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Process, Structure, and Form: An Evolutionary Transpersonal Psychology of Consciousness

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In the spirit of William James, we present a process view of human consciousness. Our approach, however, follows upon Charles Tart's original systems theory analysis of states of consciousness, although it differs in its reliance on the modern sciences of complexity, especially dynamical systems theory and its emphasis on process and evolution. We argue that consciousness experience is constructive in the sense that it is the result of ongoing self-organizing and self-creating (autopoietic) processes in the mind and body. These processes follow a broad developmental agenda already described by psychologists such as Jean Piaget. Similar constructive transformations of consciousness appear to have occurred across the course of human history. In this sense, phylogeny indeed recapitulates ontogeny. Finally, modern developmental research suggests that the most advanced levels of human growth transform consciousness in the direction of increasing selflessness and spirituality, rather than simply toward greater intelligence.

Complexity provides a benchmark for evaluating the direction of evolution...
To contribute to greater harmony,
a person's consciousness has to become complex.
Mihaly Csikszentmihalyi

As soon as infants acquire the names for objects they begin placing them into categories from which they make accurate predictions about them (Gelman & Markman, 1986). Members of such categories seem to acquire an underlying "essence." It is not hard to imagine how this tendency to objectify the external world into objects, and later into structures assembled out of these objects, was of evolutionary usefulness to our ancestors. Nevertheless, this way of comprehending reality does not always serve us well when we seek to understand our inner lives.

Indeed, it can hardly be doubted that many of the most important variables studied by psychologists are *processes*, a fact that was explicitly recognized in the richly contextual theories of such psychological pioneers as William James and John Dewey. Nevertheless, the early years of the 20th century found American and British psychology moving in the direction of reductionistic and structural descriptions of psychological phenomena at roughly the same time that fundamental theory in physics was shifting to the radically holistic and process-oriented worldview of quantum mechanics. In those days, there was an almost fanatical flavor to the arguments made in favor of limiting what "legitimate psychology" would accept to a small-scale empirical scientific enterprise carried out in the learning and psychophysical laboratories (*a la* Watson and Titchener), and discouraging the broad application of its findings to the clinic or other spheres of applied psychology. This effort to constrain the field was cast in stone by the production of written histories. The most prominent of these was penned by Titchener's own student E.G. Boring (1929/1950), that by exclusion characterized psychology as a reductionistic science carried out in academic and medical laboratories by such heroic researchers as Helmholtz and Wundt, Titchener's mentor. It is ironic that the methods of physics were often held up as the ideal to which the new science of psychology might aspire.

It is certainly the case that psychological processes can sometimes be freeze-framed in the laboratory to yield useful information, but it is also the case that they must be honored as processes if they are to be

understood in depth. For example, Piaget's levels of cognitive development seem to present a structural view of the growth of the intellect (Flavell, 1963; Gruber & Voneche, 1977). But Piaget actually considered them to be outward manifestations of underlying cognitive processes which he represented as mathematical transformations (i.e., as processes). Kohlberg's (1981) theory of moral development likewise exhibits structural levels and stages, and was inspired to a significant degree by Piaget's own earlier work, but Kohlberg himself stressed that beneath the surface reside complex cognitive processes of exactly the type originally identified by Piaget. Freud's early writings, which emphasized the processes by which neurotic symptoms and dream narratives emerge in the context of a unified fabric of the individual's life, present another example. As time went by, Freud slipped increasingly into structural language, referring to the id, ego, and superego as fixed features of the psyche (Archard, 1984).

As is well known, William James (1890/1981) viewed the mind as a *stream of consciousness* rather than as a series of stationary experiences. In agreement with this, it is generally understood that phenomenal reality presents itself as a changing display of experience (e.g., Guenther, 1989; Kockelmans, 1967). Beyond this, we note that many descriptions of the richest and most intense forms of consciousness, of transpersonal experiences for example, characterize reality as a radiant flowing process of coming-into-being (Gebser, 1949/1986; Guenther, 1989; Rama, 1981). In line with such observations, the approach we have taken in this article and elsewhere (Combs, 2002; Combs & Krippner, 1997, 1998, 1999a, 1999b) views process as primary and structure as secondary.

The roots of the process perspective reach at least as far back as Heraclitus in the West and Lao-Tsu in the East, while several important developments in recent decades have set the stage for the present work. These include the appearance of a sophisticated process philosophy in the writings of Alfred North Whitehead and other recent American philosophers (Rescher, 1996). They also include the creation of systems theory by Bertalanffy (1968), which has been developed by Arthur Koestler (1979), Erich Jantsch (1980), Ervin Laszlo (1972, 1987), and many others. Nobel laureate chemist and mathematician Ilya Prigogine (e.g., Prigogine & Stengers, 1984) made a major contribution to this theoretical lineage by demonstrating how complex systems can, through their own intrinsic dynamics, evolve toward increasing organization and complexity. Meanwhile, several mathematicians developed methods for representing *complex dynamical systems*, that is, systems that change through time, by modeling their evolutionary trajectories (e.g., Abraham, 1991). C*haos theory,* which was to become widely celebrated in many circles, grew out of dynamical systems theory. In this article we make use of the language of dynamical systems theory to take a step toward the development of a process model of consciousness.

