extendibility theorems of self-referencing also establish the all-comprehensiveness of socio-scientific inquiry. (3) The extendibility theorems in respect of the monotheistic law apply to a critical evaluation of the rationalist approach to scientific reasoning. Contrarily, rationalist scientific reasoning cannot explain the vastness of the monotheistic vista of meta-scientific explanation (Ledger and Pickard 2004).

Self-Referencing for Completion of Knowledge in the Monotheistic Law

The complete super-manifold of multi-causal relations denoted by the Closure, Beginning (Ω)↔End (Ω), through the evolutionary learning processes of the world-system is the idea of self-referencing of the primal ontology denoted by Ω. An extensive field of complexity is embedded in the passage through the multi-causal world-systems. Such complexities exist in the world-system relations in respect of evolutionary learning in multi-causality. These are not found in the identity Closure mapping, Ω↔Ω. Circular causation method derived from the endogenous nature of interactive, integrative, and evolutionary learning relations are central to the study of monotheistic unity of knowledge in world-system problems.

The first property of self-referencing methodology is discovered through circular causation and continuity model of unified reality. This is true of the knowledge, space, and time; as well as to normatively correct for the de-knowledge model as of rationalism. The circular causation model is manifested as a continuous invoking of guidance and law that are derived from the epistemology of monotheistic unity as the ever-'presencing' of events in the circular causation and continuity model of unified reality.

The second property regarding the critical complex expression, Ω→world-system→Ω involves externalizing the monotheistic guidance and law by their particular kind of methodical formulation. The resulting kinds of functional expressions of systemic unity of knowledge were referred to earlier as functional ontologies. In the Qur'anic intellection such ontologies form methodical formalism involving the diversity of possibilities to establish unity of knowledge in details of world-systems. The circular causation involving compounded deductive and inductive reasoning invokes interaction and integration between the participating and complementing entities. Such entities belong to both the animate and the non-animate world of matter and mind. The functional ontologies are explained by the Signs of God (evidence of monotheistic law). The Qur'an (6:38) declares on such diversely pervasive systems of inter-causal complementary entities: "There is not an animal (that lives) on the earth, nor a being that flies on its wings, but (forms part of) communities like you. Nothing have We omitted from the Book, and they (all) shall be gathered to their Lord in the end."

The third property of circular causation in explaining the multi-causal universe is to explain all affairs by the joint comprehension of the

ontological, epistemological, and phenomenological aspects of unity of knowledge. Such are the representations of the sure reality arising from the above-mentioned coherence of the Signs of God as the systemic beings out of the process of becoming. See Sherover (1972) on his similar concept of the ontic. The ontic stage of being completes a process of becoming. At such points interactions are shown to lead into integration among the relational entities of the world-systems to identify the sure reality.

The fourth property of evolutionary learning arising from the knowledge-induced continuity repeats the three stages of any evolutionary process order. The three stages comprise the continuous and continuum inter-causal relationship between ontology, epistemology, and phenomenology of all historical points as events.

The fifth stage of the monotheistic worldview marks the realization of the inherent law of completion of unity of knowledge in the Hereafter (Ω). In this final stage the sure reality is manifest by self-referencing, Ω↔Ω through the multiverse world-systems.

It is also important to note yet another central feature of our meaning of self-referencing in terms of the Qur'anic methodology. This is the fact that even at the smaller scale universe of ontic forms (evidence), wherein truth (hence also falsehood) is explained by ontological rules derived from the epistemology of divine guidance and law, there must continuously prevail the conscious invocation of God's Command at every moment of the continuum in evolutionary phases.

In this regard the Qur'an declares (36:82–83), "Verily, when He intends a thing, His Command is, 'Be', and it is! So glory to Him in Whose hands is the dominion of all things: and to Him will you be all brought back." The exegesis of this verse is that, evolutionary learning in unity of knowledge brings about increasing comprehension of the spontaneous and continuous process of creation under the monotheistic law. These interrelationships evolve into higher stages of knowledge-flows, and in the process, they refer back all existence to the Will of God as they are 'all brought back' to Him. The 'Final Event' thus marks the final return of all experiences to God at the occurrence of the Great Event of the Hereafter, when 'to Him will you be all brought back'. In temporal time the reference here is to the constituent consciously learning and ever-changing events in world-systems (*a'lameen*).

Extendibility by Self-referencing

Extendibility of the monotheistic law in unity of knowledge is proved by the fact that the property of heteronomy between the *a priori* and *a posteriori* reasoning, between *noumenon* and phenomenon, and between deductive and inductive inferences is removed by the continuous intercausal unification of all these domains by the mechanism of circular causality and evolutionary learning. Instead, the imminent monotheistic law and its moral and ethical consequences, both of which are found in occidental metaphysical beliefs, is possible in the separated heteronomous domain of the *a priori* realm. The duality between the two partitioned realms of God and the world causes the redundancy of God, and thereby, of the monotheistic moral law in the *a posteriori* world-system. Occidental scientific methodology thereby is incapable of linking, that is, extending the monotheistic law into the realm of science and vice-versa by embedding causality between these otherwise unified realities in reasoning. The *problematique* of heteronomy causes the impossibility of attaining total knowledge, as in the duality posed by Kant (1964) and Hume (1988).

In the realm of the monotheistic law, the duality caused by heteronomy (and thereby antinomy) is avoided by the properties of universality and overarching between the *a priori* and *a posteriori* reasoning, using the nature of circular causation. Such unification arises from the methodical ontology derived from the monotheistic law in terms of its creative action in the world-system. The conceptual, quantitative, and empirical consequences that establish the coexistence between primal ontology, epistemology, and phenomenology reflect the sure reality of the world-system governed by the monotheistic law. The circular causation model of unified reality establishes the extendibility of the monotheistic law by means of its property of continuity and continuum over the widest extent of the knowledge, space, and time . Besides, this attribute is signified by both forward and backward linkages via the dynamics of evolutionary learning processes. This dynamic, however, excludes the primal beginning (Ω) and the final end (Ω). These events as the unique sure reality in their primordial states are the only possibilities for optimality and equilibrium. Optimality and steady-state equilibrium cannot exist anywhere else in the evolutionary learning universe (Choudhury 2011).

The extendibility of the generalized nature of the monotheistic law of unity of knowledge is proved also by its capacity to explain the analytical limitation of the heteronomous socio-scientific philosophy. Science as

Darwinian process (Hull 1988) is the sure reality of the anthropocentric knowledge, space and time of the rationalist world-system. The intellection in this case cannot penetrate the realm of the multi-causal explanation of the holism caused by the analytical treatment of unity of knowledge. Contrarily, the universality of monotheistic unity of knowledge by its circular causation method extended endlessly over the evolutionary learning nature of histories can normatively, quantitatively, and empirically explain the nature of differentiation and lack of complementarities and participation of the rationalist methodology, while it explains the creative dynamics of monotheistic unity of knowledge.

The method imminent in the monotheistic law of unity of knowledge that can quantitatively and empirically explain the working of the circular causation method is left towards the end of this work. The induction of knowledge value (degrees of organic complementary interrelations) or the incidence of de-knowledge (lack of complementarities or participation and widening differentiation) involves a method of estimating and simulating dynamic coefficients. In this, complex models of interactive, integrative, and evolutionary learning systems are used (Choudhury 2014; Bertuglia and Vaio 2005).

Scientific Inquiry on the Extendibility Nature of Monotheistic Law

The most profound nature of science is presented by the monotheistic law through its predominant property of extendibility in continuity and continuum by unity of knowledge and the unified world-system is intervariable complementarities and participations. These are made possible by the dynamics and practice of the law of monotheistic unity. In this sense, the most powerful purpose and objective of science must be to reach a state of unity of being and becoming in multi-causality. It can then be inferred that the explanation of this sure reality is made possible through the combination of primal ontology, epistemology, and phenomenology. Such an intellectual and organic unification attains methodological formalism, analysis, and application of the unified nature of science. This is discovered in and through the monotheistic law in its sublime context of organic unity by the divine law devoid of dogmatism; further, events are formed and evidenced along the multi-paths of history.

Indeed, such a path is the ultimate outlook of science! In this respect, the goals of monotheistic law and scientific law are in agreement with each

other. The missing point of rationalist approach toward scientific intellection is the presence of its heteronomy that denies it the possibility to extend beyond the *a posteriori* realm by means of endogenous relationship in assimilating the *a priori* with the *a posteriori* by way of the unified law between these two realms of reasoning. Consequently, God, morality, ethics, and their dynamic integration and continuity in the cognitive and natural realities remain exogenous or neutral in the hetronomous state of reasoning in rationalism. This is the limitation of the scientific methodological worldview.

Religion, philosophy, science, and society ought to depart away from their segmented domains that remain in isolation of each other. The result would then be to establish inter-causality between such disciplines and their particulars. Those elements, beliefs, methodology, and the potentiality to condescend to the imminent sure reality for all, and those that are not approachable by a consilience methodology of unity of knowledge otherwise derived from its most holistic foundational premise, will fade away. On this point Wilson (1998, p. 12) writes, "We are approaching a new age of synthesis, when the testing of consilience is the greatest of all intellectual challenges. Philosophy, the contemplation of the unknown, is a shrinking domain. We have the common goal of turning as much philosophy as possible into science." To this I add: the core of the hitherto unrealized science is the monotheistic law as we derive and characterise it in terms of unity of knowledge. Such a law would prevail as the sure reality in all the disciplines by consilience. I present a substantive chapter on this topic, relating to the universality and uniqueness of the socio-scientific methodology in this work.

Symbolizing the Lessons of the Sure Reality from Methodology and Examples

The sure reality (U) is the understanding of the cognitive and corporeal nature of things occurring as events, $\{\theta, \mathbf{X}(\theta); t(\theta)\}$, at any point of time, $t(\theta)$. At such points of time the impact of multi-causality forming events is explained by the induction of knowledge-flow, $\{\theta\}$ on artefacts, $\{\mathbf{X}(\theta)\}$. The simultaneous occurrence of $\{\theta, \mathbf{X}(\theta)\}$ takes place by the circular causation interrelationship between the primal ontology (Ω); its derived epistemology ($\Omega \rightarrow$world-system$\rightarrow \Omega$); and phenomenology of unity of knowledge and its induction of the knowledge-induced world-system in generality and particulars. This is denoted by the structural induction of

knowledge-flows $\{\theta\}$ in forming events over the evolutionary learning trajectory denoted by, $(\{\theta, \mathbf{X}(\theta); t(\theta)\} \in U;\ \theta \in U \subseteq \Omega)$. Such occurrences of events reproduce their organic interrelations continuously over the knowledge, space, and time. Such reproductions of monotonic evolutionary processes are realized by functional transformations, $\{f\}$, which too are functional ontologies derived from the primal ontology (Gruber 1993).

We can now denote the combination of all interrelations in the evolutionary and continuous knowledge, space, and time as follows: $\Omega \supseteq U \supset \{f\}[(\{\theta, \mathbf{X}(\theta)\}) \in U \subseteq \Omega]$. This chain of multi-causality systemic expressions means that, the expansion of knowledge over space and time increases the understanding and induction of the monotheistic law, which is denoted by Ω as the primal ontology.

In the final instance of the evolutionary learning universe, the super-cardinal and super-manifold equivalence holds as the most perfect state of the sure reality: $U \subseteq \Omega$. The epistemology of the monotheistic law is denoted as the total interrelationship implied by the expression $\{f\}[(\{\theta, \mathbf{X}(\theta); t(\theta)\}) \in U \subseteq \Omega)]$. Such interrelations recurrently occur continuously by evolutionary learning spanning knowledge, space and time.

The phenomenology as moral consciousness is denoted by the constructive examination of an event in the vector $\{(\theta, \mathbf{X}(\theta)); t(\theta)\}$ at any particular level of knowledge-induction $\{\theta \in U \subseteq \Omega\}$ over time, $t(\theta)$. The primal ontology, epistemology, and phenomenology in the context of evolutionary learning over knowledge, space, and time are now summarized by the chain of multi-causal relations,

$$\Omega \supseteq U \ni \{f\}[(\{\theta, \mathbf{X}(\theta); t(\theta)\}) \in U \subseteq \Omega] \tag{4.1}$$

This expression implies the expression (4.2) in regards to the multi-causal monotonic positive effect of knowledge-induction,

$$S(\Omega) \supseteq S(U) \ni S[f][\{\theta, \mathbf{X}(\theta); t(\theta)\}] \tag{4.2}$$

Expression (4.2) can be re-written for convenience as,

$$(\Omega, S) \supseteq (U, S) \ni (S, f)(\{\theta, \mathbf{X}(\theta); t(\theta)\}) \tag{4.3}$$

The above expressions mean that the primal ontology and its impact through functional ontologies explain the nature, cognition and evidence

of the sure reality. The sure reality as expression of unity of knowledge finds its repetitive explanation in the epistemological representations. Within such representations are the specific studies of events in terms of knowledge and space given moments of time reading the occurrence of events.

The expressions like (4.1)–(4.3) cannot be found in the rationalist invocation of scientific methodology. That is because the non-existence of the irreducible primal ontology of the monotheistic law results in the absence of the sure reality. Randomness of the events by lack of completed understanding prevails along any path of rationalist inquiry. An example of such a case study is water defined by the chemically distillation of a compound with two atoms of hydrogen and one atom of oxygen. Such a specimen of water has limited usability beyond laboratory requirement. Thus, H_2O as water cannot be contained in the natural and usable basket of reality. In this case, the sure reality is made up of organically unified ingredients that make up portable water for the general use.

Derivation and Nature of the Monotheistic Primal Ontology, Evolutionary Epistemology, and Phenomenology: The Islamic Case

The Qur'an on the Nature of the Sure Reality (al-haqqa)

There must be a proven way to establish the universal and unique concept of the sure reality in the socio-scientific philosophy of material experience. Thus there must be an established way of reflecting on all the methodological properties of the summarized expression (4.3) in respect of historicism and the specific examples of the type that were explained earlier. In this respect, it is our objective in this chapter, and comparatively in this entire work, to explain how the Qur'an establishes the sure reality and how our approach is indeed extracted from the Qur'an*'s* ontological, epistemological, and phenomenological foundations of understanding the world-system in its entirety (generality) and details in respect of specific matters.

The Qur'an (59,1–3) declares: "The Sure Reality! What is the Sure Reality? And what will make thee realize what the Sure Reality is?" The chapter named Sure Reality narrates the calamities that will inevitably to fall on man and society due to their departure from the path of moral truth. The domain of truth established by the monotheistic law is that of felicity evidenced and promised in continuity of the principle of adoption

of the monotheistic truth of consilience from the Beginning to the End as the Hereafter. This must happen through the experiential processes of the conceptual, cognitive, and applied nature of the world-system.

These kinds of recurrence of events have been proved in the history of Thamud and 'Ad (Qur'an, 59:4–8); of Pharaoh and his destruction (59:9–10); of Noah and his destroyed community (59:11); and the end of time by the ultimate occurrence of the Great Event of Truth overwhelming Falsehood in the Closure. The Great Event of the Hereafter is thus the manifestation of the ultimate sure reality (59:12–33). The wrong deeds of inequity are drowned in Falsehood. These are narrated as historical facts (de-knowledge), which were punished within the experience of knowledge, space, and time to convey great lessons of the defeat of Falsehood (59:33–37).

The path of multiverse history from the beginning to the end at the moment of the Great Event of the Hereafter is strewn with examples of continuous conflict between Truth and Falsehood, with the final destruction of Falsehood as entropy and the permanence of Truth as de-entropy (59:38:43). In all of such lessons of certainty in historical scale and the final assertion of the sure reality of the Day of Judgment, the Great Event of the Closure conveyed by the Doomsday with the ensuing reward and punishment thereafter at the Day of Judgment, is the sure reality. Indeed, cases of entropy of falsehood and the sustainability of truth have been perpetually witnessed in living history.

The multi-causality of the world-system leading to this inevitable finality of the Hereafter is the monotheistic law both at the beginning (Ω) and the end ($\Omega \rightarrow$world-system$\rightarrow \Omega$). Such is the sure reality of the multiverse closure of Truth against Falsehood in all matters of life and experience (59:43, 48–52). In all these respects the message of the sure reality is transmitted by the Qur'an through all the messages of the prophets (59:40), culminating in the finality of the teachings of the Prophet Muhammad (59:44–45).

The System-Orientation of Multi-Causality in the Qur'anic Meaning of the Sure Reality

The systemic nature of the multiverse of organic unity is caused by the monotheistic law as the primal ontology of causation (being). The enacting of the monotheistic law in experience is conveyed by all the messengers appointed by God over historical time. The monotheistic

law is completed with the Prophet Muhammad. The same practice is carried further on by the believers. These multiverse facts of the monotheistic law in relation to the universal system are brought out in the verses of the Qur'an (13:1–5):

The primal ontology of the monotheistic law and its dissemination through the functional ontology of the teachings of the Prophet is the starting point of the sure reality (Qur'an, 13:1). The holism of creation ordained by the monotheistic law as the basis of all explanation is exemplified by the balancing of "the heavens without pillars that you can see." Within the holistic multiverse are organically unifying diverse systems in observance of the monotheistic law—"He has subjected the sun and the moon (to his Law)…" (13:2). The explanatory power of such unifying systems is conveyed by the verse, "He does regulate all affairs, explaining the Signs in detail that you may believe with certainty in the meeting with your Lord." (13:2).

The heavens and the earth are organically interrelated with the earthly systems by means of the explanatory monotheistic law (13:3). Such sub-systems are allegorically exemplified by the earth, "mountains standing firm"; "flowing rivers"; "fruit of every kind" that are shown to exist in their systemic unifying pairing dynamics by the verse, "He made in pairs, two and two". The cosmological changes are explained by a similar principle of epistemic unity and purpose (13:3): "He draws the Night as a veil over the Day: Behold, verily in these things there are Signs for those who consider!" The socio-scientific technological organic relations in diversity of 'becoming' with the rest of the pairing systems are yielded by the verse—"There are Signs for those who understand" (13:4).

Finally, the differentiation of the sure reality between Truth and Falsehood is pointed out by the verse, "Strange is their saying: 'When we are (actually) dust, shall we indeed then be in a creation renewed?' They are those who deny their Lord!" (13:5). The illogicalness of the rationalist denial of the monotheistic law, its causation via universal pairing conveying the principle of organic unity of being and becoming, and the creative re-origination of knowledge as multi-causal evolutionary epistemology governed by the monotheistic law together establish the sure reality from the side of Falsehood by the principle of negation of falsehood and thereby the upholding of truth.

See the Qur'an (36:36). This verse establishes the sure reality of unity of knowledge in the grand universal design: "Glory to God, Who created

in pairs all things that the earth produces, as well as their own (human) kind and (other) things of which they have no knowledge." In other verses the Qur'an[7] points out the epistemology and phenomenology that arise as permanent features of the Qur'anic dialectical process of evolutionary epistemology concerning the universal nature of all world-system. Thus the Qur'an explains the universal nature of learning along the ever assuring path of confirming the dynamics of consilience according to the monotheistic law. Contrarily, the verses point out that the rationalistic dialectical thought that is permanent in the philosophy of science and society is unable to comprehend the overarching dialectical processes of unity of knowledge from the beginning to the end of earthly experience through the similar multi-causal representations of the world-systems.

The Qur'anic Universal Worldview of the Sure Reality in Knowledge, Space, and Time

In conclusion to the above discussion on the evolutionary learning interrelationship existing in knowledge, space, and time, we refer to the expressions (4.1)–(4.3).

$$(\Omega,S) \rightarrow U \rightarrow \{\theta;t(\theta)\} \text{ is ontology, in which } (\Omega,S) \text{ denotes the primal ontology.}$$

$\{f\}(\theta,\mathbf{X}(\theta),t(\theta))$ denotes events in knowledge, space and time occurring repeatedly in evolutionary learning paths of universal history. The events recur along confirming paths of history to bring out the manifestations of the sure reality. Thereby, the permanence of the sure reality is unravelled by the actualization of the common wellbeing that continuously reverts back to the primal ontology in deepening levels of monotheistic knowledge.

The study of the nature of $\{\theta,\mathbf{X}(\theta),t(\theta)\}$ takes place at every moment of time in terms of their interpretation by the episteme of unity of knowledge of the monopolistic law. As explained earlier, time $t(\theta)$, plays the role of recorder of events, $\{\theta,\mathbf{X}(\theta)\}$ by the induction of knowledge derived from the monotheistic law of unity of systemic unity. Time by itself does not create change.[8] Since $\{\theta \in \Omega,(S,f)\}$ in expression is the primal ontology and subsidiary function ontologies therefore such knowledge-flows induce all events continuously and over continuums.

Expression (4.3) is now extended by expression (4.4) as the generic relationship explaining the inter-causal 'pairing' (unity as organic complementarities, participation) between ontology, epistemology, and phenomenology in multi-causal systemic continuums of the monotheistic law:

$$
\begin{aligned}
&(\Omega,S) \rightarrow U \rightarrow \{\theta, t(\theta)\} \\
&\rightarrow \{\theta, \mathbf{X}(\theta)\} \rightarrow \text{dialectical evaluation of wellbeing } W(\theta, \mathbf{X}(\theta)), \\
&\quad \text{subject to inter-causality between} \{\theta, \mathbf{X}(\theta)\} \\
&\rightarrow_{\text{newmulti causalprocess}} \\
&\rightarrow (\Omega,S) \rightarrow U \rightarrow \{\theta, t(\theta)\}_{\text{affirmation in evolutionary learning}} \\
&\rightarrow \left\{\theta, \mathbf{X}\left(\theta\right)\right\}_{\text{newmulti-causalproces}} \rightarrow \text{dialectical evaluation of simulated well being} \\
&W\left(\theta, \mathbf{X}\left(\theta\right)\right)_{\text{new,}} \text{subject to inter-causality} \\
&\text{between} \{\theta, \mathbf{X}(\theta)\}_{\text{new}} \\
&\ldots \rightarrow \text{Closure as the Great Event}
\end{aligned}
\tag{4.4}
$$

NOTES

1. Qur'an (112:1–5): "Say: He is God, the One and Only; God, the Eternal, and Absolute; He begets not, nor is He begotten; and there is none like unto Him."
2. Qur'an (2:255): "God! There is no god but He, — the Living, the Self-sustaining, Eternal. No slumber can seize Him nor sleep. His are all things in the heavens and on earth. Who is there can intercede in His presence except as He permits? He knows what (appeared to His creatures as Before or After or Behind them. Nor shall they compass aught of His knowledge except as He wills. His Throne doth extend over the heavens and the earth, and He feels no fatigue in guarding and preserving them for He is the Most High, the Supreme (in glory)."
3. Qur'an (1:2): "Praise be to God, the Cherisher and Sustainer of the Worlds."
4. Qur'an (3:190–191): "Behold! In the creation of the heavens and the earth, and the alteration of Night and Day, — there are indeed Signs for men of understanding, — Men who celebrate the praises of God, standing, sitting, and lying down on their sides, and contemplate the (wonders) of creation in the heavens and the earth, (with the thought) "Our Lord! Not for naught hast Thou created (all) this! Glory to Thee! Give us salvation from the Penalty of the Fire."
5. Qur'an (50:36, 37): "But how many generations before them did We destroy (for their sins), — stronger in power than they> Then did they wander through the land: Was there any place of escape (for them)? Verily in this

is a Message for any that has a heart and understanding or who gives ear and earnestly witnesses (the truth)."

6. Qur'an (27:64): "Or, who originates Creation, then repeats it, and who gives you sustenance from heaven and earth? (Can there be another) god besides God? Say, "Bring forth your argument, if ye are telling the truth!."
7. Qur'an (29:19–21): "See they not how God originates creation, then repeats it: truly that is easy for God. Say: Travel through the earth and see how God did originate creation; so will God produce a later creation: For God has power over all things. "He punishes whom He pleases, and He grants mercy to whom He pleases, and towards Him are ye turned."
8. Qur'an (16:20): "Those whom they invoke besides God create nothing and are themselves created."

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CHAPTER 5

Tawhid, Al-Wasatiyyah, and *Maqasid As-Shari'ah*

Background

If we go into the anatomy of global discontent that carries with it individual and social conflicts we note that they each have certain structural causes. The anatomy of such causes is the same for the industrialized world as for the developing world; economic, social, and cultural components may be identified within these. The reason for this uniformity of causes and their global explanation is that the wellbeing of mankind and the meta-reality of all our socio-scientific experiences are intertwined by what we refer to as multi- or inter- causality between forces. In other words, if we assume that the different parts of the world are interconnected, then when there is any social and economic disruption by war, deprivation, and disorder anywhere in the world, this sends waves of repercussions throughout the other parts of the world-system.

Do the fortunate few affirm their happiness on the backs of the deprived and oppressed? Amartya Sen (1986) has explained that the cause of deprivation and famine was entitlement failure among the deprived. Such an economic and social state in turn brings about increased prices and social unrest that threatens the peace of the rest of the global society. Likewise, on an ecological scale we know about the 'butterfly effect'. The cause of multiplied and massive ecological chaos or disorder is inter-causality between the interacting parts of the whole domain, human and other. We refer to this totality as the world-system. The implication can be deduced

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_5

from the construction and deconstruction of Rawls' (1971) 'original position'. Though this state is a social one, it can be expanded to apply to all different cases of interacting composition of the world-system. Thus, goals of peace, justice, and happiness (or their disruptions) happen by the attainment of balance or imbalance between different segments of the world-system existing in diversities and wholeness.

Discerning, understanding, measuring, and applying the goal of balance, the establishment of global community, and the choices of the good things that facilitate such wider valuation of interrelationships are the principal components of what we can term 'wellbeing' for the measurement of our lives (Stiglitz et al. 2010). The comment made in this joint report is this: "This report doesn't tell us where the truth lies, but it does tell us how to look for it. It compels everyone to face up to their responsibilities to reason differently, and to decide differently." The same social and economic questions across history are raised by Thomas Piketty (2014).

The questions then are these: what is the nature of the wellbeing criterion that can be conceptualized for guidance of human conduct and for measuring our lives? How can the wellbeing criterion be measured for quantitative guidance in institutional and policy decision making towards attaining certain levels of global peace, balance, and the organic relationship by extended participation and discourse? To articulate on these questions one is led into inquiring about the epistemological foundations of consilience (Wilson 1998) of global holism.

Objective

The objective of this chapter is to construct the epistemological nature of the wellbeing criterion as outlined above. This takes its course via the conceptual phase, and points out the possibility for quantitative analysis of the wellbeing criterion. The chapter establishes that in the conceptual and quantitative formalism of the wellbeing criterion the epistemic meta-reality, the following three principles form the interactive, unifying (integrative, consensual in decision making), and evolutionary learning properties in continuity along the sustainability path of global wellbeing. They are organic unity of being and becoming; the imminent sustainability of the emergent organic discursive processes of unity; and the prevalence of choices of the good things of life. The overarching domain of concrescence of these principles is unity of knowledge and its induction of a unifying world-system in generality and deconstructed particulars.

The essential basis of such a holistic construction of the wellbeing criterion indispensably is the ultimate law of unity of knowledge.

The chapter shows that with the primal ontology of *tawhid* as the foundational reference methodology, the principle of balance and moderation referred to as *al-wasatiyyah*, and the purpose and objective of Islamic law, *maqasid as-shari'ah*, are derived uniquely from the *tawhidi* law. A general phenomenological model of *tawhid*, *al-wasatiyyah*, and *maqasid as-shari'ah* is formalized herein. Within this interactive concept between the mentioned principles the conceptual and measured form of the wellbeing function (*maslaha*) is presented.

Explanatory Points

The foundational issue of the global society is discursive in nature. The nature of global discourse is based on organic interrelationships by interaction leading to integration (consensus) and evermore evolving along the path of reconstruction by such inter-causality of being and becoming. This total epistemic experience points to a generic determination of the epistemological questions underlying the wellbeing criterion. The wellbeing criterion thereby becomes the practical measure of guidance towards human future. The universality and permanence of such guidance shows that there is always hope for man to rise back from a fallen world-system. Given that the underlying issues are epistemological on the path of reconstruction, they arise from foundational moral and ethical roots. The impact then is generated by the media of inter-causality between diversity. This is formed by the diversity of the organically interacting, integrating, and evolutionary world-system that continuously learns a certain form of consilience via epistemic dynamics (Burstein 1991).

Can such actualization be possible out of sheer human inquiry of socio-scientific thought? That is impossible, for socio-scientific thought is permanently entrenched in the heteronomy (dualism) between *a priori* reasoning and *a posteriori* reasoning. Roy Bhaskar (2002) writes on the consequences of such heteronomy: "So long as there is any element of heteronomy, any unfulfilled intentionality, any attachment, any fixation within you; your freedom will be to that extent restricted." The continuity of the organic unity of being and becoming must therefore arise from a law of unity of knowledge that annuls the existing permanent *problematique* of heteronomy between *a priori* reasoning and *a posteriori* reasoning in all of socio-scientific inquiry of the Kantian genre (Seidel 1986; trans.

Freidrick 1949). In the perspective of meta-science, science and reality must be driven to dispel the heteronomous reasoning caused by such Kantian and Humean type of dualism between *a priori* and *a posteriori* reasoning instead of organic continuity between them. This can be possible only by the functioning of the divine law of unity of knowledge and its continuously regenerative incidence on the unity of the generalized form and particulars of the complete world-system. Let us now investigate this project of this chapter.

Epistemological Explanations: *Tawhid*, *Al-Wasatiyyah*, *Maqasid As-Shari'ah*

Tawhid *as Oneness of Allah, the Absolute Reality of the Monotheistic Law of Unity of Knowledge*

The essential meaning of *tawhid* is oneness of Allah. But the meaning transcends this basic principle of monotheistic belief. We inquire in the Qur'an for such extended meaning of *tawhid*. The essential meaning of oneness of Allah is established in the following Qur'anic verses (112:1): "Say, "He is Allah, [who is] One". Yet, this oneness conveys the absoluteness, perfection, completeness of divine knowledge that attributes to Allah the non-partnered Creator of everything between the heavens and the earth and all between." Then on the essence of God as Creator and Sustainer of the universe there are many verses. Of these are the following ones that establish the overarching super-cardinal measure of divine law as knowledge: "Praises be to Allah, the Lord of the multiverses" (1:2). On the dynamic role of the divine law as the sole act of creation and universal wellbeing there is the verse (35:3): "O mankind, remember the favour of Allah upon you. Is there any creator other than Allah who provides for you from the heaven and earth? There is no deity except Him, so how are you deluded? (35:3). On the extension of the divine law over all dimensions there is the verse (65:12): "It is Allah Who has created seven heavens, and earths as many …". On the continuous creative nature of the divine law there is the verse (10:34): "Of your 'partners', can any originate creation and repeat it?" Say: "It is Allah Who originates creation and repeats it: then how are ye deluded away (from the truth)?" On the organic relational nature of unity of knowledge by multi-causality across multiverses there is the verse (36:36): "Exalted is He who created all pairs—from what the earth grows and from themselves and from that which they do not know."

The above verses and many of their kinds in the Qur'an establish the dynamic, creational meaning of *tawhid* in relationship to diverse world-systems. The meaning of *tawhid* is thereby extended to the monotheistic law (*sunnat* Allah) that manifests itself in the Signs of Allah—*ayath* Allah that span the multiverses. The monotheistic law of unity of knowledge thus forms the foundational methodology of the universal being and becoming. The meaning of the super-cardinal power of the monotheistic law is that of the unbounded and open state of the knowledge domain that governs everything. The monotheistic law cannot be measured in its totality. Knowledge-flows from the monotheistic primal ontology are realized by bits and pieces. Such knowledge-flows are conveyed by the teachings of the Prophet Muhammad into the mind-matter world-system. They are continued thereby until the end of all things. The Qur'an says in this regard (28:88): "Everything is bound to perish, save His eternal Self."

Super-cardinality (Rucker 1983) thus conveys the unbounded and open domain of the monotheistic law as knowledge. It is always spending but never spent. The functioning of the monotheistic law as methodology to understand creation is through the relational unity of knowledge that is continuously regenerated and sustained. Yet the totality of such an epistemic multiverse is closed between the unbounded and open domains of knowledge-flows. That is, the multiverses learn by pairing, in the multi-causal learning sense of evolutionary relations from *tawhid* in the beginning to *tawhid* in the end. This functionalism as continuity along the evolutionary learning trajectory of unity of knowledge is true for the small multiverses of the world-systems; as it holds for the large scale complete multiverse from the beginning to the Hereafter. The relationship is reflexive in nature establishing from *tawhid* in the beginning to *tawhid* (Hereafter) in the end; from *tawhid* (Hereafter) in the end and *tawhid* in the beginning. The mathematical completeness of the *tawhidi* multiverse and of the monotheistic law of unity of knowledge and the induced world-system is thus established. The Qur'an says in this regard (92:13): "And surely to Us belong (both) the end and the beginning".

In the end, for the socio-scientific development of thought arising from the Qur'an the *tawhidi* epistemology remains the primal ontology of being and its creative becoming of the world-system by the unique and universal principle of unity of knowledge. The discursive processes of extracting guidance from the monotheistic law of unity as the super-cardinal domain of Qur'anic law are by the teachings of the Prophet Muhammad, and the further interpretation of the application of the

monotheistic law comprising the Qur'an and its conveyance by the Prophetic teachings (*sunnah and hadith*). The emergent discursive process thus manifests the properties of the law of unity and the unification of the world-system by virtue of interaction (pairing), integration (unification), and creative evolution by continuous learning (re-origination). Heteronomy is thus annulled. It is replaced by consilience between *a priori* and *a posteriori* as the unified premise conveying the holistic meaning of reasoning and knowledge in the monotheistic law. Thus the monotheistic law comprises the primal ontology as methodology.

The *tawhidi* epistemology carries with it the dynamics of unity of knowledge through the continuous regeneration of the unified world-system in its diversity that is governed and re-originated by the monotheistic law. The result is creation in its multiverse details that dance to the tune of monotheistic oneness of God and his law of unity of knowledge. Unity is multi-causality; and thereby reflexive in relationship. While *tawhid* is the sole message of the Qur'an explained by its dynamic relations of the law with the world-system, it is a meta-reality that is recognized by all people.

