Chapter 33
Implications and Philosophical Requirements of a Comprehensive Dialectical Inquiry System

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ABSTRACT

For the purpose of aiding upper-level strategic or political decision making and some forms of conflict management, this chapter revisits the concept of dialectical inquiry (DI) from the perspective of collaborative framing or modeling for "collaboration engineering." It does so by integrating the recent literature with its theoretical and philosophical sources. The connection of DI and the problem-framing paradigm is clarified. The chapter also establishes the general requirements or desired features of an up-to-date DI system and evaluates some current systems and their implications in light of these criteria.

1. INTRODUCTION: THE NEED FOR DIALECTICAL INQUIRY

This chapter outlines the characteristics of information seeking and decision making systems to be used in conflict management situations, with a specific applicability to high-level and impactful strategic or political decision making.

The information revolution brought with it fresh hopes that "artificial intelligence" (AI) or learning capabilities could be communicated to machines, at least computing machines. This hope spurred interest in *Expert Systems (E-Systems)* or computerized routines that would mimic the decision-making capabilities of top experts in various fields. The problem with over-reliance on expert judgment is that it steps away from critical thinking. Typically, expert systems routines merely consist of simplistic tree-structures of *sequential switches,* the application of which amounts to impenetrable "black box" thinking. Consequently, Expert Systems have been switching away from

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single-source programs, based on modeling the intellectual processes of a single expert, to more complex software products that combine the judgments of several experts. These deficiencies carry over to the *Delphi* technique that can be characterized as basically a multiple-source expert system, and has been criticized by several theoreticians (Linstone & Turoff, 1975; Mason & Mitroff, 1981; Acar, 1983). Their criticism leads us to posit that a major requirement of the design of inquiry or foresight systems is a focus on learning by facilitating critical discussion of all the situation's parameters, not only the recommended solution but also its implicit assumptions.

The initially touted successes of group-support systems (GSS) have been slow and inconsistent. It is being gradually succeeded by a newer variant termed *collaboration engineering (CE)* that stresses collaborative group processes, especially those challenging hidden assumptions (Briggs et al., 2003b; Druckenmiller & Acar, 2009). The basic reason for this interest in surfacing obscure or implicit linkages is that relationships between factors of production and their effects are marred by causal ambiguity (Lippman & Rumelt, 1982; Reed & DeFilippi, 1990; Ambrosini & Billsberry, 2008). This can lead to partial or complete misdiagnosis errors, namely what Mitroff and Featheringham have termed (1974) "the error of the third kind" and Acar (1984) "the problem of the zeroth kind". Traditional analytical methods do not address this issue satisfactorily, but GSS and CE do so by resting on the theoretical foundation laid out by the work of Churchman (1968, 1971, 1979).

Most important in this legacy is Churchman's (1971) approach to designing (dialectical) inquiring systems or collaborative search systems capable of the *dialectical inquiry (DI)* process to be clarified in this paper. A number of works have applied the DI procedure (e.g., Mitroff et al., 1979; Ackoff, 1981; Mason & Mitroff, 1981); Chanin and Shapiro (1985) reviewed it; and Acar (1983) provided an operational extension of it that combined the surfacing of implicit assumptions with the computation of implied scenarios. More recently, Druckenmiller (2004), Acar and Druckenmiller (2006), and Druckenmiller and Acar (2010) describe a computerization of Acar's *comprehensive situation mapping* (CSM) approach. The aim of this chapter is to explain the theoretical foundations of CSM and yet not close the door to other potential approaches. While Chanin and Shapiro (1985) set out to justify DI systems, this chapter purports to elaborate what is required to design one.

2. EPISTEMOLOGICAL CONSIDERATIONS: HEGELIAN DIALECTIC

A cornerstone of the theory of organizational learning is the classic book by Argyris and Schön (1978). They pointed out that the detection and correction of mismatches only represents one level of learning, and a higher level of learning takes place when the procedures or values undergo reexamination. This *double-loop learning,* also called *deutero-learning*, addresses the nonroutine outcomes and is what renders an organization truly capable of learning from its mistakes and sustain its adaptability to its environment. The current literature on organizational learning builds on this cornerstone. Contemporary authors (e.g., Knudsen & Levinthal, 2007) recognize that complex conceptualizations establish that all of reality cannot be uncovered by a series of easy sequential steps, but that much of its components have to be painfully *constructed* by participants in a group problem solving process. Constructing a reliable and sustainable deutero-learning process is no easy task and, as argued in Churchman's seminal (1971) book on the design of inquiring systems, requires a novel integration of approaches formerly seen as divergent. We are thus led to discussing the epistemological basis of Churchman's work.