

Holarchical Development: Discovering and Applying Missing Drives from Ken Wilber's Twenty Tenets

*Kevin James Bowman*¹

Augsburg College
Minneapolis, MN, USA

Ken Wilber's *AQAL* model offers a way to synthesize the partial truths of many theories across various fields of knowledge such as evolutionary biology and sociology, developmental psychology, and perennial and contemporary philosophy to name only a few. Despite its reconciling power and influence, the model has been validly criticized for its static nature and its overemphasis on the ascendant, versus descendant, path of development. This paper points out areas of Wilber's writing that suggest a way to overcome these criticisms. Doing so allows for the refinement of *AQAL's* Twenty Tenets for an extension of its formal, dynamic features. This is accomplished first by relating Wilber's original dynamic drives to the quadrants and levels enabling the quadrants and levels to then predict additional drives not specified by Wilber. The full set of drives then suggests clarifications of assumptions and applications of the model regarding transcendence and inclusion in order for the refined model to be internally consistent. The result helps correct for *AQAL's* ascending bias, a bias which overemphasizes a linear path from lower to higher stages of development. Instead, more possibilities emerge such as those in which ascending development is overly dependent on a higher capacity with inclusion of only basic, lower core capacities. This is in contrast to more fully realizing the potential for development of individuals or societies in the more fundamental, lower levels, through deeper inclusion within higher capacities. Also, given the other horizontal drives that are predicted by the model, further possibilities are explored for differing directions of, and emphasis in, development.

Keywords: Ken Wilber, *AQAL*, dynamic drives, Twenty Tenets, ascending and descending, eros and agape, holonic development, holarchy.

A Brief Overview of the *AQAL* Model

The *AQAL* model, developed by contemporary philosopher and integral theorist Ken Wilber, offers a framework within which to synthesize what Wilber sees as the partial truths of many disparate fields of study. The goal of his approach is to bring together the insights of science and mysticism as elements of a larger, integral understanding of what Wilber has called the Kosmos (Wilber, 2000c, p. xii).

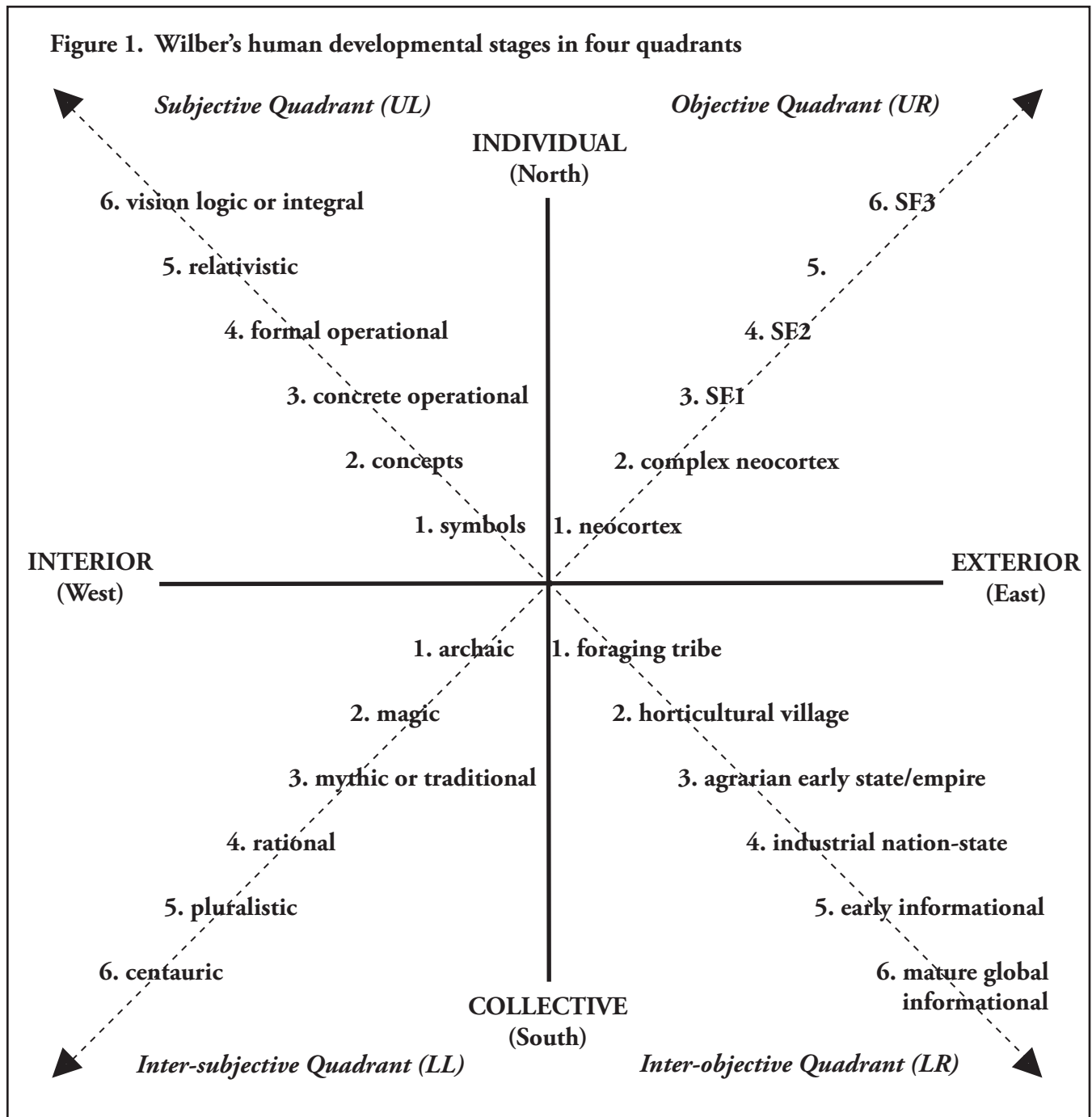
The term Kosmos refers to a universe that contains not only the objects of the exterior world, the cosmos of science, but also the contents and events of the inner world of experience, including those aspects of reality pointed to by spiritual and mystical experience. Wilber sees science and spirituality not as competing paradigms, but as partial and complementary aspects

of this more inclusive, integral perspective on reality (Wilber, 2000c, p. 273).

One of Wilber's earlier contributions was a model of human development that moved from pre-personal levels to personal levels, much as standard developmental psychology proposes, but then has the potential to continue beyond conventional ego maturity to transpersonal levels. Wilber saw conventional development as only part of a larger evolutionary journey through a spectrum of stages of consciousness, one that can ultimately carry the individual on to higher levels of spiritual awareness. According to Wilber (1999a), this marked the second phase of his work with the 1980 book *The Atman Project*. By comparison, Wilber's 2006 book *Integral Spirituality* has more recently unveiled aspects of his fifth phase of work (which includes integral methodological pluralism).

Wilber's fourth phase of theoretical development produced the four-quadrant model, introduced in the 1995 publication of *Sex, Ecology, Spirituality*, which suggested that patterns of development toward higher levels can be seen not only in the development of individuals, but also in the evolution of human societies and the natural world. As seen in Figure 1, this model divides reality into four quadrants, four windows through which the Kosmos can be viewed: interior-individual (subjective), interior-collective (inter-subjective), exterior-individual (objective), and exterior-collective (inter-objective). Each quadrant is, as it were, a facet of the Kosmos through which its unitary unfoldment can be viewed.