Evolution

Strictly speaking, a system is considered *dynamical* if it moves or changes (i.e., evolves) according to a mathematical rule of transformation. An example is the swinging of a pendulum. If the pendulum's changing position and velocity are plotted in a *state space* of all combinations of position and velocity, the resulting figure is called a *phase portrait*. If the pendulum were frictionless the phase portrait would describe a single closed circle or ellipse as it cycled through the same round of states indefinitely. The fact that the circle is closed tells us that we are dealing with a *cyclic* or *fixed cycle attractor*, (i.e., one that repeats itself exactly in time). Here, the term *attractor* indicates the tendency of the pendulum to return to this previous pattern of activity even if displaced from it, say, by momentarily causing it to swing more swiftly or more slowly. Such stability is what gives the pendulum its reliability, making it useful in clocks.

Allowing a clock that contains such a pendulum to run down, so that it swings in decreasing arcs until it comes to rest, generates a phase portrait that spirals to a point near the center. The state of inactivity represented by this point is termed a *static attractor*. Such attractors are of relatively little interest to the study of living systems. Far more important is a third class of attractors that cannot be properly categorized as either point or cyclic, and for this reason was termed "*strange*" by those who first discovered it. Nowadays they are usually referred to as *chaotic attractors*. They exhibit activity patterns that are evident to the eye, are roughly cyclic in appearance, but never exactly repeat themselves.

The behavior of many complex systems can be represented as chaotic attractors. An example is the

weather, in which humidity, temperature, wind velocity, and so on, change from moment to moment, day to day, month to month, and year to year, in patterns that are evident upon inspection but which never exactly repeat themselves. Below we explore the idea that our inner lives are composed of our own kind of inner weather, made up of moods, thoughts, feelings, memories, perceptions, and the like.

A phase portrait of a chaotic attractor looks something like the line made by a cork ball dipped in an inkwell and set rolling inside a circular trough carved into a thick wooden tabletop. The floor of the trough represents the lowest potential energy state of the system, while the walls might slope in either gradually or abruptly. In dynamical systems terms this trough is termed the *basin* of the attractor. If the ball continues to roll around inside it in an endless erratic path, we say it is caught in a chaotic attractor. In this example the sides of the trough represent the entire range of the attractor in the state space of the table top. If the ball escapes from the trough and rolls away, we say that the system has escaped this attractor basin and has gone off, as it were, in search of another. In plain English, the system has escaped one pattern of activity and must now find another.

These ideas are especially rich when applied to a class of physical systems identified by Prigogine (e.g., Prigogine & Stengers, 1984) as *dissipative structures*. Such systems have a unique ability to take in energy from the environment and use it to reorganize themselves into increasing complexity. Some of the energy, however, is eventually dissipated back into the environment in less organized forms, such as heat; thus the term *dissipative*. The biosphere of the Earth is an example of such a system. It absorbs sunlight, creating life forms and ecologies that evolve toward high orders of complexity, while heat, which is less organized than sunlight, is radiated back into space. Living organisms themselves are dissipative systems, ingesting highly organized energy in the form of food, or sunlight in the case of plants, and dissipating less organized byproducts back into the environment.

In line with the above, biological systems have the ability to organize and structure their own internal processes; thus we say they are *self-organizing* systems. In 1974, biologists Francisco Varela and Humberto Maturana went beyond this notion to introduce the idea that living organisms are *autopoietic*, or self-creating (e.g., Varela, Maturana, & Uribe, 1974). From this point of view an organism is a system whose first order of business is the production of a network of processes that, taken together, comprise that very organism. For instance, the most important product of the overall metabolic activity of a living cell is the cell itself. Thus, the cell can be thought of as a network of genetically-initiated processes that sustain themselves through time, even though the material substances that constitute them change continuously. All living organisms are autopoietic systems, as are ecologies, and the entire intricate web of life on Earth (Lovelock, 1988; Lovelock & Margulis, 1974).

Once we understand the idea of an autopoietic system we see that it has potential for many applications. The basic notion of a set of processes that recreate themselves by their own mutual interactions can be applied, for example, to chemical, neuronal, computational, and even cognitive systems. It has been shown, for example, that certain combinations of complex molecules will interact with each other in such a way as to create more of their own kind (Kauffman, 1995). Systems theorist George Kampis (1991) approaches the entire idea of self-creating systems in terms of what he calls *component systems*. Such a system is composed of a set of elements that interact to create new elements, including the original set. The actual elements in question can be chemical molecules, interacting computational codes in a computer program, or cognitive processes. The basic idea of a component system is that its elements represent processes that encounter each other in a kind of interactive soup. Notice that these components can be understood as either physical interactions between, say, molecules, or as logical operations that are specified, for example, by operational codes in a computer program. Mathematician Ben Goertzel (1994), for instance, has proposed just such autopoietic computational systems. The present authors have developed a similar line of thought centering on human cognitive and other psychological processes (Combs, 2002; Combs & Krippner, 1998, 1999a, 1999b), an idea to which we will return shortly.

