Spiritual Rationality: Integrating Faith-Based and Secular-Based Problem Solving and Negotiation as Systems Design for Right Action

MELVIN F. SHAKUN
Leonard N. Stern School of Business, New York University, 44 West 4 Street, New York, NY 10012-1126, USA
(E-mail: mshakun@stern.nyu.edu)

Abstract

Faith-based (spiritual) and secular-based (rational) approaches to problem solving and negotiation are commonly viewed as strongly conflicting approaches. While analysis is used in faith-based problem solving, problem solutions can come directly from God (One, all there is) in which case advocates say that analysis is not really necessary. Problem solutions can also come from religious laws and practices providing values that serve as intermediates/surrogates (Section 11) for connectedness with God. These religious laws and practices are based on analysis and interpretation – much of it quite rational – of God's word/scriptures, the latter providing religious axioms. Axioms for secular-based problem solving follow scientific method. Faith and secular belief systems differ, but share some values. For advocates of secular-based problem solving, faith-based solutions (actions) that differ from the results of their own rational analyses are hard to accept. Rationality and spirituality represent different brain capabilities. Extending rationality to spiritual rationality can integrate these capabilities. With spiritual-rationality problem solving, an individual – whether his orientation is primarily faith-based or secular-based – validates a problem solution both rationally and spiritually for right action (decision) using a spiritual rationality validation test. If the solution is not valid, the individual continues problem solving trying to validate spiritual rationality of a solution.

With spiritual rationality both a faith-based advocate and a secular-based advocate can each achieve internal consistency of rationality and spirituality. Conflict between them could still exist. However, their common adoption of spiritual rationality and the Evolutionary Systems Design (ESD) framework – providing a common methodology that highlights high-level purpose shared by individuals – can facilitate problem evolution leading to group agreed-upon solution (right action).

The core axiom of ESD/spiritual-rationality problem solving is that individuals (agents) have a shared inherent purpose to experience connectedness with One. In integrating spirituality and rationality, spiritual rationality – by validating right action in problem solving and negotiation – can help maintain connectedness with One as shared inherent purpose in an individual's life.

Key words: spiritual rationality, right action (decision), faith-based and secular-based problem solving and negotiation, Evolutionary Systems Design

1. Introduction

Individual and group conflicts are everywhere. Considering the United States, for example, polarizing conflicts are common. These are conflicts in substance – values and decisions/actions to take to achieve these, and in methodology – how to go about making decisions (problem solving). Americans are polarized internally among themselves and

externally with others in the world. The 2004 U.S. presidential election underscored this non-connectedness. The problems are not easy. However, there is an approach to individual and group problem solving and negotiation that can help bring connectedness and agreed-upon right actions. This involves experiencing and modeling/designing problems as systems in an innovative way. Rationality, normally meaning cognitive rationality, is extended to spiritual rationality within a general formal modeling/systems design framework, Evolutionary Systems Design (ESD), for problem solving/negotiation. This is what we shall discuss here building on Shakun (2001, 2003, 2004).

Regarding methodology, Suskind (2004) discusses what he terms faith-based and reality-based (secular) problem solving. With the latter, decisions are based on analysis/decision science where axioms follow scientific method. With the former, while analysis is used, decisions (problem solutions) can come directly from God (One, all there is) in which case advocates say that analysis is not really necessary. Decisions can also come from religious laws and practices providing values that serve as intermediates/surrogates (Section 11) for connectedness with God. These religious laws and practices are based on analysis and interpretation – much of it quite rational – of God's word/scriptures, the latter providing religious axioms. Faith and secular belief systems differ, but share some values. Faith-based and analysis-based approaches are viewed as conflicting approaches. Suskind argues that President George W. Bush primarily uses faith-based (spiritual) problem solving. For those who use analysis-based problem solving, faith-based decisions/actions that differ from the results of their own rational analysis are hard to accept. Spiritual rationality with the ESD framework can integrate secular-based (rational) and faith-based (spiritual) approaches – a decision maker validates decisions/actions both rationally and spiritually. Conflicts in substance between decision makers are still possible. However, common adoption of spiritual rationality and the ESD framework – providing a common methodology that highlights high-level purpose shared by individuals – can facilitate problem evolution leading to group agreed-upon right action.

In Section 2, we introduce agents/systems. We develop Evolutionary Systems Design in Section 3 and discuss its computer implementation in Section 4. Section 5 discusses agents as related to consciousness, connectedness and spirituality. Sections 6 and 7 discuss purpose in the ESD framework. In Section 8 we introduce spiritual rationality, and in Section 9 use it in right problem solving leading to right action. Section 10 presents a spiritual rationality validation test and its simplified version. In Section 11 we further discuss spiritual rationality, right problem solving and right action. Section 12 presents concluding remarks.

2. Agents and Systems

An agent constitutes energy/matter/consciousness (Section 5). A system consists of agents and their connectedness. An agent itself is a system comprising other systems (components) and is itself a system (component) in other systems. Agent/system is a subjective experience of an agent. Metaphorically, an agent creates a system when the agent connects the dots. Mathematically, a system is a set of elements and their relations [corresponding metaphorically to the dots (elements) and their connectedness (relations)]. A relation is a

subset of a Cartesian product of sets. A process is a time description of a system, i.e., a dynamical system. Physically, system elements are agents.

As energy/matter/consciousness, agents/systems are capable of action. Adaptive agents/systems change their action to cope with change in action of other agents/systems constituting their external or internal environment in order to attain purposes (intended desired results). When adaptation includes change through cybernetic positive feedback/feedforward and self-organization as well as cybernetic negative feedback/feedforward, we say the agent/system is complex. Adaptive systems that can choose their own purposes are purposeful. Hence, we have Purposeful Complex Adaptive Systems (PCAS) engaging in *cybernetics/self-organization* choice of purposes and the means (other purposes) to attain them, i.e., PCAS are capable of purposeful, complex, adaptive systems design/action.

3. Evolutionary Systems Design

Evolutionary Systems Design (ESD) is a general formal modeling/systems design framework for problem solving and negotiation. The ESD general framework (general problem representation, structure or system) can be applied in defining (designing) and solving specific problems in individual and group decision and negotiation.