On the theme of universality of the *tawhidi* message the Qur'an declares (51:56): "And I (Allah) created not the jinn and mankind except that they should worship Me (Alone)." Among people of other faiths we also find devotional expressions of meta-reality. Roy Bhaskar (op. cit., p. 351) writes: "It is not that there are the starry heavens above and the moral law within, as Kant would have it, rather the true basis of your virtuous existence is the fact that the starry heavens are within you, and you are within them." Likewise Bruteau writes (1997): If you can see the God you loves present in, even as, this world, then feel that union and rejoice in that. And be active in it, contribute to it, participate in the building, in the artwork, in the healing, in the understanding. This is where Reality is. You yourself are both a member of the Finite and a member of the Infinite…."

Al-Wasatiyyah

Hassan (2013) has encrypted several Qur'anic verses regarding the term *al-wasatiyyah* (Qur'an, 2:143; 68:28; 4:135; 3:110; 3:104; 31:18, 31:19, 28:77; 60:8; 60:9; 5:87, 5:88, 16:125) to connote the meaning of moderation in the worldly affairs of Muslims among themselves and with non-Muslim communities. Hassan (2011) has also explained the idea of *al-wasatiyyah* as moderation between extremism and intellectualism. This specific approach is not the objective of this chapter.

The meaning of balance and moderation underlying *al-wasatiyyah* denotes a discursive process of inter-variable multi-causality. It is thereby an attribute that arises from the *tawhidi* methodology of unity of knowledge as an organic relational phenomenon. An example establishes this fact. The *ummah* is characterised in the Qur'an as the community of balance according to the law of coordinated unity of being governed by the monotheistic law. The Qur'an declares (2:143): "And thus We have made you a ***Wasata*** (Middle way—Just/Balanced] *ummah*/nation." This verse, and thereby the idea of *ummah* as *wasat* are next presented by the various socio-scientific attributes that can be derived from the Qur'an.

Example of *al-wasatiyyah* in Response to the *tawhidi* episteme: *ummah*

An example in this respect is trade and the unification of *ummah*-wide monetary, fiscal (spending), and real economy development policies for attaining the wellbeing criterion via avoidance of interest rates and focusing on trade in the good things of life. These policies form a manifestation of the balance that characterizes the *ummah*. Furthermore, with all such variables and more, the characterization of balance is explained conceptually and enacted quantitatively with the interactive, integrative, and evolutionary learning properties of the inter-variable circular causality in terms of their complementarities. Such complementarities between the good things of life are sure ways of reflecting the dynamics of unity of knowledge that is induced in the organic relational unification of *wasat* between the mentioned variables and more of the same. The circularly interrelated variables in the unification of the *ummah* in *wasat* as exemplified here are, real output, real rate of return, quantity of money in circulation, rates of return versus interest rates, spending in the good things of life from all sources, rate of change of money and rate of change in spending as policy variables. All such variables are made to interact, integrate, and further on evolve along the historical path of learning processes in the order of organic and creative balance. The *ummah* is derived from economic integration, dynamic flow of trade and interactive integration between real economy development and the impact of complementarities between monetary and fiscal policies with technological change of the appropriate type that generates complementarities between all the variables (Choudhury 2015). In such a situation the interest rate declines while the rate of return increases. The inter-causal complementarities between all the other variables deepen.

There are many other consequential variables that get positively influenced in such a situation of *ummah* development by unity of knowledge that is signified by pervasive complementarities and the phasing out of interest rate. In socio-economic terms there pervades extensive endogenous relations between all the variables, including the phasing out of interest rates. Such a transformative process of evolutionary learning signifies gaining knowledge continuously of the *functional* ontology as the dynamics of being and becoming of the creative and transformative reflection in the world-system (*a'lameen*) that is induced by knowledge-flows from the origin of the primal ontology.

The example presented above points out that both the conceptual and applied meanings of *al-wasatiyyah* are of the nature of system and cybernetic in the understanding of the socio-scientific universe in the light of the Qur'an. The meaning of *al-wasatiyyah* in its system and cybernetic framework is an applied derivation of the precept of the monotheistic law of unity of knowledge. According to the systemic understanding of balance and moderation feeding into the coordination of pervasive complementarities between the good things of life, *al-wasatiyyah* and wellbeing become intertwined concepts in response to the organic nature of multicausality by interrelations between the good things of life.

In the above-mentioned case of the balanced world-system of Islam, referred to as *ummah al-wasatah*, we take the choice of the good things of life by the variables as named. The wellbeing criterion is represented by the geometrical product function of these variables, subject to testing and improvement in the degrees of complementarities between the variables by way of attaining positive or near positive coefficients of their product function. Such coefficients then represent elasticity of wellbeing in respect of the variables. In the estimation state they represent the 'as is' state of the relationships. In the simulation state they represent the desired level of relationship towards gaining complementarities that can be actualized by evolutionary learning in the good levels of complementarities. This reformed state is signified by improvement in the signs and measures of the coefficients moving towards positive values. The simulated values of the coefficients signify strategic and policy changes. The simulated coefficients' values denoting the nature of inter-variable causality with the wellbeing function point out the possibilities for better states of resource mobilization and institutional and structural socioeconomic change.

On the other hand, the circular, causal relationship between each variable and the rest is a way of expressing and testing out degrees of organic relations. Such circular causation variables signify interactive and integra-

tive ways of attaining intra-process learning within the inter-processual evolutionary span of learning in degrees of complementarities (pairing) between the endogenous variables. Such simulation perspectives of the changing socio-scientific façade of given states of the problems under investigation conveys the meaning of reconstruction into better states of balance, coordination. Such actualization signifies better states of moving towards improved states of *al-wasatiyyah.*

Another Example of the State of *al-wasatiyyah*: Interaction Between the Heavens and the Earth

The same systemic framework of *al-wasatiyyah* can be applied to the diverse inter-systemic relationship governed by unity of knowledge and its induction of the corresponding issues and problems of the world-system under study. Take the case of the inter-systemic interrelationship between the generality and particular issues of the heavens and the earth. In this regard the Qur'an declares regarding the multidimensional diverse interacting and integrating sub-systems. Thereby, the knowledge of unity of systems and the further socio-scientific inferences derived at higher levels of God-consciousness and the world-system we study implies the evolutionary learning universe of unity of knowledge. Thus the property embodying all inter-systemic coordinating and interrelating systems and processes remains invariant.

That is the epistemological inquiry of the generality and particular problems of the grand world-system (*a'lameen*) are premised on the properties of interaction (discursive) as by systemic *tasbih* (e.g. the community of birds as *umamun* that worship Allah in their worlds). Then follows integration, which is the attribute of bonding by consilience. In the social world, interaction and integration in sequence is reflected in inter-variable and inter-systemic pairing. Interaction and integration are repeated inter-systemically by the process of continuous learning of the same type and by continuous invoking of the *tawhidi* methodology as the absolute reality that is consciously applied to every event along the path of evolutionary learning (*khalq in-jadid*). All of historical path of evolutionary learning is experience in *khalq in-jadid*. In this regard, the Qur'an declares (29:20): "Say: 'Travel through the earth, and see how God did originate creation; so will God produce a later creation: For God has power over all things." Taking stock of such verses, Choudhury (2001) constructed his theory of Qur'anic historicism. Lucaks (1968) writes on history as consciousness. So was also the contributions of Shah Waliullah (n.d.), Ibn Khaldun (Mahdi 1964), and Malek Ben-Nabi (trans. Kirkary 1983).

An exegesis can be made of the inter-systemic phenomenology of the heavens and the earth in the chapter *(surah) Ra'd* (verses 1-5) to establish the theory of *al-wasatiyyah* emanating from the consilience of the balanced multiverse. This phenomenon is explained by way of unity of knowledge impacting upon the diversity of creation coordinated and unified interaction, integration, and evolutionary learning (**IIE**). The chapter *Ra'd* declares (13:1-5):

"*Alif, Lam, Meem, Ra*. These are the verses of the Book; and what has been revealed to you from your Lord is the truth, but most of the people do not believe."

Tawhid is invoked as the ontological beginning of every event along the path of the inter-systemic multiverse.

"It is Allah who erected the heavens without pillars that you [can] see; then He established Himself above the Throne and made subject the sun and the moon, each running [its course] for a specified term. He arranges [each] matter; He details the signs that you may, of the meeting with your Lord, be certain."

The conceptual understanding of the driving force of tawhid as law of absolute reality in cosmological ordering as a system; such evidential learning spans the entire history of the multiverse from the beginning to the end in the Hereafter; such is the conscious experience for the multiverse.

"And it is He who spread the earth and placed therein firmly set mountains and rivers; and from all of the fruits He made therein two mates; He causes the night to cover the day. Indeed in that are signs for a people who give thought."

This forms yet another sub-system of the multiverse. It belongs to terrestrial world that complies with the same law and responses as the cosmological system mentioned above.

"And within the land are neighbouring plots and gardens of grapevines and crops and palm trees, [growing] several from a root or otherwise, watered with one water; but We make some of them exceed others in [quality of] fruit. Indeed in that are signs for a people who reason."

This is yet another sub-system on earth that obeys the same phenomenological dynamics of compliance with the tawhidi law. The verse also brings out the deep meaning of inter-systemic pairing as a vastly intellection understanding of the multiverse: "And if you are astonished,

[O Muhammad]—then astonishing is their saying," When we are dust, will we indeed be [brought] into a new creation?"Those are the ones, who have disbelieved in their Lord, and those will have shackles upon their necks, and those are the companions of the Fire; they will abide therein eternally."

Here is the contrast of the disbelief in the creative order ordained by the tawhidi law as absolute reality and the reality of khalq in-jadid in the largest scale universe of the Hereafter. Thus the entire phenomenological understanding of creation is partitioned between the tawhidi worldview and the opposed worldview of materialism.

The inter-systemic coordination, balance by organic relations of pervasive complementarities, and unity of shared *tawhidi* knowledge between such multiverses is as relevantly applicable to the example of the 'butterfly effect' mentioned earlier. The meteorological consequences of continuous and expanded interaction embedded in evolutionary disequilibrium all along the path of meteorological expansion without integration implies that, human intervention is mandated to reconstruct equilibriums into pairing complementarities. The implication is the same as of the wellbeing function that measures the degrees of complementarities, which can be estimated and reconstructed between the variables of the choice vector. The underlying methodology as in *tawhidi* worldview as absolute reality is thus universal. It is uniquely explainable and applicable to all multi-system phenomena. This includes the methodological understanding and application to non-*tawhidi* world-systems and conceptions as two disparate methodological worldviews with opposite consequences. *Al-wasatiyyah* is thereby differentiated between these disparate domains.

When the term *al-wasatiyyah* is used to mean balance and moderation in matters of peace and violence, there too the same evidential models apply and can be explained. Peace can be explained in respect of gained levels of wellbeing as defined in terms of complementarities signifying unity of knowledge between the good things of life. The way to attain such enhanced levels of complementarities is by the endogenous evolutionary learning relationship between the variables and entities.

Contrarily, violence and disorder can be explained by differentiation and dissociation as signs of conflict between the good and bad entities and variables. In the wellbeing function and the circular causation relations such a sign of conflict is shown by negative signs of the coefficients for the selected variables. Thereby, terrorism as a social ill is explained by the opposite relationship between social balance and social imbalance.

The reconstruction to better state of peace out of violence means a simulated order of discursive learning between the two sides based on the mutually determined good things of life. When this approach is not possible then learning ceases. The two sides remain permanently opposed. Thereby, the models of knowledge and 'de-knowledge' explain peace and violence independently of each other but by the same dialectical methodology along these two separable historical processes of evolution.

In economic theory oppositely explained by *tawhidi* methodology of unity of knowledge and marginalism (Dasgupta 1987), the economic expansion path, which is equivalent to the historical path of evolution are oppositely described. The evolutionary learning path is a locus of learning equilibrium points with the absence of optimality caused by scarcity and competition at every event point of the *tawhidi* methodology.

On the other hand, on the neoclassical economic expansion path every event point is steady-state equilibrium and maxima caused by scarcity and competition of resource allocation. *Al-wasatiyyah* is correspondingly explained by the reality of learning incompleteness but sustained progress by the discursive case of inter-entity relationship along the evolutionary learning path of unity of knowledge (Georgescu-Roegen 1981). It is explained by the absence of discursive attribute at the end of every learning point of optimality and steady-state equilibrium caused by marginal rates of substitution in the neoclassical economic expansion path. Novelty ends as scarcity and competition persist in the state of marginalism between competing entities. The neoclassical economic expansion path denotes the absence of *al-wasatiyyah* due to the absence of discourse and learning (Shackle 1972).

Al-wasatiyyah is thus explained by its attributes of balance, moderation, complementarities. All of these attributes persist along the continuously evolutionary learning historical path of the IIE-process scenario of dialectics of the economic expansion path. This aspect is of phenomenology, the conscious understanding and unravelling of the state of learning in unity of knowledge across historical paths of evolution. Similar perspectives are extended for all issues and problems of the socio-scientific nature.

Maqasid as-Shari'ah

Maqasid as-shari'ah means the objective and purpose of the Islamic law. The Islamic law is essentially derived from the monotheistic law of the Qur'an aided by the *sunnah*. Yet in the light of the Qur'an there can

be only one law (Qur'an 87:18): "And this is in the Books of the earliest (Revelations)". The principal law is the Qur'anic law of *tawhid* and its functional methodology that is expressed by means of the signs of Allah (*ayath* Allah) in terms of the divine law (*sunnat* Allah). *Maqasid as-shari'ah* is therefore a sub-law derived from human interpretations of the divine law when assisted by the *sunnah* and the explications by those in authority. In all of these three categories of interpretive sources only the Qur'an and its functional assistance by the *sunnah* remains invariant components. That which is interpretive by and through the medium of the learned ones is relative and changeable (Qur'an, 4:59): "O ye who believe! Obey Allah, and obey the Messenger, and those charged with authority among you. If ye differ in anything among yourselves, refer it to Allah and His Messenger, if ye do believe in Allah and the Last Day: That is best, and most suitable for final determination."). In this verse the primal ontology of belief is of Allah (Qur'an) and the messenger (*sunnah*), whereas the interpretations of the learned remains relative in use during discourse.

Consequently, the *maqasid as-shari'ah* remains limited in its scope to explain and decide upon choices that are all-encompassing, as the monotheistic law comprehends the heavens and the earth, all that is between them, and below the earth as above the earth. The Qur'an declares such an ultimate scope of the monotheistic law, which the *maqasid as-shari'ah* does not. Consequently, neither the presently existing prospect of *maqasid as-shari'ah* can be the ultimate Islamic law, nor the principle of *al-wassatiyah* can be all-comprehensively contained within *maqasid as-shari'ah*, if it is taken in the vastly system and cybernetic sense. In other words, as it stands today, the five principles of *maqasid as-shari'ah*, namely, furtherance of *tawhid* (*deen*), protection of reason (*aql*), protection of life (*al-nasl*), protection of progeny (*al-I'rd*), and protection of property (*maal*). These five attributes of *maqasid as-shari'ah* are foundational. They can be extended in the knowledge, space, and time dimensions with greater details that comprehend the heavens and the earth and all that is between them and below the earth as above the earth. In this comprehensive sense alone, the *maqasid as-shari'ah* becomes an evolutionary learning experience of system and cybernetic within the ultimate design of the monotheistic law (*sunnat* Allah). Yet at the very ultimate the *maqasid as-shari'ah* in its totality cannot encompass all of *sunnat* Allah. Progress is limited by the extent of evolutionary learning in incompleteness of knowledge.

The potentiality of interpreting *maqasid as-shari'ah* within the scope of *tawhid* and *al-wasatiyyah* in the framework of system and cybernetic

makes all its components at every evolutionary event point to be organically interconnected by multi-causality (Qur'anic pairing). This is also the implication of the extended exegesis that can be based on the aforementioned verses of the chapter *Ra'd*. Finally, by the properties of interaction, integration, and evolutionary (IIE) learning across historical paths the explanation of *maqasid as-shari'ah* by the systemic principle of *al-wasatiyyah* forms an evolutionary nexus of complex but interconnected forms. All such interrelations agree with the IIE-learning processes of unity of knowledge in knowledge, space, and time dimensions.

The current tempo of development in *maqasid as-shari'ah* has not advanced in the holistic development of the system and cybernetic nature of multiverse within the framework of *tawhid* as methodology. It has thus been limited to socioeconomic and personal matters. The wellbeing function referred to as *maslaha al-mursala*, wellbeing for the public purpose, which ought to explain the circular causation and complementary relationships between the good things of life, has remained at the level of the transactional world-system (*muamalat*) (Attia, trans. Roberts 2010). This containment of the scope of *maqasid as-shari'ah* limits its use so far from being a holistic study of the *tawhidi* multiverse with its diversities. But the expansive scope remains open as a methodological inquiry by virtue of the nature of interacting, integrative, and learning entities of the multiverse. Here we refer to the multi-causal nature of the universe as pointed out by the chapter *Ra'd*.

Extension possibility of *maqasid as-shari'ah*: energy and *muamalat*

We take the example of harnessing energy for the general concept of wellbeing and the particular case of human wellbeing. The cardinal attribute of *maqasid as-shari'ah*, namely the primacy of *tawhid* as law and the world-system link up with the attribute of protection of reason. In the present example this attribute is particularized to the case of developing models, techniques and perspectives of energy harnessing from multi energy sources. This attribute in turn links up with the development of harnessed energy as common wellbeing for the social protection of family and the protection of progeny. The result then is to formalize intertemporal model of harnessing energy for the common good. Finally, the *maslaha-mursala* concept leads to the treatment of harnessed energy as social property right to be enjoyed for the protection of life and family intertemporally.

A dynamic organic inter-relational model is thus established centered in the context of an IIE-learning model by interconnecting all the attributes of *maqasid as-shari'ah* and extending them to the intertemporal case of other attributes that emerge.

Now through the emergent formalism of IIE-learning on the example of harnessing energy as social good interconnecting the attributes of *maqasid as-shari'ah* and extending them in a systemic way via the principle of *tawhid* as the central epistemology, the principle of systemic balance of *al-wasatiyyah* is realized. In this way, the *tawhidi* epistemology and its organic relationship of unity of knowledge with the specific example of harnessing energy is embedded in the complementarity between *al-wasatiyyah* and *maqasid as-shari'ah* within the general system concept.

In the general case of extending the *maqasid as-shari'ah* in linkage with human transaction and environmental and cosmological discoveries we note the central role of *tawhidi* epistemology being applied to the systemic meaning *al-wasatiyyah* based on the choices of the good things of life (energy harnessing). In similar ways, multiple sources of energy could be harnessed within the extended framework of *maqasid as-shari'ah* with furthermore refinements in the disaggregate attributes. Thereby, the systemic meaning of *al-wasatiyyah* takes up richer and finer implications for attaining the corresponding goal of *maslaha-mursala*. Many other forms of extensions can be considered in the extended model of *maqasid as-shari'ah*. In every such case the foundational *tawhidi* epistemology establishes the pervasive complementarities between all such *maqasid* choices. Such positive relational conditions between choices, which are denoted by variables, would never be perfect. That is because of the continuously evolutionary learning. Yet the coefficients can be simulated to better positive values (or decreasing negative values), subject to circular causation relations between the variables.

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CHAPTER 6

Technically Integrating *Al-Wasatiyyah* and *Maqasid As-Shari'ah* with a *Tawhidi* Methodological Worldview

The generalized theory of *maqasid as-shari'ah* upon which the principle of *al-wasatiyyah* rests in the light of the *tawhidi* methodological worldview of unity of knowledge and knowledge-induced unified world-system can now be further presented in Fig. 6.1. In this figure the meaning of *al-wasatiyyah* is conveyed by the point (•) along the evolutionary learning equilibriums on HH and its variants originating epistemologically from the *tawhidi* origin, and progressively converging on the closure of the largest scale universe in the Hereafter, the Great Event. The point (•) being inter-systemic and relationally organic is a complex domain both intra-systems and inter-systems. Figure 6.1 presents the emergent generalized system model of *al-wasatiyyah* in relation to *maqasid as-shari'ah*, all encompassed by the ultimate *tawhidi* methodological worldview. From this generalized system-model all particular models emerge for addressing specific socio-scientific problems. These all follow the same formalism for conceptual, formal, and applied method of simulation of the wellbeing function (*maslaha*), subject to circular causation between the inter-causal variables towards gaining appropriate degrees of complementarities (i.e. participation) between the variables and their monotonic positive relations. As mentioned before, such evaluated degrees of complementarities between inter-causal variables and their functional relations stand for the meaning of balance, and thereby of *al-wasatiyyah*. The choices of the inter-causal variables upon which the degrees of complementarities are measured by

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_6

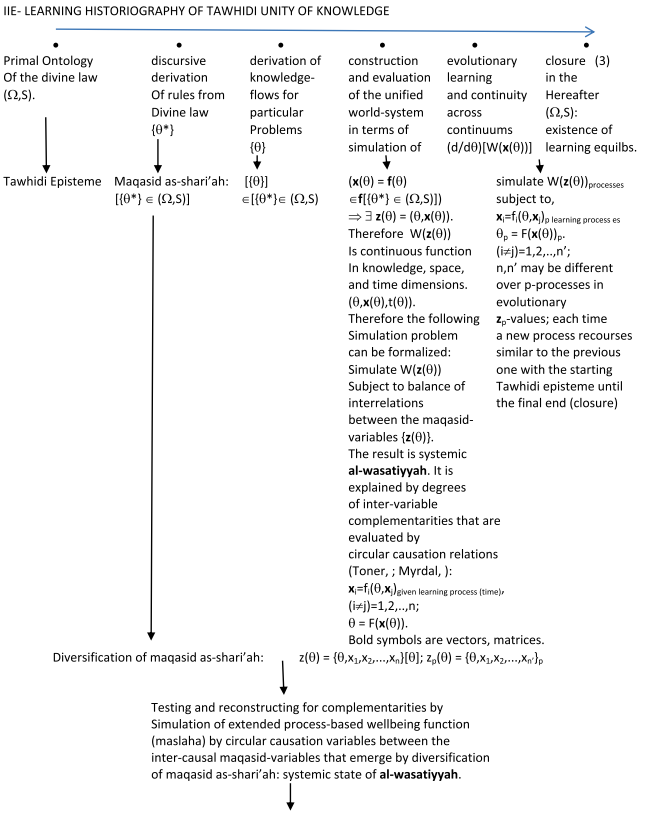

Fig. 6.1 Diversification and interrelations between *tawhid*, *al-wasatiyyah and maqasid as-shari'ah*

evaluating the wellbeing function (*maslaha*). Their choices are determined by the *maqasid as-shari'ah*.

Thus we have the overall *inter*-relationship between *tawhid*, *al-wasatiyyah*, and *maqasid as-shari'ah*, inferred from the systemic string relationship in Fig. 6.1:

1. *The moral reconstruction (conflict resolution) view of al-wasatiyyah in the light of the tawhidi methodological worldview*

In the context of simulating the *maslaha* function with circular causation relations between inter-causal *maqasid*-variables with diversification across evolutionary learning processes of inter-variable complementarities there is the evident consequence of simulacra. Simulacra or the repeated simulations of given states of complementarities (participation) between the variables across learning processes yields two results. Firstly, a straightforward estimation of the statistical problem leads to the 'as is' state of reality for the problem and issue under study. This phase of empirical estimation may fall short of desired levels of complementarities as the empirical sign of *tawhidi* unity of knowledge and the induced unifying variables under study. This kind of an existing state leads to simulation to attain certain phases of 'as it ought to be' complementarities within the limits of processes of evolutionary learning. The implication of such transformation from the 'as is' state of empirical reality to certain progressively improved states of 'as they ought to be' under the *tawhidi* principle of unity of knowledge is moral reconstruction or conflict resolution. Conflict resolution or moral reconstruction is realized thus by the participatory nature of systemic transformation. *al-wasatiyyah* here means such a progressive reconstruction of imperfect states of social reality. The idea here is similar to the recursively generated states of evolutionary equilibriums along the processes of HH.

Figure 6.2 brings out the significance of al-wasatiyyah in moral reconstruction from the 'as is' to the 'as it ought to be' states of socio-scientific transformation. We are examining here essentially the convergence of the

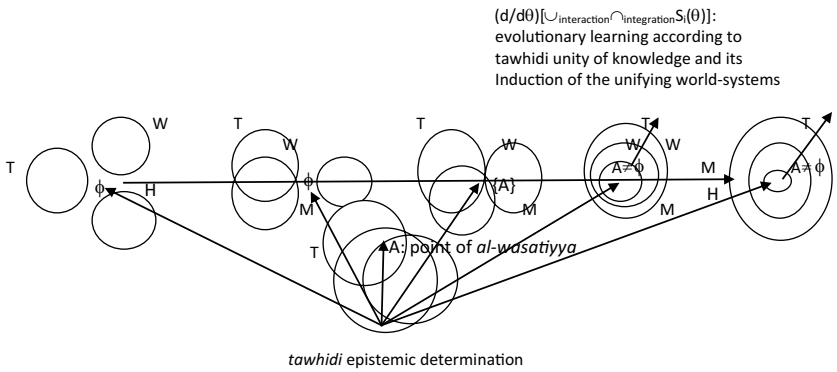

Fig. 6.2 Emergence of *al-wasatiyyah* in relation to *tawhid* and *maqasid as-shari'ah* across historical evolution

three systems, namely, *tawhid* (T), *al-wasatiyyah* (W), and *maqasid as-shari'ah* (M), and in sequences of moral reconstruction from their disjoint states as the morally deprived social scenario, to progressively interactive, integrative, and evolutionary learning states of unity of knowledge. The final state is the 'as it ought to be' one in simulacra. Upon attaining this state the creative evolution takes the inter-systemic *al-wasatiyyah* form of convergence along the historical path HH. Thus progressive evolution to higher states of attained unity of knowledge, and thereby, the reconstruction of the unifying world-system specific to the issues under study is explained along HH.

Legend:

S_i denotes the three systems T, W, M.

{A} denotes the treatment of 'A' as singleton. It represents a mid-way reality in the historical evolution of moral reconstruction along HH.

The convergence to $A \neq \phi$ marks the moral reconstruction state, and thereby the conflict of individualism shown in the first stage to the conflict resolution state of unity of systems in the maturing stages of HH.

The further refinements of T, W, M in terms of enlarging the depth of understanding of *tawhid* as the unity of the divine law inducing the unified structure of the world-system in generality and details; the diversification of the *maqasid as-shari'ah*; and consequentially, the imminent wider meanings conveyed by the principle of *al-wasatiyyah* are shown to go through moral transformation commencing from methodological individualism to progressive reconstruction of organic unity of the multidimensional systems in diversity. Moral reconstruction thereby outgrows into higher stages of affirmation intra- and inters-systems. Each one of these stages of historical change is studied in reference to the *tawhidi* unity of knowledge and the consequential knowledge-induced unifying world-system. Such is the epistemological basis of all intellection and applications in reference to the *tawhidi* methodological worldview.

Empirical Evaluation of Wellbeing by Existing Islamic Financing Approach

We now investigate whether the inception of Islamic financing and banking has managed to sustain a level of balance for the common wellbeing. Thus the inquiry in this case leads to the inference whether it is at all possible for Islamic institutions to truly serve *al-wassatiyah* and *maqasid as-shari'ah* as opposed to the catch-word of *shari'ah*-compliance, without

addressing the foundational issue of *tawhidi* methodology of unity of knowledge in integrating the various financing instruments by suitable aggregation to improve yield, sustainability of all the instruments, and thus attaining risk and production diversification (Table 6.1).

The computations for generating the ranked financing values of knowledge-variable, 'θ' by degrees of their intra- and inter- financing values are shown in Table 6.2.

For each of the years we take only MUR (X4,t), MUSH (X5,t), MUD (X6,t),TOTAL (X8,t). We run the log-linear regression equations, t = 2006, 2009. 2010, 2011, 2014:

Table 6.1 Islamic Bank Financing, Malaysia, millions ringgit

End of Period	*Bai Bithaman Agil*	*Ijara*	*Ijara Bai*	*MUR*	*MUSH*	*MUD*	*Istisna*	*Total*	θ1 θ2 θ3 θ4 θ
	X1,6	X2,6	X3,6	X4,6	X5,6	X6,6	X7,6	X8,6	
2006 (Dec)	15,822	499	9,518	3,501	157	148	494	30,139	
% share	52.50	1.65	31.58	11.62	0.52	0.49	1.64	100	
	X1,9	X2,9	X3,9	X4,9	X5,9	X6,9	X7,9	X8,9	
2009 (Dec)	42,732	4017	38,353	23,016	1,875	376	1487	111,856	10
% share	38.20	3.59	34.28	20.58	1.68	0.34	1.33	100	
	X1,10	X2,10	X3,10	X4,10	X5,10	X6,10	X10,10	X8,10	
2010 (Dec)	52,642	2,834	43,487	23,296	3,958	275	1,615	128,107	
% share	41.09	2.21	33.49	18.18	3.06	0.21	1.26	100	
	X1,11	X2,11	X3,11	X4,11	X5,11	X6,11	X7,11	X8,11	
2011 (Dec)	83,148	6,332	62878	56,940	15,817	146	696	260,476	
% share	26.07	2.43	24.14	21.85	6.07	0.05	0.26	100	
	X1,14	X2,14	X3,14	X4,14	X5,14	X6,14	X7,14	X8,14	
2014 (Jan)	83,452	6,526	63,812	58,746	16,636	148	900	284,616	10 10 10
% share	29.32	2.29	22.42	20.64	5.84	0.05	0.31	100	

Source: Bank Negara Malaysia 2014

http://www.bnm.gov.my/index.php?ch=en_publication_catalogue&pg=en_publication_msb&eId=box1&mth=1&yr=2011&lang=en

Bai Bithaman Agil: hire purchase financing
Ijara: rental
Murabaha (MUR): cost-plus pricing
Musharakah (MUSH): equity participation
Mudarabah (MUD): profit-sharing
Istisna: prepayment to enable production of manufacturing

Table 6.2 Computations of ranking by **θ**-values (degrees of complementarities) of the selected financing values {x4, x5, x6, x8, **θ**} for studying the contrast between the res extensa and res cogitans of maqasid as-shari'ah and the independent status of shari'ah compliance

X4	*X5*	*X6*	*X8*	*lnX4*	*lnX5*	*lnX6*	*lnX8*
3,501	157	148	30,139	8.160804	5.056246	4.997212	10.31358
23,016	1,875	376	111,856	10.04394	7.536364	5.929589	11.62497
23,296	3,958	275	128,107	10.05604	8.283494	5.616771	11.76062
56,940	15,817	146	260,476	10.94975	9.668841	4.983607	12.47027
58,746	16,636	148	284,616	10.98098	9.719324	4.997212	12.5589

theta4	*theta5*	*theta6*	*theta8*	*theta*	*lntheta*
0.595955	0.094374	3.93617	1.058936	1.421359	0.351613
3.917884	1.127074	10	3.930067	4.743756	1.556829
3.965547	2.379178	7.31383	4.501047	4.5399	1.512905
9.692575	9.507694	3.882979	9.15184	8.058772	2.086761
10	10	3.93617	10	8.484043	2.138187

$$\ln X_{4,t} = a_0 + a_5 . \ln X_{5,t} + a_6 . \ln X_{6,t} \tag{6.1}$$

and recursively in circular causation equations,

$$\ln X_{5,t} = a_0 + a_4 . \ln X_{4,t} + a_6 . \ln X_{6,t} \tag{6.2}$$

$$\ln X_{6,t} = a_0 + a_4 . \ln X_{4,t} + a_5 . \ln X_{5,t} \tag{6.3}$$

$$\ln \theta = A_0 + A_4 . \ln X_{4,t} + A_5 . \ln X_{5,t} + a_6 . \ln X_{6,t} \tag{6.4}$$

θ-values are generated by the formula, $(i = 4,5,6,8)$

$$\theta_i = \left\{ \left[\text{values of } \left(x_{4,t}; x_{5,t}; x_{6,t}, x_{8,t} \text{ resp. corresponding to } \theta = 10 \right) \right] / 10 \right\} x \left[\text{individual values of } \left(x_{4,t}; x_{5,t}; x_{6,t}, x_{8,t} \text{resp.} \right) \right] \tag{6.5}$$

$$\theta = \text{Avg.} \left(\theta_1 ,, \theta_2 ,, \theta_3 ,, \theta_4 \right); \text{each} \theta_i \text{ calculated by expression } (6.1) \tag{6.6}$$

We re-estimate:

$$\ln X_{4,t} = a_0 + a_8 . \ln X_{8,t} + b . \ln \theta \tag{6.7}$$

and recursively,

$$\ln X_{5,t} = a_0 + a_8 . \ln X_{8,t} + b . \ln \theta \tag{6.8}$$

$$\ln X_{6,t} = a_0 + a_8 . \ln X_{8,t} + c . \ln \theta \tag{6.9}$$

$$\ln X_{8,t} = a_0 + a_4 . \ln X_{4,t} + a_5 . \ln X_{5,t} + a_6 . \ln X_{6,t} + d . \ln \theta \tag{6.10}$$

$$\ln \theta = A_0 + A_4 . \ln X_{4,t} + A_5 . \ln X_{5,t} + A_6 . \ln X_{6,t} + A_8 . \ln X_{8,t} \tag{6.11}$$

θ-values are calculated as above.

$$q_i = \{[\text{values of } (x_{4,t}; x_{5,t}; x_{6,t}, x_{8,t}, \text{ resp. corresponding to } q = 10 \text{ for highest financing value})]/10\} x [\text{individual values of } (x_{4,t}; x_{5,t}; x_{6,t} \text{ resp. along their columns}] \tag{6.12}$$

$$\theta = \text{Avg.}\{\theta_i\} \text{ as above} \tag{6.13}$$

Statistical Results

1. Independent financial values of major categories (MUR, MUSH, MUD)

$$\ln X_4 = \underset{(3.13)}{3.74} + \underset{(12.64)}{0.597} \ln X_5 + \underset{(1.37)}{0.281} \ln X_6 \tag{6.14}$$

R-Sq (adjusted) = 97.5

Sum of inter-variable elasticity coefficient is less than 1. Hence the inter-variable relations do not have economy of scale.

$$\ln X_5 = \underset{(-2.71)}{-6.05} + \underset{(12.64)}{1.65}\ln X_4 - \underset{(-1.34)}{0.410}\ln X_6 \qquad (6.15)$$

$$\text{R-sq (adj)} = 97.6$$

Sum of inter-variable elasticity coefficient is marginally greater than 1. Hence the inter-variable relations have weak marginal economy of scale.

$$\ln X_6 = \underset{(-0.54)}{-3.61} + \underset{(1.37)}{1.72}\ln X_4 - \underset{(-1.39)}{1.04}\ln X_5 \qquad (6.16)$$

$$\text{R-sq} = 0.49$$

Sum of inter-variable elasticity coefficient is less than 1. Hence the inter-variable relations do not have economy of scale.