Kampis emphasizes the creative potential of component systems, observing that they produce new and creative outcomes that cannot be predicted by computational procedures. Goertzel differs on this point, arguing that all such processes can be represented computationally, at least under ideal conditions. Both, however, agree that creativity flows from the interactions of the components, which tend also to produce

novel new components. And these new components in turn interact with each other, and with previously existing components, to produce even newer components not foreseeable from the original constituents. Here it is helpful to keep in mind that these "components" are actually transformational processes, such as the transformational operations specified in computer codes, chemical changes facilitated by catalytic interactions, or cognitive transformations leading, for example, to new ideas or concepts. Ultimately, such creative processes can combine to alter the basic form of the system itself. From a larger view, such systems can be understood as rolling autopoietic events in which old patterns evolve into new ones.

One goal of this paper is to show that our immediate experience, the Jamesian *stream of consciousness*, is composed of psychological processes such as thoughts, memories, and emotions, which form an ongoing autopoietic system that recreates itself from moment to moment through the interaction of its psychological components. Indeed, we are concerned here not only with the conscious experience itself, but also with its chemical and physiological constituents within the brain and body. With this in mind, we have utilized the term *mindbody* (Combs & Krippner, 1998) to refer to the entire set of mental and physiological aspects of a person's moment-to-moment experience.

Our contention is that the experiential life of the mindbody recreates itself from moment to moment by virtue of the interaction of its constituent component processes. As with other complex component systems, such as the metabolic cycles that interact to create the total complex event of a living cell, or the patterns of the weather, composed of elements such as heat, atmospheric pressure, and wind velocity, the life of the mindbody is both stable and creative. It is stable because the entire regime of interacting component processes of which it is formed lend it stability, as we also see in the life of a cell. It is creative because the interactions of the component psychological processes create new processes which, interacting with older ones, lead to novelty and even to long-term growth, or evolution, in the system as a whole. Let us consider these points in order.

Stability, Self-Creation, and Change in the Mindbody System

Consider the tendency of moods to sustain themselves for brief or even long periods of time through a continuous cycle of interactions of thought, memories, imaginings, and feelings, as well as physiological factors such as hormone or neurotransmitter levels in the blood. There is evidence that a particular mood such as anger, sadness, or joy, promotes the recall of state-specific memories that remind us of events experienced during previous instances of those very moods (Bower, 1981; Eich, 1980). When we are sad we remember unhappy episodes from the past. Such recollections strengthen the state of mindbody that produces them. Our cognitive and emotional systems slip into an attractor basin that can be characterized as a mood of sadness. Such a state involves alterations in the neurochemistry of the brain as well as hormonal changes in the blood that further strengthen the pull of this mood attractor. In this connection, two laboratories have found that ordinary mood fluctuations follow chaotic patterns from hour to hour and day to day (Combs, Winkler, & Daley, 1994; Hanna, 1991), as would be expected for a complex autopoietic system.

An important notion for understanding long-term changes and transformations of human consciousness is the idea that cognitive systems can be autopoietic as well. This is logically similar to the idea, noted above, that computer codes can be written to produce a kind of operational soup that, once set in motion, recreates itself over time and gives birth to new and novel codes. Something similar to this can be seen in terms of the human mind. Consider Piaget's developmental cognitive model of the child's understanding of the world (e.g., Flavell, 1963; Piaget, 1952, 1954). Here, each Piagetian level of development represents an experiential world, a noetic regime according to which reality is interpreted as sets of magical relationships (*preoperational period* thinking), relatively simple cause-and-effect relationships (*concrete operational* thinking), or sophisticated causal interactions (*formal operational* thinking). At each of these developmental levels the cognitive operations, or *schemata* in Piaget's original terms, are composed of elements that mutually create and support each other. For instance, the experience of the world that is made possible by the formal operations intellect relies on logical schemata such as reversibility, asymmetric relationships, conservation of

volume and number, and the ability to perform multiple classification and conceptualize hierarchical relationships. These concepts, or schemata, form mutually supporting networks.

For example, the schemata for the conservation of volume allows one to know that when water is poured from a tall narrow glass into a short wide one the volume remains the same. Children under about five years of age do not believe this, and will argue that there is less water in the second glass because they see that the water level is lower. As time goes by, however, children acquire a schema that allows them to compensate for the depth of the water in the glass by taking into account its width. Thus, the new schema of "width compensating for height" contributes to and indeed becomes part of the more sophisticated schema of the conservation of volume. Still another schema that contributes to conservation is termed *reversibility*. This is the ability to mentally run operations backward, for example, to imagine that if the water in the low wide glass were poured back into the original tall narrow glass it would come up to exactly the same level that it did originally. This schema, combined with the others above, completes a tight package of operations that both create and stabilize the idea of conservation of volume. Indeed, we can imagine that if any one of these schema failed, the others would rush in to recreate and stabilize it. At the same time, when the schemata of conservation becomes well established, it in turn provides both a context and a confirmation of the component schemata of which it is composed.