This is the basic structure of the AQAL model: four quadrants representing four aspects of reality, each quadrant divided into evolutionary levels of development from most primitive to most advanced, where development in one quadrant is correlated in certain ways with development in other quadrants. For example, in the exterior-individual quadrant (Upper Right, or UR,



in *AQAL* terms), development moves through levels from atoms to molecules to simple organisms to those with a complex neocortex. This mirrors the interior-individual quadrant (Upper Left [UL]), where the simplest levels represent rudimentary prehension and irritability and the higher levels move into formal logic and what Wilber calls vision-logic and beyond. The interior-collective (Lower Left [LL]) and exterior-collective (Lower Right [LR]) each have their respective trajectories of development through a series of evolutionary levels (see Wilber, 2000c, p. 198, for a figure that contains all of these stages).

For the purposes of this paper, analysis will be restricted to the topic of human development. Therefore Figure 1 reports the lowest, most fundamental stage of human existence as stage number one up to the most recent, highest stage that has been solidly documented. Higher levels beyond stage six may have been achieved in a very small portion of the population, but even stage six has been stably sustained by less than 2% of the world population (Wilber, 2000d, p. 13).

In addition to quadrants and levels, other features are included in the *AQAL* model, namely lines, states, and types. These components were first presented together in *Sex, Ecology, Spirituality* (Wilber, 1995). *AQAL* is an acronym for All Quadrants, All Levels, but it is understood to also encompass All Lines, All States, and All Types. The name is meant to imply that one should attempt to recognize and incorporate all dimensions of reality. The concept of lines recognizes that not all aspects of an individual's development necessarily move at the same rate; one person might have a highly developed intellect but be emotionally immature. According to Wilber, development in the cognitive line is a necessary but insufficient requirement for correlative development in other lines. Yet some individuals can be more balanced than others in their cognitive and emotional maturity. The quadrants can be thought of as four broad realms in which lines develop. Wilber considers true development along these various lines to be distinctly different from states, or passing experiences, which might represent a sort of preview of a higher level than one's actual level of development. Lines were first introduced (prior to the quadrant model) formally in Wilber's (1983, pp. 241-265) essay, "Structure, Stage, and Self" which marked the beginning of Wilber's third phase (Wilber, 1999b). Finally, his model also includes types, which acknowledges that there are many valid typologies, such as Jung's distinction between persons who are feeling types and those who are thinking types. Thus one may retain a particular typology,

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where one places certain emphasis on a particular aspect of reality, as one moves through stages of development.

For Wilber, the Kosmos consists of holons, or whole/parts, a term coined by Arthur Koestler (Wilber 2000c, p. 26). This is his first Tenet. All of Wilber's original, approximately Twenty Tenets, which were first described in chapter two of *Sex, Ecology, Spirituality*, are listed in the appendix.² Wilber has stated that the Tenets should not be considered exhaustive and that some may not hold up, which adds reason to examine them closely, especially since these Tenets are the most formal presentation of his model besides his four-quadrant, many-level diagram. Returning to Tenet 1, reality is not atomistic (only parts), nor is it holistic (only wholes). Rather, there are wholes that are parts of larger wholes. There are also parts that are relatively, though never completely, independent. Similar or complementary parts may join and be taken up in a larger whole with development over time, and individual parts are relatively autonomous in some ways, while they may be simultaneously members of larger collectives in other ways. To say it another way, just as a bunch of grapes is made of individual grapes, but is also part of a grapevine, so every holon is in some sense whole in itself, but also composed of smaller holons and part of larger holons. This concept is important for Wilber's understanding of the process of development from one evolutionary stage to the next. Because holons are made of other holons, development does not involve leaving behind earlier gains; instead, a new level (a higher-level holon) transcends and includes the previous levels of development, transforming rather than discarding earlier learning. Evolution is thus seen as a process of holonic development.

While the *AQAL* model is vast in its scope, this paper suggests that there are ways in which it may be both refined and extended through the addition of more holonic drives—that is, in addition to the ones Wilber specified in Tenet 2 as basic dynamic capacities of any holon. He has suggested that holons have four fundamental drives. One drive is autonomy (also referred to as agency or self-preservation) while its complement is communion (or self-adaptation). Both autonomy and communion are referred to as horizontal drives. The remaining pair of drives are vertical with one being self-transcendence and the other self-dissolution. The nature of these drives will be discussed in the next section. While Wilber has made no connection of the drives to the dimensions of the four quadrants, a close examination of the drives suggests that these may potentially be mapped onto the quadrants and levels of the *AQAL* model.

Moreover, and perhaps more importantly, once these drives are mapped and their roles analyzed, they can be seen to imply the existence of a significant number of additional drives. These additional implied drives will be articulated and their locations within the *AQAL* framework proposed. With these implied drives in place, the *AQAL* model may be stronger and more able to withstand some of the criticisms that have been leveled against it, a point that will be revisited after the drives are presented.

Adapting Holonic Drives to the AQAL Model

Wilber (2000c) stated that his many-leveled four quadrant diagram can also be drawn, “as a series of interfolding, or nested pyramids, so that several of the multidimensional relationships within each quadrant could be better indicated” (p. 198). This approach is applied here in order to map all of the holonic drives into the *AQAL* model (Fig. 2). In such a configuration, the four quadrants of the *AQAL* graphic make up the floor of the pyramid and its lowest level. The height of a single pyramid can be imagined to reach up through higher levels of the four quadrants; the peak of such a pyramid is elevated above the point where the quadrants meet in the center. The two axes that divide the four quadrants are now in one horizontal plane, and will be referred to as

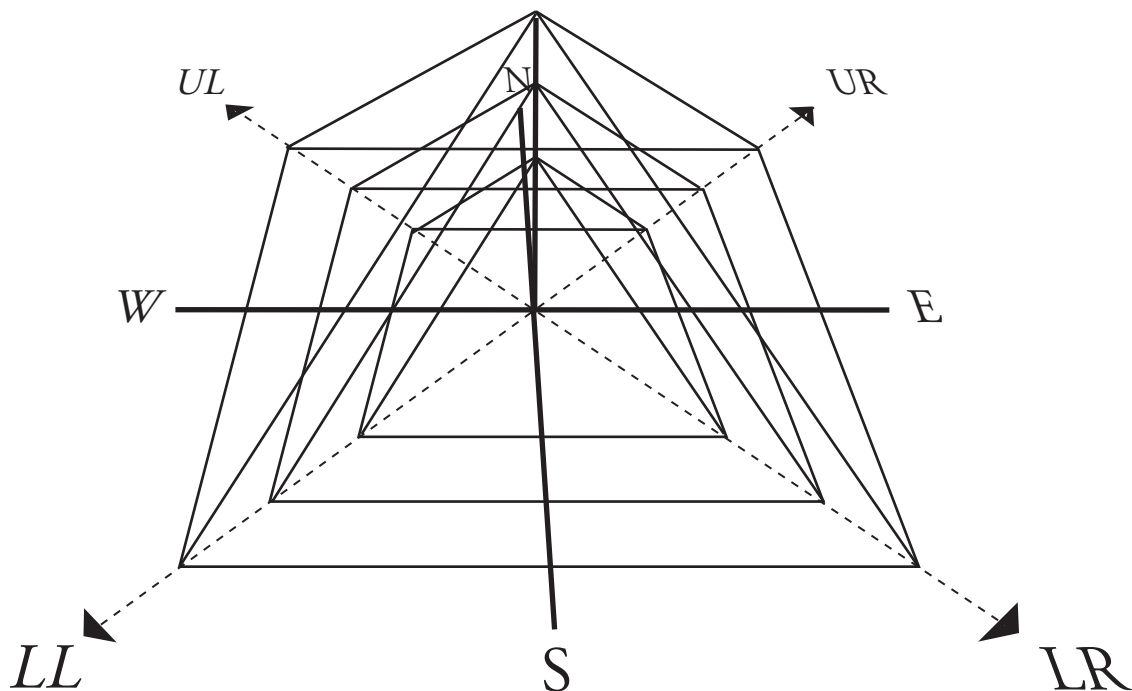
East-West and North-South axes, with North to the top of the page relative to the reader, West to the left, and so on, as typically shown on a map.