A problem may be represented by an evolving system involving relations between sets of elements, as (1) *players*, *agents*, decision makers or negotiators; (2) *values* or broadly stated desires; (3) *goals* or specific expressions of these values; (4) *controls (decisions, actions)* taken to achieve these goals and values; (5) *criteria* based on goals for evaluating the effectiveness of decisions; (6) *individual preferences* defined on criteria; and (7) *group or coalition preference* defined on individual preferences. Sometimes goals and controls are the same. The ESD general problem representation (system) may be shown as two evolving hierarchies of relations. Hierarchy 1 (see Figure 1)is a framework for defining (designing) a problem in the general sense of defining values to be delivered in the form of goal variables by exercising control (decision, action) variables. Hierarchy 2 (Figure 2)is concerned with finding a solution – finding the levels or particular values of the control and goal variables as currently defined in hierarchy 1. The problem representation (hierarchies 1 and 2) may be individual or group (joint).

The setting under consideration involves N players (agents) in an evolving multiplayer decision problem (game). The number N and the particular agents can change over time. Drawing on Shakun (1988, 1990, 2004), a subset of the N players can try to work together and form a group (coalition) C which can comprise anywhere from one individual player to the grand coalition of all N players. Group C may change over time. Other players not in C can themselves form one or more coalitions designated Cbar.

For example, suppose that five players are not in C. They could form a coalition Cbar of the five players. C could negotiate with this coalition. Another possibility is that Cbar could consist of two coalitions each of two players and one individual player (a "coalition" of one). The C vs. Cbar game could involve C in three bilateral negotiations; or the C vs. Cbar game could be a four coalition-player multilateral negotiation.
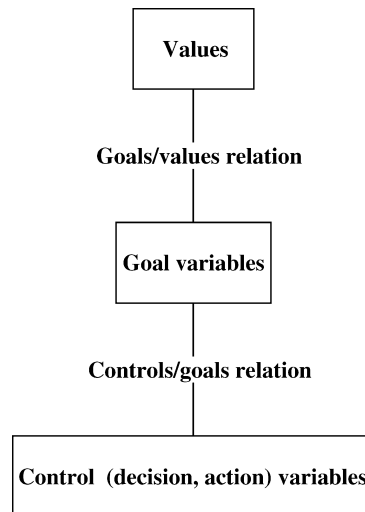
Figure 1. Hierarchy 1 relation between control variables, goal variables, and values.

Problem solving is *systems design* is *cybernetics/self-organization*. ESD involves evolution (successive designs) of the group problem representation/system – evolution of the sets of elements and their relations represented in evolving hierarchies 1 and 2 – through *cybernetics/self-organization*: (a) problem adaptation through learning associated with cybernetic negative feedback/feedforward, as through information-sharing and concession-making; and (b) problem restructuring or reframing (evolution) associated with cybernetic positive feedback/feedforward and self-organization. In ESD, cybernetics/self-organization is described by a general mathematical model – as a dynamical system (general problem representation) expressing the evolving hierarchies 1 and 2 as an evolving difference game with a moving present. In working on a specific problem, group (coalition) C uses this general mathematical model to develop its evolving problem representation and choose controls to play against (offer) Cbar. Hierarchies 1 and 2 may be thought of as group C's snapshot of its evolving dynamical system at the current present.[1]

Group C plays a noncooperative game against Cbar. The ESD model is prescriptive-descriptive (Raiffa 2002) – prescriptive for group C in making choices based on its descriptive predictions of the behavior of Cbar. Within C, players play a within-coalition C game whose agreed-upon solution constitutes the control for C to play against (offer) Cbar. Within group C, the individual agents – in general having different views (problem representations) – can play a cooperative game meaning enforceable agreements are permitted; otherwise the within coalition C game is noncooperative. The formal group C (joint) problem representation is based on the union of its formal individual-player problem representations.[2] The latter include estimates (predictions) by the respective individual players of the set of controls (or subjective probabilities on this set) useable by Cbar. These are the basis of C's prediction of the set of Cbar's useable controls.

```
┌─────────────────────────────────────────────┐
│ Coalition (group) preference: compromise solution │
└─────────────────────────────────────────────┘
                        │
            Coalition preference structure
     (game theory, social choice, concession-making)

              ┌─────────────────────┐
              │ Individual preferences │
              └─────────────────────┘
                        │
            Individual preference structures

                   ┌──────────┐
                   │ Criteria │
                   └──────────┘
                        │
               Goal/criteria relation

                   ┌─────────┐
                   │  Goals  │
                   └─────────┘
                        │
                   Technology

         ┌──────────────────────────────┐
         │ Controls  (decisions, actions) │
         └──────────────────────────────┘
```
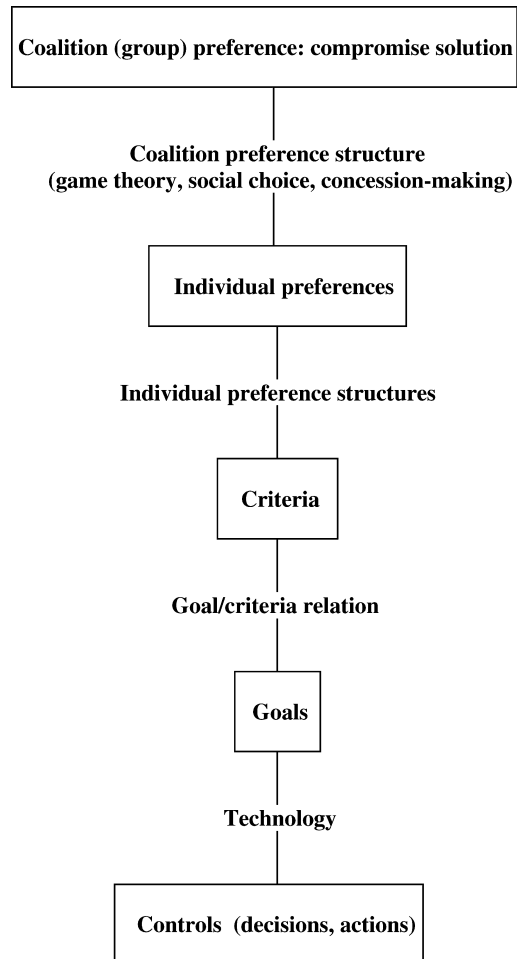
Figure 2. Hierarchy 2 relation between controls, goals, criteria, individual preferences, and coalition preference.

If the individual-player problem representations are not fully shared (made public) within group C by individuals in that group, the group's public group problem representation will be incomplete. In this case, each player (and others, e.g., a mediator) privately can subjectively estimate missing information; in other words, establish his private group problem representation.