It is worth noting that while psychological models of development such as those of Piaget (Flavell, 1963; Piaget, 1952, 1954), Cook-Greuter (1999), Fischer and Bidell (1998), Gilligan (1993), Gowan (1974), Kegan (1982, 1994), Kohlberg (1981), Torbert (1972), and Wade (1996) are often presented in terms of structures, they are more correctly understood as cognitive processes. For instance, Piaget's work dealt with how children and adults interpret reality. The word "interpret" is a verb that references a process, rather than a noun that references a structure. Speaking of a Piagetian schema as a "structure" is no more than a figure of speech. The same can be said for Kegan's developmental model, which extends beyond Piaget's formal operations thinking and into what he calls "postconventional" levels of development. Likewise, Kohlberg's and Gilligan's work on moral thinking examines how people make moral decisions (yet another process).

It is our idea that psychological development can best be understood as the unfolding of a series of noetic regimes, each undergirded by its own network of psychological process. Together they create an entire process fabric for experiencing the world, a stream of thought as James suggested, forming the core of that individual's experience of reality. In this discussion we focus especially on the cognitive aspects of each developmental level simply because research in the field of development tells us more about cognitive development than, say, emotional, mnemonic, social, or perceptual development. However in the larger picture these must also be included in each developmental regime (Fischer & Bidell, 1998). Now let us consider the transformation of such regimes during psychological growth.

Evolution and Growth: Ontogeny Recapitulates Phylogeny (Again)

In dynamical systems terms, a system is said to evolve if it follows a *rule of transformation* (Abraham, 1991). From this point of view *evolution* and *growth* are closely related. We believe that this similarity is more than formal; that when it comes to the human mindbody there are deep similarities between individual development from childhood through advanced stages of adult development and the psychological evolution of the human mindbody across history. First, let us consider development, then move on to the question of evolution.

Again taking the Piagetian model as a guide, let us note that each increment in development sees separate schemata combining to form hierarchical structures of greater complexity at the next level up. For example, during the sensorimotor period of infancy the initially separate schemata of grasping and visual tracking combine to form an eye-hand coordination schema that will continue to increase in complexity and flexibility for years to come. In similar fashion, developmental psychologist Rhonda Kellogg (1969) documented the spontaneous productions of art in children from throughout the world, finding that the freely drawn patterns at one level of development combine to form the elements of the next and more complex stage of drawing. Early circles, squares, and triangles come together to form houses, cars, and people. Research suggests that an analogous cognitive process underlies

the development of moral thinking, leading finally to the abstract moral judgment of the advanced adult (Kohlberg, 1981). Similar changes are seen in the development of the self (Kegan, 1982, 1994).

In all such theoretical models, each stage of development is built out of processes already present in earlier stages, which are combined in new, more complex and effective ways at the next level. For instance, Kelly (1999) has shown how formal operational stage schemata recombine in post–formal operational thinking to yield the more advanced *recursive*, *dialogic* (embracing opposites such as *yin* and *yang*), and *holographic* modes of thought described by French philosopher Edgar Morin (1999). When a sufficient number of such developmental events have taken place to create an entirely new cognitive fabric, a new way of understanding and experiencing reality, we say that the individual has advanced to the next level of development. In the above example, Kelly suggests that the appearance of recursive, dialogic, and holographic thought yields a new level of cognitive development equivalent to Gebser's (1949/1986) "integral" structure of consciousness. Our point here, however, is that more is involved in such growth processes than the accumulation of small footholds until large plateaus have been reached. If the sciences of complexity tell us anything, it is that small changes eventually lead to new emergent regimes of organization. Such regimes tend to exhibit their own properties that are not, even in theory, predictable from an analysis of the elements of which they are composed. Examples range from the "wetness" of water, not predictable on the basis of a knowledge of the physics of hydrogen and oxygen molecules, to the collective behavior of groups of living organisms, such as ant colonies, not predictable from the study of the individual ants that make them up.

Indeed, one of Prigogine's (e.g., Prigogine & Stengers, 1984) most important discoveries was that self-organizing systems can reach levels of complexity at which they spontaneously reorganize, or *bifurcate*, into new and complex structures that exhibit entirely novel features. Cardiac cells placed separately in a supportive medium rhythmically contract at different frequencies, but when a critical density is reached they begin to pulsate in unison, forming something like a single organ. Our own brains and bodies are living testimony to the dynamic of *emergence*, in which the whole may be either more or less complex than its constituent elements. But in every instance it is greater than the sum of its parts, and in many instances is surprisingly independent of them. Hence, not only is such a system more than the sum of its parts, it is different from the sum of its parts.