In this three-dimensional space of nested pyramids, the horizontal drives can then be mapped onto the horizontal four-quadrant base of the pyramid—thereby retaining graphically their metaphorically horizontal character. The vertical drives, as discussed later in the paper, can be mapped along the vertical dimension up within the pyramids from base to peak and down from peak to base. The next section will relate the horizontal holonic drives to the four quadrants.

Relating Wilber’s Horizontal Drives to the Individual-Collective Duality

Wilber (2000a, p. 74) has suggested that every holon necessarily exists in all four *AQAL* quadrants—that is, consists of aspects that can be described as interior (West, in the *AQAL* graphic of Figure 1), exterior (East), individual (North) and collective (South). As noted earlier, each quadrant represents a domain in which a particular aspect of any holon may evolve. Furthermore, Wilber (1995) has held (as in Tenet 12) that the evolutionary process is incipient within the world—that the Kosmos contains, as it were, an urge toward evolving. In a

Figure 2. Wilber’s developmental stages correlated in four quadrants as nested pyramids



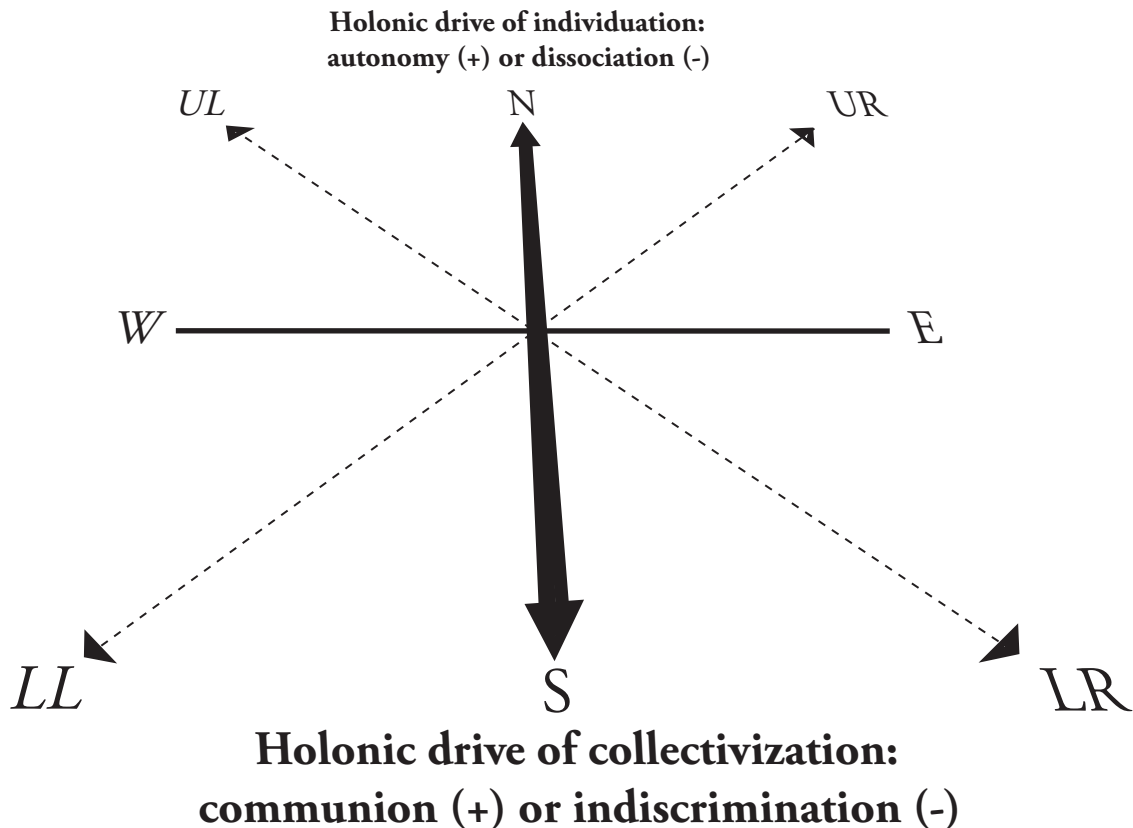
sense, evolution in these broad lines, one per quadrant, may be considered as representing the effect of various holonic drives toward development. Dynamic growth is characterized in his model as movement from lower levels (smaller numbers in Figure 1), to higher levels (larger numbers).

Though the developmental lines in all quadrants may be understood as reaching toward an ultimate dimension of spirit, the particular nature of development within each quadrant is necessarily distinct, despite their interrelated nature. Indeed, it is these distinctions that make the four quadrants a necessary extension of Wilber’s Phase-2 concept of a single spectrum of development. Thus, it is possible to infer that evolution in the four developmental lines within the respective quadrants may not only be seen as drives toward development, but also drives toward different types of development—evolution with differing relative emphases, reflecting the underlying combinations of holonic drives.

Recall that two of the four holonic drives noted by Wilber in Tenet 2 are termed the horizontal drives. In one direction this represents movement toward agency, autonomy, or self-preservation—essentially, a drive toward separateness; in the other direction, it is a drive toward self-adaptation, toward communion, toward interrelationship. If autonomy is a drive towards separateness, then it seems logical that one can associate it with greater emphasis of action in or towards the individual side of the individual-collective duality. Because communion is the opposite, a drive towards togetherness, then it should be linked with relatively greater movement in or towards the collective realm. Therefore, autonomy and communion can be established as dynamic drives associated with the (North-South) individual-collective axis as shown in Figure 3. Distinctions will be made in a later section between the various labels associated with the drives.

