Collaborative Knowledge Building and Integral Theory: On Perspectives, Uncertainty, and Mutual Regard

Tom Murray

Abstract: Uncertainty in knowing and communicating affect all aspects of modern life. Ubiquitous and inevitable uncertainty, including ambiguity and paradox, is particularly salient and important in knowledge building communities. Because knowledge building communities represent and evolve knowledge explicitly, the causes, effects, and approaches to this "epistemological indeterminacy" can be directly addressed in knowledge building practices. Integral theory's approach (including "methodological pluralism") involves accepting and integrating diverse perspectives in ways that transcend and include them. This approach accentuates the problems of epistemological indeterminacy and highlights the general need to deal creatively with it. This article begins with a cursory analysis of textual dialogs among integral theorists, showing that, while integral theory itself points to leading-edge ways of dealing with epistemological indeterminacy, the knowledge building practices of integral theorists, by and large, exhibit the same limitations as traditional intellectual discourses. Yet, due to its values and core methods, the integral theory community is in a unique position to develop novel and more adequate modes of inquiry and dialog. This text explores how epistemological indeterminacy impacts the activities and products of groups engaged in collaborative knowledge building. Approaching the issue from three perspectives—mutual understanding, mutual agreement, and mutual regard—I show the interdependence of those perspectives and ground them in relation to integral theory's concerns. This article proposes three phases of developing constructive alternatives drawn from the knowledge building field: *awareness* of the phenomena, *understanding* the phenomena, and offering some *tools* (and some hope) for dealing with it. Though here I focus on the integral theory community (or communities), the conclusions of the article are meant to be applicable to any knowledge building community, and especially value-oriented groups who see themselves fundamentally as working together to benefit humanity.

Keywords: Applied epistemology, cognitive psychology, ethics, integral theory, knowledge building.

Table of Contents

Introduction

With the founding of the Integral Institute and its satellite organizations, integral theory moves further from "the world of Ken Wilber" and progressively toward a community knowledge building endeavor. The most recent version of Wilber's AQAL theory (phase "Wilber-V") emphasizes multiple perspectives and multiple knowledge building methodologies. This points to an important and, I think, necessary turn in the evolution of integral theory, which heretofore has primarily focused on the task of articulating models, "orienting generalizations," or meta-models describing "what is" (or what seems to be the case), toward an exploration and articulation of method itself—"how we (can) know what is." This turn constitutes a greater emphasis on epistemology vs. ontology—i.e. on the nature of knowledge vs. the nature of "reality" (though integral theory has always concerned itself with both).

At this juncture, it behooves the community to reflect more deeply upon the forms, processes, and styles that it uses to articulate, communicate, and evolve knowledge. Might uniquely "integral" forms or styles emerge and be developed by this community—forms and styles that would serve as exemplars and models for the rest of humanity? The seeds of these issues have been lying around all along, as it is impossible to develop a post-modern or post-post-modern framework without a critical reflection upon process as well as product. But on the whole, these seeds have yet to take root to produce an in-depth and *in-use* framework within the integral community.

"Epistemological indeterminacy" refers to uncertainties, ambiguities, and paradoxes in knowledge and its communication and validation. (If this technical term with its mouth-full of syllables seems overly academic to the reader, mentally substitute the less precise but more digestible phrase "knowledge uncertainty" whenever you see it.) As part of the post-modern transformation of consciousness and culture, we have progressively come to understand, to our frustration, that knowledge is fuzzy, multi-layered, constructed idiosyncratically by each individual, socially negotiated, affected by emotions and biases, and forever subject to revision. This paper examines such multiple sources of this uncertainty, and begins to address how to deal with it. In all domains of modern life, from the family living room, to the seats of national Senates, to the texts produced in "ivory towers," we can observe that many people will acknowledge the fundamentally uncertain nature of knowledge in an *abstract* sense, but that they are bereft of productive ways to *deal with* this uncertainty, and thus overlook or deny it in practical situations.

Collectively, Systematically, Reflectively Dealing with Epistemological Indeterminacy

The term "knowledge building community," as articulated by Scardamalia & Bereiter (1994), is similar to "learning community," as articulated by Senge (1990), and "community of practice," as articulated by Wenger (1998) (though each term emphasizes different phenomena). I use the term "knowledge building community" to emphasize efforts to discover, improve, record, organize, and share knowledge. Knowledge building draws on the collective intelligence of a group engaged in researching, theorizing, critiquing, doing, and synthesizing in order to progressively evolve some body of theory and practice. Though modes and methods can differ widely, all communities of learning/practice/knowledge building share certain elements, with epistemological indeterminacy as one of the important concerns.

This article focuses on the integral community because integral theory's main methodology of methodological pluralism (Wilber 2005a), both highlights the problems of epistemological indeterminacy and suggests new ways of knowledge building that can accommodate it. Methodological pluralism prescribes an openness to multiple perspectives and knowledge finding methodologies. Unfortunately, though individual integral theorists use methodological pluralism to synthesize diverse theories across disciplines, the dialog within this knowledge building community is often not epistemologically sensitive or aware. The same can be said for almost every knowledge building community, and I do not single out the (loosely defined) integral community for its faults but rather for its potential to create something new. Contemporary theories in philosophy, psychology, and sociology contain numerous insights about the nature of epistemological indeterminacy that could benefit collaborative work and knowledge building practice. However, by and large, these insights have yet to be *systematically and reflectively* incorporated into the way that people communicate and collaborate in such organizations or groups, so the full potentials of collective intelligence remain unfulfilled. This article addresses the issue through exploring the following themes.

I hope to engage the reader in envisioning what knowledge building communities would be like if they adopted methods exemplifying key insights and implications from integral theory. Similarly, I ask "what would it be like for an integrally-informed community to build knowledge in a deeply integral way?" (i.e., fully practice what it preaches epistemologically). My thesis is that one of the major aspects of doing so involves a productive, even proactive, approach to epistemological indeterminacy, i.e., collectively developing what we could call "epistemological sensitivity" or "epistemological sophistication:" an in-context awareness of the manifestations, causes, and adaptations surrounding epistemological indeterminacy.

My goal is to seriously consider the problems inherent in realizing such a vision. It will need the support of new practices that allow individuals to identify and respond to common problematic patterns in thought and communication. I will touch on the importance of these themes: social vulnerability and power dynamics, unconscious sources of resistance to awareness, the challenges in justifying the effort required to raise consciousness in groups, and the role of technology in knowledge building. My conclusions and suggestions are starting places to instigate dialog and trial-and-error implementation. Though I propose a variety of ideas, cognitive tools, and methods, it is too much to be practically implemented in total any time soon, and the reader is invited to select aspects of it a-la-carte to consider implementing. Rather than offer end-solutions, I hope to suggest underlying theories and concepts needed for any community to engage in a dialog about their own knowledge building practices.

Themes Covered in this Article

Using a methodical approach to progressively introduce its main elements, the article is organized as follows:
1. I begin by summarizing integral theory's values and methods, highlighting those aspects of integral theory that support productive approaches to epistemological indeterminacy;
2. I illustrate the extent and inevitability of epistemological indeterminacy by examining textual discourses (positions, critiques, and responses) from on-line "communities" of integral theorists;

3. I examine in depth the many and varied causes of indeterminacy in knowledge and communication, as it is only with this understanding that we can address the problems that arise;

4. In the process I show that the indeterminacy can not be removed, but that it can be minimized, celebrated, reflected upon, bracketed, and otherwise dealt with in productive ways;

5. I include a discussion of the various ways that truth claims are evaluated, and an attempt to clarify collective truth-finding vs. meaning-making;

6. I then discuss psychological and social theories that provide tools and perspectives for dealing with indeterminacy (for example, the skill of dialectical thinking and how group vs. individual needs are balanced in knowledge building communities); this leads to a discussion of how the need for certainty leads to social vulnerabilities, which in turn introduces unavoidable ethical considerations;

7. I make specific recommendations for how information and communication can be organized and tagged to ameliorate some aspects of indeterminacy (including "indeterminacy analysis" and "differential analysis," and some recommendations on the use of "cognitive tools" such as wiki technologies);

8. I revisit the specific values and goals of integral theory and provide suggestions for how claims within the integral theory community can be validated and critiqued.

I will frame the discussion in terms of three aspects of collaborative knowledge building: **mutual understanding, mutual agreement, and mutual regard** (this triptych is inspired by Habermas' theory, as explained later). The discussion of *mutual understanding* and *mutual agreement* concerns the inherent uncertainty, ambiguity, and dynamism of knowledge and understanding. Interestingly, the quest for knowledge and understanding has intrinsic *ethical* implications involving the freedom, equality, and authenticity of participants. Epistemological indeterminacy, as it involves increased levels of ambiguity, self-reflection, and openness in dialog, can also increase social vulnerability, which in turn calls for compensating increases in generosity or regard, if the social fabric is to remain robust. The discussion of *mutual regard* looks at approaches to balancing critical rigor, reflective self disclosure, radical openness to the perspectives of others, and an authentic reflection on power and privilege. I will base my arguments on the works of an interdisciplinary collection of theorists including Jurgen Habermas, George Lakoff, Jon Elster, Imre Lakatos, David Bohm, Marshall Rosenberg, Arnold Mindell, Arne Vetlsen, and Hans Kögler, as well as Ken Wilber.

Observations about Integral Theory

Depth and Span of Integral Theory

Though my purpose is to flesh out some methodological implications of integral theory in general, I will focus on the work of Ken Wilber and those colleagues that refer thickly to his work. My hope is that in the end it will be clear that my practical suggestions are broadly applicable to all integrally informed communities (and more generally to all knowledge building communities). Wilber's work is certainly the defining body of work for the integral community, and is one among several contemporary theories that provide a systematic counterweight to the materialistic, objectivist, instrumental, and/or reductionist thought systems that prevail in much

of culture, politics, and academia. It does so not merely by critiquing other theories but by proposing an integrative framework that coordinates these theories and also by incorporating subjective and intersubjective matters of self, culture, and spirit. The task of formulating a model or world-view that can accommodate and interrelate scientific, economic, political, social, cultural, religious, ethical, and psychological aspects of the lifeworld is a daunting one, yet Wilber has succeeded at least to a limited degree (another rare example is the work of Jurgen Habermas, which Wilber often cites, and to which I will return).

Integral approaches give equal importance to the subjective and objective aspects of the world. Seen through this lens science and technology are not divorced from questions of meaning, identity, aesthetics, and ethics. Though Wilber's is a "theory of everything," its analysis is deepest and its application is most compelling in the areas related to spirituality and human potential. Wilber has an impressively deep relationship to and experience with contemplative practice, and his primary motivating orientation seems to be giving contemporary validity and meaning to topics including states and stages of consciousness, transcendental aspects of reality, the development of the self, and the facets of human potential. Wilber's theory integrates key insights from dynamic systems theory, theory of mind, sociology, ecology, etc., but does not explore these areas so deeply or thoroughly that theorists in those fields are likely to find new tools, models, or insights for dealing with the complexities introduced by modernity. Rather, they are assisted (or challenged) to relate their work to other fields and larger questions. The integral framework provides "orienting generalizations" from which models or perspectives can be compared and synthesized, and related to the perennial questions of the human condition.

Integralism and Post-modernity

Integral theory positions itself as being at the forefront of (post, or post-post) modern philosophical thought. It does so in the way that many theories purport to be a fresh innovation within their historical periods, but, more importantly in the way that it tries to systematically transcend and include all other theories with an all-encompassing narrative of the evolution of human consciousness and meaning-making (within which it unavoidably takes a privileged role).

The post-modern perspective is characterized by, among other things, a deeper appreciation of the uncertainties, complexities, ambiguities, paradoxes, and unpredictabilities of the life-world. This goes for both the objective world, which is the purview of science and technology, and the subjective worlds of thought, value, feelings, and human ethical considerations. The reliability and authority once given to systems such as religion, science, and governance has eroded, in part as their limitations and failures empirically come to light, but more fundamentally as we understand the inherent unpredictability of complex systems and the fundamental limitations of individual and collective human understanding and problem solving. This new understanding[1] has lead many to varying degrees of relativism, narcissism, solipsism, cynicism, paranoia, defeatism, or despair as the full curse of complexity, unpredictability, or uncontrollability is unveiled. These inevitably show up in discourse, and for the most part, we lack tools to navigate these waters. Even in intellectual communities like the integral community and academic

---

[1] "New" in the sense that for the first time a substantial proportion of society is grappling with these concepts, some of which had been described in pre-modern times.

communities of philosophers or psychologists that produce theories *about* epistemology, the *practices* that they use to dialog and build knowledge are largely traditional.[2]

In contrast to the voices of post-modern despair and defeat, some, Wilber and Habermas (and myself) among them, contend that the news is not all bad—that humanity's striving for ever deeper or greater levels of understanding and happiness is not hopeless, and that the post-modern understanding can be seen as a necessary though sometimes painful step forward, providing important new tools and insights. These insights help explain past failures in terms of the simplicity or inadequacy of their paradigms.

A Definition of Integral

Before discussing the implications of integral theory for knowledge building we need to attempt to define the goals, values, and methods of integral theory. This is needed because, as discussed later, the methods a group uses to share and validate knowledge depend on the group's goals and values. There is no definitive description of the features or goals of integral or "integrally informed" theories, research, or practice, but the one given here was arrived at through synthesizing a number of sources. I give two descriptions, the first is the integral paradigm or method for knowledge building, called "methodological pluralism" (Wilber, 2005a, 2005b). The second describes the scope and contents of integrally informed theories.

The integral method, or methodological pluralism, is an approach that, "in the presence of apparently incompatible, conflicting, or unrelated data, tries to make a productive, creative synthesis of the divergent elements" with a "gracious, spacious, and compassionate embrace."[3] It takes a "both/and" rather than an "either/or" or "right/wrong" perspective, and assumes that any person or group that has put considerable and sincere effort into discovering knowledge has at least a kernel of truth and deserves consideration. Integral theories are particularly sensitive to multiple perspectives, and claim that we gain an ever-better understanding of a thing through additional (valid) perspectives. It is not simply a relativist or non-rigorous belief that "everyone is [at least partially] right," but rather an understanding that if there are differing ideas they probably come from different perspectives. Thus the point is more that all (sufficiently informed and sincere) *perspectives* are important, rather than that every idea is.

One could say that *all* theorists *think* that they are seriously and graciously considering all of the available information and ideas, synthesizing them, and only discarding those that are truly invalid, and that the integral paradigm is thus rather vapid. To the contrary, one could also argue that Wilber and other integral theorists have a *particularly* inclusive attitude. But we can go a step further to try to characterize the type of inclusivity integral theories have by describing their scope and tenor as follows. I propose that being integrally informed entails the following:[4]

---

[2] We speak here of how authors relate their ideas to others, both within the context of a single paper, and in the larger sense that a body of texts is an extended dialog among authors.

[3] Also called the "integrative method" at http://noosphere.cc/integrationParadigm.html. Second quote is from "Introduction", Collected Works of Ken Wilber, vol. VIII, p. 49. "Methodological pluralism" can also be used to refer specifically to the eight methodologies (and eight primordial perspectives) mentioned in Wilber's "Integral Spirituality".

[4] Based on Sex Ecology and Spirituality, A Theory of Everything, and Integral Psychology, and other works by Wilber.

1. An acknowledgment and treatment of the **"big three" ontological domains**: objective (it), subjective (I), and intersubjective (we) (and/or the three cultural value spheres of science, morals, and art; the true, the good, and the beautiful; and/or the dimensions of body/mind/spirit and nature/self/culture).
2. A **holarchical approach** to problem solving that acknowledges and treats multiple holarchical levels (i.e., that when the central concern is with entities at a particular level, entities at higher and lower levels are acknowledged, if not worked out in detail).
3. A **methodological pluralism** is used, which, as described above, tries to incorporate material from as many valid perspectives and methods as are available.
4. **Developmental and evolutionary** processes are incorporated into the explanatory narrative.
5. There is an attempt to discover integrative principles or models that **transcend and include** the various dimensions, levels, and perspectives described above.

Later, in the section on "Practical Implications," I will return to this description/definition in suggesting validity criteria for integral theories. Next, I summarize an analysis of the textual dialog among integral theorists, to illustrate some of the causes, effects, and ubiquitous problems of epistemological indeterminacy, and to support my claim that greater attention to epistemological indeterminacy could benefit this, and other, knowledge building communities.

Examples from Integral Theory Texts

My reference in the Introduction to integral theory moving beyond "the world of Ken Wilber" points in two directions. First is the evolution from one man's theory to a theoretical framework by and for a community of theorists and practitioners. The second is a veiled reference to Frank Visser's web site www.IntegralWorld.net, which was originally named www.WorldOfKenWilber.com, and is currently the largest on-line repository of both validating and critical writings about Wilber's work (it is an independent and "unofficial" Wilber website).[5] The critiques, debates and dialogs on these sites, while containing much insightful material, also contain much that is not satisfyingly exemplary of a community working efficiently to refine and extend a body of intellectual work. That notwithstanding, the issues that I identify below from these on-line texts and dialogs are characteristic of most, if not all, knowledge building communities.

In this section I will anchor the issues I wish to raise in this article with some example quotes by Wilber and his colleagues from books and web sites. The critiques and rejoinders are mostly taken from wilber.shambhala.com (henceforth WSC) and www.integralworld.net (henceforth IWN).[6] Since these web sites concern Wilber's work, most of the critiques are levied Wilber's

---

[5] A second and more official site at wilber.shambhala.com has less material and less critical dialog, and the third major option for material are the new Integral University and Integral Institute sites, which at the time of this writing are just beginning to post theoretical papers.

[6] The "Reading Room" on the Frank Visser's Integral World web site lists over 150 contributions from almost 50 authors (see http://www.integralworld.net/readingroom.html). The page lists articles in such a way that it is easy to note critiques, responses, and rejoinders to a primary article (note that we are describing a dialog through *articles*, which are typically 5-30 pages long, not a discussion forum dialog composed of (usually quickly composed) paragraphs). That there are about 25 such responses (or responses to responses) attests to a certain level of cross-fertilization of ideas. We can also see from this

text (or Wilber himself). This article is not concerned with rigorous analysis of the available responses and counter-responses within the integral community, nor is it concerned with technical debates around the content of integral theory. Also, this article is not about Wilber's work per se, but is about and addressed to any community that uses or extends integral theories. I use Wilber's work and those with whom he textually dialogs as the most salient examples, though these authors comprise a "community" in only a loose sense of the word. The examples given here are anecdotal but sufficient to introduce the issues. Thus, even if the reader does not think there is a *problem* within integral theory discourse, I think you will agree there is an *opportunity* for creative improvement therein.

Most of the on-line exchanges lie somewhere in the middle of a formal/rigorous to informal spectrum—between the critiques and rejoinders one finds in peer-reviewed academic journals and what one would find in email and chat-room dialog. The on-line material has more "shoot from the hip" critique and more uncritical praise than articles in academic journals. One could argue that because they are offered within an environment with little quality control, that they are poor exemplars for my discussion. I will give several reasons to the contrary. First, Wilber has published very little of his material in peer-reviewed forums. The vast majority of his writings and ideas are available through his books and various (non-peer-reviewed) web sites, and the same is generally true of critiques and responses to his writing; so, these exchanges are representative of a large segment of the extant textual dialog. Second, the concern here is with practical implications to community knowledge building, and much of such knowledge building happens, even in academic communities, in informal ways; so the use of semi-formal exchanges is appropriate to my purposes. A community's knowledge evolution and meaning construction take place in articles, emails, meetings, conversations at the water cooler, etc., with the informal and more personal exchanges being at least as influential as the formal ones. The "epistemological sensitivity" discussed in this article applies to all contexts.