Considering the limits of organizational complexity at one level, and how such limits give way to richer organization at the next, Morin (1999) observes:

> If the situation is logically hopeless, this indicates that we have arrived at a logical threshold at which the need for change and the thrust toward complexification can allow for the transformations that could bring metasystems into being. It is when …novelty and creativity …can arise. Thus, it was when the chemical organization of groups of millions of molecules become impossible that a living auto-eco-organization first appeared. (p. 107)

Here, our point is that each level of psychological development is equivalent to a new psychological regime. (Again, we emphasize the cognitive aspects of such regimes only because psychologists know more about this aspect of development.) Thus, each level carries with it a new experience of the world and of reality itself. This may seem a strong statement, but consider the world experienced by the child in contrast with that of the adult. It can hardly be doubted that these represent two substantially different orders of reality. We might go so far as to entertain the idea that the child experiences an ordinary state of consciousness that differs from that of the adult. Here it can be seen that, when we conceptualize each developmental level as an autopoietic regime of cognitive and other psychological processes, we have in hand ideas useful for understanding states of consciousness as well. We will return to this idea below.

First let us proceed to the matter of evolution, asking specifically whether psychological ontogeny recapitulates phylogeny: does the course of individual psychological development follow a pattern similar to that seen in the history of the human mind? A detailed examination of this question is outside the scope of these pages, but the answer from many scholars who have probed this question in depth is a resounding "yes" (e.g., Barnes, 2000; Combs, 2002; Feuerstein, 1987; Wilber, 1981, 2000). Consider, for example, that the major historical structures of consciousness identified by the European cultural historian Jean Gebser (1949/1986) map surprisingly well onto the stages described by developmental theorists such as Piaget (Flavell, 1963), Graves (1961, 1970; also see

Beck & Cowan, 1996), Loevinger (Loevinger & Wessler, 1970), and Kegan (1982). Both Combs (2002) and Wilber (1998a) have given particular attention to the work of these theorists as well as that of others. Barnes's (2000) book, *Stages of Thought*, examines this whole issue from the point of view of the history of religion. Working almost entirely within biblical and Judo-Christian theological scholarship traditions, he makes a systematic and detailed case that the history of religion, especially the Judaic and Christian traditions, tracks the Piagetian levels of thinking with startling accuracy, from biblical beginnings right up to modern times. Since Barnes seems virtually unaware of most of the above research—a fact verified by personal correspondence—his work is of special interest because it offers more or less independent support for these ideas.

Table 1 incorporates the insights of many developmental theorists to yield an overview of developmental stages. It is based on an unpublished collaboration between Susanne Cook-Greuter and Ken Wilber (Cook-Greuter & Wilber, 2000). The stages are labeled with terms drawn from Piaget and Wilber. It includes several levels of postconventional development of interest to transpersonal psychology. We will return to these below, but first let us note briefly that were we to move from this large overview to a detailed perspective we would observe that each person develops in a unique pattern across different content areas. For example, one person might be gifted in mathematics, or music, or moral thinking, but relatively slow to develop in other areas. Such a distribution or *décalage*, to

Table 1. A 10 point developmental scale.[1]

Broad Level	Developmental Stage	Subdivisions
	1. Sensorimotor	Matter Sensation Perception
Preconventional (Body)	2. Phantasmic-emotional (Preoperational)	Exocept Impulse/emotion Image Symbol
	3. Representational mind (Early concrete operations)	Endocept Concept
Conventional (Mind)	4. Concrete operations	Rule/role early Rule/role late
	5. Formal Operations	Formal early Formal late
	Transition	Transition
Postconventional (Centaur)	6. Post-formal	Vision early Vision middle Vision late
	7. Psychic	Early Late
Post-postconventional (Soul)	8. Subtle	Early Late (archetype)
	9. Causal	Early Late (formless)
Spirit	10. Nondual	Early Middle Late

[1Terms are based on a number of developmental systems. e.g., see Wilber (1998a).]

use Piaget's (1952; Flavell, 1963) term, of development into separate "lines" (Wilber, 1998a) is recognized in virtually all developmental theories. The present authors recognize it as well, but to carry its detailed consideration every step along our way would burden the present paper beyond bearing.

Psychological Growth Is Increasing Complexity

Now, let us return to the theme of psychological growth as the dynamical evolution of psychological process through increasingly complex regimes. We can imagine such growth as a series of attractors, each constituting a higher order of complexity than the one before. We suggest that these attractors correspond to the levels of development shown, for example, in Table 1. Each developmental level is a new and more complex psychological regime, more flexible and more competent than the one before, but incorporating previous regimes into its own process structure. Above, we tried to give a clear indication of how such transformative growth processes occur in developmental theories such as those of Piaget, Kohlberg, and Kegan. Now, we extend this idea in the direction of postconventional levels of development. (Here we use "postconventional" informally to refer to all levels above the average adult.) According to our view, it is these advanced levels that carry us into the transpersonal realms.