The concept of horizontal drives is useful because greater autonomy or greater communion, for example,

Figure 3. North-South axis used to represent horizontal holonic drives toward individuality and collectivity in neutral, positive, and negative forms



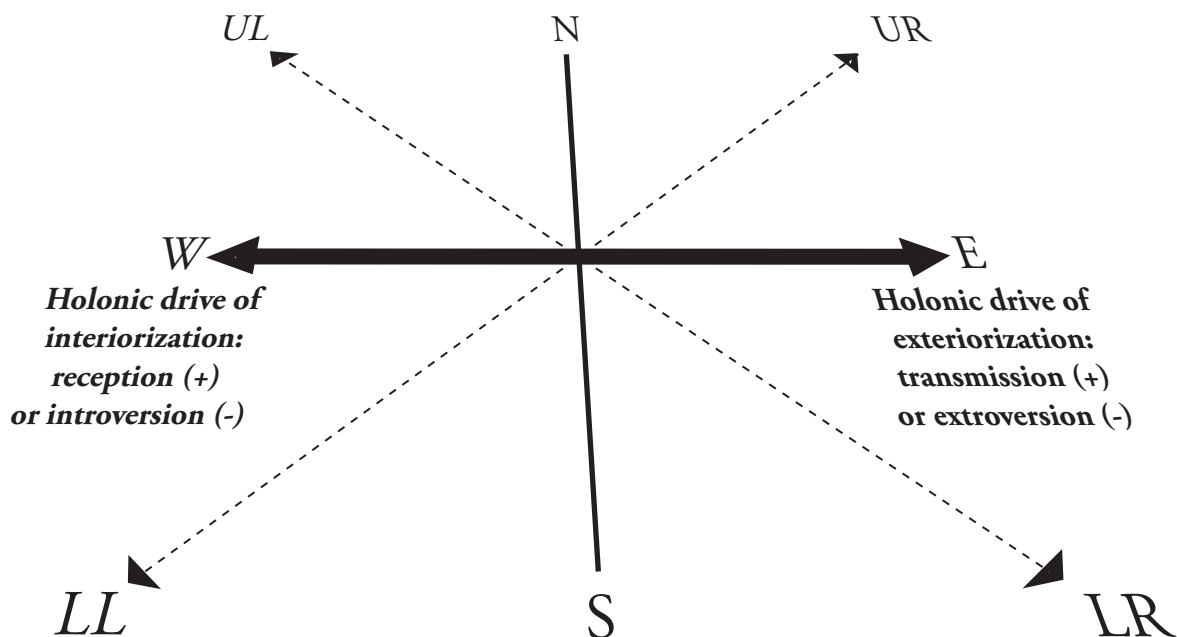
does not have to be associated with transformation to another stage of development. Wilber's use of horizontal autonomy and communion illustrates the complementary nature of these two drives. He proposed that balance is needed between them in order to maintain a holon, or else it can break apart (self-dissolution as described in Tenet 2). This concept is maintained here in a general sense, namely that a holon must maintain a degree of balance in order to retain its integrity; however, extensions of the idea will be made to allow for differing relative intensities of holonic actions with respect to horizontal or vertical qualities. It will be shown in later sections that the AQAL model must allow for actions that place greater or lesser emphasis toward a particular quadrant and that these changes in emphasis can be conducive to further development or not. What should be examined in any attempt to adapt these holonic drives to specifics of the AQAL model is whether these metaphorical relationships can be maintained to the extent that they are accurate or helpful to the understanding of development. If so, then elaborating on the metaphorical directionality of the drives may be justified so long as these directions

remain capable of representing the essential relationships between drives.

Additional horizontal drives associated with the interior-exterior duality. If actions resulting in greater emphasis in the individual realm can be thought of as drives into the individual quadrants, what is different about the drive into the UL from the drive into the UR quadrant? Similarly, what distinguishes from each other the drives into the two collective quadrants of the LL and LR? Mapping the individual and collective drives onto the North-South axis makes it not only possible but logical to predict two additional horizontal drives associated with the interior-exterior duality of the East-West axis (Fig. 4). Just as actions can be relatively intensive towards the individual or collective realm, actions can also be intensive in the interior or exterior realms.

With these four horizontal drives in place, it becomes possible to understand horizontal movement in or towards a particular quadrant as relatively intensive in a combination of two horizontal drives. Here, one example per quadrant will be provided. Action in or towards the UL is a combination of horizontal holonic drives with

Figure 4. East-West axis used to represent horizontal holonic drives toward interiority and exteriority in neutral, positive, and negative forms



emphasis toward interiority and individuality such as learning to witness one's thoughts through meditation. Movement in or towards the UR is a combination of the drives with emphasis toward individuality and exteriority, for example, learning to walk. Drives in or towards the LR have emphasis towards exteriority and collectivity such as passage of the fourteenth amendment to the U.S. Constitution, which recognized former slaves as citizens; and those in or towards the LL have emphasis towards interiority and collectivity such as a discussion that clears up a destructive misunderstanding.

Positive, negative, and neutral holonic drives associated with the axes that make up the four quadrants. Thus far, Wilber's two horizontal holonic drives have been mapped onto the North-South axis of the *AQAL* model, and two additional horizontal drives have been proposed to correspond to the East-West axis. However, movement in the direction of any of the horizontal holonic drives, that is, toward individuality, collectivity, interiority, or exteriority, needs to be distinguished qualitatively as well as quantitatively. That is to say drives may promote or impede further development or do neither. Let *positive drives* be ones that promote further development. *Negative drives* hinder development or even cause unhelpful regression in the holon. Lastly, *neutral drives* neither promote nor impede further development.

The drives associated with the individual-collective duality will be explored here first. *Individuation* is the name given to the neutral drive associated with greater individual emphasis while *collectivization* is the neutral drive reflecting greater collective emphasis. I may choose to stay home rather than going to a party. This action places more emphasis on the individual versus the collective, but in this case has nothing to do with either growth or regression.

Greater emphasis towards the individual realm can be positive or negative. The same can be said for greater collective emphasis. *Autonomy* refers to positive individuation while *communion* represents positive collectivization. A young boy who agrees to spend significant time away from his mother for the first time may be a drive of individuation that is conducive for further development if the boy is ready for such a step. This experience can be associated therefore with autonomy with regards to the mother-son relationship. An example in society of autonomy (positive individuation) is the implementation of religious freedom that honors the individual's choice to worship as one pleases. A collective such as a university research center can become more autonomous, for example, when it splits

from the university, no longer needing its seed money. It can use its retained earnings and resist restraints imposed by the university. Although it is a collective, it has become more autonomous, thus developing in the direction of the relatively individual realm of reality.

Alternatively if a man chooses to ask his wife about an interest of hers that he typically avoids, this might be collectivization with the potential for further development and as such can be called communion. Communion (positive collectivization) also includes individuals working to learn the jargon used by the collective so that one can understand the shared meaning of the collective and be able to communicate one's ideas in that shared space.

According to Wilber (2000c), being overly autonomous or communal is detrimental to development. He has associated alienation with pathological autonomy and fusion with pathological communion (p. 49). In the terminology of this paper, if certain individuation impedes development or causes unhelpful regression, this involves the *dissociation* drive, the negative individuation drive. This drive is out of balance with needed communion and so inhibits further development in some way. Dissociation (negative individuation) can occur perhaps because the individual does not work to understand the place for which he or she fits into the collective, and instead tunes out. The collective can also play a role in ignoring the unique contribution the individual is capable of making.

An example of *indiscrimination*, the negative collectivization drive, is when a baseball coach uses a random process to choose positions for the players on the collective team irrespective of their differentiated abilities and preferences. A collective such as a firm can indiscriminately accept funds from investors even if the new investors will apply pressure for short-term performance gains at the expense of needed change more conducive to long-term sustainable growth.

More generally individuation (neutral), autonomy (positive), and dissociation (negative) are, schematically, the drives in or towards the individual quadrants. Collectivization (neutral), communion (positive), and indiscrimination (negative) are the drives in or towards the collective quadrants (Fig. 3; Table 1). Although nouns are used to label the drives, they represent dynamic processes, just as Carl Jung uses the term individuation to denote a process.³ One can therefore think of autonomy as the positive drive toward the individual end of the individual-collective axis. Communion is then the positive drive toward the collective axis. The various drives associated with the interior-exterior axis will be described next.