2. Each financing value with the total portfolio

$$\ln X_4 = \underset{(2.41)}{5.45} + \underset{(0.95)}{0.219}\ln X_8 + \underset{(4.57)}{1.32}\ln \theta \qquad (6.17)$$

$$\text{R-sq} = 99.9$$

The inter-variable sum of elasticity coefficients is greater than 1. This indicates the existence of economy of scale in the relationship.

$$\ln X_5 = \underset{(-3.99)}{-32.4} + \underset{(4.49)}{3.70}\ln X_8 - \underset{(-1.93)}{2.00}\ln \theta \qquad (6.18)$$

$$\text{R-sq} = 99.7$$

The inter-variable sum of elasticity coefficients is greater than 1. This indicates the existence of economy of scale in the relationship.

$$\ln X_6 = \underset{(2.13)}{45.1} - \underset{(-1.88)}{4.05}\ln X_8 + \underset{(1.87)}{5.06}\ln \theta \qquad (6.19)$$

$$\text{R-sq} = 63.9$$

The inter-variable sum of elasticity coefficients is greater than 1. This indicates the existence of economy of scale in the relationship.

$$\ln X_8 = 16.3 - 1.01\ln X_4 + 0.310\ln X_5 - 0.0175\ln X_6 + 2.03\ln \theta \qquad (6.20)$$

$\Rightarrow$ highest elasticity coefficient value to X_8 is contributed by θ.

$$\ln\theta = -8.02 + 0.494\ln X_4 - 0.152\ln X_5 + 0.00863\ln X_6 + 0.492\ln X_8 \quad (6.21)$$

Inference from the Statistical Results

The above estimated equations point out that the economy of scale caused by inter-variable relations occurs in the case of their relations with the total financing variable X_8. In this case as well the degree of complementarities between the variables indicated by $\ln\theta$ is found to have the largest impact on the economy of scale. Contrarily, in the case of independent status of the financing variables (X_4,X_5,X_6) without the complementing total financing portfolio variable (X_8), there is no trace of economy of scale. The conclusion then is that, immersion of every financing instrument in the portfolio of all financing together as a coordinated and interactive system causes greater gains and security for the existence of the individual instruments. The same is true of the total of all instruments taken together by virtue of the elasticity effect of $\ln\theta$ in the system of interactive relations among the financing instruments in the total financing portfolio.

Conclusion

This chapter has developed a generalized methodology of the relationship between *tawhidi* epistemology, and the principles of *al-wasatiyyah* and *maqasid as-shari'ah*. The principle of *al-wasatiyyah* has always meant balance and moral reconstruction of a segmented world-system of values and materiality without the moral consciousness ingrained in it. Certain particular cases of application in the study of the generalized methodological model of the interrelations mentioned here were invoked. The general context of unification by organic induction of *tawhidi* episteme of unity of knowledge was particularized into the domainsexemplified by religion (values) and economics (materiality).

The emergent theory of such consciously induced endogenous dynamics of *tawhidi* epistemic oneness of intra- and inter-systemic relations is the novelty of heterodox socio-scientific thinking in present times. The imminent methodological and analytical formalism that inheres in this approach is the way towards explaining the model of interrelationship

between *tawhid* as the episteme;the moral reconstruction by the principle of *al-wasatiyyah*; and the appropriation of choices according to *maqasid as-shariah*in the light of the *tawhidi* episteme and the principle of *al-wasatiyyah*. Such a formalprescription is true for both the Islamic scholarship and the heterodox socio-scientific thinking in mainstream socio-scientific thought. It is derived from and conveys the message of the Qur'an (42:17) for all people and situations: "It is Allah Who has sent down the Book in truth, and the Balance (by which to weigh conduct)." In the light of this verse, it is clear that *tawhid* is the primal ontology of creation. The goal of this worldview is balance (*al-wasatiyyah*) as signified by the order of unity of being and becoming as creative manifestation of *tawhid*. The worldly mechanism (*muamalat*) that brings about the *tawhidi* episteme to its goal of balance (*al-wasatiyyah*) is connected with choices and determinations according to *maqasid as-shari'ah*.

The *maqasid as-shari'ah* cannot therefore be termed as *the law*. The law is *sunnat*-Allah (divine law of oneness).[1] The *maqasid as-shari'ah* is a derived worldly law. It remains continuously in the flux of extension by the flight of the knowledge of *tawhid*. The *maqasid as-shari'ah* carrying forward the primal *tawhidi* episteme to balance (*al-wasatiyyah*) must comprehend the continuum of the multi-universe between worldly affairs and the creative entirety. If *maqasid as-shari'ah* is otherwise limited to the muamalat alone, as it is traditionally understood and carried through to contemporary times, then along with this constriction, the expanse of the *tawhidi* law and the goal of *al-wasatiyah* become distorted. This is a contradiction to the true message of the Qur'an (50:57): "Assuredly the creation of the heavens and the earth is a greater (matter) than the creation of men: Yet most men understand not."

These bold inferences from the Qur'an lead us to the following inescapable conclusion in this chapter on the modeled interrelationship between *tawhid* (Ω,S), *al-wasatiyyah* (W), and *maqasid as-shari'ah (*M*)*. This order though does not form a sequential relationship. There can be all kinds of circular causation between (T,W,M) along the historical path of evolutionary learning. We can write in the generalized form of the wellbeing function as,

$$\Phi\big(\mathrm{M}\big(\mathrm{H},\mathrm{E}\big)\subseteq \mathrm{W}\subset\big(\Omega,\mathrm{S}\big)\big). \tag{6.22}$$

{.} denotes multidimensionality of order and form over knowledge, space, and time.
{H} denotes the multidimensional diversity of the domain of heavens (cosmology);
{E} denotes the multidimensional diversity of the domain of earth (*muamalat*).

$$\text{Thus } \{\cup_{\text{interaction}} \cap_{\text{integration}} \{H,E\} \mid \text{expression (6.22)}\} \tag{6.23}$$

denotes the multidimensional domain of total creation

Expression (6.22) forms a continuous domain of functions over continuums.

The property of evolutionary learning dynamics of (6.22) and (6.23) is now given by,

$$\begin{aligned}&(d/d\theta)(\Phi(M\{H,E\} \subseteq W \subset (W,S))) \Leftrightarrow \\ &(d/d\theta)\{\cup_{\text{interaction}} \cap_{\text{integration}} \{\mathbf{H},E\} \mid \text{expression (6.22)}\} > 0\end{aligned} \tag{6.24}$$

$\theta \in [\Omega,S;\theta^*]$, subject to expression (6.22).

Note

1. Qur'an (48:23): "(Such has been) the practice (approved) of God already in the past: no change will thou find in the practice (approved) of God."

PART II

The Absolute Reality in the *Qur'an*: Applications to Economics, Finance and Society Using the Generalized Socioscientific System

CHAPTER 7

The Nature of Business Social Ethics in Heterodox Epistemological Worldviews

Formulation of the emergent analytics in comparative perspectives between mainstream and Islamic economic, finance, and business world-systems according to their distinct moral and ethical episteme is the objective of this chapter. The true epistemological direction of the systemic understanding of socio-business ethicality is opened up for conceptual and applied investigation.

The comparative study of morality and ethics that characterizes social ethicality of the embedded organizational and business world with human and social consciousness in it belongs to the generalized epistemological premise of unity of knowledge as mentioned above. But this methodological approach takes up a distinctive character in the Islamic worldview from the moral and ethical understanding in mainstream business ethical theory. The emergent methodology is thereby of a heterodox epistemological nature.

The Islamic heterodox difference, which is of a significant nature, replaces the rationalistic individual behavioral aggregation of ethical preferences into social business ethicality, is a utilitarian model. In it lateral aggregation fails to explain the interactive, integrative and evolutionary learning nature of social ethicality that the Islamic episteme of oneness establishes. Business and organization get embedded in ethics as generic forces derived from the episteme of oneness of knowledge. Thereby, ethics derived from epistemic oneness plays its role throughout the social structure of such institutions. Individual ethics and social ethics are causally

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_7

interrelated in social reconstruction of business and organization by evolutionary learning according to epistemic oneness. This universal epistemic worldview remains in action in ethical-social reconstruction.

An extensive review of the literature is critically studied both for mainstream and Islamic cases against the emergent moral reconstruction of the social ethicality of business and organization. It is found that the epistemological approach of unity of knowledge explains social ethicality of business organization in terms of the resulting extensively systemic worldview. Such a perspective is not usually understood in traditional theory of business ethics. Consequently, the theory of business social ethics remains deficient of its otherwise systemic meaning. Social business conveys the overarching ethics in business and organizational behavior.

The focus and objective of this chapter is to develop the Islamic heterodox epistemological theory of social ethics and point out its inner dynamics and potential application. This task is carried out in contrast between the mainstream and prevailing Islamic heterodox perspectives of theory, comprehension, and conduct of business ethics on epistemic grounds.

Background

The theme of business ethics is distinct from that of social ethics as applied to business, economics and finance. Business ethics by itself is a partitioned field of behavioral finance within which the issues of corporate social responsibility and good corporate governance are studied as company practices. Such practices in the business world arise as enforcement of contracts between business entities and public authority. The understanding of social ethics especially in business and finance invokes a study of ethics that is integrated with behavioral aspects of business, financial and economic decisions. None of these is independent of the social embedding in which ethics and business, finance and economic behavior find the actualization of ethics as an endogenous social force. The intellection around endogenous integration of ethics and the ethical theory in behavioral economic and financial decision-making and social choices is of a recent genre. This found its roots in the area of ethics and economics in the first place (Sen 2002). Its subsequent derivation in the field of endogenous ethics and finance and business has not yet touched substantive research activity. Thus in the literature on business ethics the field of *social* ethics cannot be found substantially. Thereby, the social embedding of business and finance in the venue of social ethicality has not been understood as an intellectual enterprise. Consequently, the business application of such an intellection that can find

its place in research projects and program and policy formulations inducing the business world cannot be found as a substantive issue for examination. This fact is markedly pointed out in the works of Zsolnai (2002a).

The importance of the endogenous embedding nature of social ethics inducing business and finance is intrinsic to the development of behavior, such as consciousness, responsibility, corporate social responsibility, and good corporate governance in the ethical and social environment to undertake essential goals. Among these are poverty alleviation, environmental protection, honesty, fairness and distributive justice. The study of social ethics in behavioral business and finance perspectives by introducing the pressing epistemological, moral and ethical goals makes the contribution of this chapter significant as research and applied undertaking.

This chapter points out the distinct nature of social ethics and its importance as an endogenous behavioral force that can be possible in the business and finance venue. This forms the heterodox conceptual and thereby epistemological freshness of the topic under study. Besides, the derivation of the substantive nature of social ethicality in business and finance, and the emergent endogenous behavioral implications require invoking an epistemological stand (Edel 1970).

Epistemology as theory of knowledge transcends religion, culture and rational behaviour. For this reason it is necessary to quest for the epistemological roots of social ethicality that can influence business and finance in comparative religion and culture besides simply knowing the qualitative perspectives. Upon this, empirical evidences ought to be discovered to establish the practical presence or absence of the epistemological claims in social ethics of behavioral aspects of business and finance.

Thereby, the expectation of this chapter is that a contribution can be made by pointing out the heterodox epistemological foundations of behavioral aspects of business and finance in comparative cultural perspectives. By doing so, this chapter will be able to present the missing distinct nature separating sheer business ethics from business social ethics that are endogenously induced in social and ethical embedding of business and financial issues.

Objective

In the light of the above-mentioned background of this chapter and the epistemological nature of the study of social ethics of business and finance the principal objective of this chapter is to establish the epistemological roots of moral-social reconstruction of the ethical business and financial

venue. To accomplish this task the epistemological search leads into comparative cultural and religious roots of morality and ethics practiced in business and finance. Then such epistemological claims are subjected to qualitative and empirical investigation.

This approach is found necessary in this chapter firstly to determine the logical validity of an epistemological thinking on social ethics of business and finance. Secondly, the comparative epistemological validity of moral and ethical claims must be examined under empirical, that is practical facts. Such a comparative search leads this chapter to the qualitative and analytical study of mainstream and Islamic approaches. This specific comparative study is selected because of the budding field of Islamic banking, economics and finance. It thrives on and presents a distinctly different epistemological outlook on social ethics of business and finance. The comparative study brings out a factual valuation of claimed epistemological outlooks. Subsequently, the validity or failure of business and financial practice with epistemological concepts opens venues to inquire on future possible directions of research.

The Structure of This Chapter

The absolute reality of the Qur'an is manifest on a practical scale by the substantive understanding of ethics in the applied social forum. This carries on the epistemological conceptual and analytical study of the *tawhidi* law into institutional forms. *tawhid* as the absolute reality and as the ontological foundation of the divine law in the Qur'an is thus made to fuse with policy and institutional issues. The applied nature of this chapter in respect of the *tawhidi* law as the absolute reality of the Qur'an invokes a long list of comparative review of the literature in the area of the epistemological foundations of the socio-ethical dimensions based on the stakeholder model of decision making and asset valuation contrary to the present genre of neoclassical asset valuation and decision-making approaches.

To address the objective against the background of this chapter the following steps are adopted in its structure: The fresh concept of ethics as endogenous value in behavioral decision making of the embedded type in business systems and individual choices within society is adopted. We place this idea of social ethics against the prevalent mainstream intellection. A critical review of the literature in mainstream theory and Islamic perspectives of business social ethics is carried out. Against this extensive critical

survey of the literature the budding field of learning-system methodology as the epistemological conception in the fresh outlook on business social ethics is presented. The emergent methodology and its immanent model of circular causation through interaction, integration and evolutionary learning are made the basis of the criticism of the tradition against the budding new outlook of business social ethics.

The case of Islamic social ethics claimed in the purpose and objective of the Islamic Law (*maqasid as-shari'ah*) is critically examined by the prevalent experience of Islamic banks in this respect, and against the pure ideals of the *maqasid as-shari'ah*. In the end, the understanding of business social ethics is taken up in the framework of a heterodox epistemological model of unity of knowledge. This epistemology as methodology signifies the dynamic function of oneness of knowledge of the law of monotheism, *tawhid* in the Qur'an. In the systemic meaning of organic unity of being *tawhid* in terms of the monotheistic law is represented by systemic participation and inter-variable complementarities in the evolutionary learning worldview (Choudhury, reprinted 2012a). The Islamic socio-ethical model of business ethics is upheld in reference to the heterodox epistemological methodology of unity of knowledge in terms of *tawhid* and its implication in the world-system of economics, finance, and business (Fig. 7.1).[1] These are taken up within the overarching social and scientific order (Choudhury, reprinted 2012b). Yet this approach remains absent in the traditional and the prevalent cross-cultural practice of both Islamic business ethics and mainstream business ethics.

The end result of the chapter in respect of both mainstream and heterodox Islamic approaches to the study of business social ethics is that, except for a recent flurry of interest in the evolutionary learning approach in this area to study socially embedded business organization, not much has been

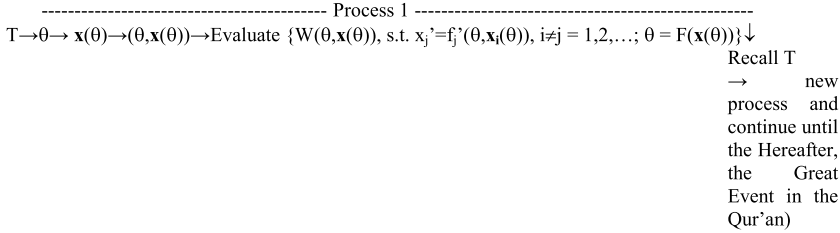

Fig. 7.1 The epistemic *tawhidi* evolutionary learning string in unity of knowledge and the world-system

accomplished. It is the methodology of the evolutionary learning model with its heterodox epistemological basis of a participatory and complementary social picture that ought to point to a robust understanding of the subject matter. This is the main focus, the critical stand, and the future recommendation for research.

The Nature of Business Social Ethics Contra Prevalent Theories of Business Ethics

Some writers construe business ethics as having a sociological nature. Ethics is then used in business decision-making as organizational behavior along with its market consequences. Ethics as such a system-wide complex behavior can be found in the words of Herbert Spencer (1978, p. 166): "From the sociological point of view, ethics becomes nothing else than a definite account of the forms of conduct that are fitted to the associated state, in such wise that the lives of each and all may be the greatest possible, alike in length and breadth."

Herbert Simon (1987) championed the explanation of human behavior within the model of business organization. On organizational behavior that is based on hierarchical decision-making, Herbert Simon wrote (p. 215): "Since organizations are systems of behavior designed to enable humans and their machines to accomplish goals, organizational form must be a joint function of human characteristics and the nature of the task environment."

In this chapter a component of our task is ethics in the study of business, finance and man-machine, or mind-matter interrelations. Epistemologically, the mind denotes the *res cogitans*; matter denotes *res extensa* domains of critical reasoning as of Rene Descartes. This kind of epistemological understanding can be translated in the form of a measured action of ethics between organization and technological states with its human discernments. In his seminal work on *Models of Man*, Herbert Simon (1957) wrote on such (ethical) bounded rational choice behavior in his satisficing theory of imperfect information in organizational decision-making.

Such approaches in organization theory of the firm convey the important meaning of ethics as an evolutionary learning process for attaining the objective criterion of the firm. The objective criterion of a business firm in mainstream literature is inevitably profit-maximization. The same objective criterion is presented by Simon in his organizational theory of

the firm, though with the realism of bounded rationality (imperfect information). Yet the evolutionary knowledge-dynamic meaning of learning behavior in business decision-making is missing. In the traditional terms a firm is assumed to pursue choices based on the axiom of economic rationality. Thereby static efficiency criterion remains abound.

The assumption of economic rationality and maximizing behavior while still aiming for an evolutionary learning model of business system is permanently retained in Simon's seminal contributions. The profit-maximization assumption premised as it is on economic rationality (bounded rationality) and the static concept of efficiency, all together underlie the worldview of business and finance driven by the competition paradigm.

The rejection of the mainstream business and finance objective of profit-maximization is further deepened by the presence of business social ethics in business decision-making in the light of a sociological definition given above, and by the complexity that social perturbations cause in the decision-making process (Tuan 2004).

A New Intellection Outlook on Business Social Ethics

Our queries on alternative ways of organizing the business world that reflect organic linkages between business ethics, sociality, and organization, have become a rigorous conceptual and applied study of social dynamics in recent studies. The book, *Blue Ocean Strategy* (based on creativity and learning) of Kim and Mauborgne (2005) versus their red ocean strategy (competition and maximization ideals) is one such path-breaking business model with an ethical ethos.[2]

The study of business ethics as a social system of organization of the firm can also be implied from Johannessen (1998). Of special interest in his model is the bold acclaim for circular causation relations as a model of systemic dynamics that arise from the cause-effect circularity of the organization system (e.g. business firm) as a social biological sub-system, cultural sub-system, economic sub-system, and political (polity, institutional) sub-system. These sub-systems form ensembles of learning wholes. Consequently, the objective criterion of such a business world comprises the evaluation of variables defining the goals of the sub-systems in an interdependent symbiotic way. With ethics formed as evolutionary endogenous element of organizational and socioeconomic behavior, Johannessen's kind of business organizational model may reflect either strong or weak endogenous effects.

Endogenous Nature of Business Social Ethics

The important concept that ought to be understood in respect of business social ethics is the endogenous nature of ethics within the firm, and as an embedded social entity in relation to the socio-scientific organisms. The meaning of endogenous ethics in its epistemic moral sense is derived from the organic nature of learning between variables and their underlying relations and agencies across interrelated systems, in which the business enterprise remains socially embedded. Learning is the strong representation of social ethics. It is defined by the circular causation interrelationships between interacting variables along with the production of knowledge in a discursive social environment in which the firm remains embedded. This nature of business social ethics forms the epistemological premise of any business in its generalized-system role.

The stronger point of view emerging from the learning embedded systemic approach in every case, namely the normative, deontological, teleological, and virtue-ethicality based approach to stakeholder modeling of the firm, is the study of the endogenous nature of ethics in business decision-making. Lozano (2002, p. 174) writes on this endogenous relational issue: "An organization not only produces goods and services but in doing so, it shapes itself. Consequently, a reflective organizational ethics should attend to its processes as well as its contents."

Endogenous ethical relations are signified by circular causation between the representative variables. The organization of endogenous circular causal interrelations between variables forms a richly complex but orderly world of ethical relationships.

Examples are as follows: The shareholder model of the firm is extended to the stakeholder model combining business and society. The organization models of the firm now become endogenous relational models. In behavioral finance analysis such models are characterized by temporary and punctuated equilibriums that are attained by the learning processes with interactive, integrative and evolutionary (IIE) learning stages in the probabilistic and evolutionary fields of the circular-causation variables.[3] The IIE-process in the heterodox epistemic *tawhidi* framework underlies the dynamics of forming unity of knowledge out of social embedding. This is signified by complementarities and participation in underlying circular causation relations. The notes 1 and 3 further explain this idea. The emergent equilibriums of evolutionary learning in the IIE-process are like the ones characterized by Thurow (1996) and Krugman (1996). In both of these cases the globalization process is seen to be embedded in

systemic complexity invoking ethical issues. Endogeneity and complexity are thus coterminous as learning models of business social ethics.

Boda (2002) points out in reference to the ethical stakeholder model of business enterprise that the social ethics in this case involves the wider system of valuation (Myrdal 1968). This comprises all the elements of business, corporations and organizations that contribute to the establishment of a causally interrelated discursive society enabled by business networking. The stakeholder model in this context inculcates global ethical values, inter-cultural norms, and corporate social responsibility. By the same type of models international development organizations establish global governance manifesting interactive social-ethical goals.

Finally, in our review of the literature on the nature of social ethics it is illuminating to examine Nozick's (2001) philosophy on the nature of ethics. Nozick (p. 259) points out in regard to 'the core principle of ethics', which is seen to be a cooperative worldview embedded in a learning-by-exchange paradigm: "The view I am recommending is very closely intertwined with the notion of cooperation to mutual benefit. It makes mandatory voluntary cooperation to mutual benefit; it makes only that mandatory: and it (in general) prohibits interactions that are not to mutual benefit, unless these interactions are in response to previous violations of the principle or to violate it."

The above definition of the core principle of socially coordinated meaning of ethics comes near to the learning paradigm centered on the *tawhidi* epistemology of unity of knowledge as a participatory and complementary worldview of variables, agents and relations. Yet the construction of the social artifact that defines just action remains unclear. Mutual cooperation out of interaction leading to consensus in institutional setting is merely a procedure, not a core principle in social ethical behavior.

Cross-Disciplinary Case: Islamic Worldview on Business Social Ethics

On a cross-disciplinary search for endogenous ethics out of behavioral dynamics and learning processes of the firm, business and finance there is the Islamic comparative case study. This case is chosen for purpose of determining possible epistemological diversity in business social ethics. Now the cooperative and coordinated decision must be based on the due learning process, as explained above in the notes 1 and 3 by recurrent as learning processes (say 'P'), respecting choices of the good things of life.

Islam pronounces this ethical premise based on the epistemology of the Qur'an and the *sunnah* (Prophetic guidance) The immanent law denotes the purpose and objective of the Islamic Law (*maqasid as-shari'ah*). The Islamic Law of worldly affairs is further investigated for social relevance by means of collective understanding, intellection, and application to specific problems of social ethics. Yet by this choice of the pure model of the *maqasid as-shari'ah* we want to investigate how far the principles are practiced by Islamic banks globally. The cross-cultural examination of business social ethics is then placed on an objective ground of critical evaluation.

Review of the Literature: Case of Mainstream Business Social Ethics

Conceptual Issues in Ethics and Economics, Business and Finance

In mainstream ethical theory, ethics is a form of altruism based on gifts and exchanges (Arrow 1972). Utilitarian behavior of altruistic decision-makers is adopted to explain self-interest in maximization of individual interdependent utilities. Yet the moral theory of resource-sharing is absent. Such utilitarian behavior is a precept that can contrarily be explained in Goulet's (1997) words on charitable giving, and by Rawls' (1971) concept of primaries in maximizing wellbeing by social participation. In this regard, Goulet writes: "in the light of the vital distinction between *plus avoir* (to have more) and *plus être* (to be more), societies are more human or more developed, not when men and women "have more" but when they are enabled 'to be more'."

Amartya Sen (1990) uses a deontological (duty bound) idea to set up the moral basis of ethical thinking in relation to the economy. His idea in this regard can be summarized as follows (Choudhury 2002): An example taken from Sen proves the case that ethical premise must be embedded in a moral text. If Person A is being excessively violent to Person B, should Person C stop this violent act? Sen explains that if sheer *individual rights* prevail over conscious moral intervention then A can beat B to death and C has no compulsive role to morally or ethically intervene in this act of murder. This is the case of passively watching the scene of a murder. C's passive attitude is an ethical act of the *individual right* not to intervene. The 'consequence' conveys the right of murder even with adverse social consequences and legal punishment.

On the other hand, intrinsically embedded ethical behavior in the moral text, which emanates say from the divine law, would invoke in C the moral duty to intervene and help B. C then acquires two attributes at the moment of such an intervention. First, by intervening, he upholds the legal right of censure against A. Secondly, by the same intervention C carries out an act in order to stop a morally unsocial one. Thus, an intrinsically ethical value found in morality replaces the differentiated perception given to *rights and freedom* in rationalist ethical theory. Consequently, the ethical response equates to its derivation from the moral law. This is the state of moral consciousness.

When applied to business social ethics, Sen's deontological paradigm translates into the moral consciousness of business to avoid such acts that will hurt social order despite the loss of profits, ownership, power, and the competitive edge. Sen's moral virtue in his epistemological derivation of ethical consciousness is thereby unlike Friedman's, who believed that profit-making is the principal ethical rule of a firm in a free-market economy. Kenneth Boulding asserted this solely materialistic viewpoint of ethics. He asked why he would put his money in a bank that advertises 'We look at people first'. The conventional bank as a financial institution in the morally bereft consciousness would rationalize its ethicality according to the prevalent practices and stand among many financial institutions.

The role of ethics through morality leading to the emergence of the moral basis of ethicality leads into the meaning of business social ethics. We thereby have the captions, corporate social responsibility, and business social ethics arising from its moral epistemological root as an abiding tenet of the social order. In this wide sense of the term, social ethics form the consciousness of the global scale (Commission on Global Governance 1995). Thus the epistemological basis that ought to be universal for all conscious social thought arises from the text of the law of unity signified by social participation and sharing equitably between partners in global resources (Rosenberg 1995). It also marks a self-governed construction of social preferences in self and community through reference to moral texts and enlightened discourse. It is a regulated social condition through policies and guidance towards establishing a good society as opposed to an acquisitive society. Human wellbeing is gained out of participation and discourse in reference to the moral text (Tawney 1948). These conditions remain universal to civil society despite the details of their enactment among given peoples and cultures.

A principal message is this: A comprehensive understanding of ethics, one that, when aggregated from the micro-level becomes endogenously effective in making ethical meaning for society at large, remains a central element of business social ethics. Business social ethics in its aggregate meaning, if it is at all possible to aggregate to the organizational and social levels, is understood simply as a lateral addition of individual ethical norms (Hammond 1989). Yet in its substantive meaning, business social ethics premised on an epistemological basis gives rise to complex aggregation. Linear summation of ethical preferences, as would be the case with the utilitarian approach over individual or group-specific utilities and wellbeing indexes (Harsanyi 1955), is untenable.

Thereby, the understanding of business social ethics ought to stand on a generalized systemic meaning of ethics that is interactive within all other domains of society—economics, finance, and science. Consequently, a critical characteristic of business social ethics is its complementary and participatory nature that extends across systems of interacting, integrating and evolutionary (**IIE**) variables representing the systemic domains.

Contrarily, the idea of ethics as a personal or marginalized creative dynamics in institutional decision making, such as managerial acumen in banking, cannot attain the true character of a general-system oriented ethical study. It is well-known that the ethics of utilitarianism (Quinton 1989) is a linear aggregation of disjointed optimal indexes that cannot explain how a final consensual social decision is attained, except by enforcement by a superior human actor. Such an enforced decision-making is the message of the 'possibility theorem' of welfare economics. Its existence is necessary in order to enforce welfare optimum in the presence of the rule of excluding irrelevant preferences (Arrow 1951).

Critical Review of the Literature: Case of Islamic Business Social Ethics

In the light of the critical study of business social ethics according to various models that we have examined, the Islamic contributions remain to be evaluated. We ask the question: Where does the study of business ethics in Islamic perspectives stand in the midst of the various comparative theories and contributions made in the area of business social ethics? There have been only a few contributions in the area of Islamic business social ethics, and those too remain confined to the area of Islamic banking. Almost nothing has been contributed on the nature of business social

ethics beyond a cursory examination of the classical attributes of the Islamic law (*shari'ah*) and its ambivalent implication.

The study and practice of social ethicality in business is practically absent in the literature on Islamic business ethics. Islamic businesses, markedly Islamic banks and financial companies (insurance, development organization e.g. the Islamic Development Bank) are found to be centered on the mainstream neoclassical treatment and practice of financial matters and resource allocation. Consequently, all the utilitarian ethical standards have entered Islamic banking and finance lock, stock, and barrel.

Weeramantry (2001) elaborates on the classical attributes of the *shari'ah*. But except for a salient coverage of Ibn Khaldun on the sociology of ethicality in the *shari'ah*, there is no coverage of how such ideas were at all practically implemented during, before, or after the times of Ibn Khaldun. As a matter of fact, this concern remains a valid criticism by western scholars, which Weeramantry (pp. 118–20) notes: "Much of the tenets of the Islamic Law became an imposition on the individual by the state for adherence to, rather than a change in the will, conduct, and sustained attitudes of Muslims as self-governing behavior on ethical preferences." This compulsive state was due to the failure in understanding the endogenous learning dynamics of the ethicality concept in a general-system study of business and society. While Ibn Khaldun discussed this sociological aspect in his philosophy of history, yet on the matter of the *shari'ah* he considered this law to be an ideal—not a law practiced during his times (Mahdi 1964).

The disjoint treatment of the *shari'ah* can be seen in the failure of Islamic business studies and practitioners (Islamic banks) to understand a general-system approach to Islamic financing. On the contrary, a traditional approach has abided in this kind of intellectual confinement. That is to consider each financing instrument in its independent right in respect of the financial contracts under the *shari'ah*.

Hassan (2002) points out a clear absence of a holistic approach to social ethics involving business or otherwise. This imperfection of the humanly developed theories of contracts in different and segmented contracts (*'aqd*) is due to the failure of Islamic scholarship to formulate a generalized universal theory of contracts in the *shari'ah*, be this in personal law or in the law of contracts pertaining to commercial dealings. Instead of a universal and holistic understanding and formalism of a theory of integrated social contracts, scholars have evolved a segmented idea of contracts. The result has been contradictions, inefficiencies, and

impossibilities in the development and application of business social ethics by a theory of business ethics that is embedded in the interactive dynamics of economy, finance, science and society.

A better picture of business social ethics, one that would flow from a universal and unified theory of contracts in Islam could have some of the inner contradictions and conflicts between Islamic financing instruments. For example, the law of avoidance of *riba* is not well integrated with the financing model of cost-plus pricing of hire-purchase (*murabaha*). The ideas of fair profit-sharing ratios between partners in a profit-sharing contract (*mudarabah*) and equity-participation (*musharakah*) remain problematic concepts. The idea of a Pooled Fund to meet the goals of the *maqasid as-shari'ah* can be tried. But thus far this model of complementary participatory financing is replaced by a plethora of secondary financing instruments characterized as *shari'ah*-compliant. Yet this idea misses the epistemic meaning of *maqasid as-shari'ah* in the general-system sense of embedded social ethics and morality. These kinds of concerns have been expressed by Coulson (1984) and Schacht (1964) in respect of their understanding of the Islamic law of *contracts* as being opposed to a unique and universal generalized law of *contract* that can render the principles of the *maqasid as-shari'ah*.

A Further Point on Ethical Inadequacy in the Islamic Review of the Literature

An example of commercial contract is that of *sukuk*, an Islamic bond (certificate). *Sukuk* is allowed to revolve around any of the other primary and secondary financing instruments. Yet the very legitimacy of such secondary instruments remains in question (Mokhtar and Thomas 2009). Other secondary instruments that are subject to question of Islamic legitimacy *qua* financial interest (*riba*) are *murabaha* (mark-up pricing on hire-purchase sales), *ijara*, (rental), *tawarruq* (cash *murabaha*), and *salam-based* (deferred payments). These are all debt instruments, which Islam categorically avoids.This is well-documented in many sayings (*ahadith*) of the Prophet Muhammad. The entire package of debt-based instruments, which has become the centerpiece of Islamic financing (Rosly 2005) by the *shari'ah*'s very nature of debt-avoidance, is of debatable legitimacy according to the *maqasid as-shari'ah*.