What evidence is there to support this view? Unfortunately, when we come to the transpersonal levels of development we leave most mainstream psychological research behind, sometimes finding ourselves relying on the personal reports of so-called sages and mystics. Though there have been many scientific investigations of the effects of spiritual practices such as meditation, Tai Chi, yoga, and the like, these usually address specific interests of particular groups of researchers, with questions such as: "Does meditation contribute to stress reduction?" Findings are rarely framed in a developmental context. There are, however, a few exceptions. A notable study of postconventional development, for example, was conducted by Susanne Cook-Greuter (1999) as a dissertation under the supervision of Robert Kegan. She based her work on Loevinger's (Loevinger & Wessler, 1970) model of ego development, carefully analyzing over one thousand interviews with postconventional individuals of both genders. Cook-Greuter found a spiraling pattern of postconventional growth in which individuals first move toward individuation and autonomy, and then begin to experience a growing sense of unity with others and the universe.

The broad view of postconventional development seen in Cook-Greuter's findings is consistent with that shown in Table 1. Moving through postconventional Stage 6, her participants disclosed an upward trend first toward increasing individuation and autonomy; then, with a growing awareness of their own self-constructs of reality, they shifted toward an increasing sense of unity with others and with the world in general. These findings are in agreement with the pattern of development seen in Table 1, and are also in accord with Clair Graves' (1961, 1970; also see Beck & Cowan, 1996) finding that growth at all levels tends to oscillate between self-actualization and identity with the greater community.

Paradoxically, the highest levels of growth seem to carry an inherent simplicity reflected in a more direct experience of reality. Surprisingly, such clarity is in fact obtained through complexity. The basic idea, developed in detail by psychoanalyst Stanley Palombo (1999), is that through the development of complex networks of interactions in the brain, one's sense of self becomes integrated into a single fabric of thoughts, feelings, and motivations. Otherwise they drift as disconnected attractors, manipulating us like puppets without our control or understanding. In other words, wholeness brings clarity. In contrast to this highly desirable state of affairs, the human condition often involves considerable fragmentation. Motivational aspects of the mind are only loosely connected to cognitive belief systems, rational process, perceptions, and emotions. Palombo argues that it is the goal of psychotherapy to connect these disparate elements into more complex, fully interconnected systems in which few psychological processes continue on their own outside of awareness.

Seen from the experiential side, the simplicity and purity of an integrated mindbody is possible because the individual can stand back from the typical welter of mental and emotional activity to find a place of greater quiet and beauty. Thus, it is through *objectivity* that we gain the ecstatic realms of pure experience (Combs, 2002). This may seem a strange notion, but we find it expressed in virtually every wisdom tradition. Sri Aurobindo's writings, for instance, remind us again and again that the yogic transformation begins

only when we acquire the ability to look down on the buzzing mechanistic mind from a position of objective clarity (Aurobindo, 1971):

> Those who get beyond the average, have in one way or other, or at least at certain times and for certain purposes, to separate the two parts of the mind, the active part, which is a factory of thoughts and the quiet masterful part which is at once a Witness and a Will, observing them, judging, rejecting, eliminating, accepting, ordering corrections and changes, the Master in the House of Mind. (p. 126)

All types of insight meditation advise us to learn the skill of quietly observing our thoughts and feelings. In the Taoist masterpiece on meditation, *The Secret of the Golden Flower*, we are instructed to follow our thoughts back to their origins, and thereby dissolve them into clear light (Cleary, 2000). Many other examples could be given, but the point is that to gain the highest forms of experience we must first become masters of objectivity—and to do that we must be unified within our own mindbodies.

States and *Realms* of Consciousness: The human growth potential

So far we have said that the dynamical regimes of the psyche, especially patterns of cognition, play a major role in defining the conscious reality that we experience. Now we consider how states of consciousness might be understood in terms of this framework. In a series of papers we have explored the idea that *states of consciousness*—ordinary wakefulness, sleeping and dreaming states, meditative and drug-elicited states, and such—occur when elements of our experience such as thoughts, memories, emotions, and perceptions combine to form the unique dynamic patterns of activity that characterize each such state (Combs, 2002; Combs & Krippner, 1997, 1998, 1999a, 1999b). We suggest that these patterns are best thought of as *attractors* in the mindbody, that is, regimes of cognitive and neural activity that together form organized dynamical structures. Such patterns seem to be self-organizing and self-sustaining, as noted above in the case of moods such as sadness or joy. In other words, a state of consciousness can be viewed as a self-organizing, or autopoietic process in the mindbody. This view is consistent with Charles Tart's (1972, 1975) early conceptualization of a state of consciousness as a combined system of psychological and physiological functions that join together to form a coherent pattern, or gestalt.