If neutral, positive, and negative holonic drives prove to be useful constructs for describing forces that pertain to the individual-collective duality, it would be reasonable to articulate a similar set of drives relating to the interior-exterior duality of the East-West axis (Fig. 4; Table 1).

For the neutral drives relating to the interior-exterior duality, *interiorization* will represent the drive in or towards the interior quadrants, and *exteriorization* will represent the drive in or towards the exterior quadrants. Although he has not associated interiorization specifically with the dynamic drives, or more generally with the Twenty Tenets, Wilber (2000b) has referred to Piaget’s concept of interiorization. “Piaget speaks of interiorization when schemes of action - meaning rules for the manipulative mastery of objects—are internally transposed and transformed into schemes of comprehension and thinking” (p. 285).

The term *reception* can be used to refer to the positive version of interiorization, whereas negative interiorization can be called *introversion*. An example of reception (positive interiorization) is reading a book such as Wilber’s *Sex, Ecology, and Spirituality* that expands one’s interior awareness, or a training seminar that improves the mutual understanding of a collective holon. Introversion (negative interiorization) may take the form of over identification with the interior such as a New-Age claim that an individual can change his entire reality in this relative world if he recognizes that exterior form is illusory. A slave, however, cannot remove

his physical shackles and live a free life with only that realization. He can only choose, for example, to change his reception of it, such as his emotional and mental response to it. The shackles and system of slavery that support the shackles are disproportionately controlled by other holons.

Positive exteriorization will be referred to as *transmission* while negative exteriorization is *extroversion*. Putting a brilliant insight into writing is an example of transmission (positive exteriorization). Extroversion (negative exteriorization), on the other hand, tends to over identify with the exterior such as insisting that our thoughts are purely by-products of chemicals in the brain implying that we do not have much choice in how we think and react to exterior stimuli. Thus, when Wilber describes (as in Wilber, 2000c, p. 427) versions of flatland in which perceptions of reality become collapsed into only the exterior world, the collapse is an example of what is here called extroversion. The collapse of the Kosmos to the exterior domains is a dynamic process associated with one-sided identification with, attention to, and investment in, the exterior realm. When referring to the exterior realms alone, there is no reference to a process but instead to a static dimension of reality in which holons and their dynamic processes arise.

Balanced Development Versus Differing Relative Intensities of Holonic Actions

Following Wilber (2000a, p. 68 and p. 111), the two dualities that make up the four quadrants, the individual-collective and the interior-exterior, should be

Table 1. The horizontal dualities and their corresponding drives

<i>Individual-Collective (North-South Axis)</i>	<i>Individual Pole</i>	<i>Collective Pole</i>
Neutral	Individuation	Collectivization
Positive	Autonomy	Communion
Negative	Dissociation	Indiscrimination
<i>Interior-Exterior (East-West Axis)</i>	<i>Interior Pole</i>	<i>Exterior Pole</i>
Neutral	Interiorization	Exteriorization
Positive	Reception	Transmission
Negative	Introversion	Extroversion

thought of as domains that represent different aspects of holons. That is, these dualities are relatively stable or static aspects of reality in which, or towards which, the dynamic drives of a holon can move. For example, an individual can move with increased autonomy; the drive toward autonomy can be seen as the force that moves the individual deeper into the static domain defined by the upper quadrants.

Yet given Wilber's contention that each holon exists in all four quadrants, and that each moment is a four-quadrant affair, neither these realms nor the corresponding holonic drives are really separate. The mapping of holonic drives within the *AQAL* model, then, does not represent the charting of a set of separable forces that operate within a holon; rather, it is a way to represent differences in the *relative intensity* of the interconnected forces within a holon. For example, while drives toward autonomy and communion will both be present within any holon, in some process of engagement with the world the drive toward autonomy within that holon may be relatively stronger than the drive toward communion.

In his integral vision heavily influenced by Wilber, but not in complete agreement, McIntosh (2007) retained the insights from Carl Graves as cited and carried forward by Beck and Cowan (1996) that successive stages oscillate between individual and collective emphasis. Wilber (2000c, p. 50), following Jantch, stated that new forms of autonomy and communion emerge with transformation to a higher stage. There is also, at least potentially, *greater* autonomy and communion. Worldcentric morals (of stage 4 in Figure 1) provide greater ability to commune, understand, and extend care beyond one's immediate social group. There is also greater autonomy from ethnocentric (stage 3) moral codes given the necessary precondition of (stage 4) formal operational cognition, which provides the ability to question and analyze the traditional (stage 3) rules and codes.

But given the dialectical nature of the oscillation between stages, it is argued here that in order to allow for a change in emphasis of individual versus collective with transformation, the model must also allow for dynamic drives that can differ in their balance between autonomy and communion as one transforms to the next stage (because we can say that autonomy generally results in greater individual emphasis). Wilber does not exclude this possibility. In fact, there are notions of it in Wilber's distinction (in agreement with some feminist thought) of masculine and feminine personality types or value

spheres where the masculine type emphasizes autonomy while the feminine type emphasizes communion and that a new socio-cultural stage can alter the relations between these spheres (Wilber 2000c, p. 32 and 162). Yet Wilber (2000c) wrote the following (where structures of consciousness is another term for stages of consciousness):

My claim is that the structures of human consciousness that I will be presenting in the rest of this volume are in fact gender neutral, that there is no fundamental gender bias in the deep structures themselves. *However*, in the course of historical development, these gender-neutral structures, for numerous reasons we will examine, became loaded with various factors (technological, economic, cultural, social, and intentional) that biased some of these structures in an often specifically subjugating and certainly polarizing (or dissociating) fashion. (p. 162)

Yet if (i) autonomy and communion are drives associated with movement towards individual and collective domains, respectively, (ii) autonomy and communion can generally be associated with masculine and feminine (Wilber 2000a, p. 2), respectively, and finally, (iii), stages tend to oscillate between individual and collective emphasis; then there seems to be a strong case to be made that structures themselves *might* have alternating gender biases. In that case, Wilber's statement above is a strong one requiring critical review, which is not an objective of this paper. Rather, it is used here, for one, as a specific case that demonstrates my general reading of Wilber in that he views transformation to new stages as benefiting most with roughly proportional movement through the quadrants. Also, in the least, a dynamic extension of the model; which more closely looks at the particular catalysts, intensions, choices, investments, etcetera, required for transformation; needs to formally work with holonic movement that can vary in relative intensity of drives (in this case, autonomy and communion). One does not merely hope to maintain uniform balance between the dual drives if oscillation in emphasis of drives fosters development. Even if proportional development through the quadrants is optimal, human history does not seem to have taken this course. Therefore, even with this optimization hypothesis of balanced growth, we must allow for suboptimal, but nevertheless, relatively stable development associated with differing relative intensities of holonic drives.

Furthermore, what does it mean for a holon to increase its relative autonomy or communion? Masculine pathology, for example, tends to be overemphasis on autonomy implying that men who are overly masculine can benefit from getting in touch with their feminine sides (Wilber, 2000c, p. 32). In this situation of working for relatively greater communal development within an individual, is that not growing with a greater emphasis on the other as opposed to on the self? Is that not disproportionately working on one's membership within a collective rather than on the individual aspects of one's being in the world? If so, then the masculine drive emphasizes differentiation from, rather than integration with the collective dimension. So I continue to maintain that autonomy or individuation is the dynamic drive related to the movement towards the individual quadrants while communion or collectivization is the dynamic drive related to action towards the collective quadrants.