Shabnam Mokhtar et al. (2009) admit that *sukuk* structures, including those that revolve around equity participation (*musharakah*), are forms

of debt instruments. Consequently, as in the case of bonds, a guaranteed rate of return is predetermined for the *sukuk*-holder, although the money value of the returns is not. This kind of pricing mechanism is tantamount to *riba* (interest). In this way, the very foundation of the *shari'ah* financing principle, namely avoidance of debt and thereby *riba* effect has been accepted fully in Islamic finance.

The problem of discerning the appropriateness of many secondary instruments, particularly the mobilization of *sukuk* around other secondary instruments, is caused by the religious interpretive homework (called *fatawa*) of AAOIFI's *shari'ah* rulings (*fiqh*). The resulting ethical gap can be read in Mohamad et al. (2009) description of such independently existing contracts on debt instruments. This problem in complementing together financing instruments is due to the overwhelming legal nature (*'uqud*) of participation on rates and ownership between financial partners, as opposed to the market-orientation in determining the share of returns along with legal controls. A pressing issue is this: How does pricing futures determine the fair price that would be acceptable to the *shari'ah* on deferred goods and returns?

Examples of financing instruments in this case are *murabaha, mudarabah, ijara,* and *salam*. *Murabaha* is a questionable Islamic financing instrument because of its mark-up rate, which is not linked with market exchange as the endogenous determinant of value. This kind of rate setting causes unfair burden on distressed clients who are driven to *murabaha* as their final financial resort. *Murabaha* is riddled by the non-commensurateness problem of measured risk and non-estimable profit factors in the rate setting that remains independent of market mechanism, an endogenous valuation process.

Likewise, *mudarabah* is also not a purely cooperative contract between owners and workers. Payments to partners, as by valuation of time allocation in joint venture, are not included. Profit-sharing rates are simply determined by capital allocation ratios, not including the value of time-allocation and the dynamic entrepreneurial value-performance in the total participatory resource allocation and sharing contract.[4]

The critical evaluation of business ethics in Islamic practices presently and traditionally rests upon the understanding of the nature of such disjoint contracts. No mature idea has been contributed to study the dynamics of the *shari'ah* (Choudhury 2011) premising business ethicality as endogenous social ethics in the light of the *tawhidi* organic epistemic precept of unity of knowledge. This point has been explained in reference

to the understanding and application of social ethics of business in the emergent ethico-economic literature.

The Islamic instruments of financing have always been treated as disjointly separate legal contracts. Recent ideas of pooled financing funds following the general ethico-economic precept of financing business for the attainment of wellbeing (Choudhury 2009b), have not entered the Islamic ways of financing business.

Consequently, the wellbeing of the very poor, and attainment of sustainability within the global ethical context of the Islamic (*tawhidi*) worldview of unity of knowledge, as explained in terms of participative and complementary circular causation relations, have not been understood, conceptualized, or applied by the Islamic banking and financing entities. A study by Meera and Larbani (2006) points out the failure in Islamic economics and finance to understand and apply the objective criterion of the *shari'ah*:that is, the *maqasid as-shari'ah* in society through the function of money interrelated with the real economy in respect of the good things of life and the participatory financing instruments.

The chapter by Haniffa and Hudaib (2007) brings out several of the critical observations in their empirical study of *communicated* against *ideal* categories of identities exhibited by a cross-section of Islamic banks in the Arab Gulf region. While the authors point out the ideal identities of the *shari'ah* against which the communicated identities are evaluated by an ethical index based on content analysis, they find a great variation on the degree of performance on each of the dimensions of sociality and ideal Islamic values. It is most interesting to note from the chapter that in accordance with the arguments launched in our chapter, Haniffa and Hudaib find no consistency on ethical reporting by the cross-section of Islamic banks surveyed. Most critically, the reported area of charity (*zakah* and *sadaqah*) remains markedly weak in the intended social performance according to ideals. The authors emphatically write (p. 111): "We further found the largest incongruence between the communicated and ideal ethical identities to be under four dimensions: commitments to society, their vision and mission, contribution and management of *zakah*, charity and benevolent loans; and information about top management. The findings are surprising because IBs as social and economic institutions, are expected to communicate more on those dimensions to reflect accountability and justice not only to society, but also ultimately to God."

Yet the nature and contribution of our chapter is different from Haniffa and Hudaib's. The major difference is the way that the social ethical index is evaluated and explained. We explain the social ethical index of business by means of circular causation to explain pervasive organic learning dynamics under the *tawhidi* episteme of unity of knowledge. The contrary approach is to use the linear and segmented ethical index as done by Haniffa and Hudaib. In this case, it is not enough to evaluate performance separately, for instance on the value of *zakat* (Islamic tax on wealth) and charity, and their social impacts. The high performance on *zakat* and charity can be due to the high amount of *murabaha* (mark-up hire-purchase financing), whose wealth effect overwhelms total IB-financing. Yet *murabaha* remains a suspect Islamic financing instrument. Some scholars have argued that *murabaha*-based markup is tantamount to *riba* (interest), being both a non-risk sharing financing instrument, and the mark-up rate being determined by LIBOR rate (Saleem 2006) having no endogenous market relationship. Consequently a positive relationship, which would increase the linear ethical index measures on *zakat* and *murabaha* financing, contradicts the Islamic identity based on sheer *ideal*. Contrarily, circular causality—a complex ethical phenomenon—is an essential aspect of social ethical valuation. Haniffa and Hudaib's linearly averaged ethical index by segmented categories cannot explain causality.

Another chapter by Rice (1999) delineates the domain of Islamic ethics in business as an ideology. The author notes the principle of *tawhid* (oneness of God) but does not explain the *dynamics* of *tawhid* as methodology appearing in the form of social learning in unity of knowledge and the world-system comprising business domain as embedded in religion, economics, finance, society and science (Choudhury 1993).

Besides, the filtering principle referred to by Rice as taken from Chapra (1992) is a neoclassical idea, as of altruism for the ethically filtered good in exchange (Arrow 1972). In this kind of treatment of ethical filtering, no dynamics of ethical change is invoked, as it would otherwise be caused by dynamic preference formation and production menus of buyers and sellers, respectively. Thus the ethical filtering is assumed to exist terminally and automatically, as opposed to the idea of social transformation progressively achieved by the socio-ethical learning *process*.

Contrarily, our chapter is on modeling social ethicality as learning *process*. It is rendered through organic learning in the epistemic sense of social transformation in unity of knowledge by discourse (*Shura* in the

Qur'an), complementarities and participation arising from a moral-social reconstruction of imperfect ethical state into simulated phases of a learned evolution towards a social business ethical environment.

The Overall Inference on Business Social Ethics and the Emergent Relevance of Evolutionary Epistemology for Mainstream and the Heterodox Islamic Cases

Mainstream Model of Business Social Ethics in the Evolutionary Learning Space

In the new literature, the theme of social ethicality of business has been covered. The edited book by Laszlo Zsolnai (2002a) is fully devoted to this theme. Within the business social ethical issues, corporate social responsibility has been covered in the context of sustainable development (Tencati 2002). Here sustainability is given the meaning almost identical to the way social ethics has been defined above in relation to the evolutionary nature of ethics, and thereby, its moral foundations in absolutist and relativist nature of learning fields of knowledge.

Zsolnai (2002b) points out that evaluation of the ethical quality of market exchange in the social ethical context ought to involve an integrated study of social, ecological, political, cultural, and furthermore, economic and financial domains. Sustainability in the evolutionary ethical context means continuity of organic learning over knowledge, time and space dimensions in the framework of the epistemic unity as causal interrelations between good things of life (Choudhury 2009a).

Once again, the definition of social ethics in such a case coincides with our teleological definition embracing evolutionary learning in reference to the epistemic oneness of knowledge, time and space dimensions. It further extends to the intertemporal deontology of business social ethics to evolve a sustainable future of the good society.[5] But such an approach to the study of social ethics, which in this chapter is devolved on to the ethical firm, is a new though non-traditional approach, particularly led by the non-utilitarian school. Much of business ethics studied in the literature and practiced by the firms is still of the neoclassical type. Ethics is thereby implied exogenously, rather than being learnt endogenously by participative dynamics.

Islamic Model of Business Social Ethics in the Evolutionary Learning Space

The general-system idea of global ethics generated by inter-relating the attributes of mercy, forgiveness, love, justice, fairness and compassion in the Islamic socio-scientific order (Choudhury 2008) has not entered the understanding of social ethics. Metwally (1997) for example, formalizes the utility function and optimal distribution of money resource of a Muslim consumer between worldly artifacts and the Hereafter for salvation. This kind of formalization fails to understand the non-diminishing nature of the utility function, which is referred to in our case as the well-being function. Metwally thus treats worldly goods and worship-goods as commodity substitutes. Such formalism fails to implicate the important *tawhidi* (Islamic) attribute of complementarities as the sign of unity of knowledge between these two categories of goods.

In such a case of pervasive complementarities between the good things of life there cannot exist the traditional method of maximization of the utility function subject to its budget constraint. Besides, the Islamic precept of non-existence of substitutes between the good things of life and the Hereafter negates the existence of a well-defined Islamic utility function. Consequently, the emergent Islamic business ethics theory has not risen above its problematic acceptance of neoclassical economic conception and application. The understanding, formalism and application of social ethics in business has thus remained absent in Islamic business, economics and finance theories.

Methodology: Towards Developing the Evolutionary Learning Type Business Social Ethics Models, Mainstream Case

From Shareholder Model to Stakeholder Model of the Firm in the Social Ethical Context

Indeed, the field of finance that governs business life is entrenched in a neoclassical theory of decision-making. Soppe (2002) points out that in such a model the managers of business organization pursue the goal of producing optimal cash-flows. The discounted sum of such cash-flows optimizes shareholders' wealth.

None of the social ethical orientations in the study of business organization decision-making provides an evolutionary understanding in learning

fields of polity (i.e. organizational)-market exchange interrelations. Such other social ethical theories of the business organization are based on models of virtue-ethics. Virtue-ethics configures ethicality in terms of human understanding of underlying moral laws, rules and principles. The example in this regard is the idea of human sentient underlying moral sentiments and the market place with good organizational behavior and proper choices. Such was the theme of Adam Smith et al. (1984) with regards to human values and the market exchange principle.

Deontological ethicality forms another kind of the model of business organization. In this case, duty-bound conduct of shareholders forms the universal principle of ethical behavior. A deontological stimulation in a stakeholder model is different from that in a shareholder model. A stakeholder model with wider representation is a more universal model of industrial democracy than a shareholder model made up of managers serving the interest of principal shareholders on profit-maximization and power and directives of an enterprise.

The neoclassical economic view of wealth and profit maximization prevails in the shareholder model, but not necessarily so in the stakeholder model. The stakeholder model suggests that trust between stakeholders, and between business, firm and society is a powerful social lubricant (Feiwel on Arrow 1987). Hence, a goal of common wellbeing exists in the stakeholder model with business social ethics. The simulation of such a model requires a discursive process of decision-making towards social reconstruction. The emergent mutual co-operation, as Jones (1995) argues, is an instrumental approach to stakeholder cooperative model. Such a cooperative model reduces transaction cost and sharpens the power of trust as social lubricant in business dealings.

In spite of the instrumental discursive model of trust generated by cooperation between stakeholders, a stakeholder model remains a virtue-ethics approach and a teleological approach (goal oriented). Any duty-bound (deontological) element is subsumed in the relationship between duty and virtue.

Consequently, the emergent stakeholder model cannot well-define the meaning, implications, and practicality of social ethics. The ethical foundation of stakeholder model is then not premised on social ethics as an evolutionary organism that otherwise emerges from synergy between interacting moral elements. The above issues on the stakeholder model of business social ethics are covered well by O'Higgins (2002).

Mainstream Case: Corporate Social Responsibility and Business Social Ethics

Emergent issues of deep business ethicality are to be found in the social precepts of corporate social responsibility, good corporate governance, and stakeholder approaches to valuation of the firm. Good corporate governance causes decreasing transaction cost by virtue of business transparency and disclosure. These are attributes of responsible business practices that are gained through a discursive medium and decentralization of participation between stakeholders. As a result, the idea of corporate social responsibility is harnessed in a wider participatory stakeholder model to decide on issues of social ethics to govern business attitude and practices. Choudhury and Harahap (2007) and Choudhury and Hoque (2006) make these points in regards to decreasing transaction cost of good corporate governance in participatory decision-making involving business and society. The social participative nature of Islamic business environment is brought out by Choudhury and Harahap (2009).

Yet businesses are not altogether devoid of increasing costs if the discursive and synergetic organic relations are not maintained in an extended version of stakeholder model with good corporate responsibility and moral conscience of corporate social responsibility. This point means that, altruism is workable only if ethicality complements efficiency, specialization and profitability in business. This view also presents a principal-agent social contract in the wider sense of the stakeholder model involving the various interactive domains, beyond simply being a business organization that corporate social responsibility implicates. Kaptein and Wempe (2002) bring out these points, but in doing so, the authors' arguments are inadvertently premised on a neoclassical environment of substitution rather than on the pervasive inter-systemic and inter-variable complementarities that essentially characterize the participative form of social ethicality in the wider socioeconomic implication of the stakeholder model.

By our systemic definition of social ethics derived from other major sources of the literature, goals of efficiency, specialization, profitability and social ethics can form strong bonds of business productivity through the social trust, goodwill and customer confidence. Examples of such businesses have been noted in the literature on blue ocean strategy mentioned earlier.

The emergent social ethics idea of learning by interaction, integration and creative evolution (IIE-learning process) according to the *tawhidi* episteme of unity of knowledge that we have pointed out earlier

as the premise of our definition of business social ethics is notably well expounded by Lozano (2000, 2002). In effective language Lozano writes (2002, p. 167): "Knowledge is the key resource, one that is linked to people and their learning processes, and the most suitable paradigm for understanding organizations is no longer the factory or the hierarchical bureaucracy but networks."

Mainstream Case: Evolutionary Dynamics of Business Social Ethics

In the light of the IIE-learning process, evolutionary dynamics is inherent in the essential meaning of social ethics both for the relativist and absolutist understanding of ethics in mainstream and Islamic cases. Evolutionary ethical dynamics here involve a continuous circularity between the following essential characteristics of business decision-making: Firstly, the various encompassing sub-systems in which business is embedded generate interaction between the intra- and inter- systemic representative variables and their relations and entities, as in Johannessen's (1998) characterization of business as organization. Secondly, interactions lead into patterns of integrated relationships between the variables. We refer to this stage as that of integration. But in the general case of positivistic evaluation of business, both for mainstream and Islamic cases, either the intra- and inter- systemic variables show socially differentiated relations, or they exhibit an important behavior of unification, that is participation (complementarities) between them.

Yet in every case, the social interactions leading to social integration mark temporary (i.e. evolutionary) equilibriums in the interrelationships between the variables (Grandmont 1989). In learning domains, social interactions lead into discursive consensus (integrations), which is followed by the third social stage, namely the evolutionary stage. Such temporary equilibrium variables feed into the objective criterion of the business firm as an organization that sustains itself in the midst of learning. Learning explained by the emergent process model of business social ethics represents the essential ethical behavior signified by interaction, integration and evolution (IIE). The process-continuums in learning behavior are simulated by circular causation (earlier footnoted) between the choice variables.

Mainstream Case: Other Models of the Simulation Type in Evolutionary Learning Fields of Business Social Ethics

We have so far presented the methodological properties of most business and management models of social ethics. In this regard we have referred

to Herbert Spencer's epistemological *magnum opus*. Johannessen's (1998) contribution delineates business as evolutionary organization. Shakun's (1988) cybernetic model can be adopted to study complexity arising from evolutionary ethical business as social organization.

Jackson's (1993) management unitary model is an example of a circular causation model that can be used in studying evolutionary business social ethics.[6] Luhmann (1986) uses Habermas' heuristic approach to study complex behavior in organization. This approach can be applied to study business social ethics. The idea of universal (global) ethics is embodied in the Report of the Commission on Global Governance (1995). While businesses play a substantive role in globalization, the idea of global ethics can be seen to comprise ethical business actions in the social and Islamic contexts as well.

Methodology: Towards Developing the Evolutionary Learning Type Business Social Ethics Models, an Islamic Case

In the light of the critical study of business social ethics according to various models that we have examined, the Islamic contributions remain to be evaluated. We ask the question: Where does the study of business social ethics in Islamic perspectives stand in the midst of the various comparative theories and contributions made in the area of business social ethics? There have been only a few contributions in the area of Islamic business ethics, and those too remain confined to the area of Islamic banking. Almost nothing has been contributed on the nature of business social ethics beyond a cursory examination of the classical attributes of the Islamic Law (*shari'ah*) and its ambivalent implication.

The study and practice of social ethicality in business is practically absent in the literature on Islamic business ethics. Islamic businesses, markedly Islamic banks and financial companies (insurance, development organization e.g. the Islamic Development Bank), are found to be centered on the mainstream neoclassical treatment and practice of financial matters and resource allocation. Consequently, all the utilitarian ethical standards have entered Islamic banking and finance lock, stock, and barrel.

The above noted absence of a systemic study of business social ethics in the Islamic case abounds despite the current progress in the new literature. For instance, the edited book by Laszlo Zsolnai (2002a) is fully

devoted to this theme of systemic learning models of business social ethics. Within the business social ethical issues, corporate social responsibility has been covered in the context of sustainable development (Tencati 2002). Here sustainability is given the meaning almost identical to the way social ethics has been defined above in relation to the evolutionary nature of ethics, and thereby, its moral foundations in absolutist and relativist nature of learning fields of knowledge. Zsolnai points out that evaluation of the ethical quality of market exchange in the social ethical context ought to involve an integrated study of social, ecological, political, cultural, and furthermore, economic and financial domains (Choudhury 2009a).

Islamic Banking and Business Social Ethics: A Critique on Evidential Grounds

Consequently, in the Islamic case we note that most studies in Islamic ethics and business—including those focusing on Islamic banks—have treated business social ethics in isolation of its epistemological meaning based on the precept of the moral law. Ethics by and large has a meaning premised on humanistic social behavior. Thereby, ethics by itself as humanistic behavior of social responsibility can be formed by the common desire of goals such as, profit-making, competition, and axioms of scarcity of resources. Such is the case of the static version of economic theory.

Within such a gamut of business functions, the understanding of the relationship between interest rates and inter-temporal resource allocation, resource mobilization and distributive equity, and thereby pricing and valuation of assets, remains absent. Today, if one were to ask Islamic bank managers regarding their selection of methods of valuation and profitability of assets and investments, the answer would be the present-value and internal-rate-of-return techniques. This is a grave misunderstanding of the pricing of inter-temporal resource allocation in the absence of interest rate or anything like it as discounting. Even though the future markets for certain kinds of exchangeables remain absent and unknown, nonetheless, discount pricing is carried out by Islamic banks. The ethical consequences are either over-valuation or under-valuation of assets as exchangeables over time. Such valuation methods adversely distort prices, and thereby suppress market information. The end result is an unfair pricing mechanism in inter-temporal allocation of resources.

Research Futures on Business Social Ethics

The present state of research on and understanding of the theme of business social ethics is by and large weak in its analytical form both in mainstream and Islamic economics and finance literature. The traditional treatment of social ethics is carried out in the old methodology and models that treat ethics exogenously in their theories and methodology. Consequently, the endogenous social embedding of business as learning organizations is a niche in the budding literature.

Here too the Islamic equivalence to an epistemic way of studying the *maqasid as-shari'ah* in relationship to methodology and the business world-system is almost totally absent. This direction of study forms the heterodox content in contrast to both mainstream and existing Islamic methods without a methodology. To come out of this intellectual vacuum the future methodology and models of the endogenous business social ethics in action would require an interconnected learning and practice by appropriate research directions, programs and policies. While central bank research units exist, as in the case of the Islamic Research and Training Institute of the Islamic Development Bank, the *Shari'ah* Department of Bank Indonesia, and the think tank called INCEIF of the Central Bank of Malaysia, etc. there is scope for the new research program to be launched linking fresh epistemological inquiry on methodological perspectives that connect with practice. Fresh epistemological investigation in both the mainstream field and the Islamic business, economics and finance are required to study and apply ideas to the organically unified and embedded business organizations in a participatory, complementary, and evolutionary learning environment. Such an epistemological outlook bears the meaning of *tawhidi* unity of knowledge in and across systems.

Conclusion

The study of business social ethics in the budding literature on learning social dynamics opens up a fresh examination of certain heterodox epistemological questions of such ethics in relation to business and society. Neither in the traditional mainstream approach nor in the Islamic approach the study of business social ethics by learning systems as a methodological development has appeared significantly. However, the new literature on business social ethics has started to expand in this latter field. This has espoused its own epistemological methodology of learning organizational

systems interconnecting business and society, and with new behavioral perspectives of decision-making. In the absence of an evolutionary learning methodological model of business social ethics that was explained in this chapter, the true nature of an interactive world leading to integration and evolutionary learning dynamics cannot be known. Thereby many behavioral, organizational and policy and program implications of business and society interrelations cannot be studied in a robust way.

In this light, the emergent paradigm of business ethics in the literature belongs to the field of social ethics. The study of social ethics in business involves a vastly interactive, integrative, and evolutionary (IIE) field of inquiry using the general-system approach premised on the *tawhidi* episteme of unity of knowledge by participation and complementarities between the variables, their relations and the network of agencies. Such an epistemic premise guides behavior, structural change, and normative social reconstruction of preferences and enterprise practices vis-à-vis markets, economy and society at large. In conceptualizing such understanding and implementation of business social ethics, the general-system model assumes analytical formalism. We call such formalism as the ethico-economic organic learning by circular causation relations for simulating the wellbeing criterion in *tawhidi* unity of knowledge.

While the above-mentioned formalism studied in this chapter in respect of business social ethics transcends a narrow view by a generalized socio-scientific worldview, yet in the Islamic banking practices as an ethical diversity, as an example, the methodology and understanding of evolutionary learning organizational systems remains non-existent. It has therefore been argued in this chapter from the Islamic perspective of fundamental epistemological worldview of *tawhidi* unity of knowledge, that Islamic scholarship and business enterprises have been unable to look at models of asset valuation with embedded social ethical issues. Among such models is the business stakeholder model with business social ethics existing in an overarching way of endogenously learning organic interrelations—as explained by the circular causation relations generated by participation and complementarities between variables and entities interconnecting business and the social order.

Consequently, no proven empirical test of ethicality in traditional mainstream literature and the future of Islamic business social ethics exist under its prevalent dissociated understanding and practice of *shari'ah* compliance. The essential Islamic worldview of business social ethics as pronounced by the *maqasid as-shari'ah* is nowhere in sight. Consequently, no

challenging contribution has been made by intellection in Islamic ethics either to conceptualization or practice of social ethics as otherwise found in mainstream intellection on this topic.

Notes

1. The following explanation corresponds with Fig. 7.1. The symbolic structure of the formal model of unity of knowledge and the unified world-system is in the light of *tawhid* as the heterodox worldview is represented as follows:

   Let, Ω denote the *Qur'anic* completion of the knowledge stock of the universe as super-cardinal ontology. This is the super-topology of *tawhid* as the moral law of unity of knowledge explaining and constructing the unity of 'everything'. Ω is essentially functional and structural not metaphysical. For the concept of functional and engineering ontology see Gruber (1993), and Maxwell (1962).

   S is the mapping from Ω into the exegesis of the *Qur'anic ayath* (verses, meaning, explanation), denoted by $\{\theta^*\}$ on the generalized issues pertaining to the nature of the problems and issues under study.

   Thus, $[\Omega \rightarrow_s \{\theta^*\}]$ forms the primal ontology of knowledge derivation in the Qur'an (Ω), the *Sunnah* (S), and the interpretive knowledge denoted by $\{\theta^*\}$. This comprises exegesis, interpretation (*Fiqh*), and discourse (*Shura*), altogether comprising *Ijtihad*. *Ijtihad* means understanding based on the fundamental sources of knowledge, the Qur'an, the *Sunnah* (guidance of Prophet Muhammad) and the interpretive dynamics.

   From the foundational functional ontology, $T = [\Omega \rightarrow_s \{\theta^*\}]$ is derived the formalism of the specific problems and issues (particulars). The derived knowledge is denoted by $\{\theta\} \in T$.

   Next, the configuration of the general and the specific problem and issue, denoted by the vectors (matrixes, tensors), expressed in terms of the existing state (estimation) and the *tawhidi* reconstructed state (simulation) is derived. This is denoted by $\{\mathbf{x}(\theta)\}$, written as, $(\{\theta\} \in T) \rightarrow \{\mathbf{x}(\theta)\}$.

   The formal evaluation of the existing state (estimation) is followed by the simulated state of unity of knowledge that is induced in the moral reconstruction of the problem under study. The objective criterion is the wellbeing criterion function, $W(\theta, \mathbf{x}(\theta))$. Wellbeing criterion evaluates for the degree of existing or potentiality of unified social reconstruction between the *Shari'ah* variables on the specific issues under study.

   $W(\theta, \mathbf{x}(\theta))$ is evaluated (estimation leading to simulation) under the constraint of circular causation between $(\theta, \mathbf{x}(\theta))$. Thus the formal ontology of evaluation is denoted by, Evaluate $W(\theta, \mathbf{x}(\theta))$, subject to, the circular

causation relations signifying the degree of existing and desired complementarities between the variables as sign of unification between the *Shari'ah* variables. These relations are denoted by $x_j' = f_j'(\theta, \mathbf{x}_i(\theta)), i \neq j = 1,2,\ldots; \theta = F(\mathbf{x}(\theta))$, which is a positive monotonic transformation of $W(\theta, \mathbf{x}(\theta))$, and is therefore a measured form of the wellbeing evaluation criterion.

The total formal model of unity of knowledge (*tawhidi* formalism) and the unified world-system with its particulars along the evolutionary learning processes is now represented as follows:

The specific topic of business social ethics and moral transformation denoted by $(\theta, \mathbf{x}(\theta))$ can be appropriately located in this formal model both by concept $(W(.))$ and by evaluation (estimation, simulation by circular causation).

Multiple-system strings of this one-system *tawhidi* String Relations (TSR) is formalized by Choudhury and Hoque (2004).

2. Chan and Mauborgne write (p. 12): "What consequently separated winners from losers in creating blue oceans was their approach to strategy. The companies caught in the red ocean followed a conventional approach, racing to beat the competition by building a defensible position within the existing industry order. The creators of blue oceans, surprisingly, didn't use the competition as their benchmark. Instead, they followed a different strategic logic that we call it *value innovation*."
3. A circular causation type of simulation model of learning is formalized as follows: Simulate the wellbeing objective criterion $(W, \mathbf{x}(\theta))$ of the embedded firm in the vector of socioeconomic variables $\mathbf{x}(.)$. Without loss of generality in the conception, we denote $W(\theta, \mathbf{x}(\theta))$ by $W(\mathbf{x}(\theta))$ by the implicit function theorem of contiuously differentiable functions of differential calculus. The qualifying determinants of $x(.)$ is the discoursed knowledge variable (θ) in the epistemological sense of mind (*res cogitans*) and matter (*res extensa*) unified relations (unity of knowledge as the *tawhidi* episteme). The knowledge parameters are institutionally set in reference to the signs of unity of relations between the variables in respect of addressing the well being criterion. Now circular causation system comprises the equtions linked with the simulation problem of wellbeing criterion function:

$$x_1 = f_1(x_2,,,\ldots,,,x_n,,,\theta)[\theta];\ x_2 = f_2(x_1,,,\ldots,,,x_n,,,\theta)[\theta];$$
$$\ldots x_n = f_n(\mathbf{x}_1,,,,x_2,,,,\ldots,,,,x_{n-1},,,,\theta)[\theta];\ \theta = F(x_1,,,x_2,,,\ldots,,,x_n)[\theta]$$

$[\theta]$ denotes parametric knowledge induction of each of the inner variable, induction of θ by $[\theta]$ is implied. $\mathbf{x}(\theta) = (x_1,,,x_2,,,\ldots,,,x_n)[\theta]$; f's denote the circular causation relations having their estimated followed by moral-social reconstructive coefficients. The chain of causality denoted by the

simulated predictors (denoted by the moral-social reconstructed discursive simulated values, $P = (\mathbf{x}^{\wedge}(\theta), \theta; W(\mathbf{x}^{\wedge}(\theta)))$ over sequences of simulation denote learning processes with the property, $dW(\mathbf{x}^{\wedge}(\theta))/d\theta_N > 0; \theta_N$ denoting new sequences of discoursed knowledge parameters across subsequent learning processes.

The circular causation relations and their simulation implications coming out of 'estimation' of the state of the social embedding of business organizations point to the reconstructed participation and complementarities between the social networking of business organizations, the wellbeing variables, and their relations. Such relations are to be reconstructed in reference to the epistemology of unity of knowledge signifying complementarities and participation between the embedded business organization, the wellbeing variables, and the causality relations.

The interactive element of the evolutionary process is shown by the discursive and reiterative mechanism of circular causation in simulating the relationships between $(\theta, \mathbf{x}(\theta))$. Integration is shown by the selection of the simulated value by choosing appropriate coefficients of these relations for predictor values of $(\theta, \mathbf{x}(\theta))$ in accordance with the generated and discoursed values in the series of interactions. Evolution is shown by the co-evolutionary regeneration of learning processes as shown in Fig. 7.1, note 1. Thus the IIE-learning processes appear along the epistemic *tawhidi* string.

4. Total resource allocation $R = K + E + T$, with K as capital allocation, E as entrepreneurship, T is time (as in the case of the asset-less partner). Profit-sharing rate for ith partner, $r_i = (K_i / K) * \pi$, where i denotes the ith partner; and hence his corresponding shares of the variables as shown with R. π denotes total profits in the usual kind of *mudarabah* venture. But truly the sharing rate ought to be $r_i^* = (R_i / R) * \pi$.

   Say that $i = 1$ brings along E and T, $i = 2$ brings along only K_2. Then profit-share for $i = 1$ is, $\rho_1 = (K_1 + E_1 + T_1)/[(K_1 + E_1 + T_1) + K_2) * \pi = (1 - r_2^*) * \pi$, where, $r_2^* = K_2/(K_1 + E_1 + T_1 + K_2)$ Clearly now $r_1^* > r_1$.

   Besides, for increasing *mudaraḃah* sharing ratio of $i = 1$ we note, $d\rho_1 / dK_1 = (1 - r_2^*) * (d\pi / dK_1) > 0$, with given r_2^*. Thus, increasing profit-sharing occurs with increasing contribution of K_1 to total profits, as increasing *mudarabah* contract for $i = 1$ gets re-contracted. Such kinds of *mudarabah* contracts are more market friendly and ethically fair, as labor can ultimately attain equal share with the owners by increasing their contribution of K_1.
5. Primavesi writes (op cit., p. 12, edited): "The overarching coevolutionary perspective…. Tries to take account of the multiple environments within which that perspective had evolved. It relies on us (i.e. business) seeing ourselves as members of biological communities structurally coupled with diverse

environments through time space (in our evolutionary case more broadly knowledge, time and space dimensions)."

6. Jackson writes (op cit., p. 27): "… it is reasonable to suggest that there are two aspects of problem contexts that might have a particularly important effect on the character of the problems found within them. These two aspects are the nature of the system(s) in which the problems are located and the nature of the relationship between the participants. These are two key variables that, as they change in character, would seem to result in qualitative changes in problem contexts, affecting the problems therein and thereby demanding a significant reorientation."

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CHAPTER 8

An Ethical Worldview of Moral-Social Reconstruction

This Chapter addresses the theme of moral-social reconstruction by taking recourse to a generalized phenomenological model of unity of knowledge and the effects of this on the construction of a unified world-system. As a particular case of the general model we study the case of replacing interest-rate related financial instruments with trade-related ones while dealing with the 'good things of life'. The objective of this paper is firstly to formulate the general phenomenological model of learning premised on unity of knowledge and its creative and continuum relationship in constructing evolutionary world-systems. On the functional aspect of use of such a model we provide the system of circular causation relations between the critical explanatory variables in respect of simulating the objective criterion, which is termed as the wellbeing function.

Following this, a particular application of the learning model in unity of knowledge is discussed to explain the interrelationships between the following three sets of variables: the trade-related participatory development financing instruments phasing out the interest-based financing instruments; the consequential moral-social simulation towards attaining wellbeing, and thereby poverty alleviation. Towards making a comprehensive study in this direction the paper invokes original formalism in ethical modeling premised on the epistemology of unity of knowledge.

Thus micro-foundational issues are addressed on the basis of such an epistemic model. The comprehensive problem of poverty alleviation in the

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_8

field of ethics and economics is addressed by micro-foundational circular causation relations between development-financing, wellbeing, and poverty alleviation in phased-out regime of interest rate reduction and its endogenous replacement with trade-related instruments in the light of epistemic unity of knowledge. The rationalistic reasoning and Islamic economics and finance as they presently exist are argued to be dysfunctional of intellection and application of the endogenous ethical worldview in social-moral reformation.

Objective

The objective of this paper is to establish the nature and form of the generalized phenomenological model premised on unity of knowledge and its constructive relationship with the world-system. To simulate the underlying model dynamics we formalize the generalized phenomenological model, in which the social wellbeing function as the objective goal is simulated subject to an appertaining system of circular causation interrelationships between the critical variables. In this functional part of the paper illustrating the simulation exercise subject to circular causation between the critical variables the following three sets of variables are used: the trade-related participatory development-financing instruments that phase out the interest-based financing instruments; the consequential moral-social simulation towards attaining wellbeing; and thereby, the attainment of progressive levels of poverty alleviation as a great moral, ethical and social objective. The circular causation interrelations between the variables are induced by knowledge-flows that emanate parametrically from the state of the world-system followed by its moral-social reconstruction. Thus the knowledge-flows that arise from the premise of unity of knowledge are assigned in the light of trends in the socio-economic variables and by institutional discourse.