In this view, the complex patterns of activity that constitute a state of consciousness are made of many of the same psychological constituents—patterns of cognition, perceptions, emotions, and so on—that determine one's level of psychological development. This in mind, a reasonable hypothesis is that states of consciousness can be thought of as inflections on the developmental patterns of consciousness described above (Combs, 2002; Combs & Krippner, 1998). In this sense we might think of a state of consciousness as a platform resting upon a larger supporting developmental level. A more technically precise way of saying this is that a state of consciousness is viewed as a self-organizing, or autopoietic system, nested within a larger developmental autopoietic system. If this hypothesis is true we might expect that even seemingly resilient states of consciousness, such as those experienced in drug intoxication and dreaming, might differ for individuals who are at different developmental levels. As counterintuitive as this idea may seem at first, there is considerable evidence that dream experiences are related to developmental level, at least in terms of the ages of children (Foulkes, 1999), and informal observation seems consistent with the idea that drug-induced experiences differ with the individual's developmental level as well. We suggest that such a possibility warrants further research.

Nevertheless, certain states of conscious seem to have a kind of subjective resilience, or perhaps we should say that they carry a strong sense of reality, which other states, such as daydreaming or hypnagogia, seem to lack. What is more, descriptions of certain meditative, imaginal, near-death, and even postmortem states from many spiritual traditions, appear to have an evident universal coinage, such that these states, or something very much like them, have been described by observers in many times and cultures (Arcari, Combs, & Krippner, in preparation; Brown, 1986; Combs, 2002; Grof & Halifax, 1977; Wilber, 1998b). In many wisdom traditions these are said to be more than states of consciousness, but independent realities or *realms of being* (e.g., Chittick, 1994; Corbin, 1966, 1976/1990; Graham, 1990; Groff & Halifax, 1978; Masters, 2002; Norbu, 1989; Thurman, 1994). Each wisdom tradition has its own version of this theme, but many articulate roughly four primary realms, while some include a variety of subdivisions

within these. Examples of the latter include the bardo states of the Buddhists (Thurman, 1994), all in the "subtle" realms, and the imaginal realms of the Sufis (Chittick, 1994; Corbin, 1976/1990), also in the "subtle" realms. Indian Vedanta philosophy, said to be the outgrowth of the reports of yogic practioners over millennia, has one of the simplest and most inclusive versions of this grand vision. It posits the existence of *gross*, *subtle*, and *causal* realms, which are often associated with the conscious states of wakefulness, dream sleep, and, paradoxically, dreamless sleep (e.g., Tigunait, 1983). Vedanta also describes a forth state, *turiya*, the transcendental witness of all three .

For the sake of speculation, let us for the moment entertain the possibility that these realms of being represent actual realities that cannot be reduced to states of mindbody alone (Arcari, Combs, & Krippner, in preparation; Combs, 2002; Wilber, 1998a). This would mean that at least some of the reports of such alternative realms of experience found in spiritual and shamanic traditions throughout the world may be valid in the same way that travel reports of individuals who have visited other countries can be valid. It also would mean that certain dynamical configurations of the mindbody carry us not only into altered states of consciousness, in the usual sense, but also into other realms of being. This is a radical idea from the point of view of Western science, but in less technical terms is taken for granted by virtually all wisdom traditions throughout the world. It would be foolish for us to argue the physics or metaphysics of such a proposition, though the authors speculate on this elsewhere (Arcari, Combs, & Krippner, in preparation). But in a scientific community that takes seriously such theoretical wonders as black holes, multiple universes, galaxies that travel backward in time, and nonlocal quantum effects, it is hardly defensible to dismiss any serious proposal simply because it does not fit with traditional opinions.

Returning, however, to states of consciousness and levels of development, several theorists have pointed to a simpatico, if not an actual identity, between advanced postconventional levels of psychological development and certain peak, or mystical, states of consciousness (Combs, 2002; Cook-Greuter, 1999; Kelly, 1999; Wade 1996; Washburn, 1988; Wilber, 1998b). Wilber, for instance, has gone so far as to suggest titles for these developmental levels that indicate their affinity with the realms to which they seem most strongly affiliated, as seen in the middle column in Table 1 (levels 7–10). Now, the idea that the dynamical regimes that undergird the highest postconventional levels of development are themselves states of consciousness, and further that these are somehow resonant with realms of being that have been described in traditional wisdom literatures from around the world, may seem a considerable stretch. But perhaps this is only because we have arrived at this possibility through such tortuous reasoning! If we were simply to say that human growth at its highest levels becomes spiritual, at which point the individual becomes increasingly conscious of subtle realms of being—or more conservatively, is subject to mystical experiences—the whole proposition seems less labored. In accord with this view, virtually all major theoretical models of psychological growth increasingly emphasize selflessness if not explicit spirituality at the highest levels of development (e.g., Fischer & Bidell, 1998; Gilligan, 1993; Cook-Greuter, 1999; Kegan, 1982, 1994; Kohlberg, 1981; Maslow, 1971).