Finally, the integral community, taking Wilber's lead, has a propensity toward informalism, pragmatism, and popularism. Wilber's books are read predominantly by intellectually-oriented progressives and "cultural creatives." The flagship website "Integral Naked" and many published interviews with Wilber have a "hip/chick" informal and trendy style.[7] The Integral Institute is energetically *disseminating* integralism into many fields (politics, business, psychology/therapy, health/medicine, education, etc.) in addition to its knowledge *creation* activities. Though there are indications from Wilber and others that the rigorous or academic side of the work is not taken as seriously by academics as they would like, the community also intentionally incorporates informality into its products and methods. Therefore, my focus on semi-formal exchanges is appropriate to the consciously chosen tenor of this slice of the integral theory community.

I will categorize elements of the various integral theory debates according to whether the contention is about (a) the *content* of an integral theory, (b) the *method* an author uses to arrive at their conclusions, or (c) the style and intent of an author. The table below illustrates how these categories map roughly onto the types of arguments made.

---

list that over the last ten years Wilber has written articles responding to a number of his critics or co-theorists. However, some of these authors do claim that Wilber has failed to address certain issues that have been repeatedly brought up.

[7] In audio/video dialogs with other luminaries it is not unusual for Wilber to greet them using terms such as "buddy" and "pal." Wilber is often referred to as "Ken," even in academically-styled articles.

Table 1. Types of Critique.

	Example arguments:
Critiques of content	- Author is inconsistent, - Author is confusing, - Author makes unwarranted assumptions, - Author is inaccurate or invalid, - Alternative framework is proposed.
Critiques of method	- Author uses invalid methods of drawing conclusions, - The method used does not reflect the method the author claims to use - Alternative methods are proposed.
Critiques of style and intent	- Author's intention or purpose is harmful or unethical, - Author is purposefully misleading, hypocritical, or insincere, - Author's rhetorical style is harmful or unethical, - Author has serious character flaws leading to dubious style or intent.

The issues thus map approximately onto my orienting framework of looking at knowledge building in terms of mutual understanding (issues of comprehensibility and meaning), mutual agreement (issues of truth and validity), and mutual regard (issues of ethics and character).[8]

Critiques of Content

First, we will look at what Wilber's critics have to say about his AQAL theory of holons, quadrants, and perspectives.[9] We will also look at how Wilber responds to some of his critics, and vice versa. The arguments in the texts can become quite philosophically intricate, and the brief examples given below are not fair representations of them.[10] My purpose is to characterize some *properties* of the overall debate, rather than their substance and conclusions.

Types of Holons

Much of the disagreement is around sub-categories of holons as described by Wilber and by Kofman (2002). Wilber distinguishes "heaps" (such as a pile of sand) from "wholes," where wholes behave according to his Twenty Tenets. He also treats "social holons," which are

---

[8] Note that issues of content concern *both* comprehensibility and validity, while issues of method are, in the corpus of text, concerned exclusively with valid methodologies.

[9] We will not deal with levels, lines, states, or stages here, as our focus is not to cover the content of integral theory, but to look at its espoused methods and at methods in practice.

[10] For example, Edwards in Through AQAL Eyes Part 1 pg. 3, describes holons as perspectival "points of reference" that are "simply not objective entities"—opening up the unanswered question of exactly what reality *is* made of.

collections or communities with particular properties, differently from individual holons. Kofman goes further to differentiate artifacts, leading to four fundamental types of things in the universe (individual, social, heaps, artifacts; Wilber then also uses these distinctions). One of the controversial issues is what types of things (holons) could be said to possess sentience (consciousness, subjectivity, or prehension; note that sentience is not mentioned in the Twenty Tenets).

The debates on holon types[11] are largely around the sufficiency of Wilber's definitions of them. Wilber's arguments, and those of others with alternate theories, have the form 1) <holon-type-T> is defined by <characteristics-C>, 2) if an entity is of <holon-type-T> then <implications-I> [i.e., the thing has certain properties, behaviors, relationships with other types of entities, etc.], and 3) specific <examples-E> are given. The arguments against these theories take the form of pointing out new (counter) examples of holons and showing that the critiqued theory makes a false prediction about holons of that type. Among the authors with alternative frameworks, some authors add new categories to better explain unusual examples (e.g., Edwards), and some reduce the number of categories (e.g., Smith). As the authors often admit, the new frameworks fix certain problems but create new ones in the process. Meyerhoff claims that Wilber reformulates his framework in light of the counterexamples offered by others, but does not credit the authors of these productive critiques.

In most cases the disagreements have the same epistemological source: claims are not so much categorically wrong as seen to be invalid under a particular definition or interpretation of a term (a <holon-type>, <characteristic> or <implication>) where the interpretations of the terms varies among authors. Some of the problem arises from *different* definitions of terms, and some from the fact that definitions use "graded" conceptual categories, as discussed later. Also, we can see instances where definitions are modified and claims refined in light of new types of examples not considered before. (This knowledge building dialectic is essentially the same as in Lakatos' *Proofs and Refutations*).

For example, Edwards claims the Kofman-Wilber definition of holons "implies that people are not members of a community or group or society when they fall below the average" (in intelligence or beauty, for example) ("Through AQAL Eyes" Part 1 pg. 36). Let us assume that Kofman would find Edward's critique disagreeable. Kofman might respond that 1) Edwards erred in *not understanding* his definitions and arguments, or 2) his theory is essentially correct but the *way it is described* could be clearer; or 3) his theory is incorrect and should be modified, and that Edward's found *a flaw* in it (and there are of course other possible response types). Edwards' point represents a typical and potentially very useful type of dialogical move that allows knowledge to evolve (though we don't know how it actually affected Kofman's or Wilber's ideas). This is exactly the type of interplay between examples, definitions, and claims that Lakatos describes in *Proofs and Refutations* (1976). Wilber's work has certainly gone through a number of evolutionary phases and refinements, which he claims have been assisted by the feedback of many dialogs.

---

[11] See (at IWN unless noted) Meyerhoff Chapter 1, Edwards "Through AQAL Eyes," Smith "The spectrum of holons," Goddard "Further thoughts on holons, heaps and artifacts", Jaron "My Holarchy and the Integration of Robert Pirsig and Ken Wilber" at
http://www.moq.org/forum/GaryJaron/What'sWrongWithThisPicture.html.

Four? Quadrants

Another controversy mentioned by many of Wilber's critics has to do with the validity of the four-quadrant model and its descriptions. One issue is the confusion about whether every holon *has* all four quadrants (or can be seen *from* the perspective of each of the quadrants), or whether holons exist *in one* of the four quadrants. For example, Wilber's Four Quadrants diagrams (e.g., p. 62 in Wilber 2000c) show atoms as holons in the "upper right" (UR) (individual objects) quadrant and galaxies as holons in the "lower right" (LR) (plural/social objects) quadrant, but both are holons and can thus be seen from *either* the singular (upper) or plural (lower) perspectives. Wilber has clarified numerous times that the first interpretation is the more correct or fundamental one,[12] yet his descriptions, even up to the recent Kosmos II drafts (Wilber 2005a), also explain things in terms of the second interpretation.

For example, in Wilber (2005a, p. 6) Wilber says "we will take as examples actual occasions (or holons) *in* each of the four quadrants...The upper quadrants refer to individual or singular holons, and the lower quadrants refer to plural, social, or communal holons" (my emphasis). He uses similar statements in many of his texts. Elsewhere in the same text (p. 18) he says "Of course, there are not different holons in the four quadrants; the four quadrants are the four dimensions of every holon. But it is easier and simpler to say things like 'holons in the UR quadrant,' and so on, which is fine, as long as the tetra-nature of any holon is remembered."

Though I understand the usefulness in each interpretation of the holon-vs.-quadrant relationship, and, after a period of confusion, can now "remember" the caveat, I suggest that, given the possibilities of confusion and the controversy this often-left-implicit distinction has raised, in the end it may *not* be fine or simpler to use the same terms in two different ways.[13] I furthermore claim that the debate about whether holons can be said to exist "in" the upper left quadrant, for example, is due to transferring a property of the diagrammatic representation beyond its usefulness, and thus momentarily confusing the map with the territory. Edwards ("Through AQAL Eyes Part 4" and "Another Way of Putting it" on IWN) tries to remedy this problem with a significantly more complex set of diagrams. But the issue of general limitations to diagrams and other conceptual schema is not sufficiently addressed by Wilber's critics.

Primordial Perspectives and Integral Mathematics

Overall, Wilber's work attempts to provide an integrative model incorporating the primary value spheres of the modern life-world, i.e., mind (including art), matter (including science), culture (including ethics), and society (including economics, politics, etc.). His description of these value spheres is often given in terms of the pronouns "I," "it," "we," and "its/they," and his more recent work on "primordial perspectives" and "integral math" notation make heavy use of pronouns. For example, "1p(1p) x 1p(3-p) x 2p(3p)" represents "my first person knows, in a third

---

[12] For example, in "A Suggestion for Reading...", Wilber writes that "molecules are sentient beings ... [that]... can register objects in [their] world (it) has its own prehension (I), can resonate with other molecules (we);" and that "any object can be LOOKED AT from [the] four perspectives, but only sentient holons POSSESS four dimensions or can LOOK FROM four perspectives" and that "social holons do not possess four quadrants." Clear enough, but still confusing for the newcomer.

[13] For another corroborating opinion, see Mcfarlane (A Critical Look at Ken Wilber's Four Quadrant Model (2000) at integralscience.org/wilber.html) also claims that Wilber "is not consistent with his terminology and this leads to considerable confusion," and he gives several examples.

person mode, your first person," which Wilber says "would simply mean, I am seeing you in an objective fashion" (from Wilber, 2005a, Appendix B).[14] This new work has generated a significant amount of critique and counter-theory on the IntegralWorld web site.

Several authors on the WSO site provide critiques and alternative models. Peter Collins, (in "Clarifying Perspectives, Part 4," WSO) claims that the ability to look at one quadrant from the perspective of another leads to 16, and then 64 distinct perspectives, which he diagrams at length. Mark Edwards ("Through AQAL Eyes part 7," at IWN) claims that Wilber's I-we-it-its framework does not make important differentiations, including differentiating the "you" from the "we" perspective, the "he/she" from the "it" perspective, or the "my" from the "me" perspective. (He claims that each of these constitutes valid perspectives, but in so doing it is not clear that he uses the same sense of the word perspective as Wilber.) He proposes a model that includes subjective, objecting, relative, and possessive pronoun perspectives. In it, first, second, and third person perspectives are extended from singular to plural, resulting in six perspectives. He continues to elaborate his model to produce 42 first-person perspectives, and over a hundred additional perspectives illustrated in about a dozen tables.

Andrew Smith ("The Pros and Cons of Pronouns," at IWN) critiques both Edwards and Wilber in claiming that there are no ontologically distinct second or third (or fourth...) person perspectives, that there are only different classes of first person perspectives. He also agrees with Edwards in differentiating actual perspectives (that a person has) from imagined (or notational) perspectives, which one person imagines or believes another person to have. He then uses his "single-scale hierarchical model" of holons to propose yet another system of I/you/we/it/them/thou perspectives.

Those providing alternates to Wilber's system offer complex, at times bordering on baroque, models that, though perhaps valid, are difficult to assimilate and use. It is not clear yet what practical purposes such systems, including Wilber's integral math, can be put to that would make it worth studying these frameworks to the point of fluency (or even getting a reasonable grasp of them). Models work by articulating key differentiating constructs and integrating them. There are an infinite variety of models possible for any phenomena or domain. The validity of a model depends critically on its usefulness and usability, and thus on its intended use. What problems does it allow us to solve? All of these models are less than clear on this point, making it difficult to compare their validity and usefulness.

In addition, I believe that the importance that these models place on pronouns creates an unnecessary degree of confusion and imprecision, because they lead us to transfer associations or map structures from informal use of language to more formal or ontologically basic arguments. To the extent that we enlist these inappropriate inferences, we engage in another form of confusing the map with the territory.

The Ubiquity of Indeterminacy

Wilber's critics fall prey to the same types of validity, coherence, and understandability problems that they point out in Wilber's works. As in any complex philosophical argument, within *all* of these integral theory articles we can pick out *many* instances where the definition of a term is unclear or where a term seems to be used in contradictory ways. The meaning and implication of statements hinge critically on which subtle shade of meaning is given to certain

---

[14] Wilber notes that "a pronoun is not an actual person but a relative perspective that all actual persons can adopt" (Wilber 2005a, p. 137). He also introduces notation that distinguishes "we/us" from "our."

terms. Whether the arguments of Wilber's critics are *more* coherent, understandable, consistent, etc. and whether they have reworked their own theories in response to counterexamples and critiques *more* than Wilber has, is debatable. Validity-constituting properties such as coherence, understandability, and an open attitude to alternate perspectives and counter examples are important, but can also be illusive. Given the evidence, I would suggest that imbuing every one of one's claims with these qualities is both practically difficult, and, in the extreme, theoretically impossible. However, if one intends to engage in rational dialog in an effort to better understand the world, we *do* have to *attempt* to approach these qualities.

Wilber Responds in "Kind"

Before moving on, it will be noted that Wilber does acknowledge the *inevitable* difficulties in creating mutual understanding as well as his own part in creating *avoidable* ambiguity, for example:

> The distinction between an individual holon and its social holon...is not as easy to draw as it may first appear...because it is almost impossible to define what we mean by an individual in the first place...there are only holons, or dividuals. On the other hand..." and, later, "This is still somewhat arbitrary...because there are some social holons that seem to act as individual holons...an ant colony, for example (Wilber 2000a, p. 72).

> Also, although I tried as hard as I could to make chapter 14 in Integral Psychology...as clear as possible, I am now—given de Quincey's reading of that chapter—worried that I didn't succeed very well at all, so allow me to try to simplify and summarize (From "Do Critics Misrepresent My Position? A Test Case from a Recent Academic Journal, Part II," at WSC).

> One of my biggest problems is that, alas, I haven't the time to address all these issues adequately (from "On the mean memes in General, " at IWN).

> ...misrepresentation of my work is quite common, simply because there is so damn much of it, and many of my actual positions are buried in obscure endnotes; I have not helped much in this regard, a situation I am doing my best to rectify (as I will explain below) (in "Do Critics Misrepresent My Position?" at WSC).

Critiques of Method

I next move from disagreements about the content of integral theories to disagreements on the *methods* used to develop and validate integral theories. Several authors claim that the methods that Wilber uses to draw conclusions are flawed. For example, M.A. Kazlev[15] accuses Wilber of over-relativism, lacking predictive ability, unfalisifiable conclusions (a-la Popper), misunderstanding of original sources, and insufficient research. Along similar lines, Meyerhoff's book-length critique of Wilber's work offers the largest number of challenges to Wilber's method. Some examples (from the Introductory Chapter and Chapter 8, IWN) include:

---

[15] "Ken Wilber's 'integral' method and critique" at www.kheper.net/topics/Wilber/Wilbers_method.html.

A cornerstone of postmodern understanding is that an overarching integration of knowledge of the kind Wilber attempts is not possible and that a radical plurality of perspectives is a fact of contemporary life. A type of relativism prevails which Wilber believes he has transcended, but which my analysis shows he has not....we cannot hope to have a large-scale model of the kind Wilber attempts.... Hiding behind Wilber's belief that all partial truths must fit together is the debatable assumption that all the partial truths correspond to one true world....Yet the philosopher Nelson Goodman has made a strong argument that there are contradictory truths which cannot be assimilated into one coherent picture of the world.

The assumption is that if a great and influential thinker says something, what they say is supposed to carry authority. It's a curious pre-Enlightenment way of validating statements by reference to authority.

Anyone who reads a lot of academic writing develops straw man radar. The reader senses when the arguments attributed to the author's opponents are being formulated weakly. The problem is, as Rorty says, that 'such neat little dialectical strategies only work against lightly-sketched fictional characters.'

[Wilber] presupposes background points of agreement or orienting generalizations. In each field of knowledge Wilber culls this already-agreed-upon background knowledge and constructs his integral synthesis...assumptions that debating scholars assume to be true as they debate the relevant issues in their fields...I show the extensive and contentious debates surrounding the supposedly already-agreed-upon knowledge that Wilber uses to construct his integral framework.[16]

[there is] a problematic conflation of intellectual and spiritual insight...While Wilber would probably agree that the advanced mystical stages do require leaving rational thought behind, he tries to create in the intellectual sphere a great Whole that preserves the parts; a kind of intellectual Oneness to match the supreme mystical insight into Oneness....one great theory of everything [is] in the wrong direction...Thinking must be seen as a path to spiritual insight through the critical, skeptical and deconstructive questioning that is prominent today in a postmodern world.

It should be noted that Wilber has not yet responded in writing to Meyerhoff's critiques, so one can only guess how he would respond. This is in part because some of Myerhoff's material has only recently been posted. Wilber may of course choose not to respond for any number of reasons. Based on my reading of Wilber and his responses to other texts, I can at least say with some confidence that Wilber would claim that Meyerhoff has misrepresented, simplified, ignored, or does not understand important elements of his written works. In (attempted) fairness

---

[16] Meyerhoff continues: "...while the participants in a given academic debate do presuppose background knowledge which you could cull and call "simple, but sturdy" knowledge, as Wilber wishes to do, it's only because the participants in that debate don't happen to be debating the validity of that background knowledge....It doesn't mean they are not debatable...Is this a piece of "simple, but sturdy" knowledge? Not according to contemporary debates in epistemology...One person's generalized orientation is someone else's point of contention."

to Wilber, I will say that Wilber does not ignore these issues in his writing. In (attempted) fairness to Meyerhoff, it would seem that these methodological issues weigh much more heavily on one who proposes a "theory of everything" than on one who is merely critiquing another's theory.

Integration vs. Differentiation, and Kettle-Calling

The main thrust of Wilber's theories is to look for integrating generalizations in diverse fields of knowledge, while Meyerhoff's is to point out the (sometimes historical, sometimes inevitable) differences, disagreements, and incommensurability among such theories. However, Wilber also discusses theoretical disagreements and differentiating multiple perspectives, and Meyerhoff also makes his own overarching and integrating claims. It must be said, however, that while Meyerhoff offers some strong arguments against the possibility of a "theory of everything," his own text can be interpreted to include instances of most of the methodological problems he mentions above. These include: overarching models (but not as "large scale" as Wilber's), grounding an argument in authoritative thinkers (e.g., Rorty, White), including value-laden or moral elements in what is presented as a fact-based logical argument, using language to theorize about ineffable or spiritual truths and paradoxes, and attributing simplistic beliefs to others (Wilber) that seem to me to be so obviously invalid that I presume no serious intellectual would agree to hold them (i.e., he is using a form of straw-man argument).