Yet, I wish not to lose sight - I have been emphasizing more recently the need to allow for the horizontal drives to be associated with development that is intensive in a particular horizontal domain. This insight becomes more significant and perhaps more surprising when I apply it to the vertical drives in the next section.

Re-specification of Wilber's Vertical Drives

In the first part of this paper it was seen that Wilber's two horizontal holonic drives initially fit only awkwardly and somewhat unsatisfactorily onto the four-quadrant *AQAL* model. However, with the proposal of additional horizontal drives and the subsequent differentiation of neutral, positive, and negative drives, the model of horizontal holarchical development proved to fit the four quadrants at least somewhat congruently and added both richness and dynamism to the otherwise static dimensions of the *AQAL* model. While holonic development must necessarily maintain a degree of balance, as Wilber has maintained, the recognition of differing dynamic drives within the four quadrants opens the possibility that one or more of the drives that propel this development may show greater intensity, indicated by increased relative movement toward a particular horizontal domain.

Note that the process of systematically adapting Wilber's two horizontal holonic drives to the four-quadrant rubric helped facilitate the unfoldment of this more complex and arguably more satisfying model of horizontal dynamics. The principles that guided this adaptation of the horizontal drives will now be applied to Wilber's two vertical holonic drives: self-transcendence and self-dissolution. It will be proposed that these two vertical

drives do not differentiate the ascending and descending aspects of vertical development and that by considering these vertical drives in the context of the *AQAL* model, the gaps that present themselves within such a comparison can provide the basis for proposing additional drives that enable a satisfactory fit. At the same time, the model of vertical holonic dynamics can be enhanced and the ascending bias present in Wilber's presentation of these can be successfully eliminated.

Given that the four quadrants and the two axes that divide them have been used up in specifying horizontal drives, incorporation of the vertical drives must necessarily, and appropriately, move into a third dimension. As noted earlier, Wilber (2000c) has indicated that the concentric circles of nested levels within the four quadrant diagram could also be represented as "nested pyramids, so that several of the multidimensional relationships within each quadrant could be better indicated" (p. 198). Such an approach is taken here in order to represent the vertical holonic drives, first by asking how self-transcendence and self-dissolution relate to vertical development in terms of the dimensions of such pyramids.

The positive vertical drives. According to Wilber (2000c, pp. 49-53), if there is balanced autonomy and communion, the holon is more likely to experience the vertical drive of self-transcendence, also known as self-transformation, to a higher stage. Otherwise, with imbalanced autonomy and communion, there is greater potential for stagnation or even self-dissolution, which is the regression of the holon. When regression occurs, the holon breaks down into its sub-holons in the reverse order from which it was built up. "Self-transcendence is simply a system's capacity to reach beyond the given and introduce some measure of novelty, a capacity without which, it is quite certain, evolution would never, and could never, have even gotten started" (pp. 51-52). Thus for Wilber self-transcendence is a positive vertical drive because it is associated with greater development. Additionally, because it results in a higher, emergent capacity, it can be pictured as movement from lower to higher levels resulting in a taller pyramid. Self dissolution, in contrast, is necessarily a negative drive given that it results in less development.

But can vertical transformation through stages be characterized merely as one ascending drive? This presentation of the vertical drives appears to conflate ascension with the value of positivity and descension with that of negativity.

For the moment, consider self-transformation to be a result of holonic drives, concluding in greater

integration and differentiation, while self-dissolution is a result with diminished integration and differentiation. Given the definitions used here for positive and negative drives, it will be shown that the model is internally consistent with this consideration—more specifically, it is consistent if self-transcendence is considered to be an outcome of sufficient positive drives. Self-dissolution, on the other hand, can be thought of as an outcome of negative drives.

Indeed, Wilber does at times ascribe aspects of development to a descending current. His description of compassion as a descendant-directed action, where the higher is more capable of understanding the position of lower-level perspectives, is an example of a downward movement with positive connotation (Wilber, 2000c, p. 349). More significantly, taking self-transcendence and self-dissolution as the only vertical drives creates an *ascending bias* since the only positive vertical dynamic is the ascending drive. It will be shown that this bias has implications in Wilber's overall view of development, and not only for his formal specification of drives. It seems more useful to follow the strategy employed with the horizontal drives, namely, to seek out a positive descending drive that complements the positive ascending drive of self-transcendence, if self-transcendence were to convey movement towards a higher capacity. Thereafter, it may be possible to identify pairs of negative and neutral vertical drives as well.

Wilber (1999a) refers to evolution as a process that involves both transcendence and inclusion, a "search for higher and wider unity" (n. 3). There are thus two positive aspects: transcendence and inclusion. Transcendence is clearly a movement upward, a positive ascending drive toward higher levels and emergent capacities, but inclusion refers back to lower levels; *deeper inclusion* can thus be proposed as the corresponding positive descending drive to the positive vertical drive of *transcendence*. Therefore transcendence and inclusion will be used as the positive vertical drives that can result in the outcome of self-transformation.

However, naming deeper inclusion as a drive implies that it is possible for transcendence to occur without complete inclusion of lower levels, either in their actual or potential form—a subject that will be examined in some detail below.

As with the horizontal drives, vertical drives should also include neutral and negative versions. In neutral form, they can simply be referred to as *ascending* and *descending* drives (cf. Wilber, 2000c, p. 330). Or,

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to continue with the convention of using nouns that represent processes, they should formally be known as ascension and descension. This paper, however, will use ascending and descending drives interchangeably with the drives of ascension and descension. *Submission* is the term proposed for the negative ascending drive, *repression* for the negative descending drive. These will be discussed in a later section of the paper.

Transcendence. Transcendence can take the form of de-identification with the limitations of the lower-level worldview allowing for a more expansive, higher one. Each new level is associated with an additional, higher ability to take perspectives. The subject of the previous level becomes the object of the next. Moving from the concrete operational to the formal operational stage of cognition, for example, results in the ability to logically question rules (a new third-person perspective on second person realities) whereas the previous level could merely follow rules (a second-person reality). This transcendent leap in cognition then allows for, but does not automatically create, correlative ascending moral development to extend care from the second-person group of "us" to the third-person concept of all people.

Deeper Inclusion. Deeper inclusion may involve a recasting of lower-level partial truths more consistent with higher-level existence. Suppose that an aid worker from the World Health Organization is trying to convince villagers in a poor country to boil their water prior to drinking it. The aid worker will not be convincing in explaining the germ theory of disease if the villagers cannot transcend their beliefs that demons, for example, cause illness. The villagers must detach and transcend these beliefs in order to accept the scientific explanation.

The aid worker may be more successful in the short-term in preventing illness by converting the reason for boiling water into their existing worldview. She may ask the local medicine man to tell the villagers that boiling water can protect the food from being manipulated by demons. This is an example of inclusion. A more successful outcome is achieved by including a healthier mythical view more consistent with the rational view. Here demons are merely a symbol for germs without denying that there *might* by some partial truth in the notion that there are other-worldly causes, or at least causes not fully known to the rational view of illness.