The control alternatives available to C to play in the C vs. Cbar game are analyzed. Playing against its prediction of the set of Cbar's useable controls and using a particular available control alternative, C can control to a predicted feasible output goal set using its group technology (hierarchy 2). Similarly, for each of the other control alternatives, C can predict its feasible output goal set. This C vs. Cbar predicted output analysis is incorporated

in the individual private group problem representations of the players in C. Then the within coalition C game is played either cooperatively or noncooperatively to arrive at an agreed-upon compromise solution (control alternative) for C to play against (offer) Cbar (Shakun 1990). After C and Cbar actually play.[3] their present time period controls, C determines what goal levels have been reached and so does Cbar. Considering goal levels reached, negotiation may continue between C and Cbar leading to controls stability. Controls stability constitutes break-off or an agreement between C and Cbar – a single point intersection in their joint control space that maps into joint goal, criteria and preference (e.g., utility) spaces. For continuing negotiation, after C and Cbar play controls in the present period group C can consider redesign and then re-solve its problem (system) at the next moving present, one time period later.

With difficult problems, i.e., when a solution to a problem is not forthcoming, system redesign by problem restructuring (reframing) is a key approach in cybernetics/self-organization. Problem restructuring involves redefining (redesigning) the structure (sets of elements and their relations) in hierarchies 1 and 2. Regarding restructuring, the group problem representation can have bifurcation points at which there is a choice of branch (problem structure). Shakun (1996) describes four possibilities for restructuring (reframing) involving cybernetic control and self-organization. Restructuring may be supported using the ESD heuristic controls/goals/values *referral process*. This is based on the idea that a value, goal variable or control variable can serve as a reference or focal point for relating or referring other values, goal variable, and control variables. We give suggestive illustrations of the ESD referral process in Section 7, but see Shakun (1996) for a fuller discussion of restructuring (reframing).[4]

If coalition C comprises the grand coalition of all N players, then Cbar is empty, and an agreed-upon compromise solution of the within coalition C game can simply be implemented.

For further material on cybernetics/self-organization, the referral process, the ESD general framework and applications to specific problems/negotiations, see Shakun (2003, 2004).

4. Computer Implementation of ESD

Shakun (2001, 2004), drawing on Shakun (1999b) and Lewis and Shakun (1996), discusses computer implementation of the ESD general framework for defining/solving (designing) specific problems using a computer group/negotiation support system. With the help of a facilitator, group C may create and execute a procedural process meeting script for the problem. The meeting script can involve both electronic and non-electronic activities. The meeting script is the detailed agenda or procedural sequence (hopefully, judged by all individuals in group C as following right procedural rationality, but not necessarily – see Section 9) that group C chooses in developing the ESD group problem representation (formally, hierarchies 1 and 2). Script management can be dynamic including adjustments of meeting scripts "on the fly" during meetings (Keleman, Lewis and Garcia 1993). Lewis (1995) discusses a general purpose group/negotiation support system, MeetingWorks for Windows, that has a set of software tools (generate, organize, cross-impact, etc.) for group meeting

support. Lewis and Shakun (1996) create and execute an illustrative group meeting script and demonstrate how a ESD group problem representation and solution can be developed using MeetingWorks.[5] Originally for same-place/same-time work, MeetingWorks has been extended to group telework that can be performed on the Internet.

5. Agents, Consciousness, Connectedness and Spirituality

Drawing on Shakun (2003, 2004), we discuss One, Two, agents, consciousness and connectedness as background for purpose, rationality and spiritual rationality in problem solving/negotiation.

One represents all there is, the absolute, the implicate order, the quantum vacuum, emptiness, God, Being, the non-manifested. *Two* represents the process of all there is, the relative, the explicate order, excitations of the quantum vacuum, the manifested. Two manifests from One as agents. An *agent* constitutes energy/matter/consciousness integrally bound (see next paragraph on consciousness). One is distributed so each agent is One and Two. I, an agent am One and Two, and so are you. The human greeting *nameste* – One in me honors One in you – gives recognition to this. Agents may be natural or artificial (Shakun 2003). Natural agents may be humans, animals, insects, plants or so-called inert matter (as rocks and water). Artificial agents may be robots, softbots (software agents), computers and artifacts in general. Here we focus on *human agents* who may be supported by computers in problem solving/negotiation. Other agents with lesser (or greater) matter/energy/consciousness capabilities than humans may make use of the ideas in this paper according to their capabilities. This has to be developed further but for relevant discussion, see Shakun (2001, 2003, 2004). An agent can create/design in Two by taking action.

Consciousness is self-organizing response capacity with awareness embodying inner, subjective qualitative experience (qualia). In the evolution of natural agents, energy/matter/consciousness evolved cumulatively (each succeeding level including or nesting the preceding ones) manifesting conation (response-action via body)/affection (emotion, feeling)/cognition/human spirituality (non-spirituality), these integrally bound. Humans have all these levels. How diverse information is integrally bound to provide a unified or holistic experience is known as the binding problem. Zohar and Marshall (2000) argue that in humans synchronous neural oscillations in the 40 Hz (cycles per second) range (gamma waves) are the neural basis of consciousness manifesting conation/affection/cognition/human spirituality (non-spirituality) integrally bound.

Connectedness is a dynamic subjective experience of consciousness of an agent (Shakun 2001). Mathematically, connectedness is a relation. Dynamic subjective connectedness of an individual agent i ($i = 1, 2, \ldots$) with an individual agent j ($j = 1, 2, \ldots$) can be represented as a relation expressed by a matrix $Z(i) = [z(i, j, t)]$. At time t, if agent i experiences connectedness with j, $z(i, j, t) = 1$; otherwise $z(i, j, t) = 0$ signifying non-connectedness. For agent i, Two signifies at least two agents, agent i and at least one other agent j. Matrix $Z(i)$ indicates how agent i is experiencing Two in terms of his connectedness or non-connectedness with a finite set of agents j. There is also the experience of dynamic subjective connectedness or non-connectedness of agent i holistically with all

there is, an infinite-element set, holistically equivalent to a one-element set we call One. At time t, for n agents i we represent this experience as a relation expressed by a $(n \times 1)$ matrix $Z^*(i) = [z^*(i, t)]$. At time t, if agent i holistically experiences connectedness with the one-element set One, then $z^*(i, t) = 1$; otherwise $z^*(i, t) = 0$ signifying non-connectedness. Connectedness of an agent i with One constitutes *spirituality*, i.e., consciousness experiencing connectedness with One, experienced as unity with One, as emergence of One from Two, and as manifestation of Two from One (Shakun, 1999a, 2001).