More Indeterminacy

Therefore, notwithstanding the many particular instances Meyerhoff points out where Wilber seems to be inconsistent or where he disagrees with Wilber's conclusions, in a broader sense what he describes very clearly are the real difficulties in: (a) creating conceptual models, (b) coherently communicating a complex matrix of ideas, (c) making truth claims in non-scientific domains, and (d) the inevitable convolution of fact and value (truth claims and ethical claims). That his own text demonstrates many of these fundamental problems is only more proof of the inevitability of these problems (i.e., evidence of the impact of epistemological indeterminacy).

Meyerhoff emphasizes that the human drive to generalize can lead to significant problems, while Wilber emphasizes the utility (if not validity) of this drive. Rather than favor either side of this issue, one can say that most texts and dialogs can do more to avoid the pitfalls of overgeneralization while still accumulating its benefits. Though the fundamental philosophical issues cannot be "solved," some of the problematic aspects of these themes can be ameliorated. This would benefit all. Therefore, though the collective quest for meaning and understanding is fraught with indeterminacy, it is not futile, and it can be engaged with more or less skill.

As a final example of critique of method, Edwards' "The Integral Cycle of Knowledge" (2000, at IWN) emphasizes the postmodern perspective on methodology and validity, which addresses the dialogical and interpretive nature of meaning-making. Unlike the critiques of Kazlev and Meyerhoff, Edwards focuses on Wilber's stated *model* of method, rather than critiquing Wilber's methodology itself. He claims that Wilber's "three strands" epistemological model for knowledge validation is missing a critical fourth strand: an interpretive strand. However, Edwards notes that elsewhere in Wilber's writing he clearly acknowledges the interpretive element of validation. Wilber proposes a three step methodology with the interpretive phase folded into it, while Edwards suggests a fours-step model with the interpretive step clearly separated. Is one method

wrong or invalid while the other is valid? Clearly, it is not as simple as this. I will revisit the question of validity criterion further below.

Critiques of Style and Intent

Next, I turn to critiques of Wilber's work that focus on his character or on normative or ethical issues. Below, I give some samples of derogative or inflammatory snippets from various authors. Note that these are selected to characterize this aspect of the overall debates, and are not meant to be fair representations of the average style of any author, or of the average character of the overall dialogs.

Conspiracy Theories and Empires Without Umpires

Some critics criticize those who adopt Wilber's theories, and complain that Wilber and his "inner circle" is "co-opting the whole Integral Agenda," and flag the "danger inherent in relying upon any one person to define and determine Integralism" (Peckinpaugh "Shut-Ins" on IWN) (also see "The Cult of Ken Wilber" by Michel Bauwens, on the IWN). As to whether such complaints are sour grapes or clarion calls, I can not say. There are clearly grains of truth to both perspectives, but I choose not to engage in the more political aspect of the debates. More to the point here are questions about the ethical validity of knowledge building practices. Edwards protests:

> Ken has started a new initiative [on the Integral Naked site] called "The Critics Circle," and the set up is that a student asks Ken a question that is the student's understanding of some other person's criticism [of Ken] and Ken responds. The student courageously tried to summarize 50 pages of reasonably tight argument in a few words...I completely understand that Ken has no time for reading the great amount of critical material on Integral theory that exists on the web and on [the Integral World] site...But...asking others to summarize huge amounts of material and then responding to their potted versions is just not the way to run a "critics circle."("Some Thoughts on the State of Things," on IWN).

To this Wilber responds by noting that the new Integral Institute website will soon publish a slew of more rigorously debated articles by a wide range of associates of the Institute. From the perspective of the health and evolution of "integral theory" worldwide, it is probably undesirable to have most of the theoretical influence coming from a single person, and to have that person maintaining a firm grip upon their theoretical orientation. However, from the perspective of Wilber (and "his" organization) it makes perfect sense, both logically and psychologically, to focus energies in ways that deepen, expand, and disseminate his theoretical intuitions, while conserving energy and protecting the considerable existing investments from dilution or decay. Very, *very*, few powerful leaders in any area, even in spiritually or ethically oriented projects, have the type of humility and openness to diverse opinions that their detractors claim they should have. However, democratic or decentralized organized groups *can* establish norms and awarenesses that counteract these problems.

Nastiness and Mea Culpa

Wilber has been criticized for his argumentative, polemical and abrasive manner. Many of the statements referred to are in Part 3 and the extensive Endnotes of Wilber's *Sex Ecology Spirituality*. Wilber addressed this issue in the following way:

[SES] is in some ways an angry book. Anger, or perhaps anguish, it's hard to say which. After three years...of being exposed to [the contemporary style of academic debate which included]..some of the most toxic and venomous writing I have ever seen...in anger and anguish, I wrote SES, and the tone of the book indelibly reflects that." Wilber then notes that comments about SES ranged from calling it "refreshing critique and liberating humor" to "unmannered, rude, and offensive" and adds "No doubt, both sides were right (p. xxi in Wilber 2000; and see also "On Critics, Integral Institute, My Recent Writing" at WSC).

Rather than finding that polemical, abrasive, or dismissive statements detract from an argument, apparently many find such rhetorical features entertaining and convincing. There is no dearth of such statements by others about Wilber and his work. Stabs at Wilber range from Kazlev's relatively innocuous "I can understand where [Wilber] is coming from, and sympathize with it, but I find his position simplistic" to Heron's more colorful "I despair of Wilberians…. People ask me from time to time what I make of Wilber's work. And I have to say, 'Not a lot'" ("A Way out for Wilberians," at IWN).

Character Analysis

Wilber's reflective explanation of his stylistic coarseness, quoted above, may suffice for some, but for others a deeper explanation seems to lie in waiting. Several have engaged in ad-hoc psychological analysis of Wilber, his character, and his unconscious motives. Meyerhoff, in his extensively researched analysis of Wilber's work, traces Wilber's personal history and links it to a hypothesis that a "...core issue of duality or separation and the need to integrate ...[and the] split between science and spirit and the need to prove spirit to science...[and an] aversion to loss and a resulting desire for integration" underlies Wilber's intellectual process (pp. 201, 206). He suggests that since "the great danger for the grandiose is deflation by the intrusion of the real" that the above noted unconscious forces accounting for an "insecurity [that] drives him beyond repetitiveness and caricature to the sarcasm and snideness for which he has been criticized" (pp. 211, 213).

In another psychological analysis, de Quincey asks:

Why does [Wilber] seem driven to master the domain of reason, to construct an impenetrable intellectual edifice...the impression [is] that this immense rational fortress has been erected to withstand any possible intrusion of ambiguity, paradox, or mystery, and is designed to shut out the messiness of intense feeling. Everything, it seems, must fit (The Promise of Integralism, p. 5, at IWN).

Though Meyerhoff has done his research and is freer to speculate with an objective air, in de Quincey's case one can note a polemical intensity of tone that belies a strong emotional

motivation. That he does not reflect upon or disclose his own emotional state makes him subject to his own critique.

Where does one draw the line between ad hominem attacks that, though perhaps rhetorically persuasive, have no bearing on the issue at hand, and psychological analysis that adds insight and meaning to the study of someone's' work? Is it *ever* valid to analyze the personality or personal history of one's rhetorical opponent (especially if one has little intimate knowledge of them)? The answer to these questions are, of course, very context specific but such rhetorical moves are, at a minimum, risky, as one can see with Wilber's tit-for-tat rebuttal to Heron's "I despair of Wilberians…. " article (quoted above):

> Heron tells us...that he has a "self-imposed ordinance," which is "not to spend too much time" in arguments that "typically involve heavyweights slugging it out in absolutist theoretical arenas..." And then Heron delivers...a torrent of propositions landed on each other to build up scores of points...absolutist positions...in a relentless stream... All the while Mr. Heron assures us that [he deplores] the type of "theoretical gun-slinging" which supposedly characterizes all of my writing.

Strong Straw Men

A common critique in any academic area is that one's ideas were simplified or misrepresented. The *ethical* implications come in to the extent that it is stated or implied that the other party *intentionally* misrepresented them, and there is often a flavor of such condemnation in the debates. In his book Meyerhoff (2006) states:

> Anyone who reads a lot of academic writing develops straw man radar. The reader senses when the arguments attributed to the author's opponents are being formulated weakly. With Wilber, weak formulations are the norm. What he typically does in SES is: refer to some general group of authors such as "the ecophilosophers" or "the multiculturalists," caricature some part of their views he doesn't like, and then repeatedly "prove" that they are wrong about the point he's fixed upon. While reading these pages one wonders who these people are and do they actually believe such simplistic things? (IWN).

Meyerhoff has a similar comment about his *own* critic (in "Reply to Jan Brouwer," who wrote a critique of his book): "Most of my arguments that Brouwer does discuss are reduced to simplifications, similar to the way Wilber treats *his* opponents' arguments." Though Meyerhoff's analysis of Wilber is extensive, and in this way far from a simplification, Wilber might say, and Brouwer does argue, that Meyerhoff selectively chooses Wilber's quotes to make a point, and thus is also guilty of simplification. One could argue that it is no more feasible that Brouwer's 24-page review of Meyerhoff's book will do it justice than that Meyerhoff's single book can do justice to Wilber's twenty books. In all cases, the authors have points to make that they no doubt have some attachment to, select statements as data to support their opinions, and do the best that they can (we will assume) not to misrepresent the other and to critique with integrity. And in all cases, the outcome is less than completely objective, as complete objectivity in authors is not possible. The processes of critique and response are, of course, critical for a community as a whole to weed out over- and under-statements. The point made later in the paper in terms of

"The Believing Game" is that this back-and forth can be more efficient and less like flailing to the extent that authors make efforts to assume each other's perspectives.

The straw-man complaint is also launched by Daryl Paulson in Wilber's defense: "...what is so problematic about Ferrer's [critique of Wilber is that] it lacks all subtlety, it lacks any granularity—it is based on a series of crude distortions of Wilber's complex and inclusive views, reducing them to a series of superficial straw-man arguments that Ferrer then attacks with considerable hostility" (critiquing Jorge Ferrer's critique of Wilber, at WSC).

Wilber's articles "Do critics misrepresent my position" (WSC) and "A suggestion for reading the criticisms of my work" (IWN) likewise complain that his critics misread and misrepresent him, for example:

> My recommendation ... is that [critics] try to separate two very different tasks: (1) presenting their own good ideas in themselves, and (2) criticizing mine. Because [so many of the critics on the Integral World web site] combine their possible truths with a mis-statement about mine, their overall sentences and presentations are FALSE... And this is truly unfortunate, because ....their OWN views are often true and important...Based on that crucial misreading, a series of further misreading follow...[amounting to]...a staggering distortion of my work "A Suggestion for Reading the Criticisms of My Work" (IWN).

In a like-minded rebuttal, de Quincey, in his 13-page rejoinder to Wilber's 23-page response to de Quincey's 30-page critique of Wilber's 303-page book *Integral Psychology* writes: "I was immediately struck by the degree to which Wilber manifested many of the critical failings he had accused me of—not least of which were the 'misrepresentations,' 'distortions,' out-of-context quotes, ad hominems, and plain factual inaccuracies in his 'test case' response."

This is beginning to sound like a soap opera, for which I can take much credit since I am picking out a few quotes from many pages of more substance.[17] However, one does wonder whether, if so much of this writing is based on distortions or misrepresentations of another's work, whether the whole enterprise is seriously inefficient. But there is more...

Read My Mind

The concern by many authors that others are launching critiques based on simplifications or misrepresentations is certainly a valid concern, and illustrates one of the problems with open-ended internet dialogs without peer review. But in a related posting, Wilber takes a stronger but much more tenuous stance, saying: "...if somebody wishes to criticize [my version of integral theory] specifically, then they must first state it accurately...usually the only way to really understand a theory and criticize it cogently is to do so verbally, in person or by phone, with its originator." Clearly there are some serious problems with this view—so serious and obvious that I wonder whether Wilber thought through the implications of his two-page response before sending it off. Though this may be the way that mutual understanding is created in a student-guru relationship, it is not the criterion normally used in academic or philosophical dialog.

---

[17] I will note that over the approximately 10 years of articles on the Integral World web site, that the tone between Wilber and his critics/colleagues seems to have steadily deteriorated (on both sides). The early articles of several authors are, if anything, overly respectful, and even claim a collegial understanding of some of Wilber's foibles, such as the polemical style of Wilber's SES book (e.g., Visser's "The Seven Faces of Wilber").

That people offer simplified examples of each other's works in order to make a point is unavoidable. Debates may have a bit more integrity if a one makes a clear distinction between what an author says (and/or *seems* to imply) and what an author must actually believe, as the latter is a far more speculative claim. For example, Meyerhoff's critique that in Wilber's writing "a type of relativism prevails which Wilber believes he has transcended..." is doubtful. Wilber himself crosses the mind-reading boundary at times, for example: "incredibly, [William] James overlooks the fact that the symbol per se...is itself...immediately experienced or apprehended by the eye of the flesh" (Wilber 2001, p. 63).

That there are inherent difficulties in offering a "correct" interpretation of another's work is clear. In fact, Berge notes that Wilber himself says that "there is no single correct interpretation because no holon has only one context" (from "Who decides what Wilber means" at IWN).

Back to Basics

Before closing this section, I will show several quotes from Wilber's texts that remind us of the underlying intention behind his methodological pluralism—an attitude which has ethical as well as epistemological import:

I have one major rule: everybody is right. More specifically, everybody - including me - has some important pieces of the truth, and all of those pieces need to be honored, cherished, and included in a more gracious, spacious, and compassionate embrace (from the Introduction to the Collected Works of Ken Wilber, Vol. VIII, p. 49).

...in other words, all of my books are lies. They are simply maps of a territory, shadows of a reality, gray symbols dragging their belies across the dead page (from Visser, 2003, Forward).

...This means that the chief activity of integral cognition is not looking at all of the available theories—whether premodern, modern, or postmodern—and then asking, 'Which one of those is the most accurate or acceptable?,' but rather consists in asking, 'How can all of those be right?' (Wilber, 2005a).

Though Wilber may not be open to multiple perspectives on what he *himself* believes, the underlying intention of his integral theory (and all integral theories) contains a type of intellectual generosity. Sometimes, but not always, integral theorists translate this theoretical generosity into a generosity of practice through dialog (spoken and textual). Although in the end (and in the beginning) our fragile human nature places limits on our openness to conflicting beliefs and challenges to our own beliefs, I propose that as communities we can develop tools and practices that nudge us in the direction of a generous spirit.

Discussion of Integral Theory Textual Dialogs

The following general points are summarized from my discussion of the texts I have quoted:

-   There is ample evidence that authors have **different meanings** or intentions for the same terms, and even that the same author uses a given term in different ways.

- Some of these differences come from different background **assumptions**, which are **not** always **clearly stated**.
- Many of the disagreements or ambiguities result from the fact that the theories use **discrete conceptual categories** (e.g., types of holons, UL-UR-LL-LR quadrants) and make claims about the objects within each category, but that examples can usually be found that fall between categories that invalidate the theory's claims. Both Wilber's theories and the alternative theories of others are shown to have this problem. Authors blame the problem on the inaccurate, inconsistent, or confusing statements of others, but there is little attention paid to the unavoidable and inherent indeterminacy of all conceptualizing schemes.
- Most conceptual **categories are "graded"** in that things can be assigned along a continuum within the category rather than into the discrete conceptual "boxes" suggested by the concept. Models that make claims, usually of the form "X follows from Y being true," are only true for examples that fall centrally in the categories used.
- Each model is but one attempt to provide meaning to a complex phenomenal space, with countless other alternatives. It is difficult to compare models or evaluate their validity or usefulness when one does not have a clear indication of their **intended use** and what questions they are designed to answer.
- The complex and sometimes **reciprocal relationships between the concepts** of a theory can pose problems in determining a prerequisite-based sequence of ideas explaining the theory. Some claims must be summarized in simplistic, and thus partially inaccurate, ways before other concepts are introduced.
- Theories often run into problems when diagrams are created as **visual representations** of conceptual models. We sometimes transfer properties of the diagrammatic representation itself to the theory, stretching the diagram beyond its usefulness, and leading to an interpretation that confuses the map with the territory.
- One can also create problems by **transferring properties of linguistic systems** to conceptual models, for example in the use of pronouns ("I," "it," "we," etc.) to anchor aspects of integral theory.
- One finds almost universal evidence of a, perhaps unavoidable, form of **hypocrisy**, in which those who pronounce ethical or normative judgments seem guilty of the same infractions that they perceive in others.

Issues in mutual understanding arise from such sources as differing background assumptions, and fuzzy or graded conceptual constructs. Issues in mutual agreement come from two sources. One is disagreement on the *facts or conclusions* of another author's argument. The other is disagreement on the *methods* one has used or on what methods in general lead to valid claims.

Critiques aimed at another's method come in the following forms: over simplification, over generalization, straw man arguments, over-reliance on authorities, relativism, idealism (inappropriate synthesis or postulation of universals), lack of empirical evidence, lack of falsifiabilty, un-provable prior assumptions, internal inconsistency, incoherence, misrepresentation of an author's claims or intentions, and insufficient dialog or participation in a hermeneutic process. However, I illustrate that in almost every case, an author who critiques another's method is guilty of the identical infraction. It may seem that some degree of hypocrisy is unavoidable. Epistemological indeterminacy affects what members of a knowledge building community can reasonable expect of each other, and thus how critiques are dispatched.

One can note that there is nothing even remotely approaching a consensus on the validity criteria that should be used for integrally informed theories, and there is very little dialog about validity criteria. Later I will argue that no single validity or legitimacy criterion is appropriate, but that a triangulation of multiple methods and validity criteria will usually be necessary.

I illustrated a number of critiques of style and intent. In the nastiest cases there were veiled charges that another *intentionally* misrepresented one's argument, which is a more serious and less provable claim than the unintentional misrepresentation discussed above. Charges of misrepresentation usually take the straw-man form that another has portrayed one's argument too simplistically. Wilber noted that one can be on thin ice when they propose to interpret the ideas of another, and he noted how dialog and engagement were important elements of mutual understanding, which in turn is essential to productive critique. He went too far, however, in suggesting that those who could not have a personal or extensive dialog with him were unfit to critique his theories.

I noted several authors who propose psychological character analyses of Wilber. As in the paragraph above on method, I show how authors who sharply criticize the abrasiveness or polemics of other authors are often found guilty of same crimes. However, unlike critiques of method, we cannot say that such dialog attributes are unavoidable in knowledge building. The adage that "those who live by the sword die by the sword" comes to mind in a couple of exchanges where ad hominem implications fly like daggers (or sticky wet noodles) in the wild, wild west of internet cyberspace.

Quotes were selected from this slice of the community of integral theorists to illustrate issues in the areas of mutual understanding, mutual agreement, and mutual regard. Some readers may be thinking "but those critiques against Wilber are correct, the problem is not about indeterminacy!" That would miss the point. My concern here is not with whether claims or counter claims are valid, but in how individuals, and especially communities, deal with diverse perspectives and claims when there is no clear practical empirical or scientific method to settle what is true, and whether integral theory points us to productive approaches. All of the issues raised and illustrated in these quotes point to general issues faced by all knowledge building communities. A similar (though perhaps less colorful) analysis could be done with any knowledge building community, though each would of course have unique characteristics. Also, there is no implication that these issues are easily eradicated or dealt with—they are ubiquitous and entrenched in the way that knowledge building is practiced. In the remainder of this article, I will explore the philosophical, psychological, and sociological elements of these problematic issues.