Approaching the problem from another point of view, we find that without making the assumption that there is an equivalence between the most advanced levels of development and certain states of consciousness, and more, that these may be uniquely allied with particular realms of being, it is difficult to explain why mystical experiences, evidently more common than one might imagine (Greeley & McCready, 1975; Spence, 1992), should so clearly prefigure experiences commonly ascribed to persons at later developmental stages (Combs, 2002; Wilber, 1998b, 2002). Or why such peak experiences should have so much in common when reported by individuals at different levels of development (e.g., Maslow, 1971). Thinking about such problems, theologian Randall Studsill (2002) has carefully examined the mystical experiences described in Tibetan Buddhist Dzogchen literature, comparing these with the Rhineland mystic tradition, especially exemplified in the writings of Meister Eckhart. He found the similarities to be striking. However, he also approached this analysis from a point of view similar to the dynamical systems perspective presented in this paper. In doing so, he took pains to point out the awkwardness of attempting to explain how temporary peak or mystical experiences had by ordinary people can prefigure the stable characteristics of later well-established patterns of experience such as those described in these two traditions.

Let us again note, as well, that no matter what state of consciousness, or realm of being, an individual might experience, we can expect that upon returning to ordinary waking consciousness he or she will interpret that experience according to his or her own level of development. Let us say, for instance, that someone has a "peak experience" of Vedanta's subtle, or even causal realm. If that person is functioning developmentally at Gebser's (1949/1986) *mythic* structure (Table 1; stages 3 & 4; *representational mind* and *concrete operations thinking*) they will explain their experience in mythic terms—for example, in terms of deities or devils, and perhaps grand mythic motifs involving heavens and hells. If on the other hand their dominant developmental level were at Gebser's *mental* structure (stage 5, *formal operations thinking*), then they would offer logical explanations, perhaps speaking in terms of grand visions of nature and the physical cosmos.

The idea that each person would interpret peak experiences of other realms of being, whether they are independent realities or not, in terms of his or her own developmental level led both Combs (1995) and Wilber (1998b) independently to outline a set of possible intersections between such experiences and the developmental levels to which the person might return, once back to ordinary consciousness. They subsequently named the graphic representation of this idea the "Wilber-Combs Lattice" (Combs, 2002), shown in Table 2. Here, each box represents the intersection of a developmental level, shown in the left hand column, and a realm of being suggested by Vedanta, seen in the row on top. Note that in this table the subtle realm is divided along traditional lines into a lower subtle, or "psychic" realm, and a higher, or true subtle realm.

The Wilber-Combs Lattice is a potentially useful guide for identifying and studying a vast range of peak or spiritual experiences, and the interpretations of those experiences as reported by individuals at different developmental levels. And, let us remember that these developmental levels correspond to historical epochs as well. Thus, for example, the mind of a level 3 or 4 individual has throughout history tended to interpret experiences suggestive of even the most subtle realms of being in terms of gods, goddesses, and mythic narratives, while a level 2 person interprets similar experiences in terms of magical beings, nature spirits, and synchronicities.

We should note, however, that along with Jean Gebser the present writers view the insights of every developmental structure to be valid in their own worlds of experience, and we do not elevate any struc-

Table 2. A partial Wilber-Combs Lattice.

Levels[1]/Realms[2]	Gross	Psychic	Subtle	Causal	Nondual
Nondual[3]	—	—	—	—	—
Causal	—	—	—	—	—
Subtle	—	—	—	—	—
Psychic[4]	—	—	—	—	—
Integral Consciousness, or Vision Logic	—	—	—	—	—
Formal Operations	—	—	—	—	—
Concrete Operations	—	—	—	—	—
Representational mind (Early Concrete Operations)	—	—	—	—	—
Phantasmic-emotional	—	—	—	—	—
(Preoperational)	—	—	—	—	—
Sensorimotor	—	—	—	—	—

[1]Levels of development. Terms are based on a number of developmental systems; e.g., see Wilber (1998a).
[2]Realms of being. These may be thought of as actual realms of being, or states of consciousness that carry a strong sense of reality.
[3]Ever-present ordinary mind; the direct experience of the nondual ground.
[4]Psychic = lower subtle

ture, with the possible exception of nondual awareness, above any other. Moreover, as Kohlberg (1981), Torbert (1972), Wade (1996), and other developmental psychologists have shown over and over again, the evaluation of a person's, or even a culture's, dominant developmental level is not as simple as it may seem. For instance, a person who appears to exhibit postconventional morality may, in fact, simply be mouthing statements heard from others. The way an individual thinks, perceives reality, and approaches the world must all be examined. For example, a contemporary shaman may make excellent use of magical technologies but think about them from a stage 6 or even higher developmental perspective. Finally, consider the spiritual experiences of children, presumably near the bottom of the developmental scale. Children sometimes report experiences of "angelic" realms of consciousness ordinarily reserved for saints and sages (e.g., Morse with Perry, 1990; Wilber, 2002). They, of course, interpret these with the mind of a child, but this does not mean that they do not have genuine spiritual experiences.

And so, the visions of children, like the illuminations of mystics and the epiphanies of ordinary humans, all remind us that not only is the world much richer and more diverse than science once imagined, but the dimensions of human experience surpass our finest dreams.

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