Connectedness (non-connectedness) in Z encourages reciprocation. In other words, connectedness (non-connectedness) of agent i with agent j encourages connectedness (non-connectedness) of j with i. Also, connectedness with One of agent i as represented by $Z(i)$ can promote and imply connectedness with others, of agent i with agent j in Two as represented by $Z(i)$; $Z(i)$ can be a producer of $Z^*(i)$ – see Section 9. Connectedness of agent i in $Z(i)$ and $Z^*(i)$ reinforces continued connectedness in $Z(i)$ and $Z^*(i)$, respectively.[6]

When a human agent's consciousness is experiencing connectedness with One, awareness/qualia – conation/affection/cognition/human spirituality (non-spirituality) – are experienced as perfect (connected) action/love/oneness/human spirituality; and for non-connectedness as non-connected action/fear/separateness/human non-spirituality (Shakun 2003).

6. Purpose in Hierarchies 1 and 2

Hierarchies 1 and 2 are hierarchies of *purpose* (intended desired results). In hierarchies 1 and 2, we note that the sets – values, goals, controls, criteria, individual preferences and group preference – are all purposes of agents. More general purposes are higher in the hierarchies. Higher purposes may be characterized as ends, and lower purposes that deliver (produce) these ends as means to ends. For example, in hierarchy 1, control (decision, action) variables produce goal variables that produce values; they are all purposes. Relation among these purposes defines a system (structure), and constitutes meaning. With ESD, problem solving as system design means the design of purposes and their relations in hierarchies 1 and 2 from the lowest level control to the highest purpose – connectedness with One, spirituality (Section 5) – or a surrogate for it (Section 11).

7. Shared Inherent Purpose and Other High-Level Purposes/Values

In developing ESD/spiritual-rationality problem solving (Sections 8 through 12), this is our core axiom: We believe that fundamentally agents have a *shared inherent purpose*, i.e., an inherent purpose – inherent in emerging from One – that they share in common. An agent's inherent purpose – its ultimate purpose in Two (most general, highest value/purpose in hierarchy 1) – is to experience spirituality, connectedness with One, i.e., to live Two as One – to hang out in connectedness with One as a way of life in Two. This shared inherent purpose can help agents work through substantive conflict in values, goals and actions. However, use of the assumption of inherent purpose as connectedness with One is

not necessarily required by an agent. In problem solving with spiritual rationality, an agent can substitute a *surrogate purpose* (Section 11) for connectedness with One.

Higher purposes in hierarchy 1 can promote and imply lower purposes, and lower purposes can be producers of higher purposes. The ESD referral process (Section 3) can support this.

For example, just below the highest value, connectedness with One, in hierarchy 1 an agent could place at the second highest level the value (purpose) connectedness with others (other agents, mathematically represented by $Z(i)$ – Section 5). Connectedness with One can promote and imply connectedness with others. Connectedness with others can be a producer of connectedness with One. Connectedness with others is a widely shared purpose that can help agents work through substantive conflict.

An agent could place the value freedom at the third highest level just below connectedness with others. Connectedness with One and with others can promote and imply freedom. Freedom can be a producer of connectedness with others and with One. If by freedom we mean freedom for an agent and other agents to fully engage in cybernetics/self-organization for right problem solving producing connectedness with One (Section 9), connectedness with One does indeed imply freedom. Love is the affection component of connectedness with One (Section 5). We could say that connectedness with One (and with others) is love is freedom.[7] In principle, this can provide support rooted in spiritual systems design (ESD) for freedom and democracy (Sharansky 2004).

In addition to freedom, an agent could place the value justice at the third highest level. Connectedness with others (and with One) can promote and imply justice. Justice can be a producer of connectedness with others (and with One).

In terms of the ESD referral process (Section 3), we can think of connectedness with others (and with One) as a higher purpose that generates first freedom and then justice as lower purposes when the question in heuristic 1 below is twice asked. We may think of higher purposes, connectedness with One and connectedness with others as being rows and lower purposes, freedom and justice as columns in a lower purpose/higher purpose matrix.

Heuristic 1: Given a particular higher purpose (row) and looking at the lower purposes (columns), is there any other lower purpose (column) that is promoted and implied by the higher purpose and can be a producer of the higher purpose?

We give another example of the referral process. In declaring "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness," this portion of the U.S. Declaration of Independence can be viewed as a heuristic 1 referral process between higher purpose connectedness with One and lower values equality, life, liberty and the pursuit of happiness.

ESD cybernetics/self-organization in general and the referral process in particular can contribute to declaration and constitution development/amendment and constitutional law viewed as problems in systems design.

Using a variation of heuristic 1, we can start with a particular lower purpose (column) to generate higher purposes (rows). See Shakun (2003, 2004). In general, with the ESD referral process, we can start with a purpose at any level and generate purposes at the same or other levels.

8. Rationality to Spiritual Rationality

Drawing on Shakun (2003, 2004), we discuss rationality, cognitive rationality, generalized rationality, and spiritual rationality. For an agent, if a purpose 1 is reasonable (based on reason – in science, empirically verified by scientific method) with regard to producing a purpose 2, purpose 1 is said to be rational for producing purpose 2, i.e., the purpose 1/purpose 2 binary relation is *reasonable* or *rational* for that agent. For n-ary relations, rationality means production between purposes in the n-ary relation is reasonable. *Rationality* is normally associated with cognition; hence, the term *cognitive rationality*, rationality validated by cognition. We extend rationality to *generalized rationality* where reasonableness is validated by cognition, affection, conation and holistically. We further extend rationality to *spiritual (right) rationality* where the purpose 1/purpose 2 relation or an n-ary relation satisfies generalized rationality and the relation is a producer of connectedness with One, spirituality, as a subjective experience of an agent. Other rationalities are possible, e.g., affective rationality where reasonableness is validated only by affection. In Section 10, we present a subjective validation test for spiritual rationality after discussing problems, right problem solving, right action and spiritual (right) rationality in Section 9.