Indeterminacy in Mutual Understanding, Mutual Agreement, and Mutual Regard

In the previous section, I showed evidence from integral theory community texts of a number of problematic patterns related to epistemological indeterminacy that plague knowledge building communities. I also hinted that, though these issues were complex and to some extent unavoidable, there are things that communities can do to ameliorate many of the problems.

Before I recommend specific solutions, I need to explore the nature of the problems, their causes and effects, by looking at some current theories of mind, group, and knowledge.[18]

Validity Claims and the Entanglement of Understanding, Agreement, and Regard

I will introduce an orienting framework based loosely on Habermas' theories of Communicative Action (Habermas, 1981) and Discourse Ethics (Habermas, 1999). Habermas' work shows that most statements imply four types of "validity claims."[19] The validity claims are claims that we explicitly or implicitly make in communicating some belief. In any statement, such as "your uncle is a communist sympathizer," the most obvious claim concerns the explicit claim of the statement. This is a claim about **truth** of facticity. But, according to Habermas' theory, three other types of claims are implied. The second validity claim is that we are **understood** (i.e., comprehensible). The third is that what we are saying is ethically or normatively **acceptable** (or appropriate). The fourth is that we are being **truthful** (i.e., sincere). Thus when we say something, we are implying four types of things, and are implicitly expected to be prepared to reply to questions or challenges in all four areas. Examples of these four types of challenges are: "that is incorrect, I disagree;" "could you please say/explain that again, I didn't understand;" "that is wrong" (in the ethical/moral sense or in the normative sense that "we just don't do/say that around here"); and "I don't think you even believe that yourself; you are misleading me."[20]

There are several important points of departure starting from Habermas' theory. First, it highlights the importance of mutual understanding as a prerequisite to one's attempts to dialog about what is true (or good, just, or beautiful). Second, it serves as an introduction to Habermas' claim that the true and the right can only be determined through dialog. Third, Habermas shows how *ethical* considerations are at work in all instances and at all levels of communication (the details of his arguments are beyond our scope here). Both the truthfulness and acceptability criteria have ethical implications. Habermas' "Theory of Discourse Ethics" goes further to show how ethical values such as freedom, equality, sincerity, empathy, inclusivity, reciprocity, and integrity are always already implied in acts of communication.

To organize my discussion, I use a framework different than but related to Habermas' four validity claims. I will speak of **mutual understanding, mutual agreement, and mutual regard**. Habermas' work shows how these three areas are mutually interdependent and exquisitely entangled. Clearly, mutual agreement, the collective search for the true (or the good, beautiful, just, or right) requires a certain level of understanding. One can also see that, conversely, mutual understanding is not possible without some underlying level of agreement, some shared assumptions or meanings. That mutual *regard* is completely entangled in both mutual agreement and mutual understanding is less generally acknowledged.

---

[18] Much of what I present below is examined in more detail in "Epistemological indeterminacy and collaborative knowledge building: Dilemmas in mutual understanding, mutual agreement, and mutual regard" (Murray, 2006a).

[19] Habermas also calls these communicative, constative, regulative, and representative validity claims. In some of his works, Habermas omits the compressibility/communicative claim in describing this scheme.

[20] This is an extreme simplification of Habermas' theory but sufficient to ground my rhetorical framework.

Habermas believes that, particularly in the post-modern context, iterative dialog is necessary to determining the true and the right. For example, the scientific process is a dialog among peers in which data and ideas are considered. The democratic process involves dialog and debate to determine what to do for the public good. What one thinks is true or right is always open to challenge by hearing new information or coming to understand another's position. However, in order for dialog to productively move us in the direction of the truth (a more valid, even if never complete, truth) or the morally best action, dialog must have certain properties. The most productive dialogs have several properties: (a) all important or relevant points are heard, (b) dissenting opinion is not suppressed, (c) people speak honestly and without hidden agendas, and (d) participants care about each other and the agreed-upon goals, values, and procedures of the group. Of course, such is not always the case, and in real settings these characteristics can be at odds with each other (as when a suppressed minority has to violate an agreed upon procedure to be heard). Also, the pragmatics of such principles can be arduous (e.g., how does one determine which views are relevant?).

The ethical implications here are clear. Attempts at finding mutual understanding and mutual agreement are thwarted and outcomes are systematically distorted to the extent or degree that mutual regard is lacking. Habermas notes that another important property of ideal or productive discourse is that it is reflective. Participants must be alert to how the process itself is going, and whether the process and outcomes reflect their values and goals.

An ideal knowledge building discourse is one that (a) creates mutual understanding, (b) identifies mutual agreement, and (c) embodies mutual regard, and thus (d) moves efficiently and effectively toward valid knowledge useful to all participants. Creating one is difficult for many reasons. I focus on epistemological indeterminacy as a core problematic issue in knowledge building. This focal theme links to related sources of difficulty for knowledge building, including participants' diverse needs and opinions, power dynamics, and cognitive or developmental limitations to what can be discussed in a group.

Having explained the focus on mutual understanding, agreement, and regard, and having argued briefly for their importance and their dependence upon each other, I will explore how epistemological indeterminacy affects each of these three areas.

Indeterminacy in Understanding and Communication

Problems in mutual understanding were quite evident in my analysis of integral theory texts. Authors explicitly showed different interpretations of concepts, and authors faulted other authors for allegedly misinterpreting their own ideas. Understanding will always remain problematic, but what if anything can be done to mitigate the clear and frustrating inefficiencies of the misunderstandings observed in knowledge building communities? First, I explore the nature of the problem. The question of to what extent people can understand each other and communicate meaning though speech or text has been explored extensively in philosophy under the subject of hermeneutics. Mutual understanding has social and intersubjective aspects, and it also has cognitive aspects having to do with how precise or stable any concept can be, even within the mind of an individual. I will touch on all of these topics below, and will begin by examining

indeterminacy in ideas at three levels: concepts, statements, and models. Models are composed of statements (relationship propositions), and statements are composed of concepts.[21]

Concepts

Concepts are categories or groupings of objects, events, or other kinds of things (nouns, verbs, properties, and modifiers all point to conceptual categories, e.g., tree, religion, diet, swimming, symmetry, holon, manifest destiny). They are abstract references to a set of things that have something (or some things) in common. Concepts, like all abstractions, never fully describe real instances because real instances have a practically infinite number of properties (or things one could say about them or ways to describe them) while abstractions, by their nature, involve a limited number of properties. For example, the concept "ball" refers only to the ball-like aspects of that thing I am pointing to, and leaves out everything else, including what it is made of and its color.[22] When one describes an individual object using a concept, one is taking a perspective on it. This perspective involves a particular purpose, as when one calls something a "ball" rather than "trash" or "a projectile," which it may also be.

Seminal cognitive research by Rosh and Mervis discovered that human concepts do not usually behave in the manner of "classical" concepts, as they were widely assumed to by philosophers and other thinkers since ancient times (Rosh & Mervis, 1975; Mervis & Rosh, 1981; also noted in Wittgenstein, 1953). A classically structured or defined concept is one with a set of necessary and sufficient conditions, in which it is possible to determine in a clear-cut way whether something is or is not an example of the concept. Most conceptual categories are not classically structured but allow for grey areas, peripheral membership, and other types of indeterminacy. Such categories are called "**graded" conceptual categories**. It turns out that most abstract categories are graded concepts. For example, a person is not either narcissistic or not—they may be "sort of narcissistic," or fall anywhere along a graded continuum. Consider the concept "chair." Bean-bags, toy chairs, benches, broken chairs, are all sort of chairs, and sort of not. There is no classical definition of chair that will cover all of the objects that might normally be thought of as chairs. Thus, when one says something about chairs or narcissism (or any graded concept), there is always some level of indeterminacy as to exactly what one is referring to.

A compounding issue is that definitions of concepts are based on other concepts. So even if one *could* create an air-tight definition at one level, one is thwarted at the next level down. We could imagine having a solid definition of holons in terms of concepts such as "part interchangeability" and "prehension" but these properties are indeterminate concepts. It's a house of cards all the way down. Also, the network-like and hierarchical structure of meaning relationships poses many problems in written and spoken communication, which is linearly and sequentially structured (for more about this see the MetaLinks project, Murray 2003a, 2005). It is often impossible to design a prerequisite-based sequence of ideas that build logically up to a concept. In most non-scientific matters (politics, philosophy, culture, etc.), the massive interdependence among concept meanings means that attempts to identify or define fundamental

---

[21] This differentiation of ideas into three types is not meant to be rigorous and is done to organize the points of the discussion.

[22] For simplicity my examples are often about physical things, but the analysis is valid for more abstract concepts as well.

constructs or building blocks are rather arbitrary. What is most fundamental and what is secondary or derivative is a matter of perspective.

A modernist (or structuralist) approach to explaining an idea tries to identify "the best" or most logical prerequisite sequence of ideas. In contrast, a post-modern (deconstructivist) view might reject any attempt to logically build up meaning, and produce a meandering monologue that tries to include all the relevant ideas in an almost arbitrary sequence, assuming that the reader would create their own personal "gist" of the meaning by the end of the text, all the while refusing to nail down or try to define the meaning of any term or idea. But of course, one can do better than either of these caricatured extremes, in what one might call a post-metaphysical, integral, or second tier approach.

Statements

Next, I shift the discussion from the meaning indeterminacy of concepts to the meaning indeterminacy of statements (simple claims or propositions), which are composed of concepts. Consider statements such as "X causes Y" or "X has relation R to Y". Given that most concepts are graded or "fuzzy," then any such statement really implies "***to the extent that*** the object is an X, then .…" For example, if one says "holons are sentient" then (unless this is a tautological or definitional statement) one is saying that to the extent that something can be characterized as a holon (has the defining properties of a holon), to *that extent* it can be characterized as sentient. George Lakoff discusses such **graded propositions** that "...contain linear scales [that] define the degree to which a given property holds of an individual...defined by a graded category..." (Lakoff, 1999, p. 288).

Indeterminacy at the level of propositions (statements or claims) is centrally about truth (or validity), and I explore truth and validity in the next section. The *meaning* of a proposition can be problematic and indeterminate, but that indeterminacy comes predominantly from the meaning of its constituent concepts (or from the meaning of the model of which the proposition is a part). Concepts do not have a truth value, so their indeterminacy is restricted to the topic of "mutual understanding" and not "mutual agreement" (e.g., "tree" is neither true nor false, only propositions about trees are). Epistemological issues at the level of models span both types of problems, meaning and truth, more equally. Models are systems of propositions and often propose that "the world works this way," yet it is also common knowledge that models are approximations and abstractions.

Models

Models (including theories, frameworks, ideologies, and other complex idea-systems) are the main foci of debate and division in most communities of policy and action (political, religious, etc.) and in most knowledge building communities (in science, economics, education, etc.). Models and other abstractions are important, even essential, tools in knowledge building. They focus attention on specific elements in a complex field of information and articulate perceived patterns. They provide shared conceptual scaffolding and common reference points for inquiry and dialog. This text explores the indeterminacies and limitations of models, but not, to be clear, as an argument against using models, but rather as an exploration of how these indeterminacies and limitations can be dealt with.

Models, like all generalizations and abstractions, are simplifications that incorporate important features and ignore others. Models are meant to be analogous to objects/processes/events/things/etc., and an analogy can only be taken so far before it is no longer useful (e.g., electrical current in wires is *like* flowing water in pipes, but only up to a point; Newton's law of gravity is correct up to a point, then we use Einstein's law, which in turn may be shown to have limits). A model focuses on a particular set of features that are important with respect to a *particular task or purpose*. Therefore there can be *multiple* models for a given situation or thing, as different perspectives or purposes will highlight and ignore different features (see Bara et al., 2001).

Models, then, are perceived patterns in data or ideas, and as such constitute perspectives. The pattern perceived depends on the angle taken, the observer's location, the filter viewed through, the tools and methods of observation—to speak metaphorically. Some perceived patterns are unproblematic because they seem more objectively real (we might all acknowledge that that is a "tree" over there) and some are unproblematic because the group of people we are speaking with shares some common perceptions of the world. But from the phenomena of Rorschach Tests, in which individuals see images in ink blots, to the phenomena of conspiracy theories, in which groups find questionable causal patterns inside sparse data, we know that the human mind is adept at pattern detection—"to a flaw."[23] Cognitive psychologists have demonstrated numerous ways that the mind "sees" regularities by filling in for missing (or nonexistent) information at many levels of cognitive processing. The point is not that what one perceives, e.g., a tree, is "just" one perspective, or that the tree does not "really exist." The important point is that in addition to the patterns that we easily recognize there may be alternatives perceivable by others.

As George Lakoff explains, we often live happily with *conflicting* conceptual models. "Conceptual systems are pluralistic not monolithic. Typically abstract concepts are defined by multiple conceptual metaphors, which are often inconsistent with each other" (Lakoff & Johnson, 1999, p. 71). For example, "in philosophy, metaphorical pluralism [multiple metaphors for the same concept] is the norm. Our most important abstract philosophical concepts, including time, causation, morality, and the mind, are all conceptualized by multiple metaphors, sometimes as many as two dozen. What each philosophical theory typically does is to chose one of those metaphors as 'right,' as the true literal meaning of the concept" (Ibid., p. 78).

It will be useful to classify models as predictive, explanatory, or organizational. *Predictive* models, as the term implies, allow us to say something about the future, either definitively or probabilistically. *Explanatory* models help us understand *causal* (or at least strong correlational) relationships between things. *Organizational* models neither predict nor explain, but simply help us organize or visualize a set of relationships. Integral theories are, by and large, explanatory and organizational models that are not so much testable representations of reality as they are cognitive tools that allow us to achieve certain ends.

In his book Alchemies of the Mind social scientist Jon Elster "views the ideal of law-like explanation [in] the social sciences as implausible and fragile" (Elster, 1999, pg. 1). Psychology, sociology, ethnography, political science, etc. have had little luck in predicting phenomena, he explains. But they have been very useful in providing *explanations* of phenomena. For example, if we know that a person is an alcoholic, and we find out that her parents were alcoholics, then

---

[23] I do not even mention indeterminacies in perception, as illustrated by optical illusions etc.; nor the indeterminacies in the accuracy of memory being documented by psychologists (Roediger & McDermott 1995); nor the work on "bounded rationality" by Kahneman & Tversky (Kahneman et al. 1982), each of which cast its own hue of uncertainty upon truth claims.

(assuming we know a bit more about the personal history) we may think that we have identified a causal explanation. However, knowing that a person is a tea-totaler can also be "explained" by the fact that both of their parents were alcoholics. Explanatory models have this characteristic, in that they tell us something about the way the world works, but not enough to predict what will happen.

Negotiated and Intersubjective Meaning

Over the last century, philosophers and theorists of mind have developed several widely accepted notations about truth and meaning (see, for example, Wachterhuaser's *Hermeneutics and Truth*). First, that all ideas involve interpretation. This is the "hermeneutical axiom" that thought is conditioned by the experiences and context of the thinker. Related to this is the notion that meaning of an idea (a concept, statement, or model) is not determinate but is "negotiated" over time among interlocutors. The meaning of a word exists not so much "in our heads" (and certainly not in some dictionary) as in the intersubjective or hermeneutic space between or among the individuals.

As long as speakers share a common-enough meaning for a concept, it remains unproblematic and rather invisible. But meaning becomes problematized when divergent interpretations meet in dialog. A group may have developed a particular meaning for the concept "consciousness" while another group may have developed an altogether different meaning, where meaning includes what is implicated and associated with consciousness, as well as what one would categorize as having consciousness. Ignoring the divergence in how foundational concepts are interpreted, though common, often results in a significant amount of unproductive communicative flailing.

Importantly, meaning-making involves a dialectic movement between instances (examples or experiences) and generalities (ideas, thoughts, etc.). In *Proofs and Refutations: The Logic of Mathematical Discovery,* Imre Lakatos (1976) illustrates that even in domains as precise as mathematics the meaning of concepts and models has some indeterminacy. Lakatos chronicles the evolving understanding of Euler's formula "V-E+F=2" for polyhedra (the relationship between the numbers of vertices, edges, and faces in three-dimensional objects with flat sides such as cubes, soccer balls, pyramids, etc.). A rather surprising result is that the definitions of the terms as basic as "polyhedra" and "edge" are not unproblematic. As new examples and counterexamples were considered, mathematicians found that either the law or the definitions needed to be refined as their theorems were improved.[24] In all domains, not only the laws/principles/truths evolve, but so do the meanings of even the key foundational concepts (see also Kuhn, 1970). Robust or usable explanations of fundamental concepts must include ample reference to examples.

Hermeneutics and Expertise

Jean Grondin says: "...it is only if one inquires into the underlying motivation of what is being said that one can hope to grasp its truth. In other words, what is the urgency that speaks through an utterance which alone makes its truth claim understandable? This is the prime question of hermeneutics. If one ignores this question...one risks missing the true meaning of what is being

---

[24] This example is similar to the way that Wilber has had to refine his definition of holons and holon types once it was noticed that human artifacts posed special problems in the system of definitions.

said" (as quoted by Hargens 2001 from Grondin's 1995 *Sources of Hermeneutics*). This raises the question of what motivates a critique and when critique is and is not productive.

The traditional academic process of trying to understand the work of any great thinker (and practically all of Wilber's critics solidly put him on the pedestal of great thinkers before chipping away at his theories or personality) involves an attitude of suspension of disbelief/critique at least in initial stages (though this is more true of *deceased* great thinkers). Thus, with great theorists like Piaget, Goethe, William James, Aurobindo, and Wittgenstein, it is *assumed* they had some deep understanding and that the job of the reader (or academic) is to go through their never-completely-clear, sometimes contradictory statements and ideas (which are acknowledged to have evolved over time through their texts) and construct a sufficiently accurate interpretation that allows us to understand their substantial ideas, insights, and intuitions. Within philosophy it would seem that there are as many texts that argue over what so-and-so *meant* (a process of exegesis) as there are texts that disagree with so-and-so's claims and offer alternative theories (a process of critique).

Because the meaning of a statement (or paragraph, or full text) extends beyond the statement itself, one must always look beyond a piece of text to interpret its full meaning. The "triangulation" of different textual passages and interpretations to produce a stable meaning is characteristic of the hermeneutic process of trying to understand another (imperfect) human being. As the sea mariner needs several bearings to pinpoint a point of land ("triangulation"), we come to understand the fuller, deeper, or broader meaning and implications of something through considering it from different "angles" (perspectives), a process that often requires dialog and dialectic. Another thing one can say is that efforts to improve the understandability of a text or idea are good investments. Understandability and interpretation are improved by including numerous bi-directional links among texts, ideas, definitions, examples, etc.

How one balances efforts to understand (exegesis) with efforts to critique in a process of inquiry is of course a complex open question. What one can say is that the more one can demonstrate that they have delved deeply into and struggled with another's work, the more validity their critique will have. I will return to this theme later in a discussion of negative capability.