Wilber (2000c, p. 66) has written that changes in a holon can involve translation (changes in the horizontal dimension), transformation (changes in the

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vertical dimension), and transcription (the relationship between translation and transformation). The previous germ example can be considered as translation, at least for the mythic-level target group. Yet, the translation requires intentional investment of the health worker to include the lower views in a more effective treatment program, a descending development for the collective relationship between the health worker and the local community. Instead, that health worker could have spent that investment on reading a cutting-edge article on the mechanisms by which germs infect their host organisms. This investment may do nothing to achieve the stated aims of improving health in the mythic-level community, even though it might lead to higher-order cognition in the medical learning line for the worker, a relatively ascending development. So this example serves to illustrate how vertical investments can have both ascending and descending qualities.

An argument with added significance, one regarding transformation can be made for the need to differentiate ascending and descending currents of development. According to Beck and Cowan (1996), and Wilber (2000d), the stage of vision-logic (numbered 6 in Figure 1) is the first one associated with the ability to fully recognize and honor the role of all stages that preceded its own stage. This is what Wilber implied when he wrote that “the highly integrative capacity of vision-logic supports an equally integrated self...an integration of the mind and body” (2000a, p. 174) and that “second-tier integral awareness understands the nested hierarchy of growth.” (2000d, p. 26) This also implies a unique ability of integral-stage holons (relative to First-Tier holons at stages 1 through 5) to *more deeply include* its lower levels than previous stages have. It will be shown, for example, that the integral stage 6 can more deeply include and integrate the rational stage (4) than the relativistic stage (5) typically has. That is, deeper inclusion appears to be a separable aspect, to some extent, of the evolutionary process that does not proceed automatically along with transcendence in equal measure with each transformation.

Wilber has repeatedly summarized the evolutionary process to a higher stage as *transcend and include*, as in Tenet 5, without exploring differing degrees of inclusion (“all of the lower is in the higher, but not all of the higher is in the lower” Wilber, 2000c, p. 59). His use of the phrase, transcend and include, refers to a more general description such as, “in any developmental or growth sequence, as a more encompassing stage or holon emerges, it *includes* the capacities and patterns and

functions of the previous stage (i.e., of the previous holons), and then adds its own unique (and more encompassing) capacities” (Wilber, 2000c, p. 28; italics in original).

To demonstrate the need for the drive of deeper inclusion, this section examines the work of Daniel O’Connor (2008), who contributed to a dynamic understanding of holarchical development with his integration into the AQAL model organizational action strategies, first researched by Argyris and Schon (1978). O’Connor theorized that these strategies vary by developmental level of the organization. Examination of these strategies will support the contention that development through First-Tier stages displays less inclusion of the lower levels than is present with a Second-Tier embrace. The implication is that vertical development can vary in its relative emphasis on positive ascending or positive descending development, where transcendence and deeper inclusion are the complementary and dual, positive vertical dynamic drives.

According to O’Connor (2008), the scientific achievement or the rational stage (number 4 in Figure 1) employs the *rational action strategy*. This strategy defines goals and ways to achieve them, minimizes negative feelings, uses reason, and tries to win. Problems associated with rational strategies include the marginalization of certain groups, emotional experiences, and the environment. These problems become the life conditions that encourage further development to the next stage.

At this next relativistic stage (Figure 1, number 5) the organization recognizes the inherent problems that emerge with an unrestrained rational-driven holon. The relativistic stage adopts the reverse of the rational strategy. Although it adds the emergent capacity to take more perspectives, the relativistic culture does not fully include its immediate, previous stage, but rather develops a strategy to overcome its limitations. The *relativistic action strategy* is to allow the participation of everyone in defining purpose and of expressing feelings, and it desires everyone to win while suppressing the intellect. Suppressing the intellect indicates *the lack of full inclusion* of the previous level. This helps overcome the marginalization that occurs at the rational stage, but the potential benefits of the rational stage are not fully included. This postmodern strategy of suppressing the intellect can be a sincere effort to overcome the failures of the rational worldview.

For Wilber, a lack of inclusion of a lower capability is seen as unhealthy or pathological, which restricts further development such as in his discussion of dominator hierarchies and actualization hierarchies,

where the latter are ones that function “to maximize the organism’s potentials” (Wilber, 2000c, p. 31). On the previous page he writes, “if higher levels can exert influence over the lower levels, they can also overdominate or even repress and alienate the lower levels.” For him, the pathological versions of any given stage are in contrast to the healthy versions of the *same* level that do fully include lower capabilities.

Nevertheless, we see the typical, not necessarily pathological, relativistic stage as less intensive in the use of reason compared to its previous stage consistent with Hegel’s dialectic of progress. If the rational or modern strategy is the thesis, the relativistic or postmodern strategy is the antithesis (as O’Connor also sees it), then, it is argued here, there is not typically a balanced transcendence and inclusion from the rational to the relativistic stage. Rather, the relativistic stage tends to include just certain core capacities, while rational capacities are not fully included and transformed. Only at the integral stage (at least for the way these structures have emerged thus far according to the studies of them) do we see agents that are capable of integrating the pre-rational levels of being with the rational intellect in higher mental reasoning called vision logic. This integration can be seen in the integral action strategy (of agents at stage 6). The *integral action strategy* works for valid information, free and informed choice, and commitment to the choice with monitoring of its implementation to detect and correct error. Reason is integrated without marginalizing lower levels. This implies, for example, that the integral stage better includes the conventional and pre-conventional stages than does the rational stage (so the argument does not rely solely on comparisons between stages 4 and 5). It also implies that the integral stage includes the rational stage better than does the pluralistic stage. Therefore, we see that the integral age can be the synthesis to modernity’s thesis and postmodernity’s antithesis.

To summarize, in order for a higher level to emerge there must be a transcendence of the limitations of the lower level or levels with the emergence of a new capacity. For this to occur, there does need to be a minimum inclusion of at least the core capacities (or certain partial truths) of the lower. Greater vertical integration and differentiation is only possible with inclusion as well as transcendence according to Wilber himself, in Tenet 5. Nevertheless, we need to differentiate transcendence from inclusion carefully given that we have established the need for a dialectical, dynamic process in which differing relative intensities of drives by direction exist.

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Situating vertical drives in the AQAL model.

Transcendence, as the positive ascending drive, can be represented by growth in the height of the pyramid rising from the four-quadrant base. Horizontal development at any given level is a wider (East-West) and horizontally deeper (North-South) pyramid at that level. Deeper inclusion, as the positive descending drive, can be shown by the flattening of the slope of the pyramid to include more of a wider and horizontally deeper lower level, such as the base of this pyramid: a flatter slope with given height represents greater inclusion, and a steeper slope with given height indicates less inclusion.

Balanced development in this model of holarchical development can then be represented geometrically as a three-dimensional pyramid growing in volume with expanding geometric height, width, and (horizontal) depth. The smaller three-dimensional pyramid in Figure 5 exists in the three spatial dimensions of width, (horizontal) depth and height. Width is the East-West or interior-exterior dimension; horizontal depth is the North-South or individual-collective dimension; and height is the higher-lower or senior-junior dimension.

In the case of the Tier-1 holons discussed above, where there is incomplete inclusion of earlier levels, the dormant or fragmented aspects of a lower level, such as the base, can be represented as not being built upon or included by the higher levels of the pyramid and separate from those aspects at the lower level that are included.