9. Problems, Right Problem Solving, Right Action and Spiritual (Right) Rationality

Problems are in Two, not in One. Problems arising in Two are of two types: problem type (1) arises from the breaking of an agent's connectedness with One (spirituality); problem type (2) arises from agent wanting to manifest in Two his/her continuing connectedness with One. Regarding problem type (1), when relationships in Two break the continuity of connectedness with One, the agent experiences non-connectedness (separateness/fear) instead of connectedness (oneness/love), the agent has a problem so engages in problem solving to take right action (see next paragraph) to produce re-connectedness with One. Regarding problem type (2), connectedness with One is there and the agent's problem is how to manifest it in Two through right action which produces continuing connectedness with One. In either case, the agent engages in problem solving to take right action to maintain connectedness with One as the agent's way of life. The problem can be modeled formally using the ESD general problem representation. The discussion that follows is applicable to an agent involved with group problem solving, as well as to the case of individual problem solving.

Problem solving is systems design is cybernetics/self-organization (Section 3). This involves an agent in designing procedures (process) and using them – engaging in cybernetics/self-organization to design the problem/solution system. Right (spiritual) problem solving is right (spiritual) systems design is right (spiritual) cybernetics/self-organization. In *right problem solving/negotiation*, the agent works with other agents in a group to design procedures (process), preferably *right procedures*, that are used to design a *right problem/solution* where *right* means the problem/solution or system of procedures satisfies spiritual rationality as validated by the agent using a *spiritual (right) rationality validation test* (Section 10). A validated solution or procedure constitutes *right action* –

action that is generalized rational and produces spirituality (connectedness with One) for the agent. Spirituality for an agent can require that an action also bring spirituality to some or all agents in the problem/negotiation, as individually judged by them.

In other words, as judged individually by him, an agent can validate a right problem/solution by a subjective test for spiritual rationality presented in Section 10. If validated, we say there is right *problem* rationality meaning the problem/solution produces spirituality. In any case, whatever the solution obtained by problem solving, it is the result of using problem solving/negotiation procedures (procedural process). A system of procedures can also be validated as being right, i.e., for spirituality by the same subjective test for spirituality used for right problem rationality. If validated, we say there is right *procedural* rationality. This is desirable since right procedures promote a right problem/solution producing spirituality. At the same time, spirituality promotes right procedural rationality and a right problem/solution. Problem solving with spirituality promotes freedom to fully engage in cybernetics/self-organization favoring a right problem/solution (Section 7).

Therefore, if he is not already there, the agent is advised to return (transit) to spirituality (connectedness with One) to begin right problem solving/negotiation by trying to design right procedures and then trying to stay in spirituality, using the designed procedures to design a right problem/solution. In other words, returning (accessing) if not already there and hanging out in connectedness with One is basic for right problem solving (Shakun, 1999a, 2001, 2003). *Inner stillness* (quiet or calm mind) is the key. Inner stillness brings spirituality, connectedness with One. The latter is the default state and always returns if the agent is open[8] to it – i.e., lets the problem go. Focusing on the now (the present moment) by focusing attention on (sensing) anything without thought – acceptance of the moment as it is – lets the problem go, brings inner stillness and connectedness with One. One is always in the now, the present moment (in Shakun 2001, see Section 4). The power of now, Tolle (1999, 2003), is the power of connectedness with Being (One). Tolle suggests various signposts or portals to One, for example, focusing attention on (sensing) the inner body. Lowest in the cumulative evolutionary chain of emergence of Two from One, the body provides direct access to inner stillness and connectedness with One. Shakun (2001, Section 4.1) also discusses some techniques for letting the problem go and transiting to connectedness with One.

Hence, right problem solving for an agent begins with (1) acceptance of the problem, (2) accessing spirituality (connectedness with One) if not already there and staying there as much as possible while (3) developing/designing (preferably right, sometimes ad hoc) procedures (process, means) and using them in defining/designing a right problem/solution (product, end).[9] This involves the agent (1) judging (validating, testing) whether a suggested system of procedures for designing (defining/solving) the problem is right rational, i.e., whether there is right procedural rationality, and (2) validating (testing) whether the resulting defined problem/solution (represented in hierarchies 1 and 2) is right rational, whether there is right problem rationality. A validation test for both right procedural rationality and right problem rationality is presented in Section 10. As noted, since right procedural rationality promotes right problem rationality, right procedural rationality is desirable. Failing the latter, next preferable is validation of generalized procedural rationality. Here reasonableness is

validated by generalized rationality (by cognition, affection, conation and holistically), but spirituality is not validated. Otherwise, validation of cognitive procedural rationality or of other procedural rationalities, e.g., affective procedural rationality is possible. Thus, whether regarding his own suggested procedures, those of other agents, or procedures actually adopted by the group, each agent can judge (test) whether for him/her procedural rationality is right, generalized, cognitive, affective, ad hoc or a mix of these over time. Whatever the rationality of the problem solving procedure (process) used, an agent can test whether for him/her a group problem problem/solution that evolves is right rational or test a problem/solution for other rationalities.

10. Spiritual (Right) Rationality Validation Test

For an agent, we present a subjective validation test for spiritual (right) rationality applicable to particular procedures and problem relations as n-ary relations (systems) drawing on Shakun (2003). The test applies to binary and higher n-ary relations up to and including the whole system of procedures or the whole problem representation/solution (hierarchies 1 and 2). Tests for other rationalities are similar, less comprehensive versions omitting those aspects of spiritual rationality that do not apply.

The *spiritual (right) rationality validation test* for a particular n-ary procedure relation or problem relation involves testing whether generalized rationality and connectedness with One (spirituality) are validated by cognition, affection, conation and holistically. For an agent, this involves subjective testing by (1) cognition – is this n-ary procedure or problem relation cognitively reasonable and is it cognitively a control or intermediate producer of oneness,[10] (2) affection – is this n-ary procedure or problem relation affectively reasonable and is it affectively a control or intermediate producer of love, does it feel right, and (3) conation – is this n-ary procedure or problem relation conatively reasonable and is it conatively a control or intermediate producer of perfect (connected) action as commitment to implementation, (4) holistically – is this n-ary procedure or problem relation holistically reasonable and is it holistically a control or intermediate producer of connectedness with One (spirituality)? Spiritual (right) rationality requires "yes" answers to all of these questions.

We note that if the n-ary relation being tested includes connectedness with One, then if generalized rationality (reasonableness) is validated (by cognition, affection, conation and holistically), then the n-ary relation is necessarily a control or intermediate producer of connectedness with One. If the n-ary relation being tested is the whole problem representation/solution including connectedness with One, then generalized rationality means the whole problem representation/solution produces connectedness with One.