The Unconscious

Freud's "discovery" of the unconscious aspects of mind has had a profound impact on how we understand basic human capacities such as thinking, belief, and action. Epistemological sophistication requires some understanding of the unconscious. Modern attempts to examine the validity of knowledge or beliefs must embrace the problems introduced by non-conscious mental processes. Without adhering to any particular model of mind (there are of course many) we can note that contemporary theories of mind point to a spectrum of awareness to non-awareness (non-consciousness). This spectrum is illustrated with the following levels of consciousness:

- Ideas or mental processes that we are aware of and understand enough to describe (e.g., why I think it is going to rain);
- Ideas or mental processes that we are aware of having but can't satisfactorily describe in words (e.g., my strange but undeniable fear of clowns);
- What we are not aware of but could easily become aware of (e.g., the current sensation in the left foot, or the name of our neighbor's dog);

- That which we could become aware of but only with considerable effort, including difficult to access memories, or awareness that would take considerable mental concentration or training, or an in -depth therapeutic process;
- Mental processes which we could never become aware of (e.g., how we process language or how the retina's signals are converted into images).

The existence of unconscious processes and beliefs creates indeterminacy or grey scales in knowing "what I believe," "what I understand," etc. There are things that "I might know" and that "I believe that I know," as odd as such statements sound. The acknowledged existence of unconscious motives also muddies the water in ethical considerations having to do with free will, choice, responsibility, and accountability.

Messy, But it Works (Until it Doesn't)

With so many sources for conceptual and terminological indeterminacy in every thought and utterance, one might wonder how we ever "know" anything or get anything done. One might wonder whether there is any benefit to examining something so ubiquitous and persistent. In practice, the meaning of concepts and statements usually remains unproblematic and unexamined until our meanings or beliefs clash with another's (or ideas clash within one's own mind). We could not talk or do anything without unconsciously (pre-consciously) taking a large number of assumptions for granted. As society becomes increasingly pluralistic and cosmopolitan, meanings clash more often (or pass in conversation like ships in the night, never meeting) and questions of how we deal with this type of indeterminacy become more important.

In knowledge building, we pay particular attention to meaning. The explicit goal of improving knowledge naturally causes us to question and refine the meanings of terms and the validity of models. New terms and models are introduced consciously, and the creation and stabilization of meaning is more palpable.

Indeterminacy in Agreement, Truth, and Methodology

If we assume that those involved in a knowledge building dialog understand each other sufficiently, the next level of concern is how participants determine what they agree upon, what is true, or what is valid. In trying to understand another person, it is expected that we allow for hypothetical or imaginary realities and possibilities. If someone says "the field is foggy today" in a context where one cannot see this fog, one enters into an imaginative mode where one envisions the fogginess being described. In the understanding process we entertain ideas regardless of whether we think they are true. Whether we agree that the field is indeed foggy is a different matter.

In this section, I shift the focus from indeterminacies in understanding to indeterminacies in truth or in finding agreement. The discussion of "mutual agreement" is not about how to create agreement (for example conflict resolution and formal decision making procedures are outside the scope) but rather about exploring that nature of agreement, and, more specifically, how it is affected by indeterminacy. Agreement is not necessary, or even desirable, in many situations, but having a sophisticated understanding about agreement and validity is important to most collaborative situations.

Truth and Validity

There are a variety of theories of what truth is and how it is determined (for example, see Kikham's Theories of Truth, 1992, for a discussion of how philosophers use varied and even inconsistent meanings of truth). The most common senses of truth are: (a) truth means correspondence with objective reality; (b) truth means coherence with other things that we know (or believe to be true); (c) truth is what everyone, or most people, or experts consense to being true; or (d) truth is based on practical utility (whether a statement satisfactorily explains or predicts and helps us achieve our goals). Though various disciplines may formally use one of these senses of truth more than the others, in practice all individuals and all knowledge building communities (somewhat unreflectively) use a combination of these truth senses to create knowledge and mutual understanding. One's overall sense of whether something is true relies on a combination of all of these elements, and if any one of them is missing, one's certainty is challenged.

Lakoff (1999) argues convincingly that the meaning of "truth" (like all abstract concepts) comes not from a single conceptual core, and not from a transcendental ideal, but from interweaving, multiple, sometimes contradicting metaphors tied to and constrained by embodied experiences. Such "metaphorical pluralism" is the case at both individual and group levels, and is the case even for formal domains such as mathematics and logic. In rigorously or deeply evaluating the truth of a claim, we can not take the meaning or nature of truth for granted. Some philosophers (e.g., see Rorty, 1999) go as far as to say that truth does not exist in any meaningful way, or that it is futile to search for truth. I join with Habermas and others who say that truth's indeterminacy, rather than negating truth, necessitates a more careful awareness of truth-related methods and criteria.

As alluded to in the discussion of Habermas' theory, the concept of "validity" includes the many meanings of truth, usefulness, correctness, believability, appropriateness, etc. and allows us to address questions of truth, meaning, justice, and knowledge building at a general level that includes these many notions. So, I will often speak of the "validity" of a statement or model rather than its truth.

Sources of Validity

Theorists have discovered several things about how validity is imbued or judged. First, validity has a procedural component, such that the method that we use to arrive at a claim is important in determining its validity. Habermas (1981) shows that, though we may not be able to claim that a statement or belief is unequivocally valid, we can develop procedures that steer us toward more valid knowledge and away from invalid knowledge. Second, validity has a communal (intersubjective or socially negotiated) component. Habermas states that society has shifted "the standard of...objectivity...from the private certainty of an experiencing subject to the public practice of justification within a ... community" (Habermas, 2003, p. 249). Given the modern understanding of the fallibilities of human reasoning and communication, we can not guarantee that an individual can make errorless unbiased observations, consider every type of relevant data, and imagine every possible counter-argument that another might make. Thus, knowledge building is unavoidably a collective effort where multiple trials, perspectives, and areas of expertise accumulate to arrive at any general consensus about what is true. Third, the procedural and communal aspects of validity point to the dialectic aspects of knowledge

building. New ideas create new questions and cause us to look for data in new places. New claims incite doubt that brings renewed attention to the validity of a claim's justifications. Each new idea asks to be integrated with prior and future ideas, some of which seem incompatible, until another synthesis is found, in an endless process.

Wilber (2001) explains these procedural and communal aspects in terms of three strands of knowledge validation: 1) the instrumental injunction to observe using a particular method, 2) the illuminative apprehension of experiencing the raw data after following the prescribed method, and 3) the communal confirmation gained when (if) many individuals agree that when you follow the injunction of step #1 you do observe those data in step #2. Those who provide arguments to support or refute a claim have to show that their method allows them to "look at the same thing," so-to-speak.

A fourth component of validity is that it is perspectival. As noted above, each concept, statement, or model represents a perspective on reality. When multiple perspectives point toward the same conclusion, we have more confidence in the validity of an idea. Lakoff & Johnson (1999, p. 79) say: "what needs to be avoided...are assumptions that predetermine the results of the inquiry [or] circumscribe what is to count as data...A common method for achieving this...is to seek converging evidence using the broadest available range of differing methodologies."

The perspectival aspects of validity are at the center of Wilber's integral approach. Wilber's analysis of a broad range of knowledge constructing methodologies has lead him to an elegant model that proposes eight types of "primordial" perspectives and an accompanying eight truth-finding methodologies, including: empiricism, systems theory, phenomenology, structuralism, hermeneutics, and cultural anthropology (Wilber 2005). His philosophy of "methodological pluralism" is to acknowledge the importance of all of these ways of finding truth, within a framework that clarifies the limits of each.

The procedural, communal, dialectic, and perspectival aspects of validity add considerable indeterminacy to determining the validity of claims. And so does the fact that there are many types of validity and many meanings/methods for determining the truth of a claim. This means that in some situations it is not enough to dialog about the final "truth" of a claim, and that a meta-dialog is necessary that focuses on how truth or validity are to be determined for a particular group or situation.

Truth and Meaning

Integral theories are models or frameworks with explanatory and/or organizational functions (they tend to have limited power as predictive models). As such, their purpose is more about meaning making than truth finding. They are best compared or validated based on properties such as parsimony, scope, internal coherence, consistency with other theories, and/or usefulness in providing distinctions and syntheses that add meaning—and not based on how their results correspond with objective reality. (This is more true for the philosophical and systems theory aspects of integral theory than of its psychological elements.)

Integral theories tend to be theories about ideas rather than theories about objective data. In Eye to Eye, Wilber (2001) compares "mental-phenomenological inquiry" into subjective and mental phenomena with "empiric-analytic" inquiry into objective or physical phenomena. He applies his analysis to knowledge building endeavors focused on subjective phenomena, for example, determining the meaning of Shakespeare's Hamlet, discovering the meaning of Egyptian hieroglyphics, and Freud's theory of the unconscious. He discusses how inquiry in such

mental-phenomenological realms follows the same methods (strands) of knowledge validation as empiric-analytic inquiry, namely the injunction to observe using a specific method and the collective dialogic/hermeneutic processes of assigning meaning to data and validity to conclusions. However, there is one important distinction that Wilber does not make in his discussion that is relevant to the validity of integral theories (and many other theories).

The examples Wilber gives are about inquiry into meanings held by "others" — Shakespeare, Egyptians, or "people in general" (for Freud's theory). These inquiries aim to find some specific answer about something outside ourselves (what Shakespeare or the Egyptians meant, how the mind works, etc.), but integral theory is a tool for us to use to generate meaning or answers. Integral theories propose to create meaning for readers/users to help them answer their own questions. They are general-purpose "cognitive tools" whose scope goes beyond meaning-generation of a particular subject area. They do not claim that "some part of the world is this way" but that "it is useful to look at the world through this lens."

Since I concluded above that meaning-generation, rather than truth-finding, is at the heart of integral theory knowledge building, I will expand a bit on the meaning of the word "meaning," giving three senses of the word, each inclusive of or more general than the prior one. The first sense refers to shared meaning or the meaning of a statement. The second sense is related to how an idea (concept, statement, model, etc.) can have "more meaning" than another idea (to some person or group). Here "meaning" refers to salience, usefulness, or importance, and is related to the quality or quantity of relationships established with other (salient or important) ideas. Ideas also have more meaning if they point to the origins/causes or purposes/ends of things, or involve higher order relationships (Gentner & Stevens, 1983; Johnson-Laird, 1983). In this second sense, an integral or explanatory model is more meaningful if it explains a broader scope of phenomena and ideas. A final sense of "meaning" is as in "the meaning of life" or when an idea has "deep meaning" to us. This implies that the idea is related to things that we value highly or it is related to important life issues. This type of meaning is usually linked to one's sense of identity.

By emphasizing meaning-generation over correspondence to truth in integral theory knowledge building, we are emphasizing the utility aspects of its validity. For many explanatory and organizational models, it is more important to ask if they are useful than if they are true in a strict sense. Falsifiability does not apply as a rigorous test of theory validity as it does in the sciences (Popper, 1935). But this does not have to lead to extreme relativism or the rejection of rigor. Usefulness and accuracy are tightly linked. A theory that does not explain important or common patterns of data has limited usefulness. Myerhoff and others criticize Wilber for his syntheses of whole fields of knowledge, saying that such syntheses are invalid or even impossible because they gloss over important areas of controversy within disciplines. Pointing out counter-evidence and counter-arguments to a specific theory or claim, as Meyerhoff does in his critique of Wilber, is invaluable in a community's attempts to validate a theory. But in going deeper to question the usefulness of the very methodology and enterprise that Wilber engages in, Meyerhoff's critique goes too far. One can profitably ask whether Wilber's synthesis of some field is as good as any other synthesis, or is sufficiently accurate and useful to its intended purpose. But to reject any and all attempts to synthesize, organize, or explain large swaths of complex and conflicting ideas would cripple knowledge building practice.

Indeterminacy and Mutual Regard

There are deep reciprocal relationships between regard and my other topics of understanding and agreement. As one comes to understand another's perspective, one can hardly help but develop empathy for them. Conversely, an attitude of care or respect supports, and at times is necessary for, making an effort to understand another's perspective. A similar reciprocal relationship exists between agreement and regard. Discovering or building agreement fosters solidarity. Conversely, an attitude of care or respect is important as participants forge new agreements or make the effort to discover where they agree.

Unsurprisingly then, mutual regard is highly desired in knowledge building activities and knowledge building communities. The quality and quantity of collective knowledge generated can depend greatly on the level of mutual regard. And so can the strength and integrity of the community itself. But, of course, mutual regard is often difficult to create to the desired level, for reasons too numerous and too complex to even summarize here. My focus is on the interplay between epistemological indeterminacy and ethics (mutual regard). The goal is not to moralize or be ethically prescriptive but to tease apart the important issues to enable awareness, support a group's explicit dialog about these issues, and to inform the design of knowledge building tools and practices.

What is 'ethics'? In a world that can seem rife with materialism, objectivism, and instrumentalism, where the simplest directives of ethical behavior have become lost in a fog of abstraction, complexity, manipulation, and moral relativism, sincere consideration of ethical topics is essential. Yet the topic of ethics is practically taboo in academia, school, politics, science, and "polite company." Therefore, it is worth taking a moment to ground the topic of ethics in some very basic intuitions, to clarify its meaning for the purposes of this discussion. At its core, ethics and morality are about caring and justice, as understood intuitively.[25] Ethics can be about much more than that, as shown in countless philosophical discourses, but without a motivating core of regard, respect, compassion, love, or whatever flavor the caring takes, ethics is empty—both as something one does and as something one theorizes about. Another core element of ethics is that ethical judgment and action take place against a backdrop of self-interest and self-preserving drives, making ethics fundamentally about how one balances one's needs with the needs of others.

Integral Theory and Ethics

Integral theory's core approach of incorporating multiple perspectives and methodological pluralism has numerous implications for ethics. According to Habermas (1999), reciprocal perspective taking is at the core of moral thinking and action. One can differentiate two aspects of being multi-perspectival, one cognitive and the other affective. Cultivating multiple perspectives clearly involves cognitive skills in managing information, complexity, uncertainty, ambiguity, etc. It also involves affective skills because opening to and processing multiple perspectives can be difficult and frustrating. Multiple perspectives can be impersonal (or rational), as when one tries to consider two interpretations of quantum mechanics, and can be

---

[25] One of the main debates in the philosophy of ethics is about whether ethics is about the more cognitive and abstract capacities involved in justice, or about the more emotional capacities involved in caring and empathy. I side with Vetlesen, who shows how both elements are needed equally (Vetlesen 1994).

personal (or psychosocial), as when one tries to put oneself in the shoes of another. Tolerance for uncertainty and ambiguity includes a kind of emotional intelligence (Goleman, 1995; Matthews et al. 2002). Psychosocial perspective taking often requires putting ourselves in the emotional as well as cognitive shoes or another. It can involve trying on another set of values or imagining an alien historical context.

One's response to a claim is often affected by one's emotional attitudes toward specific people or groups. To associate an idea, especially a new or novel one, with an identifiable author or group contributes significantly to its meaning (or meaningfulness), and we are naturally drawn to build such associations. There is sometimes an emotional (even visceral) resistance to opening up to, not just an idea, but his/her/their idea. In addition, there are challenges to loosening the grip on my idea.

The issues that come up in being multi-perspectival are very much the same as those that arise from epistemological indeterminacy. Indeterminacy is one result of considering multiple perspectives; or we could say that the inherent indeterminacy of knowledge is due to its inherent multiplicity, which is in turn due in part to how one's knowledge is constructed through interactions with many people.

Indeterminacy, socialization, and vulnerability. G.H. Mead's theory that human identity is constructed largely through social interactions is captured in this quote from Habermas:

> …morality is a safety device compensating for a vulnerability built into the sociocultural form of life [in which people are] individuated only through socialization...[This] profound vulnerability calls for some guarantee of mutual consideration. This considerateness has a twofold objective of defending the integrity of the individual and of preserving the vital fabric of ties of mutual recognition through which individuals *reciprocally* stabilize their fragile identities...To these two complimentary aspects correspond the principles of justice and solidarity respectively [that is, respect for the dignity of each individual and protection of the web of social relationships]. (Habermas, 1999, p. 199).

Epistemological indeterminacy is in part about the inability to be certain or definitive. Certainty is an important human need. A degree of certainty is necessary for action, and lack of certainty often results in cognitive dissonance and unpleasant feeling states. In many contexts, as certainty decreases, as the conceptual ground upon which one's ideas stand becomes more precarious, there is a psychological reaction or impulse to gather in and maintain safety, to narrow concern to near-term issues at the expense of long terms ones, or to focus on individual needs at the expense of group needs (or in-group needs at the expense of broader values). Epistemological indeterminacy, and our imperfect attempts to compensate for it, opens up new horizons of awkwardness and vulnerability for the speaker (or author).

Epistemological indeterminacy increases the exposure to the possibility of being criticized, and increases the opportunities available to the malicious, careless, or indifferent. It expands the potential of the critic to claim that another is naïve, ignorant, wrong, hypocritical, ambiguous, vague, or indecisive. Indeterminacy also increases the potential to give dishonestly positive accounts and manipulative praise. For instance, a person with sufficient motive and skill can recast the story of any life's work (Gandhi's, Hitler's, Elvis', Aristotle's, the Romans', the Mafia's, yours, or mine) as sad and pathetic, a triumphant achievement, narcissistic and contemptible, well intentioned and rational, or ignorant and shallow. The sharp sword of indifferent, insincere,

or malicious criticism has no natural bounds, and its power to harm is strengthened by the vulnerabilities of epistemological indeterminacy.

In the overview of integral theory textual dialogs, I noted several things. First, in referring to another author's work it is almost impossible not to simplify (one can never supply the full context), over-generalize, and make selective use of their points to support one's own. Second, in abstract or philosophical discussion it can be practically impossible to avoid some degree of hypocrisy. It was found that in almost every case of one author critiquing another's style, method, or intentions, the author making the criticism was at some point guilty of the same infraction he was leveling against another. Without sanctioning all forms of hypocrisy, overgeneralization, misunderstanding, etc., we can note how epistemological indeterminacy (a) makes it virtually impossible to eliminate such things completely, (b) leaves the door to critique of such things constantly open, and (c) creates new opportunities for deliberate abuse.

Knowledge building progresses through a dialectic of convergent and divergent movements. Knowledge is refined (convergently) as invalid information is rejected and corroboratory information is discovered, leading to an increase in certainty. Alternatively, when knowledge is expanded (divergently) through the discovery of unexplained information or alternative perspectives, certainty is reduced. Uncertainty and indeterminacy are inevitable in inquiry. Therefore, the most truthful statements will often portray indeterminacy, for example: "I should know that but I don't…," "I could be mistaken…," "I was wrong, I changed my mind," "it is too complex for me to understand," and "I find both possibilities equally compelling." Such statements are less likely to be expressed in low-trust situations.

The level of trust within a community affects the degree to which indeterminacy can be reflected upon and negotiated (as opposed to ignored, denied, or defended). The level of trust within a group and the level of courage in the individual compensate for vulnerability. In a high-trust environment, vulnerability is not an odious presence to be repelled but an inevitable reality to be dealt with carefully. Trust, solidarity, and regard support a group's tolerance for uncertainty, ambiguity, and vulnerability. A group's level of trust and its tolerance for uncertainty must be considered in adopting approaches to epistemological indeterminacy.