Towards making a comprehensive study in this direction, this paper invokes original ideas in ethical modeling of micro-foundational theoretical concepts and issues and their analytical role in shaping a learning model of unity of knowledge. Thus in the end, the paper addresses a general problem of ethical genre. The general model is particularized to the case of poverty alleviation by way of integrating the financial and real sectors by using the medium of development type trade-related financing instruments with their endogenous effect on replacing interest rates. On the functional use of the generalized phenomenological model of unity of

knowledge the theme of poverty alleviation is upheld as a core goal of social reconstruction out of the fallen world of social differentiation.

Explanations of Critical Terms

A few terms need to be explained at the outset. Such definitions lead into the formulation of the generalized phenomenological model of unity of knowledge. Thereby, it explains why trade-related financing instruments are contrary to interest-based instruments in attaining sustainable development. Sustainability is the cause and effect of learning in unity of knowledge, carrying forward the applied theme of poverty alleviation in a social and economic system that is governed by such an epistemic origin. $[\cup_i \cap_j A_{ij} \neq \varphi]$, where i,j = 1,2,… over interactions ($\cup_i$) and integration (i.e. consensus, $\cap_j$)

Unity of Knowledge

By a brief explanation, unity of knowledge means the foundation of knowledge that explains in substantively analytical ways and through a discursive system the principle of pervasive unification between 'everything'. This ever-expanding depth of unified understanding between the premise and the constructed world-system out of a fallen moral and unified order, that is social differentiation, causes unity of linkages or pervasive complementarities. Thus the search for the praxis of unity of knowledge from which the unified world-system is constructed is found in the most irreducible premise of knowledge. The quest for this kind of epistemic premise brings us to the foundation of the moral law in the irreducible premise of unity of knowledge. Such a final irreducible epistemological premise is found in the monotheistic law.

More technically, let Ω denote that final basis of the moral law. If this moral law is the monotheistic law, then any subset, A_i, i = 1,2,… of the complete law denoted by the open and unbounded super-space Ω are such that $\left[\cap_i A_i \neq \phi\right] \in \Omega$; $\left[\cup_i A_i\right] \neq \phi \in \Omega$; thereby $[\cup_j \cap A_i \neq \phi]$, where j = 1,2,… are sequences of discourse either in the agential system or this system combined with the observed world-system in respectively given issues and problems.

However, because each of the subsets induced by knowledge-flows originates from Ω. Such a flow of knowledge of the same characteristic emanates from Ω, denoted by θ. Therefore, $A_i = A_i(\theta)$. Hence, there

must exist a well-defined mapping from Ω to $A_i(\theta)$. We therefore write for unity of knowledge and its derivation on the monotheistic law as the most irreducible law of unity of knowledge through the mapping denoted by $S:\Omega \to {}_S\theta \to A_i(\theta)$. This relationship denotes the derivation of unity of knowledge strictly from the monotheistic law.

Rationalism

The mapping S is of the type whose properties are shown up not to be possible in rationalism. Rationalism denotes the foundation of the ethical backdrop of yet another way of interpreting unity of knowledge, but in differentiated fields of sciences (Neurath et al. 1970). Yet within this the search for a more inclusive unity of the sciences of everything has been activated only recently (Elis 2008).

Building upon the concept of unity of knowledge given above, contrary conditions hold up for the case of rationalism everywhere. That is, $[\cap A_i = \phi] \in \Omega; [\cup A_i] \neq \phi \in \Omega$; thereby $[\cup_j \cap A_i = \phi]$, where $j = 1, 2, \ldots$ are sequences of discourse either in the agential system or this combined with the observed world-system in respective given issues and problems.

In philosophical reasoning rationalism is premised on Kant's concept of heteronomy (Carnap 1966). Here the mind is understood to be divided into three compartments. Firstly, there is the compartment of *a priori* reasoning. This is the realm of pure reason, where God and the monotheistic law exist. Secondly there is the sensate realm of *a posteriori* reasoning. The third compartment is the realm of void space between *a priori* and *a posteriori*. There does not exist a mapping like S to carry the monotheistic law into the *a posteriori* world-system. Kant (trans. Friedrich 1977) wrote in this regard: "In what follows, therefore, we shall understand by *a priori* knowledge, no knowledge independent of this or that experience, but knowledge absolutely independent of all experience. Opposed to it is empirical knowledge, which is knowledge possible only *a posteriori*, that is, through experience. *A priori* modes of knowledge are entitled pure when there is no admixture of anything empirical."

Thus the domain of the monotheistic law remains independent of the domain of matter. It was therefore required in the rationalist understanding of mind-matter relationship to separate the monotheistic law from the experiential world-system. Mind and matter relationship thereby devolved solely into the man-made reasoning. God was dispensed with, except as a

metaphysical being. Such a separation between God (i.e. the moral law of monotheism) and the world-system is precisely because of the absence of a well-defined correspondence like 'S' that brings the monotheistic law (*a priori*) into the world-system (*a posteriori*). Kant's moral imperative is thereby either a reality of the *a priori* domain, which is metaphysical in nature, and is thereby functionally disabled. Or it is a reality of the human mind-matter realm. In this case, both rationalism and its worldly consequences and continuity in reasoning arise from the realm of practical reasoning (Kant, ed. Friedrich 1949).

Such ideas of rationalism in the sense of a quest for the supreme good existed in the thoughts of Aristotle (trans. Welldon, undated). Aristotle argued in his *Nicomachean Ethics* that the greatest of human values, such as justice, equity, power, honor, pleasure and happiness are attained through the route of political science. But political science is treated as the science of rational faculties solely. It has nothing in it to uphold the divine law. The study of political science therefore allocates the supreme place to human rational faculties, thus the a posterior domain, once the concept of monotheism was replaced by the presence of competing or distributive demigods of pantheism (Vermont 1995).

In regards to such a conception, Aristotle wrote (Welldon op. cit., p. 10–11, slightly edited): "It would seem that this is the most authoritative or architectonic science or faculty, and such is evidently the political. For it is political science or *a posteriori* faculty which determines what sciences are necessary in political states, and what kind of sciences should be learnt, and how far they should be learnt by particular people. We perceive too (that) the faculties which are held in the highest esteem…" Thus the roots of rationalism divorced from the law of monotheism colored the entire line of occidental thought. This started from the Hellenic roots in history and continued on along this same epistemic origin of Occidentalism and into the modern and post-modern age (Russell 1990).

In economic theory the derivation from rationalism at the philosophical academe is taken as economic rationality in various ways (Etzioni 1988). Substantive economic rationality is derived from the assumed behavior of transitivity axiom of choice under conditions of full-information, scarcity of resources, and competition behavior. Instrumental rationality is based on human rational decision-making on grounds of consequences of certain actions. Consequentialist rationality has nothing to do with the moral and ethical law. It is simply a practical inference of policy-making on the basis of measured consequences (Sen 1990).

The Objective of Simulating the Wellbeing Function

The objective criterion of comprehensive social development, which we examine in this Chapter, both in the sense of the generalized phenomenological model and in its particular application to poverty alleviation is represented by the simulation of the wellbeing function. The wellbeing function is defined as the conceptual and quantitative measure of organic unity and complementary balance in the interrelationships between the variables representing 'the good things of life'. Constrained simulation of the wellbeing criterion is thereby the primary goal. Within this type of ethical modeling are embedded several other ones as they are studied, and remain within the domain of investigation, conceptualization, and empirical and applied possibility. The social wellbeing criterion thus brings out an empirical approach combined with the discursive way of examining and reconstructing the desired level of complementarities between the epistemologically knowledge-induced variables of the wellbeing function. This kind of a normative social state arising from the imperfect positivistic world that we examine, and thereby want to reconstruct, is the direct derivation of formalism from the systemic implication of the epistemic premise of unity of knowledge.

Circular Causation

Social wellbeing function in reference to epistemic unity of knowledge is simulated by means of a system of equations that are circularly interrelated in the sense of complementarities between the selected variables. Circular causation appearing as such circularly interrelated expressions between the variables reflects firstly, the positivistic state of the world-system. At this level of quantitative evaluation, complementarities may or may not exist between the variables in the way socially desired. But the positivistic state of the relations between the variables can be changed by normative simulation to yield complementary relations between the same variables.

Circular causation (Myrdal 1958; Choudhury 2006) is the empirical method that establishes a comprehensive exercise in 'estimating' and 'simulating' desired social reconstruction to higher and more explainable levels of unity of relations between 'the good things of life'. While simulating the relations, the emergent empirical configuration of the circular causation model leads into policy and institutional changes based on the moral and ethical perspectives of moral-social reconstruction.

In describing social order as organism of collectivity in the light of the organic and structure preserving nature of epistemic unity of knowledge and the consequential unified world-system, we can resort to Sztompka (1974a, p. 49, edited) words: "…. First, human beings, the basic elements of society, are linked by a definite network of social relations. Thus there exists a certain social structure which makes a society something more than a simple aggregate of people. Society is a specific integrated whole. Second, continuity of the whole is preserved, despite the constant changes and transformations at the level of the individual and, specific groups, despite the continual replacement of persons making up a given society. And thirdly, this continuity of structure is preserved by virtue of the specific functions performed by the elements of social structure."

The Theme of Poverty Alleviation

The specific theme for addressing is the general phenomenological model in this Chapter is poverty alleviation. This Chapter studies the problem of poverty, and thereby poverty alleviation or otherwise, in relation to the avoidance of the debilitating effect of interest-rate regime in moral-social reconstruction. The dynamics of poverty alleviation by means of phasing out interest-rate and gaining on productive activity, such as by trade in the 'good things of life', is studied as an embedded goal in the multidimensional nature of the wellbeing objective criterion. That is because poverty alleviation appears in the circular causation relations of simulation of the wellbeing criterion via interactive, integrated and evolutionary (**IIE**)[1] relations between the critical variables that sustain a dynamic basic-needs regime of development—'the good things of life'.

To summarize: interest-bearing financial instruments impede unity of the financial and real sectors by driving away and holding up financial resources in bank-savings. Sectoral competition and differentiation between the financial and real sectors is created. This causes marginalization of the real sector by holding up financial resources in un-mobilized bank-savings. Mobilization of productive resources is thereby adversely affected. All these effects cause a breach of unity of knowledge, which is quantitatively explained by the organic nature of moral-social interrelations between life-sustaining possibilities.

On the other hand, the activity of trade, marks exchange in goods and services between participating agents. Here resource mobilization is essentially required. Interest rate impedes resource mobilization; trade lubricates

it. 'The good things of life' emanating from the emergent trade-related resource-mobilizing development regime are dynamic basic 'needs' as opposed to the 'wants' of life. Dynamic basic needs comprise necessaries, comforts and refinements. These are taken up at the level of the dynamic diversification of basic needs across diversity. Yet such progressive diversification of levels of basic needs does not imply a development change into material wants.

The Term: 'Good Things of Life'

'The good things of life' are those that establish sustainability along the evolutionary epistemology of learning in unity of knowledge. The result is realization of the consequential unified world-system that is induced by the episteme of unity of knowledge. Sztompka (1974b, pp. 124–132) writes in regards to the unitary perspective of systemic relations as the unique symbol of a meaningful society: "The assumption of boundary interchange states that there are definite relationships binding all the systems together. In an operational sense this means that any change in elementary, partial, or global states of one of the systems have definite consequences with respect to the elementary, partial, or global states of the other systems. In some cases, there is also a sort of mutual interpenetration of the systems; the elements of one being simultaneously the elements of the other."

Yet reflecting on the meaning of "the good things of life" in the framework of socio-scientific unity of relations, the moral and ethical implications are inherent in the meaning of goodness. Consequently, conceptions such as that of statistical correlation, marginal rate of substitution in resource allocation between competing goods or between multiple 'bads', and prioritizing the use of one good over another (opportunity cost), or accepting the better of the 'bads', such choices do not convey the substantive meaning of organic unity in the moral and ethical epistemological sense. Such ways of inter-relating the alternatives do not represent unity between 'the good things of life'.

Contrarily, good things are characterized by their properties in the light of the epistemic origin of the moral text. The moral epistemology of oneness forms the axiomatic core of the monotheistic world-system. It defies rationalism and all that rationalism entails in economics, finance, and the socio-scientific disciplines. The essence of unity in the moral axiomatic

reference is not one of biological organism. Rather, it is formed by the knowledge-induced re-generation of possibilities that carry on heightened learning by systemic interactions leading to integration and followed by evolution (**IIE**). The result is the enabling of capability and functioning in development (Sen 2010), and heightened resource mobilization into the real sector. Unity of relations and variables of the financial and real sector is attained.

Episteme and Epistemic

The terms 'episteme' and its derived term 'epistemic' are used in this Chapter to configure the phenomenological model in its totality of unity of knowledge and its constructed worldview and world-system. This approach comprises the epistemological reference to the most irreducible law that is capable of uniquely explaining 'everything' as the universal concept. This most irreducible law is discovered to be the monotheistic law in its mind-matter worldly function and inferences.

The emergent kind of social intellection can be summarized in Foucault's words [Foucault (1983, p. 191 trans. Dreyfus and Rabinow 1983)]: "By *episteme* we mean … the total set of relations that unite, at a given period, the discursive practices that give rise to epistemological figures, sciences, and possibly formalized systems … The episteme is not a form of knowledge (*connaissance*) or type of rationality which, crossing the boundaries of the most varied sciences, manifests the sovereign unity of a subject, a spirit, or a period; it is the totality of relations that can be discovered, for a given period, between the sciences when one analyses them at the level of discursive regularities."

Schematic Explanation of the Determinants of 'Good Things of Life'

The following selection criteria determine the choices of 'the good things of life':

1. The moral axiomatic text is the episteme of unity of knowledge. We have argued that such a primordial moral characterization necessarily arises from the monotheistic law in Islam in its purest form.[2] This discovery is the result of search across epistemological investigations.

2. The laws emanating from the axiomatic text in respect of particulars and generalized themes are discoursed to yield interpretative rules of action in real world issues. These comprise the specifics or particulars within the generalized model. The derived rules from the epistemic core comprise classification of the epistemological understanding, of the emanating ethical goods, and the nature of instruments that can help attain the essence of the epistemic law. These are now derived as rules of life pertaining to general and particular concepts.

   The totality of (1) and (2) and its continuation across systemic processes of learning over continuums of domains, forms the moral-social purpose and objective. This universal perspective is the core essence of the Islamic Law, known as the *maqasid as-shari'ah.*
3. The worldly acceptance and further adaptation of such rules enter the determination of things as the good things that comply with the process from (1) onto (2). This phase represents the formation of the worldly tenets of the Islamic Law. At this stage the empirical testing followed by social simulation causing moral-social reconstruction, proceeds on. One thereby notes that neither in meaning nor in practice is the idea of Islamic Law (*shari'ah*) or of *shari'ah*-compliance identical with the meaning of *maqasid as-shari'ah* (Crane 2011). Yet well-determination of rules, operational instruments, and the substantive meaning of wellbeing (*maslaha*) criterion in respect of specific and general problems under investigation establish comprehension, application, and thereby, continuity of the moral and ethical learning processes in moral-social reconstruction.
4. The fourth phase of moral functionalism denotes recalling the axiomatic epistemic unity of knowledge to continue on the learning process established in phases (1)–(3). Phases (1)–(3) are thus continued on intra- and inter- systems. The learning processes over evolutionary epistemology thus sustain the 'the good things of life' as life-sustaining artifacts.

Moral-social causality for determining 'the good things of life' is established in the learning process invoking stages (1)–(4). We explain this process in Chart 1:

Moral-Social Causality in Determining 'The Good Things of Life': The Stages of the Generalized Phenomenological Model of Unity of Knowledge and the Unified World-System

Chart 1: Moral-Social Causality: The Outputs Comprise the Good Things of Life

1. *Moral Law* (in Islam, the law of monotheism is denoted by [Ω])

   Leading to the ontological mapping: [S]

2. *causality* $\leftrightarrow$ *maqasid as-shari'ah* (objective and purpose of Islamic Law originally derived from the monotheistic law) $\{[\Omega,S] \rightarrow \theta^{*}\} = T$, *maqasid as-shari'ah*. θ^{*} denotes interpretive knowledge of the *maqasid as-shari'ah*. It has no empirical value at the primal stage. θ^{*} acts simply as interpretive guidance premised on the epistemic monotheistic law.

   Stage 1 leading to derived worldly knowledge and its induced socio-scientific variables $(\theta, \mathbf{x}(\theta))$:

3. Worldly flow of knowledge is denoted by $\{\theta\} \in T$. Such knowledge-flows simultaneously determine the knowledge-induced socio-scientific vector of variables $\{\mathbf{x}(\theta)\}$ pertaining to the problem under study, We thereby have the knowledge-induced variables that span the world-system in general and the particular problem under study. This is denoted by $\{\theta, \mathbf{x}(\theta)\}$.

   Stage 2 leading to causality: *causality* $\leftrightarrow \{\theta, \mathbf{x}(\theta)\} \leftrightarrow$ *wellbeing* objective (W)

4. *causality* $\leftrightarrow \{\theta, \mathbf{x}(\theta)\} \leftrightarrow$ *wellbeing* objective (W) with circular causation between the knowledge-induced tuplet $\{\theta, \mathbf{x}(\theta)\}$ premised in epistemic unity $\rightarrow$ (i) testing the positive (prevailing) nature of social reality. This provides the statistical 'estimation' stage. (ii) The 'estimation' stage is next simulates the positivistic reality by circular causation method to attain desired levels of moral-social reconstruction by establishing complementarities between the selected variables in the light of T. This step

yields the evolution of the normative worldview by simulation of the estimated positivistic case. We write now: $[\{[\Omega,S] \to \theta^*\} \to \theta] \to \mathbf{x}(\theta) \to$ Evaluation of $W = W(\mathbf{x}(\theta))$, subject to circular causation between the $(\theta, \mathbf{x}(\theta))$ set of variables. Bold letter denotes vector notation.

Stage 3 leading to determining the 'good things of life' according to wellbeing objective:

5. *causality* ↔ *determination of 'the good things of life'* arising from the simulation. Note that all good things are knowledge-induced in the epistemology of unity of knowledge. Thus, because of the functional interdependence between embedded artifacts by the core of knowledge-flows, knowledge breeds knowledge cumulatively. Materiality is a diversified and flippant construction of knowledge-flows. Materiality is thus a temporary state of 'being' responding to the continuous 'becoming' of evolutionary knowledge-flows. Thus the learning property of 'becoming' remains indelible in continuous knowledge formation.[3] $[\{[\Omega,S] \to \theta^*\} \to \theta] \to \mathbf{x}(\theta) \to$ continues in processes across continuums of $(\theta, \mathbf{x}(\theta))$ in evolutionary learning processes. Each process commences by referring to the epistemic core, $\{[\Omega,S] \to \theta^*\}$.

Stage 4 leading to evolutionary learning:

6. *causality* ↔ *evolutionary epistemology of emergent learning phases* of unity of knowledge and the unified (participatory, complementary) world-system by continuously recalling of the Moral Law. $dW(L)/d\theta > 0$ across learning processes Here $L = [\{[\Omega,S] \to \theta^*\} \to \theta] \to \mathbf{x}(\theta) \approx (\theta, \mathbf{x}(\theta))$ is summarized to $dW(\mathbf{x}(\theta))/d\theta > 0$ across learning processes by simulation of wellbeing function using circular causation method.

Stage 5 Leading to accumulated stock of knowledge along the IIE-learning processes:

7. Totality of accumulated knowledge-induced wellbeing by the process of learning across processes and systems sharing in **IIE**-methodology but *only up to* a point of learning is denoted by, [convoluted integral

$\int_{\theta ij} W(\mathbf{x}(\theta))d\theta]$; i = 1, 2, …, N (interactions); j = 1, 2, … N′ (consensus);

$\lim_{ij} \{\theta_{ij}\} = \theta$ evolution by interaction and integration across learning processes.

The important point to note in Chart 1 level (5) is how the continuity of the learning process is established; and how deductive reasoning continues into inductive consequences; and how subsequently inductive reasoning reverts into deductive reasoning, and so on in continuity across continuums of systems and their representative variables. Such an endogenous property of the learning process is a high-water mark of unity of knowledge and its epistemic effect on the moral-social construction of the unified world-system. These dynamics of the learning process are now explained.

The Positivistic to Normative Evaluation of the Wellbeing Objective Criterion

The evolutionary epistemology between processes is characterized by two phases of learning. Firstly, new knowledge-flow evolves from the moral-social reconstruction based on the simulation of wellbeing by circular causation in a given process. This knowledge-flow, as a measured configuration of wellbeing, is represented by an ethical index. It forms the last equation of the estimated/simulation system in the circular causation model. The evolutionary knowledge-flow denotes consciousness moving towards the epistemic core of level (1). Secondly, the moral-ethical correctness of the estimated/simulated wellbeing index thus enters further simulation as benchmark of normative moral-social change in reference to level (1) and in the second learning process, and so on.

In this way, the deductive reasoning based on level (1) in Chart 1 goes into the inductive stage (4) through the empirical and applied reconstructive stage. Simultaneously in the continuum space, the inductive consequence of level (4) further evolves into level (5) by referring to level (1). The sequences of deductive-to-inductive-to-deductive cycles continue on. In such cycles of reasoning, interconnecting along the continuous learning processes, only level (1) in Chart 1 remains the axiomatic point of reference. This is the only exogenous part of the entire emergent phenomenological model signified by learning processes. The primal level (1) of Chart 1 but at higher learned

human capability gained out of the sequential learning processes initiates new phases of evolutionary learning. All other parts of the learning system in the details of their deconstruction are endogenously linked by knowledge-flows. Upon this, time and space become datum of information-flow in different evolutionary processes. But these are all axiomatically guided by the only exogenous phenomenon in the entire system of learning processes. This exogenous axiom is the level 1 of Chart 1. Thus the recurrence of level (1) 'everywhere' and in 'everything' establishes its uniqueness and universality.

Figure 8.1 given below provides the schematic explanation of recursive learning processes that unify the deductive and inductive reasoning in continuous rounds of epistemic learning. The same model also establishes the continuity between positive and normative states of the world-system in 'everything' as induced by knowledge.

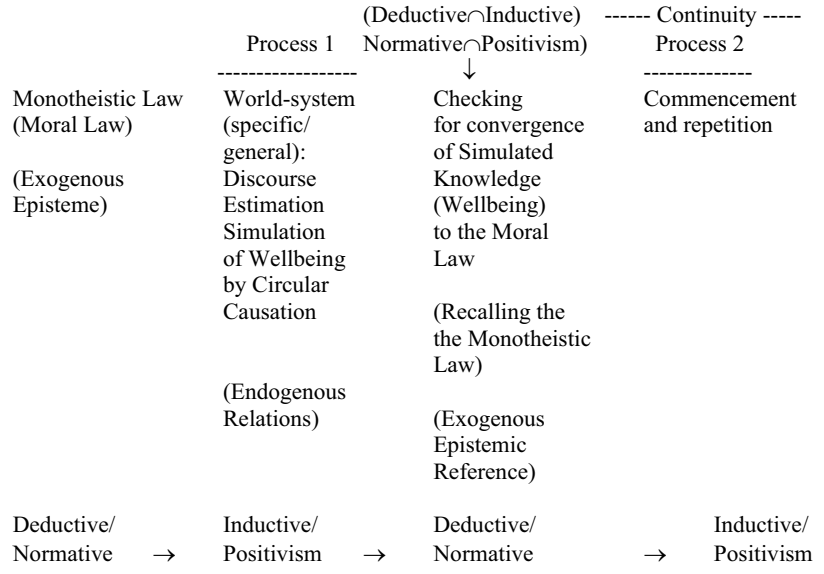

Fig. 8.1 Deductive/inductive, normative/positive recursive relations in unity of being and becoming

Construction of the Interactive, Integrative, and Evolutionary (IIE) Learning Model

All of socio-scientific analysis, despite the continuously intrinsic nature of learning, makes up **IIE**-learning system of the human and non-human world-systems. The dynamics is depicted in Fig. 8.2. In this figure, consider the knowledge (θ)-induced relationship in terms of the vector, $(x_1(\theta), x_2(\theta), \theta)$. The surface S is spanned by many trajectories in the TT-space. This describes evolutionary paths of the vector $(x_1(\theta), x_2(\theta), \theta)$. The surface S' is the coplanar projection of S. S is non-optimal in evolutionary θ-values inducing $(x_1(\theta), x_2(\theta), \theta)$-vector. Likewise, the corresponding projection space S' spanned by θ-induced trajectories T', is non-optimal in $(x_1(\theta), x_2(\theta))$. Yet each of the evolutionary sub-spaces of S being temporarily closed within evolutionary open sets, has temporary and evolutionary equilibrium points. There are many such emerging points as the sub-spaces expand horizontally due to inner learning dynamics, and expand upwards due to evolutionary learning dynamics.

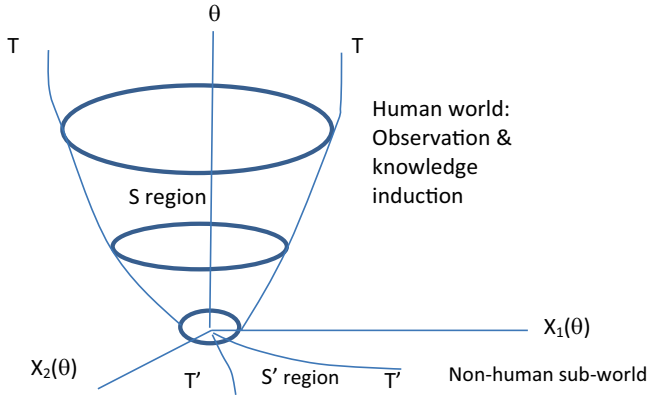

Fig. 8.2 Interrelationship between human and non-human worlds in knowledge-induced evolutionary equilibrium without optimality, only knowledge-simulation

The universal correspondence on mind-matter explained in Fig. 8.2 is borne out by the Qur'anic verse (20:6).[4]

The Particularized Model: Circular Causation Between Trade, Poverty Alleviation, and Wellbeing

We extract from Fig. 8.2 the knowledge-induced variables that define the wellbeing function in terms of its property of pervasive complementarities (participation). Let the vector $\mathbf{x}_1(\theta)$ denote trade related variables and instruments relative to interest rate. Let $\mathbf{x}_2(\theta)$ denote poverty alleviation as a complex variable of the determinants of poverty alleviation (World Bank 2000). θ is a monotonic positive representation of the wellbeing function (W(.)) in the circular causation system of equations interrelating $(\mathbf{x}_1(\theta), \mathbf{x}_2(\theta), \theta)$. We write the circular causation system as follows:

$$\text{Simulate } W(\mathbf{x}_1(\theta), \mathbf{x}_2(\theta)), \tag{8.1}$$

say that $\mathbf{x}_1(\theta) = \{(z = Y_N / Y_W), P\}[\theta], \mathbf{x}_2(\theta) = \text{index of poverty}$

Y_N denotes GDP in basic-needs sector;

Y_W denotes GDP in the wants sector (non-basic needs);

P denotes financing by the aggregate of participatory instruments relative to interest rate.

The normative properties of epistemic unity of knowledge in expression (8.1), subject to the following circular causation Eqs. (8.2)–(8.5), are as follows:

$$\begin{aligned} dW/d\theta = {} & \underset{>0}{\left(\partial W/\partial z(\theta)\right)} \cdot \underset{>0}{\left(dz(\theta)/d\theta\right)} + \underset{>0}{\left(\partial W/\partial P(\theta)\right)} \cdot \underset{>0}{\left(dP(\theta)/d\theta\right)} \\ & + \underset{>0}{\left(\partial W/\partial x_2(\theta)\right)} \cdot \underset{>0}{\left(dx_2(\theta)/d\theta\right)} > 0 \end{aligned} \tag{8.1a}$$

The induction of variables by θ means firstly, estimation of the prevalent state of the circular causation relations (inductive/positive), which may not be in conformity with epistemic unity (deductive/normative). Estimation is followed by simulation in reference to the goal of attaining levels of moral-social transformation by epistemic unity of knowledge and complementarities between 'the good things of life'. These are denoted by increasing (z,P)[θ] and decreasing $\mathbf{x_2}(\theta)$ after simulation of the first-round estimation results.

The circular causation relations exist at two stages. First, there is the estimation stage (inductive/positive as in Fig. 8.1). The second stage is the simulation of the estimated results by changes in the coefficients to establish better semblance of the epistemic unity of knowledge, and thereby wellbeing. This is the deductive/normative derivation out of the estimated (inductive/positive) stage.

Estimation Stage (Inductive/Positivistic)

$$z(\theta) = f_1\left(P(\theta), x_2(\theta), \theta\right) \tag{8.2}$$

$$P(\theta) = f_2\left(z(\theta), x_2(\theta), \theta\right) \tag{8.3}$$

$$x_2(\theta) = f_3\left(z(\theta), P(\theta), \theta\right) \tag{8.4}$$

$$\theta = F\left(z(\theta), x_2(\theta)\right) \tag{8.5}$$

The functional similarity of expressions (8.1) and (8.5) means each of these expressions is a scalar representation of the other expression. Hence, while expression (8.1) defines the conceptual version of the wellbeing function, expression (8.5) gives the empirical version of the ethical index that ensues from the state of circular causation relations. The first step, namely that of estimation of the circular causation system with existing data is now complete.

Simulation Stage (Deductive/Normative)

The 'estimated' equations are 'simulated' by changing the coefficients in the light of desired transformation to attain better semblance of unity of knowledge in the system by way of improved complementarities between 'the good things of life'; or negative signs in the opposite case. These coefficients in the log-linear form of the (f,F)-functions in the circular causation system (8.1)–(8.5) denote inter-variable elasticity coefficients. With the simulated values of the variables by coefficient-changes in the structural Eqs. (8.2)–(8.5) as normatively/deductively desired outcome of social discourse, the final version of the ethical index in expression (8.5) follows.

The simulated value of the ethical index (wellbeing measure) is the normative result in reference to the epistemic unity of knowledge to be attained. It is set discursively by variations in the coefficients of the estimated relations in accordance with the episteme of unity of knowledge. Once the estimated and simulated variables and the ethical indexes are quantified, the comparisons between the actual (statistical) and estimated, and the predictor (simulated) values can be studied. This stage gives rise to discourse on the goals of desired moral-social transformation. The changes in policies and institutional structures that need to be constructed in order to attain moral-social transformation become the inferences for decision making. These are reflected in the predictor variables.

The epistemic unity of knowledge and its unification of variables and systems by complementarities and participation are established in the broadest context of the social order formed by organic learning between the human world and the non-human world (Fig. 8.2). All the parts of the deductive/normative and inductive/positivistic stages of reasoning have now been unified by organic synergies emanating from the circular causation system of wellbeing-simulation involving all the variables, including the ethical index as the proxy for the wellbeing function.

In this Chapter we have premised all reasoning on the unassailable episteme that no one denies. This is the episteme of unity of knowledge and its induction of unification in the generality and particularity of diverse issues and problems of the world-system. Its possibility to study the positivistic nature of reality (estimation) followed by moral-social reconstruction (simulation) of such positivistic realities into normative forms bring together the positive and normative aspects into unison with the design of society of the future. It renders the accepted hypothesis to critical investigation in order to discover fresh and newer ways of explaining social reality

that the simplified linear vision and maximization calculus of existing economics and socio-scientific system cannot explain.

Even in the most ordinary economic case for instance, the axiom of scarcity of resources cannot explain the learning worldview. But the reverse is true. That is from the learning worldview to specificity of resource scarcity problem by assigning $\theta = 0$. We then study the concomitant process of the fallen world of exogenous behavior (preferences), resource scarcity, competition, and inter-variable, inter-entity conflict.

Inferences Derived from the Estimation and Simulation Aspects of Wellbeing Subject to Circular Causation

Fixed Point Theoretical Result

An interesting result is derivable from the estimation and simulation stages of the circular causation equations of the generalized phenomenological version of the wellbeing simulation problem. We note here that the equations of the circular causation are structural in type. Thereby, every variable is endogenously related to all other ones, and thereby, are estimated and simulated thereafter. Such regenerated variables stand for functional transformations of the original statistical variables. Therefore, in any specific learning process a set of compact solutions (Fig. 8.1) maps itself onto it, but evolves from there.

The enunciation of the Fixed Point Theorem (Nikaido 1987) can now be extended to state that a temporary compact set of solutions of the circular causation system maps itself onto itself with the property of evolution from such a temporary state of compactness (Maddox 1970). Such a set generates temporary but evolutionary equilibriums across learning processes (Grandmont 1989). In this statement of the problem, the Fixed Point Theorem has been extended to include evolutionary equilibriums that temporarily map themselves *into* themselves by mathematically continuous and differentiable functions.

The moral-social implications of this Fixed Point Theorem result are several. The epistemology of unity of knowledge and the actionable domains exist in 'everything' with diversity in unity of being and becoming. This conceptual result is true of specific and generalized problems of world-systems. Thus the infallible property of universality and uniqueness of the epistemology of unity of knowledge and its knowledge-induced

unified world-systems is established (Choudhury and Zaman 2009). This inference yields the fundamental premise for establishing the possibility of moral-social reconstruction as the normative worldview. It is realized by the sole function of the epistemic law of unity in terms of and inducing the world-systems in every detail.

Overlapping Generation Model of Risky Asset Valuation

We also deduce from the evolutionary version of the Fixed Point Theorem that, because evolutionary equilibriums exist across continuums of the dimensions of knowledge, time and space, therefore predictability is possible, but only at 'near proximity' to the points of occurrence of probabilistic events. This result yields the overlapping generation model of asset-valuation that addresses true valuation at 'near proximity points' of occurrence of probabilistic events, rather than using present-value and its generic models of asset-valuation with inter-temporal cash-flows of the uncertain future, as in the case of mainstream and Islamic finance. See Choudhury (2011) for a detailed formulation of the overlapping generation model and an Islamic *shari'ah* critique of the present-valuation and related methods of mainstream valuation now being imitated by Islamic financial institutions. A further complication is introduced by the *Sunni* and *Shi'a* sectarian interpretations of the *shari'ah*, and thereby of the interpretation of interest (*riba*) in financial transactions.