As cognition/affection /conation are integrally bound and can be experienced holistically, the spiritual (right) rationality validation test requiring validation by generalized rationality and spirituality can be simplified holistically to the question in part (4) of the test. Although not identical, the simplified test can be important in facilitating practice.

The *simplified spiritual (right) rationality validation test* for a particular n-ary procedure relation or problem relation involves subjective testing holistically – is this n-ary procedure

or problem relation holistically reasonable and is it holistically a control or intermediate producer of connectedness with One (spirituality)? Spiritual (right) rationality requires a "yes" answer.

Spiritual rationality of the problem/solution for an agent means that the solution (control, decision or action to be implemented) is right – produces spirituality, connectedness with One for that agent, and that is the agent's inherent purpose, the agent's highest value.

11. Further Discussion: Spiritual Rationality, Right Problem Solving and Right Action

Following Shakun (2003, 2004), in the general case of not-fully-shared-information among agents in a group, each individual agent – employing, as may be useful, the incomplete public group problem representation – can judge (test, Section 10) whether his own private group problem representation (Section 3) with an agreed-upon compromise solution found by the group is right for him. If all individual agents so judge rightness, then the group C has defined and solved a right problem (as represented by the private group problem representations of its members), although publicly it is incompletely represented. A right private group problem representation/agreed-upon compromise solution for all agents in group C is the ideal result – the solution constitutes right action whose implementation produces spirituality for all agents. For case of fully-shared information – a special case of not-fully-shared information – the public and all the private group representations are the same and publicly completely represented within group C.

If an individual agent in a group C judges that with regard to his own private group problem representation that the group agreed-upon compromise solution is not right for him/her, he/she can try to continue problem solving/negotiation (cybernetics/self-organization search) with the other group members to arrive a right solution for him/her. If this does not happen, leaving the group is always an option for the agent. In practice, solutions that are not right for at least some agents in the group, as judged respectively by them, are not infrequently implemented in practice. Still, later problem solving that could deliver connectedness for all agents is possible.

Particularly prevalent in large groups, a group-designated or undesignated subset of agents of the group may collectively evaluate solution rightness for the group. Clearly, in this case, it may not be right for all individuals in the group.

The above discussion of rightness in the general case of not-fully-shared information applies to both agreed-upon compromise solutions to the within-C game and to the C vs. Cbar game.

In theory, with regard to the problem relations in hierarchies 1 and 2, not only the binary relations (e.g., goals/values relation, controls/goals relation, controls/values relation, technology relation, goals/criteria relation, individual and coalition preference structures, and, of course, controls/spirituality relation, spirituality being the highest value), but all n-ary relations should be tested for spiritual (right) rationality. This includes the whole problem representation (hierarchies 1 and 2) which itself is an n-ary relation. *In practice*, if the validation test shows that the binary relations and the whole problem representation are

right, then the problem representation/solution could be taken as right producing spirituality (connectedness with One), and would be the present result of problem solving. Similarly, in practice for procedures, testing for right (spiritual) rationality could be limited to binary procedure relations and the whole system of procedures.

In theory, spirituality promotes right problem solving and right problem solving produces spirituality for an agent. *In practice*, if problem solving does not produce spirituality for an agent and/or if he so chooses, the agent can use another purpose at a lower level than spirituality as a *surrogate* for spirituality. In this case, the spiritual (right) rationality validation test (Section 10) becomes a test for *surrogate spiritual rationality* where connectedness with One is replaced by connectedness with a surrogate purpose. The validation test asks whether an n-ary procedure or problem relation is reasonable and is a control or intermediate producer of the surrogate. For example, just below the highest value, connectedness with One, in hierarchy 1 an agent i could place the value (purpose) connectedness with others (other agents) at the second highest level. Agent i could use connectedness with others as a surrogate for connectedness with One (spirituality) if problem solving does not produce spirituality for agent i and/or if he so chooses. Agent i can assess connectedness with agents j as represented in matrix $Z(i)$. Normally connectedness with others would be a better surrogate for connectedness with One for agent i when the number of agents j for which agent i gives an entry of 1 is large. A surrogate can also be a vector of purposes. For example, the surrogate purpose vector with components freedom and justice can be a surrogate for connectedness with others and with One.

Aside from the use of a surrogate for spirituality in problem/solution validation, if an agent has difficulty in accessing spirituality and staying there, he could access a *surrogate* instead of spirituality *when beginning problem solving* (Section 9), e.g., access connectedness with others or freedom (Section 7). In beginning his speech to what he sensed was a chilly Israeli Knesset (parliament), Egyptian President Anwar Sadat said that we are all religious brothers; religious brotherhood became a surrogate for spirituality in communicating to the Knesset members.

In theory, regarding the problem representation, there may be any number of levels in hierarchy 1, and control, goal and value purpose vectors may have any number of components. *In practice*, a small problem representation – having a small number of levels in hierarchy 1 and low-dimensional purpose vectors – that satisfies the spiritual rationality test for a right problem/solution (producing connectedness with One) is recommended. When there is no problem, hierarchy 1 has only the highest value/purpose, connectedness with One (signifying the agent hanging out there). Problems are in Two, not in One, and are of two types (Section 9). To begin right problem solving, if he is not already there the agent is advised return to connectedness with One by letting the problem go (Section 9). Solving the problem with the absolutely smallest problem representation means a hierarchy 1 (and associated hierarchy 2) having, as a group agreed-upon problem solution, only one control level with a one-dimensional control vector, and the highest value, connectedness with One. If this absolutely smallest problem representation satisfies the agent's validation test for a right problem/solution, the problem has rightly been solved, the solution producing spirituality for the agent. In practice, additional levels of purpose and higher-dimensional control, goal and value vectors normally are added.

Adding additional levels or vector components of purpose (values, goals, controls) can be helpful and frequently necessary in judging by the spiritual rationality validation test that rightness (spirituality) is satisfied. However, in adding these it is important to remember that the rightness of a problem representation/solution comes fundamentally from its lowest level control vector – the practical action or control implemented – delivering connectedness with One. Other-level purposes – both lower-level purposes (often called practical results) and higher-level ideal values – are *intermediates* in producing connectedness with One. Nevertheless, intermediates can be important and necessary in *judging rightness* with the validation test, or explaining the problem and choice of controls to other agents. For example, for agent i, connectedness with others represented by $Z(i)$ can be an important in judging whether connectedness with One is produced, i.e., whether $Z(i) = 1$. The purpose vector (freedom, justice) can be necessary intermediates in judging whether connectedness with others and with One is produced by a control vector. These other-level purpose *intermediates* can also serve as *surrogates* (see above in this Section 11) for connectedness with One.