Power and Dialog

Up to this point, I have been discussing elements of ethics related to individual choice. Responsibility for the ways that people do or don't respect and regard each other lies in part with individual decisions, but also lies in larger systemic patterns that become internalized in individuals and operate unnoticed in our interactions. Thus, a treatment of ethics would be incomplete without mentioning the dynamics of power and privilege. As Hans Kögler (1992) puts it, "every interpretation is grounded in some particular context and...every such context may be permeated by hitherto-unrecognized power structures" (p. 252). When tacit and socially conditioned ways of thinking involve privilege, preference, power, or social control, then our attempt to discover durable truths and just methods is distorted. Power dynamics affect knowledge building communities and practices as significantly as any other type of group or practice.

The naïve approach to power dynamics is to try to eliminate them, usually along with eliminating social hierarchies. But, as articulated in philosophy by Michel Foucault (1998) and in transformative psycho-sociology by Arnold Mindell (1995, 2002), power and rank differentials are inherent to all human interactions. (Importantly, Mindell includes the force of one's

personality, context, or message along with socially endowed rank in his analysis of power). Power, hierarchy, authority, and leadership are not negative in and of themselves. In fact, these elements are inevitable in groups and are often essential to effective and just outcomes. Of concern is when these elements are hidden from awareness, unavailable to dialog, or have not been legitimated by the group in some way. The issue is complex because there is no objective standpoint from which to determine exactly what constitutes privilege, injustice, bias, etc., as the current debate over whether men are (also) "oppressed" contests to (and similarly with the debate as to whether Wilber and his close associates have appropriated the field of integral theory).

These difficulties notwithstanding, since power can distort and bias knowledge building in unproductive ways, it cannot be ignored. Power dynamics lead to systematic distortions in communication and knowledge, and can exploit vulnerabilities and erode trust, all of which affect knowledge building. There do exist productive approaches to power dynamics, such as increasing the awareness of power within a community and making explicit use of existing sources of power to further the values and goals of a community (see Mindell, 2002; Rosenberg, 1999). In this article, I do not explore specific methods of dialog and group process, but simply point to dialog, reflection, and other awareness-increasing methods as being critical components in dealing productively with power dynamics in knowledge building.

Cognitive Empathy and Self-Distanciation

In *The Power of Dialog: Critical Hermeneutics After Gadamer and Foucault*, Hans Kögler (1992) suggests that only through a certain perspective taking attitude can one hope to see beyond or behind tacit social power-structures and thus challenge them. He builds upon Habermas' position to emphasize the importance of opening up to the perspective of the other as a way to gain critical insight into one's own biases. Kögler says that such "self-distantiation" (gaining a conceptual distance on oneself) is only possible through the unsettling experience of encountering the, at first incomprehensible, world-views of another. Like Habermas, he emphasizes actual dialog, which is to say that trying to imagine the reasonable or possible perspectives of others from an arm-chair is no substitute for the real experience of encounter. The ensuing tension can rupture the limiting horizons of our pre-understanding. Gaining this more objective perspective and "defamiliarizing" from habitual beliefs requires taking a strong ethical stance to honor the integrity of the other's inner world equally with one's own, and to be authentically curious about that other perspective. As Kögler puts it, one can treat others as "autonomous (co)subjects with a right to their own conceptualizations and self understanding" (p. 203). In other words, when in the uncomfortable position of being confronted with an idea that challenges one's beliefs, rather than immediately critique it, one must sincerely wonder how it could be that the other thinks/believes/feels that way?

In *Perception, Empathy, and Judgment: An inquiry into the preconditions of moral performance*, philosopher Arne Vetlsen (1994) argues that "moral perception rests on the faculty of empathy [which is] indispensable in disclosing the addressee to the subject" (p. 7). He argues that the emotional capacity for empathy is co-equal and necessary along side the cognitive capacities implied by Kant's imperative to understand and treat others as "ends in themselves." Empathy, as a faculty of perception, is a type of attentiveness or receptiveness, and is likened to seeing or listening. Moral perception "gives judgment its object [and is what allows one] to identify a satiation as carrying moral significance in the first place" (p. 4).

Practical Implications and Skills for Dealing with Epistemological Indeterminacy

In describing some theoretical perspectives that lead to a deeper understanding of the causes and effects of epistemological indeterminacy, I separated the concerns into mutual understanding, mutual agreement, and mutual regard. I also indicated that understanding, agreement, and regard were interdependently woven together. Next, we will move on to some tentative suggestions for how the problems and opportunities of epistemological indeterminacy can be approached in practice. As we do so, we will allow understanding, agreement, and regard to fold back into one another in a reintegration that has benefited from the differentiated discussions above.

Because this article constitutes an exploratory inquiry (i.e., an attempt to point out a new area of study by applying an interdisciplinary set of theories to a new subject area) I cannot possibly outline a systematic set of skills, knowledge, and methods to fully address the issues raised. Also, my status as a peripheral participant in the integral theory knowledge building community limits both my understanding of the community and my ability to make specific recommendations. Rather, I will discuss a few important practical points and make a few concrete suggestions applicable to any knowledge building community, as a beginning point for further inquiry.

Several interrelated or interdependent skills will be mentioned. I discuss a number of theories related to dialectical thinking and negative capability, the core skills in processing multiple perspectives. Then I discuss skills that counterbalance these skills, moving from Yin-like to Yang-like factors and skills. These are followed by specific knowledge building approaches that I call indeterminacy analysis and differential analysis. That discussion is followed by an investigation of validity criteria usable for integrally-informed theories. I close the section with a discussion of several other practical recommendations related to dialog and information structure.

Negative Capability, Dialectical Thinking, and "Believing"

I turn next to the skill of "negative capability," a term coined by the poet John Keats, who explained it thus: "that is when man is capable of being in uncertainties, Mysteries, doubts— without any irritable reaching after fact & reason." As Keats knew, being comfortable with ambiguity, paradox, mixed feelings, and conflicting thoughts is useful well beyond the realm of poetry.

Several theorists describe the skills of negative capability in a developmental context. Early theories bearing on the subject include Kohlberg's (1978) articulation of pre- and post-conventional modes of moral thinking, and Perry's (1970) articulation of stages of epistemological sophistication (both of which also involve identity formation).[26] Michael Basseches (1984, 2005) uses the term "dialectical thinking," describing it as a "post-formal" form

---

[26] There are many relevant perspectives on these cognitive skills, including: theories of metacognition and self-regulated learning (Winne 2001, Schoenfeld 1985), King and Kitchener's theory of "reflective judgment" (1992, 1994), Schommer-Atkins theory of "epistemological belief systems" (2002), Csikszentmihalyi's theory of Flow (1990), as well as a wealth of research looking at critical thinking skills and creative thinking skills.

of thinking developmentally beyond formal thinking and relativistic thinking, where one can not only acknowledge a plurality of viewpoints, but work creatively and critically within them. Dialectical thinking emphasizes processes, relationship, wholeness, and dialectic, over product, reductionist analysis, and fixed/certain results.

Quantum physicist David Bohm developed a form of group dialog (now called "Bohm Dialog; see Bohm, 1996, and related work by DeMare, 1991) in which participants dialog for several hours without an agenda or leader and with the intention to suspend and reflect upon reactive interpretation, judgment, and certainty. One of the goals is to develop "proprioception of thought"—an ongoing and uncritical but [sharp/refined] awareness of the contents of one's own mind that would lead to an awareness of one's biases.

Otto Scharmer (see Senge, Scharmer, Jaworski, & Flowers, 2004) is among a cadre of modern thinkers who analyzes negative capability in terms of "letting go," "letting be," and "letting come." This three-part model provides one way of separating the multiple sub-skills involved in negative capability (though the sub-skills are so tightly interwoven that any attempt to differentiate them is approximate). "Letting go" refers to one's ability to suspend judgment, "bracket" one's assumptions and biases, and temporarily release emotional or ego attachments. "Letting be" points to equanimity—an ability to dwell in the stillness of not knowing for an extended period. "Letting come" refers to the creative (or spiritual) insights that can arise in the process. Scharmer notes that the deeper and more sustained is one's letting go and letting be, the more powerful are the fruits of letting come and implementing the resulting insights and convictions.

Peter Elbow (2005), known for his work in developing new approaches to teaching the skills of writing, critiques the current pedagogical emphasis on "critical" and "skeptical" thinking skills. He claims that, though these skills are important, the academe and the culture at large overemphasize and misuse them. Critical thinking is predominantly directed at others, and too infrequently used to question one's own ideas and world-view. The "disciplined practice of doubting all views" (p. 3) that is held out as a standard for rational thought, rather being a tool for greater understanding and expansion of knowledge, more often becomes a shield for protecting one's own world-view. Why not also have a disciplined practice of trying on all views? He calls this practice the "Believing Game."

Echoing Kögler's theory above, Elbow claims that one gains the right to critique another after first "dwelling with" and "dwelling in" another's words. He notes that "when readers fail to read critically it is not usually that they believe everything, it is that they are unengaged in any way; not dwelling in or critiquing anything" (p. 3). The goal then is to develop both critical thinking and "believing" skills. As Elbow says, one should avoid two extremes: dogmatism, which is to be unskilled at doubting, and skepticism, which is to be unskilled at believing. Because educators (at least at the post-secondary level) already emphasize critical skills, he focuses on developing Believing—the engagement of curiosity and the temporary suspension of disbelief.

In the context of knowledge building, what this implies is that when confronted with an idea that seems "wrong" (and this wrongness will almost always have both a cognitive logical and emotional intuitive aspect to it) the suggested approach is to maintain a curiosity: In what sense is it also true? How might one have come to that conclusion? What perspectives, experiences, and assumptions might lead one to that idea? And also, *Why* might one want to come to that conclusion? What explicit or implicit goals might it be leading up to? What ancillary claims does it entail that are connected with legitimate needs of the other?

In methodological pluralism it is not that "everybody is right;" it is that "anybody could be right," everybody is partially right from their perspective, and, not to forget, "I might be wrong." The skills mentioned above encourage us to see the "golden mean" or "middle path"—the "both/and" inside an "either/or." Integral theory says that an evolving understanding should transcend and include previous valid ideas, not transcend and reject or ignore them simply because they don't fit neatly together. In the section on ethics, I noted that there are affective as well as cognitive skills involved. Suspending judgment, releasing one's own ideas, and taking on the perspective of the other involve emotional intelligence as well as intellectual intelligence. One could say that "negativity capability" has both cognitive and affective components. The affective component is the perceptual-emotional capacity for empathy described by Vetlsen (1994) and the cognitive component is described by Basseches' (1984, 2005) dialectical thinking. This demonstrates another sense in which mutual understanding, agreement, and regard are intertwined.

Skill, Balance, and Group-Perspective

The application of theory to practice requires a judicious weighing and balancing of factors—a skillfulness in understanding the idiosyncratic constraints of each context. For example, it has been noted that epistemological indeterminacy is in some ways inevitable and to some extent preventable. The practical wisdom of epistemological sophistication helps us differentiate the avoidable from the unavoidable (or, more accurately, to distinguish gradations along this continuum) and determine the best attitudes and methods for each situation. This is one important meta-skill. Negative capability and dialectical thinking are two other generic skills (or meta-skills). Below I mention a few additional skills or meta-skills relevant to dealing with epistemological indeterminacy. Groups may benefit from their participants systematically reflecting upon, developing, and practicing these skills.

Group Perspective Taking and Trust

I have mentioned that modern approaches to truth and validity emphasize process over product. A process-based approach to validity focuses on asking questions such as "Were any rules of logic or inference broken?" "Are all the relevant data and perspectives accounted for?" and "Was any bias introduced along the way?" Since addressing these questions requires a significant investment, doing so must be balanced with other needs of the group.

Decision making involves balancing the needs of "me," "us" (my group), and "them" (outside the group). Groups work best when members have the skill of taking the perspective of what is best for the group as a whole, i.e., placing a high value on what furthers the freely-agreed-upon values and goals of the group. This skill can offset the possibility that the values of inclusivity, equality, regard, and freedom will degenerate into narcissistic forms (an over-emphasis on my needs and opinions at the expense of group needs).

It can also be useful to be aware of and explicit about the role or perspective one speaks from, which can change. For example, I can speak to my personal needs, the needs of the group or other individuals in the group (as I understand them), the needs of other groups that co-exist with my group in a socio-political ecosystem, or from a generalized moral perspective of what is ethically right. Needs at every level come to bear on most decisions, and principled decision making is helped when these levels are differentiated (to the extent such differentiation clarifies

competing needs). This type of differentiation may also help untangle some questions of ethics and trust.

For each group and situation there may be a degree of trust, mutuality, or regard that lies beyond the limits of safety, rationality, or practicality. Sometimes "watching one's back" or an exaggerated confidence or self-interest is strategically necessary. Trust and tolerance for uncertainty are not things that can be thrust upon a group, or expected or demanded of its members. What is possible in most groups, however, is to reflect from a systems or group dynamics perspective on these issues. For example, it is of little use to prescribe that participants become more trusting of each other, but it may be beneficial for a group to reflect on the general level of trust of its interactions. Discussion could include whether the current level of trust is appropriate to the composition and goals of the group, and if not, what might be done to ameliorate the deficiency. At the practical level, personality style and cognitive/developmental factors place limits on the sophistication and productivity of such meta-level conversations, and in many cases, leadership or facilitation is necessary.

Balance, Yin, and Yang

For the most part, the discussion has focused on the importance of things such as reflection, multiple perspectives, dialog, caring, authenticity, and suspension of judgment, which one could say generally have a Yin (soft, open, yielding, or chaos-friendly) character. Practice and the application of theory require balancing many competing factors, and so I have also hinted at the importance of contrasting Yang-like elements, including: efficiency, accountability, rigor, precision, simplicity, and leadership.

Considering multiple perspectives and working toward mutual understanding takes time and effort, whether it is for the strategic purpose of refining knowledge or for the ethical purpose of including stakeholder viewpoints. Dialog and reflection at a process (or meta-level) likewise take time and effort that might have been spent working directly on the goals of a group. Excessive thinking about thinking, dialoging about dialog, and theorizing about theories can sabotage any collective enterprise (so-called paralysis by analysis). So in practice, a balance must be found between the expansive Yin qualities and the convergent Yang qualities. Exactly what the balance will be and how it is arrived at will differ in every knowledge building community and every context. In the end, deciding what to do may come down to elusive characteristics such as wisdom and character. I do believe that investments in the groundwork of mutual understanding, clarifying values and validity criteria, and/or skill-building will often pay off. Complex social problems, constant change, and clashing cultures and values all lead to an epistemological indeterminacy that cannot satisfactorily be dealt with using the traditional blunt "Yang" approaches of dogma and authority. Yet the "Yin" approaches of inclusivity, consensus finding, leniency, and individual freedom can be over-done as well. The Yang tools of discrimination and sharp focus need to be in the mix, too.

It was mentioned above that certainty is an important human need, and that some degree of certainty is required for action. The need for certainty contrasts with the qualities of negative capability and dialectical thinking explored above. The need to decide and act conflicts with the need to reflect and remain open to possibility. John Dewey (1929) in *The Quest for Certainty*, links the quest for knowledge to a need for certainty sufficient to allow us to take action to solve problems and achieve goals. One could say that a person "believes" something when there is enough certainty to act on the basis of its truth (i.e., knowing and doing are intimately linked).

Wittgenstein (1969), in *On Certainty*, points out that in some contexts certainty is required and to doubt is meaningless, even though truth can not be determined or proven in any satisfactory way.[27]

Uncertainty and complexity create an unhealthy pull toward renouncing or relinquishing responsibility to oneself and community, leading to inertia or lack of action. When does one close the door to new information and possibilities? When does one hold firm to deep-seated values or beliefs? How do members of a community graciously allow that there may be an unavoidable degree of hypocrisy, over-simplification, and bias in others, while still trying to hold each other to some standard of objectivity, truthfulness, and rigor? Again, these are difficult issues and the balance will differ in different contexts, but what is important is that participants make the effort of trying to find a balance that matches their values.

One approach is that suggested by Kögler and Elbow above: genuinely attempt to immerse oneself in the perspective of the other before moving into critique. In our post-modern sophistication, we know that true objectivity is not possible (in, for example, news reporting). Likewise, fully knowing how another feels, what they think, or what they have been through, is impossible. Yet, the contemporary context has not removed the moral burden placed on individuals to try one's best to include an objective perspective in one's thinking repertoire, and to try one's best to take the perspective of others before condemning them.

Cognitive as well as moral burdens are involved. Methodological pluralism and multi-perspectivalism open up a Pandora's box (stirs a hornets' nest?) of epistemological indeterminacy. Or, rather than opening it up, perhaps it forcefully brings the attention to the indeterminacy that lies unacknowledged in all knowledge building. Actually, both are the case, because epistemological indeterminacy can be self-reproducing.

Uncertainty and ambiguity beget more uncertainty and ambiguity. An awareness and understanding of the causes and effects of uncertainty and ambiguity allow an individual or group to step out of the downward spiral and deal productively with them rather than be at their mercy. Such dialog can be quite difficult, and therefore requires clear intention and strong commitment. This is not so different than noting how anger and contempt beget more anger and contempt, or how negligence and indifference beget more of the same. And that it takes a higher level of awareness, understanding of, and control over, anger, contempt, negligence, or indifference to halt the spiral. As noted in Michael Herrick's (2006) *Integral Care* (in a section titled "Fears of Wellness"), introspection and reflective dialog can put us in a variety of disconcerting states. It can call us to greater responsibilities, unveil fears of intimacy and rejection, or challenge one's sense of identity. Epistemological indeterminacy must be addressed at both personal (psychological) and group (leadership and collective intentionality) levels.

---

[27] Statements such as "this is my hand," "the earth exists," "I am not dreaming" may sound like empirical statements, but they actually represent assumptions that we must assume in order to engage in any type of action or communication. They (in most contexts) form the bedrock assumptions that form our image of the world and allow us to think in the first place, so to question them is meaningless, because it would undermine the very possibility of questioning.

Indeterminacy Analysis, Differential Analysis and Ontological Commitment

Indeterminacy Analysis

As part of a theory, the author or another party can include an "indeterminacy analysis." This is an analysis of the most important points of uncertainty, ambiguity, or fuzziness in the theory. Doing so would, first of all, reinforce the fact that all models and concepts have some degree of indeterminacy, and that it is not a defect to have them.

Key concepts can be analyzed in terms of fuzzy boundaries, graded concepts, incompleteness, ambiguity, limitations, etc. Key "graded propositions," i.e. important claims that rely on fuzzy concepts, can be noted, along with how the meaning or validity of the claim changes in response to variations in the meaning of its constituent concepts. It will usually be important to note a variety of examples, and how the validity of claims degrades for unusual or boundary examples. For example, the claim "all holons are sentient" would be annotated to show how the claim weakens for uses of "holon" or "sentient" that do not perfectly fit the intended meaning. In a similar way, we can map out the known limits of models, diagrams, etc.; discuss strong and weak contexts of application in terms of the model's intended purpose. Known problematic areas or unexplored territory can be noted.