This result on asset-valuation is a revolutionary alternative to the usual kinds of mainstream models that are presently used by Islamic banks and financial institutions everywhere. The moral and ethical implications of the overlapping generation model are to introduce the discursive dynamics. This is simultaneously combined with analytical ramifications at the 'near proximity' nodes of decision-making along the evolutionary process-driven path of intertemporal evaluations.

Contrarily, the mainstream asset-valuation models presently being used by Islamic banks and financial institutions are thoroughly benign of moral and ethical sensitivity. The moral and ethical implications of the *maqasid as-shari'ah* are altogether forgotten as an endogenous force of preferences to conduct the functioning of Islamic banks and financial institutions. Today's clamor of '*shari'ah*-compliance' in Islamic banking products

remain substantively devoid of consciousness in the epistemic law of unity of knowledge and its functional relations with the specifics of systemic unification. Examples of moral construction in the Islamic perspective of economic and financial functions are poverty alleviation, village development, microenterprise development, sustainability, employment, stakeholders' participation, and development along the dynamic basic-needs regime of the 'good things of life'.

A Critique of the Islamic Economic and Finance Approach in the Literature and in Practice: The Moral Precept of the *maqasid as-shari'ah* Contra the Utilitarian Character of Islamic Economics and Finance

The preference behavior of Islamic banking shareholders and managers are utilitarian. These agents state that, if they are a pious group making good financial decisions according to the *shari'ah*, then the consequences of their actions will be additively good in the social ensemble. The moral and social effects of their decisions will be transmitted additively to society at large. Such a transmission of institutional decision-making and preferences would then be equivalent to moral and ethical social choices at large.

Such an attitude is a thoroughly utilitarian one. In it the socially discursive dynamics and the emergent consequences are subdued. Morality and ethics do not arise from the socially participatory spectrum as an endogenous force. Thereby, in the present milieu of Islamic banking we do not find sound funding programs and database to back up Islamic banks' claims on poverty alleviation. Yet paradoxically the financial efficiency ratios are calculated to be high (Islamic Bank Bangladesh, Annual Reports 2005, 2007). Consequently, both the meaning of morality and ethics in Islamic banking and the relevance of statistical calculations to prove financial efficiency remain contradictory, null and void in the eyes of the *maqasid as-shari'ah*. Contrary to these prevailing implications of Islamic economics, finance and banking in their intellection and practitioner milieu, the concept and application of ethically endogenous learning model negate and alter the scene, leading it into the *maqasid*-friendly worldview.

Micro-Foundation of Morality, Ethics and Economic Theory

Other inferences can be drawn from the evolutionary version of Fixed Point Theorem. One of these is to reflect on and formalize the micro-foundations of economic and social theories. An example of this is poverty alleviation by means of microeconomic and community and village based policies. The end result is a complex system of impact on the economy-wide aggregate level. In fact, for bringing back morality and ethics into the social world-system, economic theory must be solely microeconomic in nature and epistemologically grounded on unity of knowledge, as by the monotheistic law.

Macroeconomics, and thereby the morally and ethically benign empiricism and models of finance and society, do not reveal the preferences of actors on the scene. This is not true even in the case of the study of micro-economic foundations of macroeconomic theory. For instance, in rational expectations theory (Minford and Peel 1983), the problem of utility maximization in price level and unemployment rate results in a tradeoff between these variables. This is an untenable choice according to the moral and ethical precept of pervasive complementarities between 'the good things of life' in the knowledge-induced economic system that continuously learns. Knowledge-induction takes place in 'everything', as we have explained by Fig. 8.2. Yet its dynamics is possible only by human agency, which is micro in nature. The micro responses can be aggregated by complex learning dynamics to the macro-wide level.

The result of the evolutionary, ethically endogenous preferences and choices studied by the Fixed Point implications of learning systems, is absent in all of Islamic economics, finance, and social theory. No fresh challenge either in academics or practice has been introduced by the mainstream foundations of a fading field of Islamic economics and finance. Islamic economics in its mainstream orientation has disappeared in a distant din of self-clamor. Islamic finance as it exists today is expected to follow because of its lineage to mainstream economics and to the faded-away field of Islamic economics.

The Interest-Rate and Trade Implications of Economic and Social Theory

Our conclusive argument is that, all of economic, and in fact socio-scientific reasoning is bereft of a strongly endogenous (self-governed, self-actualized) treatment of morality and ethics. The implication of this conclusion is that, methodologically socio-scientific reasoning is not built upon moral and ethical foundations. Rationalism, upon which all of socio-scientific reasoning of liberal scholarship is premised, does not help out with an outlook on morality and endogenous ethics.

It is now necessary to establish moral and ethical sensitivity in socio-scientific reasoning to incorporate morality and ethics as foundational endogenous elements with the epistemological basis of unity of knowledge. Furthermore, without the moral and ethical consciousness of socio-scientific thought, the otherwise exogenous treatment of such elements cannot internalize them in our preferences, attributes and practices. Policies and institutional structures that build upon the exogenous treatment of morality and ethics will always sideline endogenous ethical consciousness in belief and practice. The immanent instruments of practicing morality and ethics as exogenous factors in human preferences will not lead into the alleviation of social problems. Among these instruments are the interest-rate related ones despite its diminishing trend to exogenously promote spending and investment.

The Problem of Poverty Caused by Multitude of Factors

We return now to study the problem of poverty by means of the learning model of epistemic unity of knowledge. *The states of poverty and poverty alleviation* are not pre-assigned states of human life. These human conditions are social states. Being so, the affliction of poverty is caused by the inter-causal effects of many social problems and issues. Such factors need to be changed and corrected. Included in the vector of variables as factors and their causal effects is the will and effort of the afflicted ones to wrestle out of the demeaning states of poverty through a social order of participation. Being a social issue on the existence and alleviation of poverty in relation to the overarching objective of wellbeing, an individual, group, community, region, and country measure their own depth of poverty by interrelating critical variables across the extant of social relations.

The problematic depth of poverty is based on the inadequacy of basic needs, not by lack of material wants. When disparate entities are made to compare by way of emulating their standards, individuals then enter the domain of relative-poverty alleviation. Relative poverty is reflected by the claim on material wants. This kind of poverty alleviation should not be a goal for alleviation by any specific policies and structural changes. Otherwise, much public expenditure and unnecessary social cost will arise. The perception on the incidence of poverty ought therefore to be determined by the target groups or individuals within the scope of their inadequacy in meeting the provision of basic needs.

This kind of attitude towards poverty on the basis of adequacy of needs reflects an attitude of contentment in the specific needs basket. The attribute of contentment belongs to the needs basket. It is induced by epistemic knowledge determining wellbeing by consciousness and social balance between the human and non-human worlds. When viewed in this comprehensive sense of epistemic unity of knowledge and its induction of the adequacy level of the needs basket, much of the cost of alleviating poverty can be reduced, and poverty alleviation made possible by endogenous forces of consciousness and moral values.

Systemic Complementarities and Participation Necessary for Poverty Alleviation

Systemic complementarities and participation are fundamental for understanding wellbeing, and thereby to generate empowerment and its causal relationship with the incidence of poverty and poverty alleviation. Participation is a concept that cannot be restricted to human domain alone. Participation extends over the use and management of resources, goods and services, all types of socio-economic and experiential artifacts. This is also the implication of Fig. 8.2. A learning model of interaction (**I**) leading to integration (**I**) and then evolving (**E**) into new learning processes in epistemic unity of knowledge is referred to in this Chapter as the **IIE**-learning model. It is characterized by pervasive complementarities and participation as the overarching creative interaction, integration and evolutionary (**IIE**) experiences continue between the human world and the non-human world.[5]

Variables, relations and events are the results of the circular causation system of interrelations. Variables are received information in the **IIE-learning** processes. Yet such variables may be initially crude in ethics. But they are subsequently transformed into learning variables that enable extensively endogenous causality between all the variables. This kind of social participation takes place by the socio-economic induction of knowledge-flows relating to the unity of knowledge and the world-system. The eventuality of the simulated variables by knowledge-induction is the station to be reached for developing moral-social constructs emerging from their circular causation interrelations. Such a knowledge-induced moral-social state of the ethically reconstructed variables is the idea of 'event'. An 'event' becomes functional by the complementary characteristics of knowledge-flows defining the knowledge-induced variables.

Socio-economic variables (including policy, instrumental, and institutional variables) are the ethically reconstructed variables by the induction of knowledge-flows, as in the **IIE**-process model of simulation of wellbeing, subject to the circular causation relations between the wellbeing variables in 'the good things of life'. The straightforward socio-economic data are not the end-point of socio-economic information for moral-social transformation, with which wellbeing simulation is involved. Incidence of poverty and poverty alleviation do not thereby provide acceptable data in the learning model for the simulation of wellbeing. No model is acceptable, and therefore variables not useful that, do not enter circular causation for moral-social reconstruction, social discourse, and analysis. Critical indicators are calculated in the comparative scale of estimated values and the simulated ones.

Policy and instrumental variables and those of institutional structural change fall in the same purview of endogenously related variables resulting from circular causation. Consequently, microeconomic variables building up the macroeconomic complex of relations and policies then become morally and ethically sensitive. The wellbeing model of simulation by circular causation subsumes these kinds of variables within the endogenous group calling forth micro-foundational choices in them. Institutions are treated as discursive organizational entities (Arrow 1974). In the moral-social context, institutions are non-utilitarian and non-rationalistic. Instead, they are endogenously defined by the wellbeing objective criterion that the members discourse upon in light of the epistemic unity of knowledge.

Money and fiscal variables and polices are the two subsets of socio-economic variables that become ethically knowledge-induced when entered in the wellbeing model that is simulated subject to circular causation relations. These variables, and the policies premised on them, are then transformed into knowledge-induced variables with their important synergistic role in the circular causation system. Being so, money and fiscal variables and policies must be complex aggregates of primitive microeconomic concepts with behavioral properties in them emanating from the specific and generalized models endogenously interrelating money and fiscal variables with the rest of the socioeconomic variables (Blaug 1993; Choudhury 1997).

Conclusion: The Universal Nature of the Learning Worldview of Epistemic Unity of Knowledge in 'Everything'

Generalization of the model of wellbeing simulation subject to circular causation relations applies to 'everything', thus forming the universal and unique model of socio-scientific phenomenology. Only the problems of different disciplines and categories remain distinct, not the model of unity of knowledge and its induction of the learning world-system. Generalization also means that it encompasses every specific application and conceptualization in the form of the interactive, integrative, and evolutionary (**IIE**) phenomenon along the path of learning processes.

This nature of specificity within the generalized worldview is clearly manifest in the wide and evolutionary form of wellbeing simulation model, subject to large number of equations system of circular causation relations. Thereby, the equation of poverty alleviation presents a specific problem within the generalized system of wellbeing simulation, and so on. Dealing with poverty alleviation, money, fiscal variables, real economy variables, prices, employment and human resource development in a system of interrelated equations, constitutes a larger specific model system as a particular within the generalized model of evolutionary epistemology of unity of knowledge.

The convergence of arguments on moral-social reconstruction of thought, intellection, institutions, policies and practices has appeared on the poverty question. Alleviating abject poverty rather than relative poverty is a process involving a spectrum of interrelated activities, ways of thinking, and moral-social consciousness in community and society, and

the moral conduct of such behavior towards attaining wellbeing. Within the overarching objective of attaining wellbeing through a moral, rather than a rationalistic approach, lies the undeniable derivation of the moral code to alleviate poverty.

Within the process of the goal of attaining wellbeing, and thereby eradicating poverty of the abject, absolute and hard-core type, lies the unified normative and positive social construct, and deductive and inductive reasoning. The comprehensive reasoning presents itself as the unified principles of modeling ethics. Opposite to this in rationalism is the mark of moral dysfunction, even in an age of maturing modernism and post-modernism that accentuate differentiated systems and specializations within them. This point has been expressed in the erudite writings of Husserl (trans. Carr 1970), Dampier (1961), and Dilworth (2008).

The normative and positive perspectives of political economy have thus been integrated to present a unified worldview (Streeten 1994). All of these together change the vision and mission of moral-social experience. Rationalism and its rationality offshoots of thought are profoundly to be found entrenched in mainstream economics, and social and socio-scientific thinking despite a search for ethical sensitivity (Gauthier 1986). Such postulates and practices based on them are inextricably tied to ethically constraining ideas. They comprise the core postulates of resource scarcity, maximization, steady-state equilibrium, competition, and self-interest arising from methodological individualism in its varied human and institutional forms in mainstream theories (Buchanan 1999). The imminent social situation is like what Shackle (1972) characterizes: the end of novelty in the state of maximization and steady-state equilibrium. This equivalently marks the end of the learning, discursive, and innovative process, unless further induced, but exogenously, by exogenous factors of resources, technology, and policies in mainstream theory and practice.

Among many of the kinds of such exogenous factors, and the consequential morally and ethically benign intellection of economic and socio-scientific optimality and steady-state equilibrium, there is the rate of interest and its pervasive presence in financial indicators. We have explained the existence of the rate of interest in all its manifestations as the core problem of moral debility of any society.

Poverty alleviation cannot be attained, and the morally meaningful construct of socio-economic development cannot be hoped for in the presence of any semblance of interest-rate regime of finance and social relationship. Thus we have argued that any form of interest-rate regime of

development finance is untenable for moral-social transformation. Yet its replacement is possible. Such replacement of interest rate and the possibility of wellbeing are by trade-related instrumentation of finance in unified relations between the financial sector and the real economy, as a signal of 'the good things of life'. Such an approach has been explained in the context of a participatory and complementary model of basic needs in sustainable development, again as an example of 'the good things of life'. Macro-wide variables and policies now take the micro-foundational meaning of complex aggregation.

Dynamic basic-needs regimes of socio-economic development now acquire a substantive meaning and intellection on a learning process-based worldview premised on the episteme of unity of knowledge and the knowledge-induced unified world-system, with its generality and specifics of issues. The pursuit of dynamic basic-needs regime of sustainability is in the wellbeing objective criterion. From it the interrelationships between many other variables, their relations and institutional practices, structures and micro-endogenous policies, are derived.

Dynamic basic-needs evolving across evolutionary learning processes induced by the episteme of unity of knowledge and its attributes of the unified world-system, is not simply a domain of attention for poor societies. Quite the contrary, economies and societies at every stage of their development have basic-needs models of wellbeing, material balance, and moral-social reconstruction standing upon sustainability enabled by participation in the wellbeing criterion.

Streeten (1981, p. 331) writes his thoughtful words in regards to the substantive meaning of basic-needs for development sustainability: "… basic needs spell out in considerable detail human needs in terms of health, food, education, water, shelter, transport, energy, simple household goods, as well as non-material needs such as participation, cultural identity and a sense of purpose, which interact with the material needs. Basic needs is a more positive concept than the double negatives of eliminating or reducing unemployment or alleviating poverty"

Streeten (1981, p. 331, edited) continues on to emphasize the micro-foundational type of disaggregation of macroeconomic approach for poverty alleviation through basic-needs paradigm: "….. Our concepts have become decreasingly abstract and increasingly disaggregated, concrete and specific. …. GNP and its growth is a highly abstract and unspecified conglomerate of goods and services, irrespective of what and for whom."

In the context of a similar complementary concept of grassroots development, the ethical values are all intellectualized and are practiced by the participation of *all* in a discursive society (Choudhury 1998). The episteme of unity of knowledge and its unification functions in the generality and specifics of the socio-scientific order explain the circular cause and effect of the intrinsic learning worldview of a complementary, participative, and discursive society.

Notes

1. Interactive property means a diversity of free discourse between participants and possible organic relationships that can be perceived among variables in the socio-scientific problem under study. Integrative property means symbiotic consensus or convergence to unity of being out of discourse in issues concerning mind-matter relational events. Evolution means the continuity of interaction and integration along emergent learning processes of interaction and integration emerging into evolution. The properties comprising (**IIE**) characterize every sequential learning process, which is then carried on across continuums in continuity.
2. Qur'an (112): "In the name of Allah, the Beneficent, the Merciful: Say: He is Allah, the One! Allah the eternally besought of all! He bets not nor was He begotten. And there is none comparable unto Him."
   Qur'an (2:255): *Ayath al-Qursi*.
3. Qur'an (13:4): "And in the Earth are neighbouring tracts, vineyards and ploughed lands, and date-palms, like and unlike, which are watered with one water. And We have made some of them to excel others in fruit. Lo! Herein verily are portents for people who have sense."
4. Qur'an (20:6): "Everything in the heavens and everything on the earth and everything in between them and everything under the ground belongs to Him."
5. The theory of pervasive complementarities presented by the methodology of unity of knowledge and the underlying analytical method of circular causation in the 'estimation' and 'simulation' problem of wellbeing objective criterion is fundamentally new in socio-scientific thought. It is not matched by the microeconomic models of resource allocation and its postulates of optimization using the axiom of scarcity of resources, opportunity cost, and marginal rate of substitution. Likewise, there is nothing in macroeconomics to match it. Keynesian economics causes monetary and fiscal policy effects to compete each other when the potential rate of output remains constant at the full-employment level of real output with price stability. With technological intervention of Myrdal type, cumulative causation makes the aggre-

gate supply curve elastic at the full-employment point of output and price-level. Yet there is no epistemic explanation as to how resources expand, except by exogenous interjection of technological change. But this kind of effect is quite different from the *pervasively endogenous* nature of unity of knowledge that causes resources and socioeconomic effects to perpetually complement and expand.

Thereby, exogeneity of socioeconomic and policy variables is permanently replaced by the pervasively endogenous nature of complementarities, as of resource regeneration by technological change. This causes endogenous relations of these knowledge-induced variables on the elastic relations between output, stable prices, factor employment, productivity and technological change.

All of these and further socioeconomic and policy effects are the results of endogenous impact of the episteme of unity of knowledge. Finally, endogenous growth models, despite this catchy terminology, do not treat policy variables as endogenous. Rather, the effects of the policy variables, such as technological change and human resource development, are found to have exogenous impact on other endogenous socioeconomic variables, such as factor inputs and outputs. In this regard, Marxist political economy is no exception on the marginalist scale, as seen in regards to the conflict that Marx permanently upheld to exist between labour and capital. Such marginalism shows up in the Marxiat form of aggregate production function. Dasgupta (1987) rightly says that the epochs of mainstream economic theory are marked permanently by the postulate of marginalism.

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CHAPTER 9

Ethics in Evolutionary Learning Models: A Critique of Comparative Perspectives and the Alternative Applied to the Wellbeing of Canadian Natives, Absolute Reality in Social Issues

Background: A Substantive Critical Thought in This Chapter

The Individualistic Meaning of Ethics and Society

The meaning of ethics has most often been tied to individual behavior and the collective additive behavior of individuals forming a social entity, such as tribes, clubs, groups, community, nations, and society. In such a meaning of ethics the implication of rational behavior derived from rationalistic meanings of reasoning and freedom abounds. Consequently, almost in all applied fields of thought, such as economics, finance, science, and thereby society, the notion of individualistic ethics in the form of methodological individualism remains the dominant defining praxis.

On the other hand, philosophical and sociological perspectives of ethics invoke a wider field of comprehension of ethics and society. But the treatment is much more a grand prescription rather than a mode of distilling how such a grand model can be actually applied. Thus there are two extremes of the meaning of ethics that make it dysfunctional as a practical ontological category of human consciousness, reasoning, and application.

The implication of a treatment of ethics in its garb of methodological individualism and utilitarian aggregation is also the creation of a social

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_9

order that remains of the same category. Important branches of human activity to examine within such an individuated social order are community, economics, business, family, society, institutions and politics. The utilitarian aggregation of such sub-orders into social wholes is the type of society that emanates from the nature of individuated microcosms within the meaning of ethics so conveyed and behavior and institutions so formed.

It is thereby important to address the following questions in this scenario of ethics, behavior and their enforcement in the emergent kinds of institutions and society at large: What are an institution and likewise an organization in relation to the preferences and choices generated by the citizens and these artifacts? Are the preferences formed by pre-conceived and enforced behavior arising from cultural, religious, hegemonic practices, as of the divided nations and peoples of the East and West? How is the reinforcing behavior based on such a relationship between a norm of ethics and its social embodiment self-regenerated? What is the legitimacy for continuance of such a self-reinforcing relationship between utilitarian or individualistic ethics, institutions, values, and society?

The Contrary Picture

The contrary picture of the meaning and constructive dynamics of ethics addresses all of the above-mentioned dynamics and questions, but from the opposite template of social episteme. The foundation of such episteme is thereby based not on methodological individualism and utilitarian definition of the collective whole. Rather, rationalism is logically rejected for the favor of organic holism formed by interactive, integrative, and evolutionary learning dynamics. Ethics and its social reconstruction, away from utilitarianism and its varied forms, are thereby fundamentally systemic and cybernetic in nature. Its sustenance and the sustainability of the constructive social systems are integral wholes. They are self-generated by exchange within the systems and across interactive and integrated systems.

What fires such a system of ethical embodiments? This is the question of the foundational episteme in the meaning of the social and scientific totality of this term.[1] The term epistemic totality carries with it the whole gambit of organic causations concerning the epistemological context of reasoning and logicalness in the immanent system, its substantive delineation in reference to the episteme of unity of knowledge, and the world-system constructed upon such epistemic structures (Ruggie 2003). As cause and effect that reinforce the continuance of such regenerative structures the powerful

groundwork of cultural, religious, ontological and social practices deepen into individual and social preferences. Yet the utilitarian social choice norm of methodological individualism and independence of preferences are replaced by evolutionary learning preferences and objectives. They are formed by cause and effects in continuity. Call this circular causation relationship between the adherents of the social admixture. The foundational and epistemic unity of systemic knowledge taken out of the pre-eminence of religious, cultural, civilizational and social dynamics in historical continuity replaces thoroughly the rationalistic episteme of the other side.

The above overview of the substantive difference between individualistic ethics and utilitarian social ethics on the one side, and ethical embedding in a continuously unified world-system of 'everything' (Barrow 1991) is ingrained universally and uniquely in the details of self, society, and science. The embedded system of unity of knowledge forms the fundamental explanatory ontology of epistemic world-system of unity of knowledge spread across all details of systems. The differentiated system by its rationalistic episteme of competition and social Darwinism logically forms the foundation of 'everything' in the episteme of methodological individualism and its social and scientific construct. The meaning of ethics assumes its shapes and forms oppositely, differently, and diversely in these two contrary world-systems comprising their overarching domains of conscious mind and matter.

Figure 9.1 summarizes the nature of the two opposite ethical perspectives. Note here on the one side the emergence of differentiated systems governed by competition and individualism in the rationalistic episteme of mind and its immanent socio-scientific construct as matter. On the other side, there is the emergence of the world-system by the episteme of organic unity of systemic knowledge. Because of their independence, except by way of explaining the former by the latter—and there is no formal way of explaining the latter by the utilitarian methodology of the former—such relational independence between the two kinds of systems remains pervasive in and between the socio-scientific 'everything'. Figure 9.1 brings out our formal meaning of ethics.

The definition of ethics in this chapter is taken as the nature of behavior-backed relationship between entities of systems. In the differentiated system such behavior becomes the cause and effect of relational independence between entities. In the socio-scientific *embedded* system the ethical behavior and its social reconstruction are explained by unity of knowledge extending pervasively. This kind of relational dynamics in organic unity

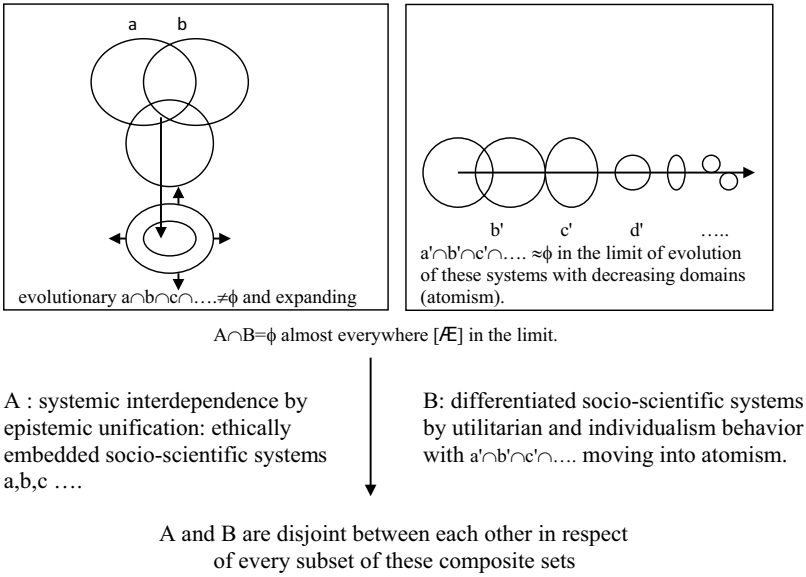


Fig. 9.1 Contrasting epistemic worldviews: socially embedded vs socially differentiated systems

also characterizes the evolutionary learning worldview through continuous interaction, integration and intra- and inters- systemic evolution (Choudhury 2007).[2]

Objective of This Chapter

The objectives of this chapter are first to address the nature of the two contrary episteme in the formation of the opposite concepts of ethics. This portion will be brought out by a review of the pertinent literature relating to the two kinds of world-systems. Secondly, by recognizing this fundamental epistemic difference in the divergent meanings of ethics the chapter formalizes a systemic model of ethics as an experience in the worldview of unity of knowledge that is endowed by pervasive intra- and inter- systemic interaction, integration and evolutionary learning towards normatively building an ethically reconstructed world-system. Thirdly, we address the questions we had raised in respect of the relationship and enforcement of ethics, preferences, social choices and structure of institutions arising from

the ethical template of individual and social choices. Fourth, we select the example of valuation of wellbeing in the socially embedded economy as opposed to the causation-benign valuation methods of the differentiated economic system for Canadian Natives. A phenomenological model of unity of knowledge is formalized to address the above issues. The example applied to the plight of Canadian \Natives brings out the fact of the very broad conceptualization and application of the methodology of *tawhidi* unity of knowledge beyond what is usually construed to be Islamic alone.

A Review and Critique of the Literature in Ethical Theory

Kenneth Arrow

We pointed out above that much of the contemporary literature on ethics and ethical preferences and choices center on rationalistic meaning. This is articulated in the model of individual utility theory of rational choice and in the utilitarian ethical theory of social choice. Social choice is expressed in terms of the lateral aggregation of utility indexes of citizens in a fully-informed, optimal (Pareto) pre-ordering of preferences, and dictatorial condition of imposing a terminal decision to attain optimal welfare of the social choice. Such imposition is done by what is known in social choice and economic welfare theory as independence of irrelevant preferences. That is preferences that are inadmissible in pre-ordering of preferences of democratic voting are ruled out of acceptance. As an exemplar on this matter, Aboriginal People's voting preferences for their land rights are over-whelmed by the national democratic voting. The preferences of the Aboriginal People's are treated as 'irrelevant' in the context of the broader national preferences. Social choices are then considered to be well-determined with the condition of 'independence of irrelevant preferences' (Sen 2002).

The welfare function that results from the well-ordering, Pareto optimality, and the condition of 'independence of irrelevant preferences' is an additive well-ordered one. This is the utilitarian consequence of additive social choices and the social welfare indexes of individual utilities (Arrow 1951; Harsanyi 1955). It is well-known that the ethics of utilitarianism (Quinton 1989) results in a linear aggregation of disjoint optimal indexes and preferences. This formation cannot explain how a final interactively

generated consensual social decision is attained from individual choices, preferences, participation and discourse. On the other hand, a superior human will can be exercised to assign the pre-ordering of preferences in determining optimal social choices. This is dictatorial behavior within any democratic practice.

John Rawls

A similar kind of terminal minimax game in social choice is presented by Rawls (1971). Yet the closure of the game needs a caller to end it. Rawls chose to use Kantian ethics to argue in favor of the most underprivileged in society. Their social welfare had to be improved even at the sacrifice of the wellbeing of the privileged. This is Rawls' Difference Principle. Yet Rawls well-wishing ethics remained entrenched in neoclassical marginal tradeoff principle, though the assumption of optimality of resource allocation is not upheld. This causes non-terminating minimax game unless a caller ends the game by levying a social rule, as with the dictatorial assumption of the Possibility Theorem of Arrow's social choice in a Pareto optimal allocation of resources.

Now let us combine Rawls' Difference Principle with his Original Position, which is the state of complete fairness and equality in resource allocation attained by putting into effect the Difference Principle. Such a state of fair and enforced resource allocation in the Original Position is one of many in this sequence along the trajectory of evolution of a society that must always be regulated to attain the Original State imposed by the Difference Principle. Such an evolutionary social trajectory is the locus of Second Best Optimal Resource Allocation points in a socially regulated Pareto optimal world. Consequently, a regulated marginal substitution points to the tradeoff between economic efficiency and distributive equity; between social justice and materiality; between the rich and the poor. Such points are moved along the regulated Pareto optimal social trajectory. Besides being contrary to the Second Best Theorem of welfare economics, Rawls' socially policed and regulated resource allocation points mark the evolution of utilitarian ethics in social order by virtue of the choice of the Pareto optimal points between marginal substitutes with the use of social policy.[3] Rawls' utilitarianism despite his Kantian ethical feelings is a methodological consequence. Rawls cannot avoid this despite his noble ethical outlook.

Robert Nozick

Nozick's entitlement theory (O'Neill 1981) in social choice is direly neo-classical in nature, and hence utilitarian by the same arguments as given above for Rawls. Of late, Nozick has taken to describe the Rawlsian kinds of social contracts as an embodiment of cooperation and discursive or participatory junctures of decision-making in resource allocation and ownership. This kind of reasoning under the unchanged methodology of a rationalistic episteme of conflict and competition with cooperation leads into the theory of club behavior. Cooperation can then be seen as a bundle of distributed competing agents that lobby for self interest while they discourse.

The resulting formalism is briefly as follows: A cooperating group of players in a social game can be atomistic individuals or interest groups. They are both motivated by the epistemic rationality of the enlightened self, as in the case of the Kantian imperative in Rawls. Thereby, the rationalist self and mind is the ultimate arbiter of what is the good and beautiful; a cultural or perceptual artifact to define the Rawlsian type primaries, and now the Nozickean type entities of a cooperative and discursive society. The episteme of rationalism resulting in rationality by the action of mental construct solely as the seat of the social episteme is a social Darwinist function (Popper 1988). This carries the essence of competition and self-interest inevitably, or a local but not extensive participatory unity of being and becoming. Nozick thus places his latter-days' cooperative condescension into a competing super-structure. Such random competing nature of lobby groups carrying their individual frame of mind is implied in Nozick's (2001, p. 25) words: "Because social constructions are arbitrary, it is perfectly permissible to alter them, to go against them, to violate them." These comprise the competing three groups and many more of their offshoots.

In light of the above-mentioned comments, Nozick's concept of cooperation can be placed within the spectrum of mutual interest of competing groups. In his words (op. cit., p. 259): "The view I am recommending is very closely intertwined with the notion of cooperation to mutual benefit. It makes mandatory voluntary cooperation to mutual benefit; it makes only that mandatory: and it (in general) prohibits interactions that are not to mutual benefit, unless these interactions are in response to previous violations of the principle or to violate it." Incidentally, the same kinds of reasoning are found to emerge from the social philosophy of Wallerstein (1998) and Prigogine (1980) based on the continuously emergent bifurcations out of conflict and competition even in a discursive world-system.

Kantian Epistemic Worldview

The above mentioned studies that suffer logically of reversion into methodological contradiction between the conception of goodness, the ethical view, and its impossibility in the analytical framework, ring the bell of a parting reality in Kantian thought. How does this happen? As Carnap (1966) has pointed out, Kant's groundwork of the metaphysics of morals suffers from a partitioned way of dissociated thinking between the *a priori* realm of pure reason where the moral imperative of God and goodness are found; and the *a posteriori* realm of practical reason where the world and its cognitive artifacts lie. These two realms are divided by the intervening realm of broken synthesis. Consequently, the *a priori* and the *a posteriori* realms are not causally integrated to establish a cohesive way of thinking about the intrinsic relationship that exists between the divine law and the world-system. This problem of synthesis in thought has marked the nature of socio-scientific inquiry most thoroughly and pervasively: "Give unto God what is God's and unto Caesar what is Caesar's".

Kantian dualism between the *a priori* and the *a posteriori* realms of reasoning is entrenched in every socio-scientific inquiry of their occidental heritage. For instance how is Kantian dualism instilled into Popper's open-ended universe of conjectures? Although Popper (2004) subjects every deductive reasoning and socio-scientific model to inductive testing led by the possibility of refutation, and thereby systemic bifurcation, there is no continuous causal relationship between the deductive and inductive followed by the rise of fresh deductive reasoning, and thereby, inductive falsification possibility. The deductive methodology remains independently juxtaposed to inductive testability and the possibility of falsification of any particular shade of reasoning.

Karl Popper

So how is truth understood in such a falsification and refutation hypothesis of inductive testability? Truth is rendered to relativism. There is no absolute truth in this case. Thereby, morality and ethics from the ontological primacy of the divine law is not within the realm of reasoning in Popper, just as it is so in Kant's problem of synthesis between the *a priori* and the *a posteriori*. Instead, a dialectical process of relativism of everything fully spans all such reasoning domains and the theories that emanate there from. The endogenous or self-governing, evident nature of truth,

the moral law and its derived ethics, are all absent in the broad sense of the divine law and its dynamics in the ethical articulation of the world-system with all its details of artifacts and relational causations.

Endogenous Versus Exogenous Ethics: Deductive-Inductive Embedding

What otherwise is endogenous embedding of deductive and inductive reasoning along with testability and social reconstruction by the epistemic reference? Figure 9.1 brings out the answer. In the space of A, the sub-sets a,b,c,… evolve first by reference to the episteme of systemic unity of systems. Secondly, the evolution of these sub-sets are realized by the testing for the existence of participatory complementarities between the variables and their functional relations in the boundary of any of the sub-set. Thereafter, social reconstruction is formed by re-invoking the episteme of unity of knowledge and carrying out ethical and social reconstruction according to the design presented to the progressively unifying details of the emanating world-system that is fired by the reconstructive norms. Deductive and inductive are thus causally evolutionary across such evolutionary learning sub-systems a,b,c,… in A.