12. Concluding Remarks: Spiritual Rationality – Right Action in Problem Solving and Negotiation as Systems Design – To Live Two as One

Faith-based (spiritual) and secular-based (rational) approaches to problem solving and negotiation are commonly viewed as strongly conflicting approaches.[11] While analysis is used in faith-based problem solving, problem solutions (actions) can come directly from God (One, all there is) in which case advocates say that analysis is not really necessary. Problem solutions can also come from religious laws and practices providing values that serve as intermediates/surrogates (Section 11) for connectedness with God. These religious laws and practices are based on analysis and interpretation – much of it quite rational – of God's word/scriptures, the latter providing religious axioms. Axioms for secular-based problem solving follow scientific method. Faith and secular belief systems differ, but share some values. For advocates of secular-based problem solving, faith-based decisions/actions that differ from the results of their own rational analyses are hard to accept. Rationality and spirituality represent different brain capabilities. Extending rationality to spiritual (right) rationality can integrate these capabilities. With spiritual rationality an individual – whether his orientation is primarily faith-based or secular-based – validates a problem solution both rationally and spiritually for right action (decision) using a spiritual rationality validation test.

A problem solution can come directly from God (One) or from cybernetics/self-organization where, for example, a direct solution could come from a controls/spirituality referral process where spirituality (connectedness with One) generates the control (solution, action) – see heuristic 1, Section 7. In any case, with spiritual rationality an agent uses the validation test (Section 10) to validate the problem/solution for spiritual rationality. If so validated, then rationally and spiritually for that agent the solution constitutes right action. An agent favoring secular-based (rational) problem solving would emphasize that the rationality of the problem representation – normally with intermediate values added – in producing connectedness with One validates the solution for him. A faith-based (spiritual)

agent might say he didn't really need to close the decision loop rationally by developing a problem representation – an open-loop decision coming directly from God or from religious laws and practices was right for him in the first place. However, rationality and spirituality are different brain capabilities. Spiritual rationality argues that both rationality and spirituality should be validated (using the spiritual rationality validation test) by an agent and if not, the agent should try to continue problem solving trying to validate spiritual rationality of a solution for him.

In other words, for a faith-based (spiritual) agent, whether a problem solution comes directly from God (One) or via intermediate/surrogate values based on religious laws and practices, he should nonetheless close the loop – do the cybernetics/self-organization rational analysis, i.e., develop his individual-player problem representation and his private group problem representation. Then the agent should test any potential problem/solution for spiritual rationally and determine validation or non-validation, the latter indicating incoherence between spirituality and rationality in which case he should continue problem solving until spiritual rationality of a problem/solution is validated.

With a secular (rational) agent, a potential problem solution could come directly from a controls/spirituality referral process which is to say from One. Intermediate values could come from a lower purpose/higher purpose referral process, as with the generation of freedom and justice and with the Declaration of Independence discussed in Section 7. However, being fundamentally secular and rational, the agent's focus is on designing his individual-player problem representation and his private group problem representation (hierarchies 1 and 2), but then should test any potential problem/solution for spiritual rationality that, if validated, means the solution is rational and produces connectedness with One, spirituality for him.

Thus, regarding a potential agreed-upon compromise solution to the within coalition C game or to the C vs. Cbar game (Section 3), each individual agent in the group C can test whether, with regard to his own private group problem representation, the solution is right for him, i.e., satisfies the spiritual (right) rationality validation test. If not right, the agent can try to continue problem solving to arrive at an agreed-upon solution that is right for him.

Though differing belief systems can make for conflict between faith-based and secular-based agents, the core axiom of ESD/spiritual-rationality problem solving is that all agents – faith-based, secular-based or whatever – have shared inherent purpose (Section 7) to experience spirituality, connectedness with One constituting their highest value. This means that all agents want their problem solving to produce connectedness with One, and other potentially-shared high-level purpose, as connectedness with others (Sections 5 and 7).

Thus, ESD and spiritual rationality see faith-based and secular-based problem solving as not necessarily conflicting, but rather integral within a comprehensive methodology. With ESD and spiritual rationality both a faith-based advocate and a secular-based advocate can each achieve internal consistency of rationality and spirituality. Conflict between them could still exist. However, their common adoption of the ESD framework and spiritual rationality – providing a common methodology that highlights high-level purpose shared by individuals – can facilitate problem evolution leading to group agreed-upon right action.

Columnist David Brooks (*New York Times*, May 5, 2005) notes the strong conflicting views of advocates of faith-based and secular-based decision making in today's world.

He supports and builds the case for a middle ground approach that is both faith-based (spiritual) and secular-based (rational) citing as an example President Abraham Lincoln and his decision to issue the Emancipation Proclamation. Brooks describes Lincoln at the core as a middle grounder. Saying "today a lot of us are stuck in Lincoln's land", he argues that this is the place to be. Formally, with the ESD framework, the middle ground is expressed as spiritual rationality. That is where all agents can retain and use all of their spiritual and rational capabilities and this is a good place for all agents to be.

12.1. To live two as one

One represents all there is, the absolute, the implicate order, the quantum vacuum, emptiness, God, Being, the non-manifested. *Two* represents the process of all there is, the relative, the explicate order, excitations of the quantum vacuum, the manifested. Two manifests from One as agents. An *agent* constitutes energy/matter/consciousness integrally bound. Agents may be natural or artificial. This is our core axiom: Human and other agents have a *shared inherent purpose* – inherent in emerging from One – that they share in common. An agent's inherent purpose – its ultimate purpose in Two – is to experience spirituality, connectedness with One, i.e., to live Two as One. In this paper, we focus on human agents.

With Evolutionary Systems Design (ESD) and spiritual rationality, to *live Two as One* involves a human agent accessing and hanging out in connectedness with One as way of life; and when a problem occurs integrating faith-based (spiritual), secular-based (rational) or whatever-based problem solving approaches – integrating spirituality and rationality – for taking *right action.* This involves using the ESD framework for individual and group problem solving/negotiation, systems design, cybernetics/self-organization and validating a problem/solution for *spiritual rationality* to produce (renew, continue) spirituality.