Differential Analysis

Common responses to disagreement include asserting one's position more forcefully, more clearly, or more persuasively, and such rhetorical moves do have their place. But, following from ideas presented previously, it is suggested that it would be more beneficial for the group as a whole (and probably more beneficial to most individuals in the long run) to begin by stepping back and looking more closely at the nature or source of the non-agreement. When evaluating a model or comparing models, one can "disassemble" their constituents and lay out the components for clearer analysis—a process I will call "differential analysis." Rather than initially responding to an argument or a model "full on," one can first step back or drop to a deeper level (or look "beneath" or "behind" the idea). Deconstructing the elements of an argument allows us to evaluate them individually and identify which elements are problematic or controversial. In a differential analysis one can identify these constituents: (a) basic concepts, ontological dimensions, foundational elements, and principles; (b) key assumptions about "what is true"; and (c) pivotal differentiations, generalizations, and integrations. Such unpacking is as much related to clarifying (and thus contributing to) mutual understanding as it is aimed at finding mutual agreement or dealing with its lack. As it is also a gesture toward more completely understanding another's theory, it relates to mutual regard as well. Differential analysis may seem like a lot of effort, and one's depth of analysis will depend on how one expects to benefit from it. But I maintain that in far too many instances critics jump right into critique when a greater degree of differential analysis prior to critique would greatly benefit the knowledge building community.

Differentiation, Generalization, and Integration

Wilber's integral theory makes heavy use of the concepts of "integration" and "differentiation." For my focus on knowledge sharing and epistemology, I need to re-evaluate the meaning of these terms to make them compatible with current cognitive theories of thought and

learning. Using only the two terms "integration" and "differentiation" does not allow enough precision to formulate the arguments. I will single out three fundamental cognitive processes: differentiation, generalization, integration.

- **Differentiation** (or discrimination or specialization)—seeing things (or ideas) that were once considered the same as being in some new way different (or members of different sets).
- **Generalization** (or abstraction)—seeing things (ideas) that were once considered as different as being in some new way the same (or members of the same set).
- **Integration** (including composition)—a coordination of ideas into a larger idea. "Coordination" is more than the union of the parts but a structural integration that gives the parts specific roles or relationships to each other. Integrations may include differentiations, generalizations, and other types of relationships.

I highlight these three processes in part to distinguish "integration," by which I mean the structural coordination of ideas to create a higher level idea, from "generalization," which also results in a "higher level" idea but does not structurally integrate its components. For example, the concept "mammal" can be a simple generalization that creates a set covering dogs, cats, humans, etc.; while the concept of "leadership" can be a complex coordination of ideas including responsibility, collaboration, efficient action, taking charge, consideration, maturity, etc. Below I wish to highlight the usefulness of differentiation and generalization without, or aside from, integration.

Differentiations and Generalizations as Powerful Ideas

A model (or theory) is usually a complex integration of many components and structural relationships. Models are perspectives on their components and/or the world. The theorist has invested considerable time and, through a combination of explicit rational analysis and unarticulated intuitive insights, constructs a conceptual schema. It is as if in proposing a theory one says "it all comes together meaningfully for me like this..." When a theorist presents a model to a community, the recipients must personally deconstruct the elements of the model and reconstruct them in a way that (hopefully but not always accurately or fully) reflects what the theorist intended. This takes effort and individuals and communities have limited cognitive resources. Understanding a model enough to evaluate it takes effort, and adopting it and using it to frame one's own work takes significant additional investment.

The recognition of similarities and differences is the most fundamental function of thought (and, in a biological sense, of life as well). All modes of reasoning, learning, problem solving, etc. rely on this basic cognitive capacity (or capacities). Contrast the simple yet powerful cognitive tools of differentiation and generalization with the more complex, also potentially powerful, cognitive models (theories, schemas, etc) described above. Though models can be powerful integrations of ideas, they carry more cognitive "baggage" and require more cognitive investment than differentiations and generalizations, which are more elementary and singular, and "portable." Models have a top-down quality: they encourage us to look at a chunk of reality in a certain way—they define how things are connected. Differentiations and generalizations

have a more bottom-up quality, ready to be re-used in many contexts.[28] They draw attention to new features of a situation.

I have argued for the importance of using multiple models for understanding and problem solving, as each model has its limitations. Each model makes use of a number of important differentiations and generalizations, and integrates these into a larger unit of meaning. In differential analysis, we harvest the maximum benefit from these elements, and judge the full model as a separate step.

In most contexts, the skills of negative capability and dialectical thinking are essential to the process of differential analysis. By first softening the hold of one's own beliefs, and then opening to what new perspective the other might present, we are better able to disassemble the components of a complex belief system and appreciate the partial truths and useful differentiations and generalizations that it contains.

Minimum Ontological Commitment

To finish my discussion of differential analysis I will bring in the principle of "least ontological commitment," a kind of Occam's Razor for knowledge building. The concept of ontological commitment is one of many concepts originally limited to philosophical discourse that has been appropriated by those working in the field of artificial intelligence and its subfields of "knowledge acquisition" and "knowledge representation." Theorists in these fields are concerned with how information and knowledge can be represented digitally—initially for the purpose of enabling machines to "think" and solve problems, but increasingly also for the purpose of allowing humans to encode knowledge in ways that make it widely available, findable, and reusable under various contexts.

Thomas Gruber (1995), in setting out principles for the establishment of base vocabularies and ontologies for knowledge sharing, proposes a principle of "least ontological commitment." To wit:

> an ontology should require the minimal ontological commitment sufficient to support the intended knowledge sharing activities. An ontology should make as few claims as possible about the world being modeled, allowing the parties committed to the ontology freedom to specialize and instantiate the ontology as needed. Since ontological commitment is based on consistent use of vocabulary, ontological commitment can be minimized by specifying the weakest theory (allowing the most models) and defining only those terms that are essential to the communication of knowledge consistent with that theory (Gruber, 1995, p. 4).[29]

---

[28] Of course the converse is also true: models can also be re-used in many contexts and differentiations and integrations are ways of looking at the world. But the top-down vs. bottom up analogy is only meant to be suggestive that the more complex constructs are less re-usable or portable and imply a more constrained view of the world as compared with the simpler constructs.

[29] Borst (1997, p. 67) adds that "roughly stated, statements of an ontological theory must be true in every possible world; ontological commitment comprises the set of possible worlds thus allowed by the ontological theory specification....In our opinion, there are two practical dangers: excluding acceptable possible worlds, but also including undesired ones."

Examples

In a manuscript I have under development (Murray, 2006b), I include some alternatives or extensions to integral theory that will illustrate aspects of my suggestions for dealing with epistemological indeterminacy. These alternative models are not thought to be more valid or even useful than already proposed models, but are given to illustrate limitations to existing models and to models in general. They illustrate the following ideas mentioned in this article, summarized below.

- Minimum ontological commitment
- The essential dialectic between examples and abstractions, and the use of central, boundary, and negative exemplars.
- Problems with the non-linear and non-hierarchical relationships among.
- Graded concepts and graded propositions.
- Indeterminacy analysis—i.e., explicit statements about the limits of models and concepts.
- Differential analysis—emphasizing differentiations before integrations.
- Issues in confusing maps with territories 1: Problems with transferring properties of diagrams to a model's interpretation.
- Issues in confusing maps with territories 2: problems with transferring properties of pronouns (I, we, it, etc.) or other linguistic categories to a model's interpretation.

Validity Criteria for Integral Theories

Here I will propose some specific things about integral methodology and the validity of integrally informed theories. Integral theories use methodological pluralism and multiple perspectives to arrive at more encompassing and robust truths or models. Above I argued that the primary job of such theories is meaning-making. I also argued that in any field (and in general) there is no single criterion for truth or validity, and that the overall validity, quality, or agreeability of a claim or model comes from a fuzzy, fluid combination of many senses and sources of validity (though each field or community can agree that certain validity criterion are more important). I also mentioned that the meaning and validity of a claim or model depends on the purpose, use, or task at hand.

Combining all of the above with the earlier definition of "integral," we can say that the validity of an integral (or integrally informed) theory depends upon the degree to which it:

1. Addresses **all levels and quadrants** (i.e., science/morals/art, body/mind/spirit, nature/self/culture); and (for extra credit) does so in a balanced way; i.e., it has sufficient scope (depth and span) or agape;
2. Serves to **integrate** (synthesize) and/or **differentiate** (distinguish or refine) important concepts, sometimes creating new terms/concepts as it does; (and points out important and unacknowledged relationships and connections between fields or perspectives);
3. "**Transcends and includes**" rather than transcending and excluding, previous theories and ideas;
4. Offers a **simple, elegant**, parsimonious, and/or perspicuous way to conceptualize a large number of ideas (i.e., that the orienting generalizations orient rather than confound);
5. Optional (extra credit): Proposes **developmental/evolutionary** causal or teleological explanatory mechanisms.

Adding general validity criteria from the above discussions implies that an integral (or integrally informed) theory depends additionally upon the degree to which it:

6. Includes explicit knowledge about the model's **assumptions, limitations**, fuzzy boundaries, biases, etc.;
7. Is **understandable** (defines terms, is consistent with the use of terms);
8. Has internal **consistency** (in its claims and models);
9. Has external **coherence** (is consistent with other established theories and ideas; that its claims are implicated by a plurality of other models or perspectives);
10. Sites **legitimate sources** for data and theoretical coherence, and facilitates the reader in determining the legitimacy of these sources;
11. Grounds itself in **examples**; includes positive, negative, central, and peripheral examples; is resilient to counter-examples;
12. And finally is characterized by **appropriateness**, sincerity, authenticity, and respectfulness.

Integral theories can be evaluated in these dimensions and can be compared along these dimensions. The above analysis is provided so that when an idea is critiqued the critic can be clearer about what dimensions(s) of validity is being addressed. In the end, the adoption or general acceptance of a theory or model depends not so much on how it is explicitly, mechanically, or formally evaluated in terms of such criteria, but on the personal sense, accumulated over individuals, of how it "fits," "feels," "works" or "makes sense."

More Recommendations

Let's Talk About It

One of the key recommendations is simply for groups to dialog explicitly about the types of issues raised in this article. This means raising context-grounded questions about uncertainty in knowledge, interpretation and bias, validity criteria, how conflict and differences are resolved, social vulnerabilities, trust, and power. Doing so is not easy. It requires certain skills, attitudes, and knowledge, depending on the depth and scope of the discussion. It must be focused on the actual issues at hand and not allowed to stretch too far into abstract philosophy or other tangents. Having individuals take on roles of facilitation or leadership will be necessary in most cases. Skill building or training may be useful in some contexts. Though engaging in dialog at this level is not by any means easy, doing even a tiny bit more of it can be beneficial to most groups. Though the topics may seem abstract and deeply philosophical as presented in this article, in practice much of it comes down to basic skills in listening, authenticity, empathy, and perspective taking.

Such meta-dialog is the collective level of the subject-becomes-object moral and epistemological development that Robert Kegan (1994) mentions in *In Over Our Heads*. In addition to the individual reflections on the properties of the group, the group as a whole (multilaterally) can develop awareness and reflectivity on group behavior. This, combined with a consensus-building process around a group's vision and values, can lead to group-level self-regulation. (This type of awareness is also discussed in Kegan & Lahey's (2001) *How the Way We Talk Can Change The Way We Work*).

Each group can be said to have a collective level of skill in these basic areas. This collective skill level is in part an average of the individual skills of the participants, but also depends on how these skills are supported at a systemic level within the group. Support at a systemic level will (a) allow the existing level of skills in individuals to fully manifest in the group context, and (b) support the practice and improvement of these skills by all, even those with lower-than-average skill levels.

Document Structure and Content

In the 21st century, the vast majority of knowledge building efforts involve digitally stored information and on-line collaboration. Using electronic tools to create and share information gives us new opportunities to systematically support knowledge building. Some sources of epistemological indeterminacy can be managed or ameliorated by making sure the following types of information are included in electronic documents.

- **Ground concepts and models in examples**. As prescribed by instructional design and cognitive theories, examples are best organized explicitly into categories such as typical cases, extreme cases, borderline cases, counter-examples, and analogies; and should be representative of a variety of contexts (Merrill, 1983; Gagne, 1985; Anderson 1983).
- **Include multiple perspectives.** Link ideas to-multiple representations, alternative theories, models, and perspectives. Allow alternative ("crisscrossing" or "spiral") paths through densely connected concepts (see "Cognitive Flexibility Theory," Spiro & Jehng, 1990).
- **Cross-reference conceptual links** (among ideas, concepts, principles, models, etc.).
- **Provide links to related material**, including: sources, examples, definitions, alternative perspectives, etc.
- **Itemize, label, and summarize** (make it easy to skim documents).
- **Articulate assumptions, values, premises**, etc. See "indeterminacy analysis" and "differential analysis" above for some ideas on how to do this.

Cognitive Tools and Information Technology

"Cognitive tools" include templates, procedures, and conceptual models for use in communication and knowledge organization. Well known technologies such as Wikis, discussion forums, and electronic voting form the basis of such tools, allowing groups to create an evolving "knowledge commons," and a significant amount of innovation is occurring in this area. The details of such technology it is beyond the scope of this article, but I explore some of these themes in my work on the Perspegrity project and the Metalinks project (see Murray & Benander, 2005; Murray, 2003b; www.tommurray.us).

A key technical capability, one that is already widespread, is the ability to manage multiple versions of documents. Texts and knowledge bases should be built to allow the knowledge of an individual or community to evolve, so that the current state of thinking is apparent or easily accessible when reading about an idea that has been improved upon. (But older versions should not be discarded, both for historical/archival reasons and because in they end they may turn out to be more adequate than something that succeeded them). Managing multiple versions of documents also facilitates collaborative authoring.

Tools are of little use if a community does not develop and share a set of practices, methods and attitudes associated with the tools and their intended goals. Thus the optimum conditions involve a relatively well-defined (though not closed) community that supports the levels of investment and trial-and-error needed to implement new practices.

Dialog Phases and Moves

Discussion forums can be structured such that points of order or other process-related or meta-dialogic contributions can be tagged as such. Special forums or "rooms" can be created for groups to move to when they want to dialog about group "shadow," trust, or power dynamics. Such tools allow the main discussion, the primary work and mission of the group, to remain "clean" of the machinations of important tangents.

As another example, group work and dialog tends to move through noticeable phases, and each phase has certain constraints or needs that can be supported through facilitation procedures and/or collaborative tools. Such phases include: (a) global questions—to establish the values and goals that bring a group together, (b) clarifications—to build mutual understanding and background information regarding specific issues; (c) preliminary "tweaking" and reality checking—to shore up weak areas and eliminate blind alleys that would otherwise lead to inefficient dialog; (d) Divergent, evaluative, and convergent dialog—that dives into the center of discussion, brainstorming, problem solving, and planning; and (e) Meta-dialog and dealing with indeterminacy—describing process awareness and group self-regulation methods that can be used throughout.

Conclusions

A community of integral theorists is a knowledge building community. Though epistemological indeterminacy (uncertainty in understanding, knowing, and communicating) affects all aspects of modern life, it is particularly salient and important in knowledge building communities. Because knowledge building communities represent and evolve knowledge explicitly, the causes, effects, and approaches to epistemological indeterminacy (EI) can be directly addressed in knowledge building practices. Because knowledge building communities are "communities," one can realistically imagine concrete contexts for studying and dealing with EI.

Because multi-persepctivalism and integral methodological pluralism constitute the core of integral theory methodology, integral theory highlights IE—its manifestations and its problematic repercussions. In my examination of web-based integral theory texts, I noted several problematic elements of the knowledge building community and its practices. It was not difficult to find instances where authors overstated, oversimplified, misunderstood, and misrepresented each other's ideas. Authors were found to be at times hypocritical, overly critical, not critical enough, biased, ambiguous, inconsistent, and even mean-spirited. Or at least a reasonable argument could be made supporting these judgments. "Welcome to the real world," you might say. And indeed, I made the point that the investigated community is not so different than most knowledge building communities in these respects. In addition, the exploration of epistemological indeterminacy has shown that most of these phenomena are to some extent unavoidable and ubiquitous.

But to some extent these phenomena are avoidable. And there are reasons for avoiding them. From the perspective of knowledge building, these phenomena add to inefficiency, inaccuracy, incompleteness, and mistrust. All other things being equal, communities would like their knowledge building to be as efficient, accurate, and complete as is practically possible, and to build trust and social capital with each interaction. In the specific case of integral theory, a failure to deal adequately and directly with EI threatens the integrity of the entire project, since its method is founded on multiple perspectives and its most prevalent topics of inquiry deal with abstract concepts and subjective realities.

That EI exists, that knowledge is socially constructed, perspectival, and evolves; that models are "only maps" of the territory—all this is quite generally recognized in an abstract sense. But less often do individuals or groups identify the specific causes and effects of these indeterminacies, with a goal of ameliorating pervasive problems in the knowledge building process in specific contexts. More often, EI is treated as an unavoidable, undecipherable, and unmanageable nuisance.

In this paper, I propose that participants prudently adapt to the problems of EI to the extent that they are unavoidable, and reduce the problems when this is practically possible. Though it is very difficult to say in advance or in general how much indeterminacy is unavoidable and which manifestations of it are correctible, what can be said with confidence is that epistemological indeterminacy is a phenomenon that people can develop some (or more) understanding of and sophistication with. Though complex and not treated in any explicit way in most communities, its causes and effects can be partially explained, and the resulting understanding could benefit knowledge building communities.

My recommendations can be interpreted as having three phases: awareness of the phenomena, understanding the phenomena, and offering some tools (and some hope) for dealing with it. A first step is for the participants in an integrally-informed community (or any community) to note that EI and its problematic effects do in fact exist for them. A second step is to increase understanding of the relationship between the causes and effects of EI, and to promote dialog within a community that deepens this understanding within particular contexts. A third step is to adopt practices and tools that help deal with EI. Awareness, and to some extent understanding, may lead initially to despair as the extent and inescapability of the problem becomes apparent. People tend to ignore what is not understood or cannot be changed, and so the first two steps of noticing and understanding tacit patterns can be jarring. But my aim is that the complete picture I have presented, along with suggestions for certain tools and methods, will create more hopefulness than despair, and will instigate a productive discussion within the integral theory community about these issues.

Summary

Below I summarize the main points of the article in terms of (a) sources of EI, (b) effects of EI, (c) ethical considerations from EI, and (d) recommendations and tools for dealing with EI.

A. *Sources* **of Epistemological Indeterminacy**

Indeterminacy in understanding (interpretation) and agreement (truth or validity) has numerous sources, and dealing with EI requires some level of familiarity with these sources (on the part of leaders or facilitators, if not all participants). The sources of EI include:

The cognitive nature of concepts, claims, and models

-   The fuzzy or **graded** nature of *concepts* (terms and categories);
-   The **metaphorical** nature of abstract concepts and the radical interdependence of the meaning of one or idea with that of many others, such that none of them is unambiguously primitive (to identify some as primitive is to take a perspective);
-   That *statements* (propositions or claims) are indeterminate because their constituent concepts are indeterminate; **claims are true "to the extent that"** the situation referred to corresponds with the most typical or representative exemplars of the conceptual categories used;
-   *Models***, theories and frameworks** are indeterminate because their constituent concepts and claims are indeterminate; and because they, by their nature, are approximate, abstractions, and simplifications over actual occurrences, and the choice of what to leave out depends on one's perspective;
-   The meaning of abstractions **depends on references to real examples** (positive, negative, near, extreme, boundary, etc.); yet real examples can never be fully described (again, what properties are ignored depends on one's perspective); there is a dialectic process of refinement between an abstract idea and the set of examples used to explain it.