Contrary is the case of either limited endogenous effect that does not last in the system B with its ever-dissociating, hence individuating subsets a',b',c',… In the limited case where temporary embedding of deductive and inductive reasoning exists followed by their independence, a semblance of human intervention exists. But the emanating policies and controls are externally imposed. They are not self-regenerating by organic continuity of the complementarities caused by inter-causal relations between the variables of the deductive and inductive premises. The domains of subsequent nexus of reformative relations, as in the boundaries of evolution between a,b,c,… in the set A of Fig. 9.1, are normatively framed and continuously driven by the episteme of systemic unity of knowledge (Sztompka 1974).[4]

In conclusion to this section we note that every contribution that we have examined above treat social choice and decisions by a utilitarian welfare model or an implicit implication of utilitarianism in the rationalistic nature of social choice. Ethics in the immanent rationalistic episteme is thereby either an exogenous or weakly endogenous leading to eventual reversion into exogenous impulse in social choice. The weakly endogenous consequence arises once the limiting preferences underlying social choice finally get immersed in individualism and group competition dynamics of conflict and mutual-interest.

Social Choice and Ethics in Certain Forms of Evolutionary Learning Dialectics

Contrary to the subdued learning dynamics in Rawls' and Nozick's arguments and altogether the absence of evolutionary learning by interaction in other paradigms, there are alternative models of evolutionary learning behavior in social choice and decision making. In these ethics can be understood as a continuously emergent paradigm formed by interaction between the agents, agencies and their representative variables. In this category of the literature a dialectical model of preference formation, choices and continuity of these attributes marks their distinctive characteristics.

Petr Sztompka's Dialectical Model of Social Evolution

Sztompka's (1991) dialectical model of social change and its continuity by interactive transformation and evolution is embedded in the social order comprising everything. This would include the field of political economy and world-system. Sztompka quotes Bhaskar (1986, p. 123): "If society is the condition of our agency, human agency is equally a condition for society, which, in its continuity, it continually reproduces and transforms. On this model, then, society is at once the ever-present condition and the continually reproduced outcome of human agency: this is the duality of structure."

Sztompka's model is epistemological in nature, but is wholly based on rationalism. He writes (op. cit., p. 115): "Our model is certainly 'anthropocentric'; it is founded on the assumption that the irreducible component of society, its only ultimate ontological substratum, is people. Therefore we cannot but seek the ultimate, primary mover of society in their traits and properties—in brief, in human nature." The anthropocentric property of the social model reduces it to the ontology of conflict and competition despite the dialectical evolutionary nature of the social model. Consequently, power and group dynamics enter the formation of the social structure. Thereby, there is no escape from the social devolution to the structure from early endogenous causality to dissociation between the entities as shown in Fig. 9.1 in set B and its sub-sets. The hidden form of utilitarianism enters the representation of the competing nature of individual and social collectivities.

Austrian School of Political Economy Dialectics

Another significant contribution to a political economy model of evolutionary learning is the centerpiece of the Austrian economic methodology. Such evolutionary methodology of political economy is championed by Schumpeter (Gafford 2009) and Hayek (1990).

How does the Schumpeterean growth and development dynamics of cumulative causation attenuate with evolutionary learning and its ethical connection? Schumpeter and Hayek blazed the legacy of the Austrian School of Economics to explain the structure of economic growth and development by means of innovation and structure of investment in technological advancement that generate economies of scale, despite that the earlier phases of such dynamic change can be accompanied with unemployment and increase in cost of production (Cantner et al. 2009). Out of the innovative entrepreneurial dynamics of development that involves matters beyond economic issues, such as the social and cultural ones, like Myrdal's (1968) concept of the 'wider field of valuation', come about either equilibrium patterns of change or disequilibrium regimes. In the latter case the disequilibrium states become cumulative by evolution, as pointed out also by Myrdal (1958) in his theory of cumulative causation.

The themes of cumulative causation and the ethical invocation in economic dealings can be candidates of the disequilibrium model. An example is Sen's (1990) deontological ethics in preference formation. To the utilitarian and Pareto optimal welfare economists the presence of ethics in economics is unwanted. Markets should be left unbridled in its competition.

This is also Nozick's (1974) viewpoint as well, reflected in his concept of moral abhorring. So in the sense of market equilibrium and market efficiency the injection of deontological ethical consequences builds up a disequilibrium state. Now according to Schumpeterean growth dynamics emulating Myrdal's cumulative causation (Toner 1999) disequilibrium side of market equilibrium as evolutionary change continues by injecting ethics into economic theory *a la* Sen's (1990) deontological ethical paradigm.

Along similar lines of evolutionary economic tradition wrote Hayek (see Spechler 1990, p. 194): "The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and

frequently contradictory knowledge which all the separate individuals possess." The tradition of rationality is derived from methodological meaning of rationalism as being knowledge limited and organized by discursive practice solely, and generating an uncertain, incomplete and yet disequilibrium possibilities of innovation and creative destruction persist.

Within all such evolutionary learning models the ethical possibility is either a matter of rationality-based definition and choice from the individual to the social levels, or it is exogenously prescribed not excluding a hegemonic imposition of ethical rules, or equivalently social thought remains independent of ethics and morality. Simply the demands and actions of and by human nature prevail. Thus participation, complementarities and cooperation continue on within competing groups that conflict for the sake of their own wellbeing. It is an outlandish concept of unities formed in isolation of other beings. Historical evolution is described by such evolution of beings in independence of each other. On this issue Maturana and Varela (1992, p. 59) write: "Basic to the phenomenon of replication is the fact that the productive mechanism and the product are operationally different systems, and the productive mechanism generates elements independent of it.... The unities produced are independent of each other."

Up-Winding the Contrasting Ethical Paradigms in Social Thinking

Thus in the end, even by coordination of economic resources to innovate, new discoveries can be as de-stabilizing in the short-run along the path of evolution of the innovative consequences. The particular example of such intervention in the case of a new discovery is the innovative power of ethics and economics and business; this opens up a new regime of thinking and action along the evolutionary chain of possibilities. This way of considering ethics in socio-scientific systems forms a general-system approach. The study then ought to embrace a methodology that is befitting to the general-system approach and that liberates itself from the well-being concept either of utilitarianism or self-interest in a rationalist evolutionary or Pareto optimal concept.

Some writers implicate a sociological nature to ethics in the general-system framework. Ethics is then used in decision-making as organizational behavior along with its market consequences. Ethics as such a system-wide complex behavior is articulated in the words of Herbert Spencer (1978,

p. 166): "From the sociological point of view, ethics becomes nothing else than a definite account of the forms of conduct that are fitted to the associated state, in such wise that the lives of each and all may be the greatest possible, alike in length and breadth."

A glaring impossibility of inducing ethics as endogenous factor in decision-making can be found in the utilitarian type ethical preceptor model formalized by Hammond (1987a, b): Hammond formalizes. Following the utilitarian basis of ethical consequences the following assumptions are made: Every individual 'i' of a community say M(i) is governed by individual ethical characteristics denoted by $\{\theta_i\}$. The material consequences are denoted by $\{x_i\}$, so that the paired ethical-cum-material consequences are denoted by $\{\theta_i, x_i\}$. Corresponding to this the ethical expected utility function is given by $U\left(\theta_{M(i)}, x_{M(i)}\right) = \Sigma_i E\left(U_i\left(\theta_i, x_i\right)\right)$.

Thereby, the social welfare function $W(\theta, x)$ is defined now as order-preserving mapping (a 'functional' in Sen's terminology, 2002) on the total of ethical-cum-material consequences defined over the set of mixed consequences. Thereby,

$$W\left(\theta, x\right) = \Sigma_{M(i)} U\left(\theta_{M(i)}, x_{M(i)}\right) = \Sigma_{M(i)} \Sigma_i E\left(U_{i \in M(i)}\left(\theta_i, x_i\right)\right) \tag{9.1}$$

Here, whereas I denotes numbered individuals, M(i) denotes the totality of all numbered individuals in the community of i-individuals spanned by all communities of the similar type.

Clearly now, although Hammond would like to induce the decision-making by ethical values to span the paired ethical consequences, yet at the end, the form of the resulting welfare functional turns out to be of a utilitarian type. Thereby, the ethical values play their role independently of the material consequences.

Now because of the separable nature of the two-way mappings between consequences, expected utilities, and social welfare (social welfare functional), Hammond's ethics becomes an additive extra in the usual form of the utilitarian form of welfare. That is now,

$$\begin{aligned} W(\theta, x) &= W_1(\theta) + W_2(x) = \Sigma_{M(i)} U\left(\theta_{M(i)}\right) + \Sigma_i U\left(x_{M(i)}\right) \\ &= \Sigma_{M(i)} \Sigma_i E\left(U_{i \in M(i)}\left(\theta_i\right)\right) + \Sigma_{M(i)} \Sigma_i E\left(U_{i \in M(i)}\left(x_i\right)\right) \end{aligned} \tag{9.2}$$

With these separable additive utilitarian components, there is no way for endogenous coordination of decisions, except by subjective assignment of ordinal values to the pure ethical part of expression (9.2) or by assuming a dictator's ethical imposition.

The New Paradigm of Ethical Endogeneity in Socio-Scientific Theory

We liberate ourselves from the ethical dysfunction of almost all of economic theory in respect of endogenizing ethics in socio-scientific thought that overarches across economic and social theory. The prevailing old paradigm of science and society including economics is entrenched in some debilitating postulates that impede continuity in organic learning, a system view of evolutionary learning that is continuously driven by the episteme of systemic unity of knowledge. Such narrow postulates, upon which the entire socio-scientific thought rests, are those of scarcity; of competition as opposed endogenous learning; of the end of novelty and learning that results in every optimizing scenario, or if contrary to this, then the emergent evolutionary disequilibrium causes instability.

Abraham Edel's Ethical Theory

Contrary to the above situation of exogenous or weakly endogenous treatment of ethics in all of socio-scientific thought, we adopt an approach to ethical endogeneity that comes close to that given by Edel (1970). Edel premises ethical theory on the descriptive approach, the analytical approach, the causation approach and evaluative approach. Edel (p. 289) writes: "The Existential Perspectives (EP) of a given ethical theory is its view of the world and its properties, man's nature and condition, insofar as these enter into its understanding of moral processes and moral judgments."

But the methodological model of ethics endogenously integrated and of the nature of evolutionary learning in unity of knowledge that we now formalize is at once conceptual and empirical. That is it blends deductive and inductive reasoning as self-regenerative forces by a systemic, complex holism. This methodological approach also conveys the substantive meaning of ethics as a systemic force in the overarching socio-scientific worldview where unity of knowledge as episteme remains permanently and continuously functioning. The normative and positive reasoning act as self-generating consequence; not imposed exogenously.

Formalizing the Phenomenological Model of the New Paradigm of Ethics as an EP Project

We first situate our description of the phenomenological model of ethics and learning in unity of knowledge by referring to Edel's descriptive and analytical approaches. This is then followed by formalization of the model that invokes Edel's causation and evaluative approaches. Thus the phenomenological model of morality and ethics of the new paradigm we present here combines the ontological and epistemological content along with the rationale for this epistemic choice. This then takes the model to the level of its conceptual formalism followed by its applied capability for the case of wellbeing of Canadian Natives. This particular case study is to establish the fact that the absolute reality of the Qur'an that is embalmed in the *tawhidi* methodology of unity of knowledge between the good things of life is universally applicable to all issues and problems. Thus the particular case study here is to see its application to a rather far-fetched problem. It is of a critical social nature.

The fundamental ontology of the epistemological system under construction is unity of knowledge. The philosophical context of selecting this premise is to bring out the unity of the referential law and of its cause and effects in reasoning and application. Thus the concept of ontology we use is functional ontology (or engineering ontology (Gruber 1993). In doing so, we relegate a metaphysical meaning of ontology to the functional one. We investigate the fundamental issues at the commencement of the constructive and argumentative period: The episteme of the phenomenological way of formalization of the learning mode is unity of knowledge.

Why is it necessary to select the fundamental epistemological premise to be unity of knowledge? The answer is subsumed in the characteristic of universality and uniqueness in this episteme that transcends the rationalistic episteme. The latter otherwise, harbors in every prevailing socio-scientific doctrine.

The functional ontology of unity of knowledge is fundamental because it gives in the phenomenological content the entire domain of unity of knowledge that is treated in the mind and matter as unified inter-causal entities. The evolutionary learning processes are an incessantly embedded one between these categories in this framework of the inter-causality that causes and regenerates unity of being and becoming to continue. We have examined earlier that without a fully democratic behavior based on the reasoned basis and choice by unity of knowledge there is no other way for

the will and choice to get away from the destabilization of the diversity of innovations. The only other way is dissociation between group unities that compete for self-interest or to announce a terminal game by a dictator. Methodological individualism or hegemony abounds as opposed to participatory behavior. These characteristics underlie all kinds of socio-scientific choices. A pervasive system-understanding of ethics in embedded socio-scientific domain is lost. Contrarily, these missing points, particularly the emanation and continuity of the systemic treatment of unity of knowledge by evolutionary learning as the meaning of ethics, are the essential characteristics of the phenomenological domain governed by the episteme of unity of knowledge.

Besides, unification between the Mind and Matter universes generate unity between the good things of life as ordained by the primordial law of unity of knowledge. All those choices that oppose such organic unification to bring about the total wellbeing of self and the other in their full diversity are shunned in everything. Besides, the axiom of epistemic unity of knowledge between Mind and Matter universes and their diverse entities in everything involves selection of appropriate instruments that generate a unified and participatory venue of choices and their sustainability concerning the wellbeing producing good things of life. One could identify such good choices as Rawls' social primaries but without the Kantian dichotomy of reasoning regarding them. Above all, the premise of such unified choices by the mind and matter interaction and realizing evolutionary learning on them under the permanent epistemic unity of knowledge is beautifully encapsulated in Gulen's (2006, pp. 148–49) words:

> We use 'the horizon of hope' to mean traveling beyond the visible dimension of existence, and considering existence as an interrelated whole in the absence of which things and events cannot be perceived as they really are. Nor can its essence and relation with the Creator as well as the relation between them and humanity be grasped. Scientific disciplines that conduct their own discourse largely in isolation from one another and the prevailing materialistic nature of science that has compartmentalized existence and life cannot discover the reality of things, existence, or life.

There is also the significance of the concept of universality and uniqueness associated with the selection of the epistemic origin in unity of knowledge. This is found in the essential character of the endogenous and self-regenerative way of evolutionary learning instead of either a weakly

endogenous one or introduced from outside by an exogenous behavior and force as of a dictator under the condition of independence of irrelevant preferences, policies and institutions.

The answer to the quest for universality and uniqueness of epistemic unity in the phenomenology of the ethical and learning worldview may be seen as the annulment of the Popperian dichotomy of the testing and falsification experience of deductive reasoning by the inductive testability. In the endogenous evolutionary learning worldview of unity of knowledge no such dichotomy exists. Rather, universality and uniqueness of the evolutionary learning paradigm in unity of knowledge is brought out by the self-regenerative evolutionary dynamics by continuous interrelations between the deductive and the inductive in the process of circular causation reproducing this in integration and through interaction.

The example is likened to the circular causation between the trees and the environment playing the role of throughputs. Just as the good environment ingredients can positively influence the growth of the trees; so also the healthy growth of trees causes the healthy conditions of environmental fauna and flora. So plant a tree is the ethical adage!

Such a circular causation process when it imitates into the embedded self-generation between the deductive and inductive reasoning forms the endogenous of self-governing ethical behavior. The *res extensa* path of its continuity conveys the meaning of sustainability. In this way, the episteme of unity of knowledge as the start of the functional ontology leads to understanding, and thereby sustaining the interactive, integrative, and evolutionary learning processes of an organically participative unified socio-scientific world-system. This marks the system perspective of the unified worldview interconnecting Mind (deductive and inductive embedded reasoning) with Matter (the cognitive and materially actualized world-system of unified entities).

A Topological Proof of the Precept of Universality and Uniqueness of Epistemic Unity

There is a topological proof for establishing the universality and uniqueness of the episteme of unity of knowledge and the description and analytics of the ethical existentialist perspectives *a la* Edel (Rucker 1982; Choudhury and Zaman 2009). Briefly stated the idea is like this:

Let a set of state variables $(\mathbf{x}(.))$ together with the emanating basis of the law and pertinent instruments required to carry the episteme of systemic unity of knowledge onto the world-system be described by $(\theta \in \Omega, \mathbf{x}(\theta))$. Any positive monotonic transformation of this set, say denoted by $W(\theta \in \Omega, \mathbf{x}(\theta))$, preserves the mapping within the evolutionary primal space of unity of knowledge denoted by $\{\theta \in \Omega\}$. Then, $dW(.)/d\theta > 0$ along the path of sustainability conveyed by the meaning of continuity of the organic unified inter-causal relations between the variables and their monotonic positive transformations. This generates the processes of cause and effect initiated and regenerated by knowledge that is driven by the episteme of unity of knowledge in the super-space (Dewitt 1992).

Such a superspace comprises the totality of the abstract and actualized knowledge-flows denoted by Ω. Ω is thus the open space that includes $\{\theta_1 \cup \theta_2 \in \Omega\}$; $\{\theta_1 \cap \theta_2 \in \Omega\}$; $\phi \in \Omega$; and $\{\cup \theta_1 \cap \theta_2 \in \Omega\}$. Any order-reserving functional W(.) defined on Ω also exhibits the same properties. Consequently, the sets of the state variables induced by θ-knowledge-variables also the same conditions.

In summary therefore the following holds true along with its positive monotonic transformations: $\{(\theta_1, \mathbf{x}_1(\theta_1)) \cup (\theta_2, \mathbf{x}_2(\theta_2)) \in \Omega\}$; $\{(\theta_1, \mathbf{x}_1(\theta_1)) \cap (\theta_2, \mathbf{x}_2(\theta_2)) \in \Omega\}$; $\phi \in \Omega$; and $\{\cup (\theta_1, \mathbf{x}_1(\theta_1)) \cap (\theta_2, \mathbf{x}_2(\theta_2)) \in \Omega\}$.

Finally, in a limiting consensual, that is integrated learning process value of convergence of knowledge-flows, we can write in the limiting case, $\{(\theta_1 \to \theta_2 = \theta) \in \Omega\}$. Thereby the following result holds: $\{(\theta, \mathbf{x}_1(\theta)) \cup (\theta, \mathbf{x}_2(\theta)) \in \Omega\}$; $\{(\theta, \mathbf{x}_1(\theta)) \cap (\theta, \mathbf{x}_2(\theta)) \in \Omega\}$; $\phi \in \Omega$; and $\{\cup (\theta, \mathbf{x}_1(\theta)) \cap (\theta, \mathbf{x}_2(\theta)) \in \Omega\}$.

Now any positive monotonic functional on the domain $\{\theta, \mathbf{x}_1(\theta), \mathbf{x}_2(\theta)\}$, say $W(\theta, \mathbf{x}_1(\theta), \mathbf{x}_2(\theta))$, such that $\mathbf{x}_1(\theta), \mathbf{x}_2(\theta)$ are organically interrelated by the episteme of unity of knowledge. This is reflected from the level of θ as the Mind to the level of Matter $(\mathbf{x}_1(\theta), \mathbf{x}_2(\theta))$. Let $\mathbf{x}_1(\theta)$ denote the vector of state variables. Let $\mathbf{x}_2(\theta)$ denote the vector of policy and instrument variables as mentioned above. They are required to carry the precept of the good things of life into the world-system.

Because of the organic unity of relationships between the variables $\{\theta, \mathbf{x}_1(\theta), \mathbf{x}_2(\theta)\}$ over evolutionary learning processes caused by θ-values there is a system of complementary relations between the variables. These relations signify the participatory relations caused by the feedback between

the variables signifying that every variable is dependent on the rest of the variables.

Such interactive relations resulting in integration by way of convergence to the θ-value out of discourse and participation that configure the world-system of unified entities are evaluated for the effectiveness of the evolutionary learning experience under the episteme of unity of knowledge by the positive monotonic functional denoted by W(.). But since W(.) and θ are monotonic positive functionals of each other, it is sufficient to estimate θ-value for empirics. Yet W(.) remains the conceptual functional to be understood in terms of the series of equations that explain the structure of unity of relations between the complementary variables concerning Mind and Matter domains.

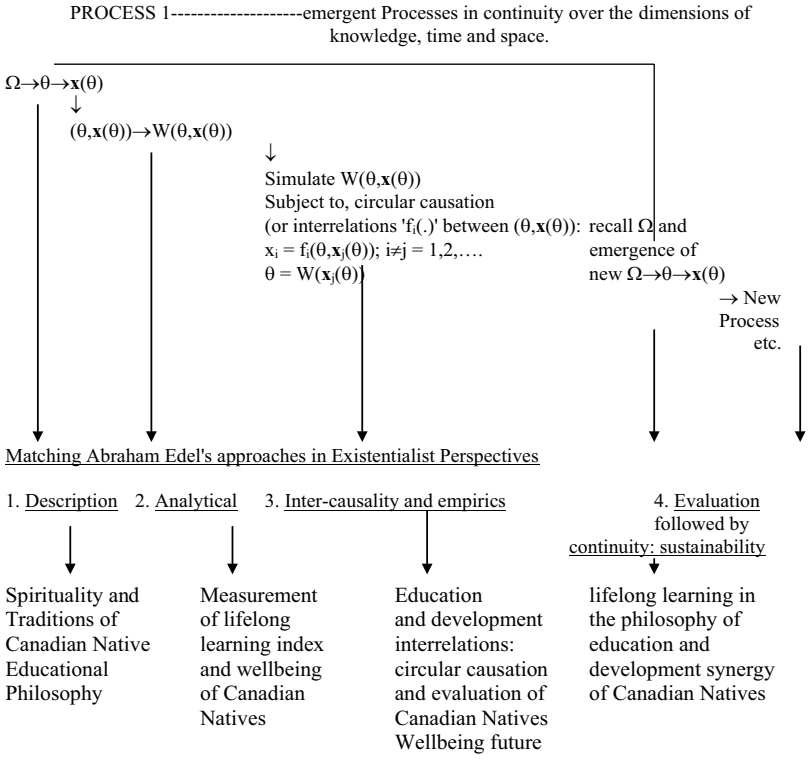
Equivalence Between Edel's Ethical Theory and the Phenomenological Model

The several components of the total phenomenological model now complete all of Edel's approaches to the study of Existentialist Perspectives (EP) of ethics and systems. Besides, the phenomenological construction explained above spans intra-systems and inter-system across unifying diversities over time and evolution of knowledge. Accordingly, the difference in meaning of the dimensions of analysis of the knowledge-induced specificity of issues should be understood. In our phenomenological model of ethics and evolutionary learning, time stands simply as a recorder of events. Time is neither the cause of change nor the measure of change in events. Only knowledge of the epistemic category causes change and induces the nature to the induced variables that occur in space and time.

Conclusively therefore, events occur, that is $\{\theta, \mathbf{x}_1(\theta), \mathbf{x}_2(\theta)\}$ is read and relationally constructed over the dimensions of knowledge, time and space. This conclusion transcends the narrow domain of simply the space-time structure of happenings both of cognitive faculty and materiality (Wallerstein 1998; Einstein undated). The evolutionary learning process in unity of knowledge is replicated with emergent diversity of knowledge and is sustained with unity of knowledge generation as the pervasively recalled episteme *ad-infinitum*.

In Fig. 9.2, we mark out the various approaches proposed by Edel in the theory of Existentialist Perspectives. Yet the phenomenological model of ethical construction in unity of knowledge across Mind-Matter interrelations is a paragon of unity in diversity of both the Mind and Matter domains

with inter-causal relationship between them and their intra- and inter-systemic artifacts. The emergent model is thereby interactive, integrative, and evolutionary across intra- and inter- systems. It endogenously unifies deductive and inductive reasoning in the participatory socio-scientific domain, and establishes testability as empirics to morally and ethically reconstruct a socio-scientific system that has fallen out of unity of their being and becoming features. Social reconstruction by evolutionary learning, the empirical results that are simulated along the evolutionary learning



The Canadian Overarching Discursive and Participatory Model of Wellbeing for Canadian Natives

Fig. 9.2 The phenomenological model of unity of knowledge intra- and inter-systems

path, and the policy, instrumental, and institutional transformations that arise, altogether present a truly politico-economic, world-system and cybernetic study of ethics and the learning process (von Bertalannfy 1974).

An Application of the Phenomenological Model of Unity of Knowledge: Canadian Natives

A significant area of social and economic development of Canadian Aboriginal People is small business enterprises. The phenomenological model of unity of knowledge and the dynamics of evolutionary learning can be effectively applied to the wellbeing and future socioeconomic prospects of the Canadian First Nations People (Choudhury 1997; Choudhury and Noor 1997). The following are the delineations of the various stages of the phenomenological model that can be applied on this theme.

The Canadian Natives have a long history of discursive community for decision-making. A visit to the Mi'kmaq community in Escasoni, Cape Breton will take the visitor to the House of the Elders of this community where grand communal decisions are made. Besides, such decisions are made in the Canadian context and sometime in the Canadian legacy of the global context. Thus the discursive model of Canadian Natives can be identified with a stakeholders' (as opposed to a shareholders') model of participatory decision-making. The episteme of such a participatory discursive legacy is founded on the Native traditions (Canadian Council on Learning (CCL) 2009).

Most emphatically the convergent scenario of the three approaches, namely the traditional holistic learning, the modern integration of this scenario, and the continuity of the same kind of sustainability by integration between the traditional and the modern, is expressed in the following words (op. cit., p. 14): "Based on CCL's three *Holistic Lifelong Learning Models*, which were developed in partnership with Aboriginal learning experts across Canada, the Framework is comprised of three components: *Sources and Domains of Knowledge the Lifelong Learning Journey and Community Well-Being.*

The new framework incorporates elements common to all three learning models, while acknowledging elements that are unique to the learning perspectives of First Nations, Inuit and Métis people. It also provides a shared tool for monitoring progress in Aboriginal communities for future years."

These principles fit in soundly with the episteme of spirituality, which is found central to the holistic way of understanding learning among Canadian Natives. In the phenomenological model of unity of knowledge given in Fig. 9.2 we refer to this episteme of Canadian Native spirituality by the topology of knowledge denoted by Ω. Next we identify the domains of knowledge by the participative learning in which elders and the communities co-determine the learning futures across spirituality, religion, culture and the world. We denote this domain of learning by $\{\theta\} \in \Omega$.

To this foundational epistemic premise is then combined the world as they see it to learn. We denote this by $\{\mathbf{x}(\theta)\}$, and its functional, the positive monotonic transformation, such as the Wellbeing Function of Canadian Native. We denote this by $W(\theta, \mathbf{x}(\theta))$. The lifelong holistic learning is described by the simulation of $W(\theta, \mathbf{x}(\theta))$ given the epistemic governance and its co-determining dynamics. We denote this entire holistic exercise of ethical social transformation from the positive to the normative possibility for Canadian Natives within the Canadian overarching framework of wellbeing, co-determination, and wellbeing. The indicator according to our phenomenological model as is an alternative case with CCL (*A Holistic Approach to Measuring Learning*, chapter 1 of CCL, 2009). We formalize this totality of the wellbeing index under conditions of the episteme and its formalization of the world as should be constructed and normatively envisioned with positive instruments of change as follows: Simulate $W(\theta, \mathbf{x}(\theta))$, which is equivalently a functional transformation for $\theta = F(\mathbf{x}(\theta))$, subject to the circular causation relations of pervasively continuously complementary relations given by:

$$\begin{aligned}
&\text{Simulate}\, W(\theta, \mathbf{x}(\theta)) \\
&\text{Subject to, circular causation} \\
&(\text{or interrelations } `f_i(.)' \text{ between } (\theta, x(\theta)) \\
&x_i = f_i(\theta, \mathbf{x}_j(\theta)); \; i \neq j = 1, 2, \ldots. \\
&\theta = W(\mathbf{x}_j(\theta))
\end{aligned}$$

Finally, the continuity of the Canadian Native educational philosophy is expressed in CCL (op. cit., chapter 3: *The Lifelong Learning Journey*). In our phenomenological model we represent this continuity by the evolutionary learning dynamics in Fig. 9.2. In this way, the totality of the learning and educational philosophy of Canadian Natives is brought to bear

unison with our phenomenological model of unity of knowledge and the unified evolutionary worldview interactively integrating the Mind and Matter domains.

Conclusion: Policy and Institutional Perspectives of Canadian Natives' Future

The endogenous, evolutionary learning and the singular perspective of unitary episteme to chart the phenomenological model of Mind-Matter unity of being and becoming led us to a close equivalence between this model and the two other ones. They are Abraham Edel's discourse on ethical elements of the Existentialist Perspectives. Secondly, we noted the very sound fitting of the phenomenological model to the case of lifelong holistic learning as the philosophy of knowledge of Canadian Natives. The conclusion from these conforming studies is a strong need for self-empowerment by participatory decision and governance of the educational and socioeconomic development domains of the Canadian Natives by themselves within the superstructure of the Canadian wellbeing model. Such participatory evolutionary learning perspectives arising out of spirituality, discourse, and the modern world-system bring out the substantive meaning of endogenous that is self- regenerative and endogenous in nature.

In the phenomenological model of unitary decision-making and organization of the world-system the complementary relationship for Canadian Natives is brought out by the stakeholders' model of participation in the small and microenterprise model of community development within the overarching national framework of social reconstruction. The participatory and thereby empowering element of the stakeholders model involves all who are involved at the community and national levels in uplifting the wellbeing of Canadian Natives. In this, most particularly are the First Nations People, their diverse communities, the public and private sectors, educational and human resource development institutions, and the Canadian superstructure at all levels.

Such a model is most befitting for actualizing the wellbeing of the Canadian Natives within a participatory wellbeing by lifelong education and development. In regard to the immanent social decision-making and organizational behavior in the stakeholders' model Lozano writes (2002, p. 167): "Knowledge is the key resource, one that is linked to people and

their learning processes, and the most suitable paradigm for understanding organizations is no longer the factory or the hierarchical bureaucracy but networks."

On the development scale (Gionet 2009), the small and microenterprises of Canadian Natives fits effectively with both the stakeholders' model of organizational decision-making and the evolutionary learning character of the phenomenological model. The stakeholders' model embedded in the phenomenological worldview satisfies all the elements of the latter as we have explained this in this chapter.

This chapter has thus been able to establish the conceptual and applied perspectives of yet a different functional ontological and epistemological framework of knowledge, community and development. The emergent theory of endogenous ethics and its application are different from the rationalistic origins of evolutionary and both equilibrium and disequilibrium dynamics explained in the survey of the literature that this chapter has undertaken. The generality, universality and uniqueness of the episteme of unity of knowledge in the totality of the phenomenological model thus presented contrast with the local and particular situations of all other doctrines. Besides, despite its epistemic nature and phenomenological abstraction, the emergent model is richly normative and positive in nature. Thereby, it is richly sensitive to policies and instruments of change in social reconstruction.

Notes

1. Foucault defined the term episteme as follows (Sheridan 1972, p. 191): "By *episteme* we mean … the total set of relations that unite, at a given period, the discursive practices that give rise to epistemological figures, sciences, and possibly formalized systems … The episteme is not a form of knowledge (*connaissance*) or type of rationality which, crossing the boundaries of the most varied sciences, manifests the sovereign unity of a subject, a spirit, or a period; it is the totality of relations that can be discovered, for a given period, between the sciences when one analyses them at the level of discursive regularities."
2. Briefly by utilizing functional analysis the idea of intra-system and inter-systemic interaction, integration and evolutionary learning can be explained as follows: For $\{x_i\} \in \cap\{i\}$, with i = a,b,c,…, ∃ continuous functionals $f_i(x_i)$ defined on $\cap\{i\}$. Define $\cup\{i\}$ as interaction over the designated i-space of intersection. Let $\cap\{i\}$ denote integration over the intersection between {i}. Then by the distributive law of set theory,

$\cup_{\#\text{interaction by diversity of participation}} \cap_{\text{integration by interaction}}$ exists over $\{x_i\}$ and $\{f_i(x_i)\}$. Finally, if θ denotes learning in unity of knowledge, then, $(d/d\theta)(f_i(x_i(\theta)) > 0$ continuously across processes of learning. Thus intra-inter system learning in unity of knowledge is established through the medium of interaction and integration.

When these same analysis is applied to set B with its sub-sets a',b',c',... then, $\cap_{\text{integration by intersection}}$ leads to ϕ. Hence, $\cup_{\text{interaction by diversity of participation}} \cap_{\text{integration by intersection}}$ is additive over $\{x_i'\}$ and $\{f_i'(x_i')\}$ almost everywhere (ϕ) in the language of measure theory. Such lateral independence of utilities and goods is the case of the utilitarian perspective.

3. See Schiller (2003) for a simple explanation of the utilitarian welfare function in terms of private good (x_1) and public goods (x_2). Let the probability of occurrence of private good, x_1, be $P(x_1)$ and probability of occurrence of public good x_2 be $P(x_2) = (1 - (P(x_1))$ Then the occurrence of an optimal point between x_1 and x_2 that is Second Best distortion is given by, $(x_1,x_2) = x_1.P(x_1) + (1 - P(x_1)).x_2$ .In the same way, the distribution of utilities or welfare between the private and public substitutes is given by, $W(x_1,x_2) = P(x_1).W_1(x_1) + (1 - P_1(x_1)).W_2(x_2)$. This is a utilitarian welfare (or utility) expression of two welfare indexes (two utility functions).