In integrating spirituality and rationality, ESD and spiritual rationality – by validating right action in problem solving and negotiation – can help maintain connectedness with One as shared inherent purpose in an individual agent's life in Two, i.e., to live Two as One.

Notes

1. Represented here by hierarchies 1 and 2, the general mathematical model (dynamical system) is given in Shakun (1988), chapter 1, by relations (5)–(9) and a goals/criteria relation there. A coalition (group) C plays a game in time over a multiperiod planning horizon against the set Cbar of all other players not in C who themselves can form one or more coalitions. The game has a moving present and is an evolving difference game. (Dynamical (described in time) systems in discrete (continuous) time with two or more players are called difference (differential) games). Relation (5) is represented in hierarchy 1 which shows the coalition C controls/goals/values relation. Relation (6) is represented in hierarchy 2 as the individual and group (coalition C) preference structures. Relations (7)–(9) are represented in hierarchy 2 by the technology relation between controls and goals. The goals/criteria relation is also represented in hierarchy 2. The relations (5)–(9) and the goals/criteria relation model cybernetics/self organization.
2. Formal problem relations (always explicit) are expressed by the formal group problem representation (hierarchies 1 and 2). There are always also informal relations, those not expressed in the formal group problem representation that may be explicit or implicit.

3. Only the present time period controls are implemented (played). Play in the C vs. Cbar game can be either simultaneous or sequential. If sequential, players alternate playing present time period controls.

4. Of related interest, in contexts generally involving large numbers of individuals, Gladwell (2000) discusses reframing (restructuring) as tipping points. Friedman (2005), in identifying tipping points in the Middle East, raises the issue of reversibility (more generally, stability) of reframed (tipped, restructured) political situations.

5. Of course, other general-purpose group/negotiation support systems, e.g., GroupSystems, can be used with ESD. More specialized negotiation capability as NEGOTIATOR can be added (Bui and Shakun 1996).

6. An agent i knows his own entries in $Z(i)$ and $Z(i)$, i.e., knows if he is experiencing connectedness (1) or non-connectedness (0). If an agent j does not communicate his own entries in these matrices to agent i, the latter can estimate them if he wishes.

7. Walsch (2000, page 204) simply says "love is freedom".

8. We note that in Buddhism, openness or emptiness means not fixating or holding on to any thought.

9. Procedures and the problem/solution are each systems. Designing a system involves the use of procedures (procedural process, means) to deliver products (ends). The procedures for defining the problem/solution product are themselves the product of procedures for developing procedures. Group agreement on procedures (preferably right procedures) is a negotiated agreement on the way to another negotiated agreement (preferably right) – the solution to the problem/negotiation.

10. With respect to cognitive rightness for a problem relation, Shakun (1992, 1999a, 2001) suggests validation by specified cybernetic/self-organization procedures – evolutionary heuristics or generating procedures–for examining, changing (evolving) and retaining the relation. These include the heuristic controls/goal/values referral process considered in Section 3 of the present paper.

11. Of course, conflict can also occur among agents where all are faith-based or all secular-based problem solvers.

References

Brooks, D. (2005). "Stuck in Lincoln's Land," *The New York Times*, May 5.

Bui, T. and M. F. Shakun. (1996). "Negotiation Processes, Evolutionary systems Design and NEGOTIATOR," *Group Decision and Negotiation* 5(4–6), 339–353.

Friedman, T. (2005). "The Tipping Points," *The New York Times*, March 1.

Gladwell, M. (2000). *The Tipping Point*. Boston: Little, Brown and Company.

Kelman, K. S., L. F. Lewis, and J. E. Garcia. (1993). "Script Management: A Link Between Group Support Systems and Organizational Learning," *Small Group Research* 24(4), 566–582.

Kremenyuk, V. A. (2002). *International Negotiation*, second edition. San Francisco. CA: Jossey-Bass.

Lewis, L. F. (1995). *Group Support Systems: A Brief Introduction*. Bellingham, Washington: Meeting Works Associates.

Lewis, L. F. and M. F. Shakun. (1996). "Using a Group Support System to Implement Evolutionary Systems Design," *Group Decision and Negotiation* 5(4–6), 319–337.

Raiffa, H. (2002). "Contributions of Applied Systems Analysis to International Negotiation," in Kremenyuk. V.A. (2002) (ed.).

Shakun, M. F. (1988). *Evolutionary Systems Design: Policy Making Under Complexity and Group Decision Support Systems*. Oakland, CA: Holden-Day.

Shakun, M. F. (1990). "Group Decision and Negotiation Support in Evolving, Nonshared Information Contexts," *Theory and Decision* 28(3), 275–288.

Shakun, M. F. (1992). "Defining a Right Problem in Group Decision and Negotiation: Feeling and Evolutionary Generating Procedures," *Group Decision and Negotiation* 1(1), 27–40.

Shakun, M. F. (1996). "Modeling and Supporting Task-Oriented Group Processes: Purposeful Complex Adaptive Systems and Evolutionary Systems Design," *Group Decision and Negotiation* 5(4–6), 305–317.

Shakun, M. F. (1999a). "Consciousness, Spirituality and Right Decision/Negotiation in Purposeful Complex Adaptive Systems," *Group Decision and Negotiation* 8(1), 1–15.

Shakun, M. F. (1999b). "An ESD Computer Culture for Intercultural Problem Solving and Negotiation," *Group Decision and Negotiation* 8(3), 237–249.

Shakun, M. F. (2001). "Unbounded Rationality," *Group Decision and Negotiation* 10(2), 97–118.

Shakun, M. F. (2003). "Right Problem Solving: Doing the Right Thing Right," *Group Decision and Negotiation* 12(6), 463–476.

Shakun, M. F. (2004). "ESD: A Formal Consciousness Model for International Negotiation," *Working Paper*, Stern School of Business, New York University (to appear).

Sharansky, N. (2004). *The Case for Democracy*. New York: Public Affairs.

Suskind, R. (2004). "Without a Doubt," *The New York Times Magazine*, October 17.

Tolle, E. (1999). *The Power of Now*. Novato, CA: New World Library.

Tolle, E. (2003). *Stillness Speaks*. Novato, CA: New World Library.

Walsch, N. D. (2000). *Communion with God*. New York: G.P. Putnam's Sons.

Zohar, D. and I. Marshall. (2000). *Connecting with our Spiritual Intelligence*. New York, NY: Bloomsbury Publishing.