Psychological and social sources

   - **Individuals** bring a variety of **distortions** to their interpretations, including their goals, values, knowledge, history of experiences, and unconscious motivations and biases, making "pure" objectivity impossible;
   - The brain creates a "**society of minds**" in that people can entertain or even believe conflicting things or use conflicting models (as conscious beings we are not of "one mind");
   - The meaning of a concept, belief, or model is constructed intersubjectively and idiosyncratically; **meaning evolves** in and through individual interpretation and social processes of meaning negotiation; meaning is dynamic, fluid, and distributed.

Philosophical or truth-related sources

-   There are many **meanings of truth**, and many criteria for determining validity, and the truth or validity of a claim or model depends on which of these is used (usually these choices are not articulated);
-   Validity has **procedural, communal, dialectic, and perspective elements**, which together can make determining the validity of a claim or model a complex and indeterminate process.
-   Integral theories are primarily **organizational or explanatory**, making their validity depend more on issues of **meaning-generation** and practical usefulness than on empirically determined truth. (In the section "Validity Criteria for Integral Theories" I listed a number of criterion).

B. *Effects* of Epistemological Indeterminacy

We have mentioned several direct and indirect effects of EI:

- If ignored, EI can lead to the production of **invalid, limited, or unusable knowledge**;
- EI increases the **vulnerability** at stake when one articulates one's ideas;
- EI expands the **opportunities for critique** (both valid and malicious or inappropriate);
- Trying to *deal with* EI can create additional pockets of uncertainty and vulnerability;
- Dealing with EI **takes time and energy**, so the benefits of doing so must be weighed against other priorities;
- EI, if ignored, can lead to corrosion of trust and solidarity in a group;
- Dealing with EI effectively takes skill and a **balancing of many factors** if excessive thinking about thinking, dialoging about dialog, or theorizing about theories is to be avoided.

C. Moral/Ethical Factors

Ethical considerations (such as mutual regard) are inextricably woven into processes of building understanding and finding agreement. I showed how understanding, agreement, and regard formed a braided whole, with each element depending on the other. Related points about ethics and affect include:

- **Trust** and mutual **regard** are critical elements to valid knowledge building;
- Mutual understanding and mutual agreement are developed through communicative processes that both presuppose and rely on basic ethical principles such as **equality, freedom, reciprocally, and authenticity**;
- Taking multiple perspectives has **emotional** as well as cognitive challenges, as in temporarily yielding one's own beliefs or trying to empathize with the perspective of someone very different;
- An acknowledgement or awareness of uncertainty is at odds with basic psycho-biological **needs for certainty** and simplicity (and a group's tolerance for uncertainty should be considered in adopting approaches to EI);
- The dynamics of power **and privilege** can have a strong impact on the quality of knowledge building, and thus must be examined;
- Ethical choice relies on the moral perceptive faculty of **empathy**, which is related to a type of perspective taking.

D. Recommendations for Dealing With Epistemological Indeterminacy

How can an individual or group possibly deal with all of the sources, effects, and factors described above as? The simple answer is that we already do—but (usually) not consciously. In everyday interactions with others who have a different opinion or perspective we intuitively scan for all of these factors and deal with the ones flagged as relevant or critical. This can be demonstrated by noting that if we imagine any one of the factors mentioned existing in the extreme, it would be obvious to most people that there was some uncertainty or ambiguity that needed to be accounted for. What we don't do so much is reflect on how we do this, dialog explicitly about how we do it, work to improve how we do it as individuals, or systematically

work to improve how we do it in groups. Each person of course has their own very idiosyncratic approach to dealing with EI, and articulating and dialoging about our (mostly tacit) approaches would be quite difficult. But, we are not starting from scratch with the naïve intuitions of participants. Rather, in this article I have presented some established philosophical, psychological, and sociological theories as starting points for individual contemplation and/or systematic group consideration.

The article included these **recommendations** for how groups can deal with EI:
- **Dialog** explicitly about EI, its causes and effects (not as easy at is sounds, and requires commitment, leadership, and patience);
- **Support** the development of the cognitive and affective skills related to **negative capability**, which are also describe as: epistemological sensitivity, dialectical thinking, reflective suspension of judgment, letting go/letting be/letting come, the Believing Game, and dwelling in and with another's words;
- Support the skill of **differentiating the (perceived) needs and goals of self, group**, and outsider/other; and explicitly speaking from each perspective;
- Employ "**indeterminacy analysis**:" the analysis of the most important points of uncertainty, ambiguity, or fuzziness in a model or claim.
- Employ "**differential analysis**:" identifying key differentiations, generalizations, and integrations in a model or claim, with an emphasis on reusable differentiations and generalizations.
- Other recommendations concerned **knowledge representation** (the structure and content of documents and textual dialogs), including the use of **technology** to identify, manage, and ameliorate IE.

Concluding Thoughts on Awareness, Engagement, States, and Stages

My focus has been on the nature of knowledge and knowing as it impacts human collaboration. More specifically, I focus on the indeterminacies, uncertainties, and ambiguities in knowledge and knowing, and how this impacts human efforts to build knowledge. But what was uncovered in the course of exploring this limited territory has broader implications. Awareness and understanding of this aspect of mind is closely related to the broader types of awareness referred to when philosophers and spiritualists speak of contemplative practices and insight. The reflective turn, looking within oneself with an authentic intention of creating a deeper, broader understanding of thought, mind, and heart, leads to a certain set of intuitions regardless of the contemplative practice used. I focus on the phenomena of uncertainty here, but it quickly leads out to perennial topics such as: the intersubjective and collective nature of mind(s); questioning whether mind or "I" (or reality for that matter) exist in the traditional sense; themes of caring, regard, equanimity, and compassion; and the psychological, but ultimately ethical and spiritual, vulnerabilities and openness of the human social condition.

My recommendations point to an experiential and enacted forms of awareness and understanding, not a purely philosophical ones. The concrete practices that reify my suggestions put awareness to work in the world while they develop it. They are contemplative practices, but they are done for the most part in social contexts (for example, dialog and knowledge building practices). Thus, my recommendations are a form of engaged contemplative practice. Socially engaged contemplation forcefully brings in the ethical dimension, which one risks leaving as remote in strictly private contemplative practices.

Wilber's work helps us make clear distinctions between states and stages of consciousness or awareness. Importantly Wilber (and colleague Coombs) have clarified that "a person will interpret [a state or experience] according to the stage that they are at" (Wilber, 2005b, p. 53). The experience of a state of consciousness is colored by our general stage of development and the belief systems tied to that stage. The interpretation of a contemplative or spiritual or ethical experience is as important as the raw experience itself. In this article, I have brought in many theories of mind and group. I do not believe that participants in a knowledge building community all have to become philosophers to be able to deal productively with epistemological indeterminacy. But along with developing awareness of mind and group through experience and practice, it is important to have an adequate understanding or conceptual framework from which to interpret and apply this awareness. Reflection and dialog can lead to important new awareness and experiences, but the transformative potential of these experiences depends on how they are interpreted. The question of exactly which elements of theory or what degree of theoretical depth is most perspicuous is of course an empirical and context-sensitive one. But I hope that the themes that I have outlined provide an adequate starting point.

Developing this type of awareness is not a project for the individual. For one thing, the issues are as much intersubjective as subjective, and thus must be understood from a systemic perspective and investigated through dialog. But more importantly, the patterns of non-awareness and indifference are so ingrained into socio-cultural forms of collaboration that it is only through collective intention that we can hope to change them. Communities can generate this type of collective awareness and wisdom through a solidarity of iterative dialog, trial-and-error practice, and good will.

References

Anderson, J. (1983). *The architecture of cognition*. Cambridge, MA: Harvard Univ. Press.

Bara, B.G, Bucciarelli, M. & Lombardo, V. (2001). Model theory of deduction: An unified computational approach. *Cognitive Science, 25*, 839-901.

Basseches, M. (2005). The development of dialectical thinking as an approach to integration. *Integral Review, 1,* 47-63. http:integral-review.global-arina.org.

Basseches, M. (1984). *Dialectical thinking and adult development*. New Jersey: Ablex Publishing.

Bohm, D. (1996). *On dialog* (L. Nichol, Ed.). New York: Routeledge.

Borst, W.N. (1997). *Construction of engineering ontologies for knowledge sharing and reuse*, Ph. D. thesis series No. 97-14, Centre for Telematics and Information Technology, 7500 AE Enschede, The Netherlands. ISBN: 90-365-0988-2.

Damasio, A. (1999). *The feeling of what happens: Body and emotion in the making of consciousness.* New York, NY: Harcourt Brace.

de Mare, P., Piper, R. & Thompson, S. (1991). *Koinonia: From hate, through dialogue, to culture in the large group*. London, England: H. Karnac Books, Ltd.

Depraz, N., Varela, F. & Vermersch, P (2003). *On becoming aware: A pragmatics of experiencing*. Amsterdam, Netherlands: Benjamins Publication Co.

Dewey, J. (1929). *The quest for certainty: A study of the relation of knowledge and action*. New York: Minton, Balch. and Co. Chapter II, Philosophy's Search for the Immutable, available at http://www.marxists.org/reference/subject/philosophy/works/us/dewey.htm.

Elbow, P. (2005). Bringing the rhetoric of assent and the believing game together—And into the classroom. *College English*, March 2005.

Elster, J. (1999). *Alchemies of the mind: Rationality and the emotions*. Cambridge, UK: Cambridge University Press.

Flores, F. & Solomon, R. (2001). *Building trust in business, politics, relationships, and life*. New York, NY: Oxford University Press.

Foucault, M. (1998). *Ethics: Subjectivity and truth: Essential works of Foucault, 1954-1984*, Volume 1. New York: The New York Press.

Gagne, R. (1985). *The conditions of learning and theory of instruction*. New York: Holt, Rinehard, and Winston.

Gentner, D. & Stevens, A. (Eds.). (1983). *Mental models*. Hillsdale, NJ: Lawrence Erlbaum Assoc.

Gilligan, C. (1982). *In a different voice: Psychological theory and women's development.* Cambridge, MA: Harvard Univ. Press.

Goleman, D. (1995). *Emotional intelligence*. New York, NY: Bantam Books.

Grondin, J. (1995). *Sources of hermeneutics*. New York: State University of New York Press.

Gruber, T. (1995). Toward principles for the design of ontologies used for knowledge sharing. *International Journal of Human-Computer Studies*, *43*, 907-928.

Habermas, J. (1981). *The theory of communicative action, Volume One: Reason and the rationalization of society* (T. McCarthy, Trans.). Boston, MA: Beacon Press.

Habermas, J. (1993). *Justification and application*: *Remarks on discourse ethics* (Cronin, Ciaran, Trans.). Cambridge, MA: MIT Press.

Habermas, J. (1998). *Between facts and norms* (W. Rehg, Trans.). Cambridge, MA: MIT Press.

Habermas, J. (1999). *Moral consciousness and communicative Action* (C. Lenhardt & S. W. Nicholsen, Trans.). Cambridge, MA: MIT Press.

Habermas, J. (2003). *Truth and justification* (B. Fulmer, Ed., Trans.). Cambridge, MA: MIT Press

Hargens, S. (2001). *Intersubjective musings: A response to Christian de Quincey's 'The Promise of Integralism,'"* April 2001. Available at wilber.shamblala.com.

Herrick, M. (2006). *Integral care*. Manuscript available from Windhorse Associates, Northampton, MA.

Johnson-Laird, P.N. (1983). *Mental models: Towards a cognitive science of language, Inference, and consciousness.* Cambridge, MA: Harvard University Press.

Kahneman, D, Slovic, P, & Tversky, A. (Eds.). (1982). *Judgment under uncertainty: Heuristics and biases.* Cambridge, UK: Cambridge University Press.

Kegan, R. & Lahey, L. (2001). *How the way we talk can change the way we work: Seven languages for transformation.* San Francisco, CA: Jossey-Bass.

Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Cambridge, MA: Harvard University Press.

King, P.M. and Kitchener, K.S. (1994). *Developing reflective judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults*. San Francisco: Jossey-Bass.

Kirkham, R. L (1992). *Theories of truth: A critical introduction*. Cambridge, MA: MIT Press.

Kofman, F. (2002). *Holons, heaps and artifacts (And their corresponding hierarchies).* At wilber.shambhala.com.

Kögler, H. H. (1992). *The power of dialog: Critical hermeneutics after Gadamer and Foucault.* Cambridge, MA: MIT Press.

Kohlberg, L. (1978). *Essays in moral development.* Cambridge, MA: Center for Moral Education, Harvard University.

Kuhn, T.S. (1970). *The structure of scientific revolutions,* Second Edition. Chicago, IL: Univ. of Chicago Press.

Lakatos, I. (1976). *Proofs and refutations: The logic of mathematical discovery*. J. Worrall & E. Zahar, (Eds.). Cambridge, MA: Cambridge Univ. Press.

Lakoff, G. (1987). *Women, fire, and dangerous things: What categories reveal about the mind.* Chicago, IL: University of Chicago Press.

Lakoff, G. and Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. New York, NY: Basic Books/Perseus Books Group.

Loevinger, J. (1976) *Ego development*. San Francisco: Jossey-Bass.

Matthews, G, Zeidner, M, and Roberts, R (2002). *Emotional intelligence: Science & myth.* Cambridge, MA: Bradford Book/MIT Press.

Merrill, M.D. (1983). Component display theory. In C.M. Reigeluth (Ed.), *Instructional-design theories and models: An overview of their current status* (pp. 279 – 333). Lawrence Erlbaum Associates, London.

Mervis, B. & Rosh, E. (1981). Categories of natural objects. *Annual Review of Psychology*, *32*. 89-115.

Mindell, A. (1995). *Sitting in the fire: Large group transformation using conflict and diversity*. Portland, OR: Lao Tse Press.

Mindell, A. (2002). *The deep democracy of open forums: Practical steps to conflict prevention and resolution for the family, workplace, and world*. Charlottesville, VA: Hampton Roads Publishing.

Murray, T. (2003a). MetaLinks: Authoring and affordances for conceptual and narrative flow in adaptive Hyperbooks. *Journal of Artificial Intelligence and Education*, *13*, 197-231. Special Issue on Adaptive and Intelligent Web-Based Systems.

Murray, T. (2003b). A framework for developing cognitive tools that support critical, reflective, and multi-perspectival thinking. Presented at the AACU Technology, Learning, and Intellectual Development Conference, October 2003, Cambridge, Massachusetts.

Murray, T. (2005). Hyperbook features supporting active reading skills. In Zomgmin M. (Ed.), *Web-based intelligent e-learning systems: Technologies and applications* (pp. 156-174). Hershey, PA: Idea Group Publishing.

Murray, T. (2006a). *Epistemological indeterminacy and knowledge building communities: Dilemmas in mutual understanding, mutual agreement, and mutual regard*. Manuscript in preparation. Available from the author.

Murray, T. (2006b). *Epistemological indeterminacy in integral theories of holons, quadrants, and perspectives*. Manuscript in preparation. Available from the author.

Murray, T. & Benander, L. (2005). *Technology for collaborative decision-making in people-centered multiple-bottom-line organizations.* White paper available at www.perspegrity.org.

Newell, A. (1990). *Unified theories of cognition*. Cambridge, MA: Harvard University Press.

Perry, W. G. Jr. (1970). *Forms of intellectual and ethical development in the college years: A scheme*. New York: Holt.

Popper, K. (1935). *The logic of scientific discovery*. New York: Routledge.

Roediger, H.L. & McDermott, K.B. (1995). Creating false memories: Remembering words that were not presented in lists. *Journal of Experimental Psychology: Learning, Memory and Cognition, 21,* 803-814.

Rorty, R. (1999). *Philosophy and social hope.* Penguin Books: London.

Rosenberg, M. (1999). *Non-violent communication: A language of compassion.* Encinitas, CA: Puddledancer Press.

Rosh, E. & Mervis, C. (1975). Family resemblances: Studies in the internal structure of categories. *Cognitive Psychology*, 7. 573-605.

Scardamalia, M., & Bereiter, C. (1994). Computer support for knowledge building communities. *Journal of the Learning Sciences*, *3*(3), 265-283.

Schoenfeld, A. H. (1985). Metacognitive and epistemological issues in mathematical understanding. In E. Silver(Ed.), *Teaching and learning mathematical problem solving* (361-380). Hillsdale, NJ: Lawrence Erlbaum Assoc.

Schommer-Aikins, M. (2002). An evolving theoretical framework for an epistemological belief system. In B. Hofer & P. Pintrich (Eds.), *Personal epistemology: The psychology of belief about knowledge and knowing* (pp. 103-118). Hillsdale, NJ: Lawrence Erlbaum.

Senge, P., Scharmer, C.O., Jaworski, J, & Flowers, B. S. (2004). *Presence: Human purpose and the field of the future*. Cambridge, MA: Society for Organizational Learning.

Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday.

Spiro, R.J. & Jehng, J.C. (1990). Cognitive flexibility and hypertext: Theory and technology for the nonlinear and multidimensional traversal of complex subject matter. In D. Nix & R. Sprio (Eds.), *Cognition, education, and multimedia* (pp. 163-205). Hillsdale, NJ: Lawrence Erlbaum Associates,

Vetlesen, A. J. (1994). *Perception, empathy, and judgment*. University Park, PA: Penn State Press.

Visser, F. (2003). *Ken Wilber: Thought as passion*. New York: SUNY Press.

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychology processes.* Cambridge MA: Harvard University Press.

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. New York: Cambridge University Press.

Wachterhuaser, B.R. (Ed.). (1994). *Hermeneutics and truth.* Evanston, IL: Northwestern Univ. Press.

Wilber, K. (1998). *The essential Ken Wilber*. Boston, MA: Shambhala Press.

Wilber, K. (2000a). Sex, ecology, spirituality (in *Collected Works of Ken Wilber*, Vol. 6). Boston, MA: Shambhala Press.

Wilber, K. (2000b). *A Theory of everything: An integral vision for business, politics, science and spirituality*. Boston, MA: Shambhala Publications.

Wilber, K. (2000c). I*ntegral psychology: Consciousness, spirit, psychology, therapy*. Boston, MA: Shambhala Publications.

Wilber, K. (2001). *Eye to eye: The quest for the new paradigm.* Boston, MA: Shambhala Press.

Wilber, K. (2005a). *Kosmos II: Excerpts from Volume 2 of the Kosmos Trilogy.* Available at wilber.shambhala.com.

Wilber, K. (2005b). *What is integral spirituality* (first draft, June 2005). Available at www.IntegralSpiritualCenter.org.

Winne, P. H. (2001). Self-regulated learning viewed from models of information processing. In B. J. Zimmerman and D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed.), (pp. 153-189). Mahwah, NJ: Lawrence Erlbaum Associates.

Wittgenstein, L. (1953). *Philosophical investigations* (3rd ed.). (Anscombe, Trans.). New York, NY: Macmillan Company.

Wittgenstein, L. (1969). *On certainty.* (Paul & Anscombe, Trans.). New York, NY: Harper Torchbooks.

Dr. Tom Murray *is a consultant and research scientist in the areas of Cognitive Tools, Educational Technology, and Knowledge Engineering. His research and teaching work since 1985 have been primarily at Hampshire College School of Cognitive Science and the University of Massachusetts School of Education and Computer Science Departments. He is currently an independent consultant. Contact the author at tmurray@cs.umass.edu. More information at www.tommurray.us and www.perspegrity.org.*