4. As explained in an earlier endnote, let the variable $\{x_i\} \in \{i\} = a,b,c,... \subset A$. Now for deductive (D) and inductive (I) domains of reasoning, $[D \cap I][\theta] \neq \phi$, with $\theta \in \copyright$ as the primal episteme of unity of knowledge. Thus in notational terms, $(d/d\theta)[D \cap I][\theta] > 0$ with the variables and their knowledge-induced transformations by θ-effect in $\{D \cap I\}[\theta]$.

   On the other hand, with $\{y_{j'}\} \in \{j'\} = a',b',c',... \subset B$, the rationalistic epistemic knowledge-flows, $\{\theta' = (\theta_1,\theta_2)\}$ are disjoint. That is $\theta_1 \cap \theta_2 = \phi$. Likewise, $\cap_j y_j(\theta') \to \phi$, as $\theta_1 \cap \theta_2 \to \phi$. Therefore, $(d/d\theta')[D \cap I][\theta'] = (d/d\theta')[D(\theta_1) \cap I(\theta_2)] \to \phi$. But, $(d/d\theta')[D(\theta_1) \cup I(\theta_2)]$, which in terms of functional relations in the deductive and inductive domains can be written as, $\sum_j W(y_j(\theta_1)) + \sum_j W(y_j(\theta_2)) = W(y_j(\theta'))$. Such an additive form of the welfare indexes as an example of the functional relations of $\{y_{j'}\} \in \{j'\} = a',b',c'... \subset B$ with $\theta_1 \cap \theta_2 = \phi$, and $\{\theta' = (\theta_1,\theta_2)\}$ is the utilitarian form of welfare function. The same formalism also reflects the Kantian problem of synthesis by differentiation between the *a priori* and the *a*

posteriori. The Popperian legacy also follows and so do all Rawlsian, Nozickean and other cases we have examined by their methodological error in premising the entire domain of socio-scientific inquiry in rationalism and relativism of truth.

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CHAPTER 10

Conclusion: The Ultimate Nature of *Qur'anic* Socioscientific Abstraction

Background and Objective

Background

Discussions on the following questions can be found elsewhere. See Choudhury (2009):

(1) What is the Universe?
(2) What is the nature of the dimensions of knowledge, space and time?

Having already been elaborated, these discussions are not re-opened here. Instead, the objective of this chapter is to combine and summarize the answers to the two preceding questions and to provide a Qur'anic exegesis on the nature of the universe as it learns by the episteme of unity of divine knowledge. This episteme is referred to as *tawhid* (meaning oneness of God and of the Divine Law, monotheism) in its relationship to the learning and unifying world-system. Thereby, the universe's structure of knowledge, space and time is studied in relation to opposites: Truth (*haqq*) is weighted against Falsehood (*batil*). These are nonetheless both signs of God (*ayat-Allah*). An extract of the generalized cosmic representation of the problem of phenomenology of unity of knowledge and the world-system is studied here in reference to individual and social preference maps. These are treated in the contrasting order of good preferences and bad

M.A. Choudhury, *Absolute Reality in the Qur'an*,
Palgrave Series in Islamic Theology, Law, and History,
DOI 10.1057/978-1-137-58947-7_10

preferences as determined by human consciousness within the model of unity of knowledge. Such a divine phenomenon is referred to as the relationship between *tawhid* (divine oneness in the Qur'an) and the world-system. Embedded in such a phenomenological relationship there lies the behavioral economics and finance of the conscious decision-maker.

Objective

The objective of this chapter is to formalize the structure of the universe comprising the entirety of the world-systems driven by the epistemology of *tawhidi* unity of knowledge. The extension to the dimensions of knowledge beyond only space and time structure results in a substantive formalism. It implicates the critical theory of how ethics by learning can be endogenously integrated in social financial decision-making. The matrix game as an example given in this chapter brings out the intricate behavioral implications of moral-social economic and financial choice. This topic of behavioral social economics embedded in consciousness of relationships between God, Man and the world-system, although most important for the moral actualization of Islamic choices, has not been studied either by mainstream or Islamic economics and finance.

The Universal Knowledge, Space and Time Curvature in Terms of *HAQQ* (Truth) and *BATIL* (Falsehood)

The universe is the creative continuous domain of signs of God (*ayat Allah*). Those who observe and reflect on the *ayat* are the true believers; whereas those who reject the *ayat* are referred to as disbelievers.[1] Yet none can altogether sidestep the observation of the *ayat*. The universal domain is thus strictly divided between H (*haqq = Truth*) and B (*batil = Falsehood*) in terms of the positive and negative treatment of the *ayat*, respectively.[2]

The degrees of comprehension and rejection of the *ayat* by Truth and Falsehood respectively, are progressively changing from lesser to higher levels of human consciousness. Consciousness is the sure characterization of intrinsic knowledge, which is ontologically premised on divine oneness.

We denote the intrinsic knowledge by θ, which is derived from the stock of complete, absolute, and perfect knowledge (denoted by Ω). The domain of Ω comprises the divine law of oneness. It is represented mathematically as the supercardinal topology, by virtue of its non-configurative

property of absoluteness, yet fully determining what we refer to as 'everything' (Barrow 1991). But the matrix of derived worldly knowledge-flows from Ω via the presence of the Qur'an and the *sunnah* (S = Prophetic guidance), and denoted by {θ}-values derived from (Ω,S), is revealed in the order of unity by organic complementarities between things of the world-system, as they are conceptualized, observed and reflected upon. This combination of formalism and observations is thus induced by the episteme of divine unity of knowledge (*tawhid*). The derived knowledge-flows denoted by θ as the discursively limiting value of $\{\theta\} \in (\Omega,S)$ therefore belong to the consciousness of the unified world-system.

Formalism in the Pure Ontological Universe of Divine Oneness

H(θ) denotes the domain of positive *ayats*, but B has no independent power of its own.[3] B exists as mathematical opposite of H(θ). Therefore, such so-called 'negative' *ayats* are determined by the converse of H(θ). The existence of any of the two (H,B) requires the reflection and observation of the other.

In other words, there exists a feedback mapping (f, f^{-1} in relation to ↔) denoted by (H↔B), such that, B = f(H(θ)), f being the functional relationship of H→B. Therefore, B = B(θ), though in the negative sense of the *ayat*. That is, $dB(\theta)/d\theta < 0$, i.e. as θ↑, B(θ)↓. Besides, for each f there exists a well-defined f^{-1} in relation to each θ-value, such that $f \bullet f^{-1} = I$, identity mapping. But such a relationship is of human determination of Truth as being *perfectly* differentiated from Falsehood.

According to these perfectly differentiated states of Truth versus Falsehood, we define the degree of comprehension of truth (and thereby, falsehood) in the human population as follows:

$$C = H/B = H(\theta)/B(\theta) = (H/B)[\theta] = (H = \alpha \text{ percentage of the total population of believers})/(B = \beta \text{ percentage of the total population of disbelievers})\ [\text{as defined earlier}] \quad (10.1)$$

$$C(\theta) > 0.$$
$$dC(\theta)/d\theta > 0;\ dH(\theta)/d\theta > 0;\ dB(\theta)/d\theta < 0, \text{ as } \theta \longrightarrow . \quad (10.2)$$

The [θ] denotes common functional dependence of all the inner variables bracketed in (.).

In the case of increasing consciousness of the universe with the observers of divine oneness increasing, we obtain: $dC/d\theta > 0$.

The Large-Scale Universe in Knowledge, Space and Time Dimensions

Ultimately, the degree of consciousness of the universe is gained from $\{\theta \in (\Omega,S)\}$ by an intermediate well-defining mapping denoted by S. We now write the well-defined meanings of H,B in terms of the worldly realized configuration of $\{\theta\}$ as follows:

For every $\theta \in (\Omega,S)$ explained in the ontological sense of the purity of (Ω,S), the mapping $S \equiv f$.[4] Affirmation of the *ayats* implies acceptance of $\theta \in (\Omega,S)$, as this knowledge-flows reflect themselves in the world-system of diversity and continuity of potentiality, observation, entities and their relations. We now denote such worldly observed categories by $H(\theta \in (\Omega,S))$. In the epistemic sense of worldly observations there also exist the co-determined reverse mappings $(H \leftrightarrow B)$. But now the reverse mappings are not perfect categories, as previously characterized to yield the identity map I.

We write the resulting *imperfectly comprehended* and observed reverse mappings $(H \leftrightarrow B)$ as, $f \bullet g = \delta > 0$. The implication here is this: man is not perfect in knowledge to understand and observe the perfectly true reality. Thus, man is not utterly and hopelessly damned in the living world when he errs in the face of the divine hope. Yet the mind progressively rises to the conscious self-actualization of the divine truth of oneness in the evolutionary knowledge domain of $\theta \in (\Omega,S)$. Only in the pure ontological sense, that is, in the ultimate decision of God (Hereafter), it is possible for the final state to be established by the representation denoted by $f \bullet g = \delta = I$.

With the above transformations of the pure ontological category into its worldly epistemic meaning of unity of knowledge, we re-write expressions (10.1) and (10.2) as:

$$C(\theta \in (\Omega,S)) = (H/B)\left[\theta \in (\Omega,S)\right] = f \bullet g = \delta > 0, \text{ such that}$$
$$dC(\theta)/d\theta > 0;\ dH(\theta)/d\theta > 0;\ dB(\theta)/d\theta < 0., \text{ for each } \theta \to \in (\Omega,S). \quad (10.3)$$

The Knowledge-Induced Conscious Learning Relationship of the World-System

Consciousness and the consequential world-system rise and fall conjointly, as $\{\theta \in (\Omega,S)\}$ increases or falls, respectively. The result is reflected in the increasing or decreasing values of C. We write the sequences of such complex evolutions by:

$$C_i = \delta_i > 0, \tag{10.4}$$

$i = 1, 2, \ldots$ in the discrete case, or $i \in R$, real space in the continuous sense.

But there is a limiting value of all such categories. This takes place in the penultimate[5] structure of the universe, the Great Event of the Hereafter.[6] That is, as the complex accumulation of $(\theta \in (\Omega,S))$ converges to the ontological state of completeness of knowledge in oneness denoted by Ω, then $H(\Omega) = H^*$; in the ontological pure state of the completed universe in its knowledge, space and time dimensions. H^* is therefore understood in the supercardinal sense. Now, $B(\Omega) = B^*$, as negative entropy in the supercardinal sense. But since H^* and Ω cannot be two different supercardinal states of the same ultimate universe, therefore, $H^* = \Omega$, in the sense of the completed universe in knowledge, space and time. Also thereby, $C(\Omega) = \delta^*$, $dC(\Omega)/d\theta = \{ZEROS\}$[7] of all functional relations of the completed universe in the supercardinal sense.

The supercardinality here means that the completed structure of the final universe is *not exactly* commensurate in form (Rucker 1983). Still, from such a large scale (entropic and de-entropic) universal domain it is possible to derive relational meanings for the world-system (Choudhury 2006, Chapter 2). An example of the super-entropic state of the physical universe, for which no space-time structure exists, is the 'negative' energy quanta, as of the inside of the Black Hole (Wald 1992).

The implication here is that as the learning universe moving towards the consciousness of divine oneness, the idea of Falsehood disappears. Falsehood is destroyed by the reversal of entropy in the pure ontologically completed universe of divine oneness. The universe then attains its net worth. This is the quality of Pure Truth. In it, Falsehood is destroyed as an entropic complement of truth: $H\uparrow$ to its supercardinality dimension; and $B\downarrow$ to its entropic zeros of relations. Consequently, $(H/B)\uparrow$ to supercardinality, as $H \rightarrow H^* = \Omega$, and the identity I-map is established in its pure form, as shown above in the case of ontological purity.

Continuous Transformation of Discrete Evolution of the Conscious World-System

In the continuous case of learning by $\{\theta \in (\Omega,S)\}$, the learning universe moves inexorably towards its ultimate goal of the Hereafter. Continuity of the learning universe here rests primordially on knowledge-flows, $\{\theta \in (\Omega,S)\}$. This in turn determines the space and time structure (*ayat* of a positive nature). The heightened consciousness and its annulment of falsehood over the pervasively evolutionary complementing world-system across knowledge, space and time dimensions causes the δ-trajectory to learn and evolve from the point of pure ontological super-cardinal origin of (Ω,S) to the world-system of *ayats* existing in evolutionary knowledge, space and time dimensions, finally moving towards the ultimate convergence in the super-cardinal universe of the Hereafter.

Such an evolutionary learning trajectory of rising universal consciousness towards the attainment of truth and the evanescence of falsehood is denoted by the continuous dynamic movement of the consciousness trajectory over the expanse of the knowledge, space and time dimensions.

The evolutionary result combining the pure ontological Beginning, the world-system, and the pure ontological equivalence of the Hereafter is formalized as follows:

$C((\theta,\mathbf{x}(\theta))\in$relational order of unity of knowledge denoted by

$$\{(\Omega,S) \to \text{world system} \to (\Omega,S)\} = \delta(\theta) \tag{10.5}$$

Such that, $\mathbf{x}(\theta)$ = (space x_i, i = 1, 2, …; time t, all as entities induced by knowledge flows θ of divine oneness ≡ *ayat*);

$$\begin{aligned} &dC(\theta,\mathbf{x}(\theta))/d\theta = \Sigma_i\left[(dC/dx_i).(d\mathbf{x}/d\theta)\right] \\ &dH(\theta,\mathbf{x}(\theta))/d\theta = 0; dB(\theta,\mathbf{x}(\theta))/d\theta < 0. \end{aligned} \tag{10.6}$$

Note in the above expressions that we have generalized the forms by introducing $\{(\theta,\mathbf{x}(\theta))\}$. This is due to the phenomenological context of expression (10.7) and its details that are projected on H, B, C when related to the world-system. The properties of topological learning (knowledge), continuity (time) and pervasiveness (space) conveyed by expression (10.7) is also carried over and extended in the most generalized system of organic relations. All these are uniquely premised on the episteme of unity of knowledge in relation to the world-system. This episteme is the

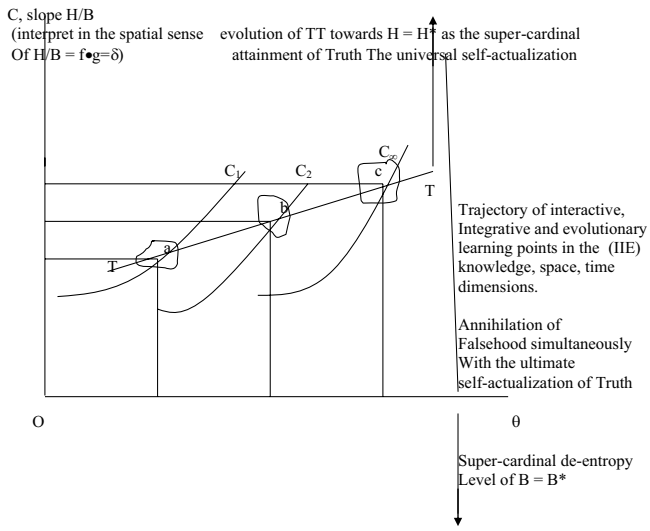

Fig. 10.1 Dynamics of the '*tawhid*→world-system→*tawhid* = Hereafter' relation

tawhidi origin and completeness. It is recreated in the Hereafter, and is used to simulate the intermediating world-system of 'everything', namely $\{(\theta, \mathbf{x}(\theta))\}$. The elements in such a vector, matrix and tensor representation enter the simulation of the wellbeing function, $W\{(\theta, \mathbf{x}(\theta))\}$. The simulation is done by circular causation between the $\{(\theta, \mathbf{x}(\theta))\}$-variables *ad infinitum*. Figure 10.1 summarizes such properties across the knowledge, space and time dimensions of evolutionary learning processes.

Figure 10.1 shows the movement of degrees of the self-actualizing universe in the midst of divine oneness as it is projected in the pure ontological sense and in terms of its relationship with the world-system[8]:

An Application of the *Tawhidi* Phenomenological Model: Islamic Behavioral Economics and Finance

An example of a worldly relation derived from the phenomenological explanation of unity of divine knowledge can be found in Islamic economics, finance and world-system studies. This field of intellection is filled with many examples of which we examine one here.

Consider two kinds of preferences (consumer, community, wellbeing and social choice, principal-agent, and firm-specific). One set of preferences is ethically induced by the understanding of the world-system as an organic unity caused by the good things of life that are all induced by the episteme of unity of knowledge. This set of preference maps denotes $H(\theta)$.

The second set of preferences is a hedonic one, styled by self-interest, competition and individualism. These two sets of preferences are opposed to each other. However, since the knowledge flows of our experiences bear no perfection, learning in conscious oneness must always and everywhere remain evolutionary. Such preference maps, particularly characterized in neoclassical economics and also transferred to the marginalist foundation of macroeconomics (Dasgupta 1987) are denoted by $B(\theta)$.

The above-mentioned model of universal consciousness of divine oneness is now described by the expressions (10.1)–(10.6). The example of the premise denoted by $\theta \in (\Omega, S)$ is the divine law, called the *shari'ah* (Islamic Law). The *shari'ah* is thus taken to be the core of the *qur'anic* Law rather than a humanly developed (*fiqh*) Islamic Law (Ghazzali trans. Zidan 1997). The *shari'ah* has its objectives and purposes called the *maqasid ash-shari'ah* (Masud 1984). In our model, the *maqasid ash-shari'ah* are denoted by the increase in the epistemic knowledge of divine oneness and its induced world-system with particulars denoted by,

$$\left(\theta, \mathbf{x}(\theta)\right) \in \left\{(\Omega, S) \rightarrow \text{world-system} \rightarrow (\Omega, S)\right\} \tag{10.7}$$

The *maqasid ash-shari'ah* thus defined are evaluated by means of their criterion of meeting the wellbeing objective, termed *maslaha* (Masud, op cit). In our model, *maslaha* is defined by $C(\theta, \mathbf{x}(\theta))$. This is also denoted by $W(\theta, \mathbf{x}(\theta))$. The certainty property of *maslaha* with the underlying functions of ethical preference induction and its effects on market transformation, institutional structuring, policy-making and human resource development is denoted by the functions, $dC(\theta, \mathbf{x}(\theta))/d\theta > 0$, $dH(\theta)/d\theta > 0$; $dB(\theta)/d\theta < 0$, as $\{\theta \in \Omega, S)\}$ increases.

The end goal of the *maqasid ash-shari'ah* and of *maslaha* is actualization of the divine bliss in the Hereafter. It also has the goal of translating the relations of the laws and consequences of this divine bliss into the preferences of a good society. The measure of this worldly bliss is the attainment of self and society under the episteme of unity of knowledge. This kind of causality equivalently arises from the ontology of the oneness

of God (*tawhid*) and from the epistemology of organic unity of the world-system and 'everything' therein in light of the *shari'ah*. The *shari'ah* thus defines the functional ontology, which is reflected and observed in the learning towards unified preferences of self, community, society, institutions, diverse markets, and the nature of policies and social choices.

As explained by Fig. 10.1, the super-cardinal relations between Truth and Falsehood lead to the inevitable destruction of Falsehood. In this manner, the accomplishment of man in relation to the universe rises to the net worth of universal consciousness. Within this universal attainment, preferences attain patterns emanating from the evolutionary learning universes that are never optimal in nature. The optimum exists in the relational concept of super-cardinality at the Great Event of the Hereafter and in the Originary Event of *tawhid* as the primal ontology.[9]

There is still another instance where optimality exists. This is the instantaneous happening at the core of the unknown. But this *hidden core* called *ghayb* in the Qur'an is not unraveled to the universe and its agents. It is in the custody of God alone.[10]

In the mundane world, the above phenomenological facts are demonstrated by the futile impossibility of socio-scientific models to attain exact forecasts and predictions to which they endeavor (Mach 2008; Soros 1998). In our phenomenological case of the learning world-system in unity of knowledge, complexity replaces the outmoded linear models of scientific conceptions (Bertuglia and Vaio 2005). Indeed, today science has become a study of the process of change (Hull 1988). Evolutionary cybernetic and system-views have replaced the orthodoxy of optimality (Johannessen 1998; Shakun 1988; Campbell 1987).

According to the phenomenological model of unity of knowledge (*tawhid*), the various curves of Fig. 10.1 are described by simulative perturbations, as learning proceeds on towards the Hereafter through the medium of learning relations of the world-system. This learning continuity is implied by expression (10.7).

Individual preferences and social choices, and consequently, their impact on markets, exchangeables, society and institutions attain similar transformations. Consequently, the *maslaha* (wellbeing) functions are now denoted by the learning criterion,

$$\text{Simulate } C\big(\theta, x(\theta)\big) \tag{10.8}$$

subject to iterations by circular causation between the variables, $(\theta,\mathbf{x}(\theta))\in\{(\Omega,S) \rightarrow \text{world-system:} \rightarrow (\Omega,S)\}$:

$$x_i = f_i\left(\theta, \mathbf{x}_j(\theta)\right),\ i \neq j = 1,2,\ldots,n\left(\text{number of variables in the } \mathbf{x}(\theta) \text{ vector.}\right) \quad (10.9)$$

$$\theta = g(\mathbf{x}(\theta)), \text{which in the end is a monotonic positive representation of } C(\theta,\mathbf{x}(\theta)). \quad (10.10)$$

$C(\theta,\mathbf{x}(\theta))$ now denotes the system of preference maps in ethical and social choices, subject to the progressive actualization of unity of knowledge, that is complementarities, between the knowledge-induced variables. This unifying experience is realized by circular causation dynamics of the relations in expression (10.9). Expression (10.10) implies that the *maslaha* is estimable. Therefore, policies and institutional changes and revisions of structures are possible in $C(\theta,\mathbf{x}(\theta))$. $C(\theta,\mathbf{x}(\theta))$ is synonymous with the function, $\theta = g(\mathbf{x}(\theta))$. In empirical works to estimate expression (10.10), a combination of structural multiple regression analysis along with Spatial Domain Analysis have been used for the complete simulation exercise of expressions (10.8)–(10.10) (Choudhury and Hossain 2006).

An Example of Transformational Inter-Reversibility Between Truth (H(θ)) and Falsehood (B(θ))

The transitional form of the (H,B)[θ] relationship in Fig. 10.1 and as implied by expression (10.7) implies that it is possible for either H and B to change sides. A false entity has scope to reject itself and revert to a good entity. Likewise, a good and true entity can demise into a false entity. These reversals can continue on in cycles, but with an ultimate convergence in respect of the discursively limiting derived values of $\{\theta \in (\Omega,S)\}$, as in expression (10.7).

An example of such transformational reversals is the reverse entropy caused by mankind's return to a sustainable and conscious consumption, production and resource mobilization, ownership and equitable distributional patterns in socioeconomic development (Hossain et al. 1998). Such return to sustainability carries along with it transformational reversals in all possible entities, institutions, and individual and social preferences. Thus $B(\theta) \rightarrow H(\theta)$. For such a transformation we assign a payoff of 1 to $B(\theta)$.

The payoff to H(θ) too is 1. Hence we have a matrix payoff of (1,1) for such a transformational reversal.

Likewise, it is possible to have a reversal of the type H(θ)→B(θ). In such a case, the matrix payoff is given by (0,0). An example of such a case is the good planet earth turned into ecological disaster.

The matrix payoff (1,0) stands for perpetuation of (H,B)[θ] across the usual Good, Bad combination. An example here is of the good earth perpetuating into a productive one in perpetuity; while the bad earth perpetuates into degraded earth.

The matrix payoff (0,1) stands for the reversal of a H(θ) situation into B(θ), as of Good entities becoming Bad ones; while a Bad situation reverts to a Good one. An example here is of the good earth being degraded into barren one; and a barren earth being reverted into productive one.

In respect to the above explanation of transformational reversals, Fig. 10.2 gives the various matrix payoffs.

The payoffs associated with a_{ij}, i,j = G,F are interrelated across nexus of relationships and no independence is allowed for in the organic sense of systemic relationship. This is the implication of simulation of wellbeing subject to circular causation between the variables (*ayat*) underlying expressions (10.8)–(10.10).

Consequently, the usual meanings of game-theoretic solutions by minimax and maximin games are untenable (Osborne and Rubinstein 1994). The Nash-solution for steady-state equilibrium in the payoff matrix is likewise untenable (Shubik 1989). In the Prisoners' Dilemma game applied to the problem of transformational reversibility, coefficients a_{GG} and a_{GF} are acceptable, but relational causality exists. Therefore, a_{FF} is unacceptable in the sense of transformational reversibility.

The results obtained have important implications in non-optimal games that essentially explain the relational learning consequences of knowledge-induced coefficients of payoffs (Osborne and Rubinstein 1994). The analytical result also implies that the circular causation equations of expression (10.9)–(10.10) must be taken in their structural econometric forms. Reduced forms cannot be well-defined.

These are significant results for quantitative policy analysis. They also define the domain of institutional political economy involving the Islamic epistemic foundation to problems of economics, finance, society and science (Choudhury 2007). The findings derived apply to the problem of preference maps and to wider problems of decision-making under learning processes.

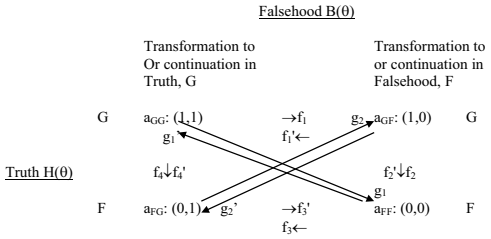

Fig. 10.2 Matrix payoffs for transformational reversals between (H,B)[**θ**] combinations over good and bad states of nature

The following are the payoffs against each of the matrix entries with conditional probabilities (Hogg and Craig 1965):

$$\text{Payoff}\left(a_{GG}\right) = p_1\left(G \mid G\right)*1 + p_2\left(G \mid F\right)*1; \text{ where pi}\left(x \mid y\right) \text{ denotes the conditionality probabilities for the two contingencies } G \mid G \text{ and } G \mid F, \text{respectively.} \tag{10.11}$$

$$\text{Payoff}\left(a_{GF}\right) = p_1\left(G \mid F\right)*1 + p_2\left(F \mid G\right)*0; \text{ where the conditional probabilities have similar meanings as above for the cases as shown.} \tag{10.12}$$

$$\text{Payoff}\left(a_{FG}\right) = p_1\left(F \mid G\right)*0 + p_2\left(G \mid F\right)*1, \text{ with similar meanings for the conditional probabilities for the cases shown.} \tag{10.13}$$

$$\text{Payoff}\left(a_{FF}\right) = p_1\left(F \mid G\right)*0 + p_2\left(F \mid F\right)*0, \text{with similar meanings for the conditional probabilities for the cases shown.} \tag{10.14}$$

The above payoffs refer to the cross causality as shown in Fig. 10.1. This suggests that payoffs according to different possible transformational reversibility are functionally related. This allows for reconstructions of preferences at all levels by circular causation, while allowing for adverse possibilities in prevalent states of contingency.

As an example, consider the following result; the rest can be worked out:

$$g_1 = f_2 \bullet f_1 \Rightarrow$$
$$\text{Prob}(g_1) = \text{Prob}(f_2 \mid f_1) * \text{Prob}(f_1)$$
$$= \left[\text{Prob}(a_{FF} \mid a_{GF}) + \text{Prob}(a_{GF} \mid a_{GG})\right] * \text{Prob}(a_{GG}) \quad (10.15)$$

The Qur'an[11] characterizes states of variations between highs and lows of moral achievement representing human possibilities affecting the reversibility of preferences and their artifacts in the world-systems. Conditional probabilities and their payoffs are associated with such diverse possibilities defining transformational reversibility.

Conclusion: Knowledge, Space, Time Curvature of the World-System

The socio-scientific world-system in which are embedded the economy, finance and society manifests an interactively integrated and evolutionary domain that is graduated by circular causality between sub-systems and their entities via learning and unification. Consequently, the extended and evolutionary form of the $C(\theta,\mathbf{x}(\theta))$-function occurs across diverse sub-systems. These include the hardcore sciences, as in the case of developing technology, and the social sciences as in the case of choices of institutional structures. The latter comprises the area of policy-making, decision-systems, etc. The preference maps denoted by simulated values of $C(\theta,\mathbf{x}(\theta))$-curves in Fig. 10.1 show simulative perturbations. Thereby, the interactively integrated and evolutionary (IIE) learning relations in unity of knowledge across complementary sub-systems attain curvatures with simulative perturbations.

Therefore, the learning and unifying socio-scientific universe in knowledge, space and time dimensions has no steady-state curvature, as otherwise described by relativity physics and the non-process representation of physical and social sciences.

Rather, the Qur'an (13:1-5) explains the conscious universe as an interactively integrated and evolutionary (IIE) nexus, whose IIE-learning experience is gained through the process of learning in unity of knowledge. Such a process marks the phenomenology of unity between the divine law, *tawhid*, and the world-system.

This kind of learning dynamics is marked by the realization of $H(\theta)$ moving inexorably towards H^*, as shown in Fig. 10.1. The *Qur'an*

characterizes the opposite of this worldview by B(θ), which dissolves into disorder in the face of H(θ). B(θ) thus moves perpetually and continuously towards its entropic end-state in B* at the Event of the Hereafter. Thus, *tawhid* and the Hereafter as equivalent super-cardinal ontologies of perfection of purely unified knowledge are the Great Events of Reality.[12]

Notes

1. Qur'an (6:39): "Those who reject our Signs are deaf and dumb,—in the midst of darkness profound: whom God wills He leaves to wander: whom He wills, He places on the Way that is Straight."
2. Qur'an (53: 19-20): "Have you seen Lat, and Uzza, and another, the third (goddess), Manat?" These are negative signs. Signs of God are pervasive: *Qur'an* (41:53): "Soon will We show them Our Signs in the (farthest) regions (of the earth), and in their own souls, until it becomes manifest to them that this is the Truth. Is it not enough that your Lord does witness all things?"
3. Qur'an (2:38-39) declares that Satan (Falsehood) has no independent power of its own.
4. *S* is the *ontological mapping* of Ω, the divine law, onto the world-system through the *functional* ontology of derived knowledge of oneness in its pure and phenomenological sense of relating to the events of world-system. S is referred to as the *Sunnah*, the guidance of the Prophet Muhammad. The core as the purpose and objective of the *shari'ah*, known as *maqasid ash-shari'ah*, is thus the topological bundle of knowledge and the world-system denoted as follows:

   $\left\{\Omega \to_{s} \left\{\theta\right\}\right\} \to \mathbf{x}\left(\theta\right) \to_{w} \mathrm{W}\left(\theta, \mathbf{x}\left(\theta\right)\right) \to$ recursive continuity in knowledge, space and time until the Hereafter}.

   The functional meaning of the *shari'ah* also involves human agency of textual interpretation and exegesis, say an extended functional mapping:

   $\left\{\Omega \to_{s} \left\{\theta\right\}\right\} = \left(\Omega, \mathrm{S}\right) \to \left\{\theta\right\} \to_{f} \left\{\theta^{*}\right\} \to \mathbf{x}\left(\theta^{*}\right) \to_{w} \mathrm{W}\left(\theta^{*}, \mathbf{x}\left(\theta^{*}\right)\right) \to$ recursive continuity by discourse in knowledge, space, time until the Hereafter}.

   The idea of discourse is taken up in two meanings, namely, discourse as consultative agency called the *shura* (*Qur'an*, 42:38), and intrinsic organic complementarities and unifying interrelations between 'everything' called God-consciousness (also worship), that is '*tasbih*' (*Qur'an*, 42:49–53) The

two meanings and functions exist in inexorable complex organic ontology. Together they form the phenomenological model of the universe.

While, $\{\Omega \rightarrow_s \{\theta\}\} = (\Omega,S) \rightarrow \{\theta\}$ as the core of the *shari'ah* forms the *maqasid ash-shari'ah*; the organic form of the *shari'ah* being $\{\Omega \rightarrow_s \{\theta\}\} = (\Omega,S) \rightarrow \{\theta\} \rightarrow_f \{\theta^*\} \rightarrow \mathbf{x}(\theta^*) \rightarrow_w W(\theta^*, \mathbf{x}(\theta^*)) \rightarrow$ recursive continuity by discourse in knowledge, space, time until the Hereafter}; the wellbeing function, *maslaha*, is denoted by $W(\theta, \mathbf{x}(\theta))$.

5. The universe's destiny in the Hereafter may be referred to as both ultimate and penultimate. This is because the Hereafter is not itself an end, but a perpetual continuum within God's optimal blessings, which are of no end.
6. *Qur'an* (78:1–5): "Concerning what are they disputing? Concerning the Great Event (News), about which they cannot agree. Verily, they shall soon (come to) know! Verily, verily they shall soon (come to) know!"
7. The theorem can be stated as follows: If the functional $p(x) \in S$, where S denotes the set of polynomials less than degree 'n' with the property that $p(0) = 0$, then S is non-empty, since it contains the zero polynomial. S is then a non-empty subspace of p_n, with, $\{a.p(0)\} = \{a.0\} = \{0\}$. Thereby, $(p_1 + p_2 + \ldots + p_n)[0] = p_1(0) + p_2(0) + \ldots + p_n(0) = 0 + 0 + \ldots + 0 = \{0\}$, set of zeros of the polynomials in S.
8. Points like a, b, c, … along the Interactive, Integrative and Evolutionary (IIE)-trajectory are evolutionary equilibrium points of learning processes along the knowledge, space and time dimensions. Thereby, the families of C-curves form perturbation surfaces. So also the TT trajectory and the $(H/B)[\theta]$ relations in respect of entropic and de-entropic universes are characterized by incomplete learning. Only discursive behavior marks these learning processes. Here discursive behavior is experienced both by human agency as well as inanimate entities. In both cases discursive behavior in reference to the *tawhidi* episteme is signified equivalently by unity of knowledge, participation and pervasive complementarities all existing in continuous perpetuity in 'everything' across the knowledge, space and time dimensions.
9. *Qur'an* (92:13): "And verily unto Us (belong) the End and the Beginning."
10. *Qur'an* (39:63): "To Him belong the keys of the heavens and the earth … ."
11. Qur'an (95:1–8).
12. Qur'an (78:1).

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