With this approach, two positive and interrelated, polar vertical drives can be represented graphically within the *AQAL* model. As with the horizontal drives, the exercise of systematically mapping the vertical drives onto the *AQAL* model requires several modifications. In this case, re-specifying Wilber’s vertical holonic drives entails somewhat larger changes than that required for adapting the horizontal drives: the positive drive of self-transcendence becomes understood as two complementary positive drives, one positive ascending drive (transcendence), and one positive descending drive (deeper inclusion); the negative drive of self-dissolution is replaced by a corresponding pair of negative drives (submission and repression), as will be discussed below. The terms of self-transformation and self-dissolution are then reassigned as describing results of drives (more and less overall development, respectively). The resulting array of vertical drives seems more fully developed, allowing for a reasonably coherent fit of these drives onto the *AQAL* graphic.

The negative vertical drives. One way of describing imbalances between the ascending and

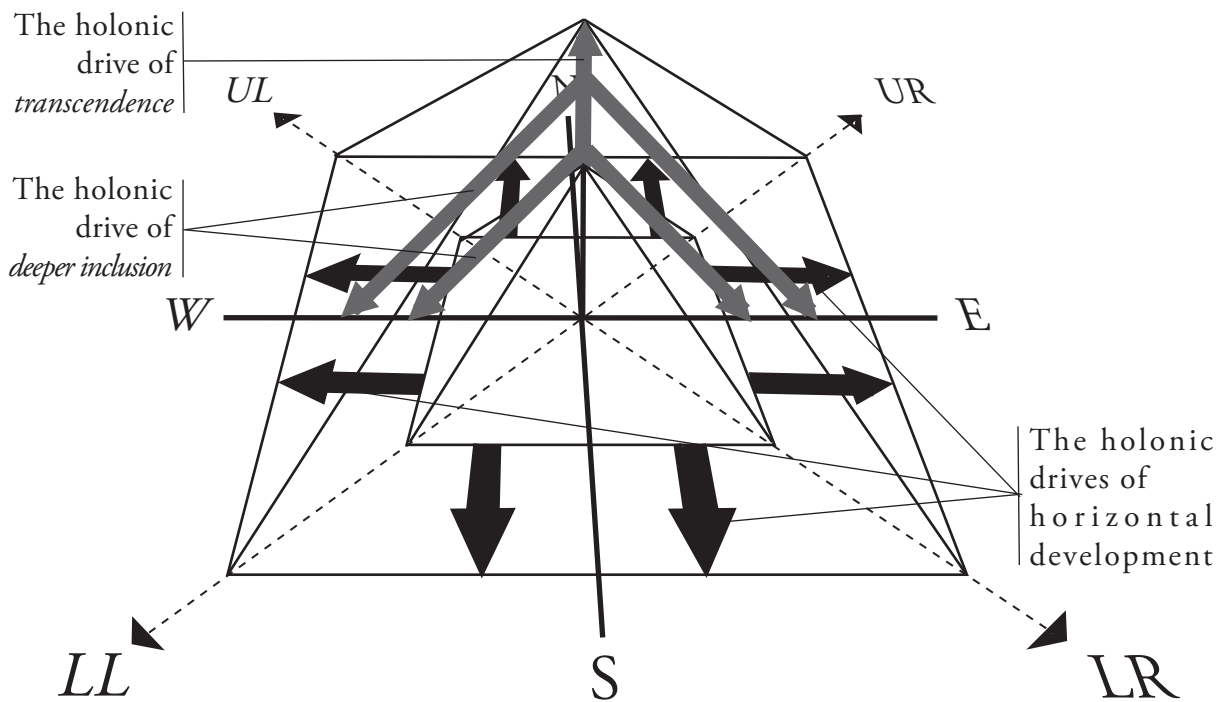
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descending, according to Wilber (2000c, p. 330), is over identification with the other world or this world. In one way, we can think of the negative ascending drive as attributing past change or need for change as too much “from this world” or “toward the other world.” This attributes too much to evolution or transcendence and can be referred to as an *ascending bias*. Meanwhile, the negative descending drive can attribute development too much “from the other world” or “towards this world”. It attributes too much to involution or inclusion and can be described as a *descending bias*.

Consider the emergence of three-dimensional perspective in art. This was the result of a cognitive development in evolution that allowed for the ability to see in three dimensions and to be able to represent it on a two-dimension surface. A third dimension pre-existed from

involution, or perhaps less controversially, from at least the time of the Big Bang. It would be a descending bias to assert that at the time that these drawings appeared, the third dimension itself came into being. No, it was not a contemporaneous descension of the third dimensional reality that suddenly allowed for the advance in art. This sort of descending bias is consistent with some New-Age descriptions of an emerging era, which they might characterize as a higher-dimensional reality descending into our world. But the emergence of three-dimensional perspective in art was an evolutionary (ascending) development of cognition that allowed for a pre-existing dimension to be recognized. Only in that sense, that the pre-existing potential to operate from a third-dimensional perspective became actualized, did that third-dimensional reality descend into living organisms. Three dimensions

Figure 5. Balanced holonic development involves horizontal and vertical drives



In balanced holonic development, the smaller pyramid develops uniformly in all directions, becoming a larger pyramid of the same proportions. This involves balanced horizontal development in all quadrants (solid black arrows) and balanced vertical development (grey arrows). Positive ascending vertical development (transcendence) raises the height of the peak of the pyramid, representing the emergence of new capacities; positive descending vertical development (deeper inclusion) involves growth in the planes between the peak and the expanding base, implying the associated, top-down aspects of development between multiple levels.

were made more understandable and more fully experienced to the human with this development.

On the other hand, evolutionary biologists who attribute the emergence of new species entirely to random mutations have an ascending bias if the new species owes any of its emergence to the potential of a more complex, higher developed species given by involution or the Big Bang. This view of involutory potential for higher-level capacities is congruent with an evolutionary version of perennial philosophy, where perennial philosophy, in its ancient, non-evolutionary form, was well formulated in the third-century work of Plotinus who theorized interconnected, ordered levels of being reaching ultimately to an indescribable, but experientially accessible oneness or unity consciousness, which is also the ground of all being – the source from which all manifestations arise (Wilber 2000c, pp. 343-345). According to Tenet 12 listed in the appendix, this involutory potential acts as a metaphorical magnet that pulls evolution through higher levels of development if progress is relatively balanced.

Submission, negative ascension, does not accept that the holon can reach a higher level of awareness within itself. It acts as if its impulses are the highest attainable, that its ego, for example, cannot be taken up within a grander version of itself. This can preclude higher aspirations to help drive it higher. In another or complementary version of submission, the holon submits to a higher power without letting go of its own limitations or undergoing the work needed to be within, feel, think, or experience a transcendent awareness. The use of submission here should not be confused with a positive ascending use of term elsewhere. For instance, submission to the understanding that there exists higher potentials that we have not yet experienced is a powerful, positive, ascending-oriented conception. Rather, in the negative ascending sense, higher levels can be overwhelmed by

lower impulses such as when a relatively lower need “to be right” acts arrogantly for attention and does not allow for movement towards higher understanding that would be fostered by a relatively higher need to “get it right.” In this case, the lower drive “self-submits” that it is the highest expression available to the holon’s this-worldly potential, or claims that it deserves inordinate attention.

Repression, negative descension, denies the lower’s basic structure, its partial truths (whether in its existing less deeply inclusive form or in its potential deeper form). When a church denies that its patrons can have a personal relationship with God without translation from the clergy who alone are presented as potentially “God-like”, those patrons are repressed. When one believes that the lower-level, physiological sex drive *must* be sacrificed forever for continued development - even though sex may be used to express higher union, or for a connection between opposing polar energies - that drive is repressed. When a totalitarian regime (the relatively higher level of the social hierarchy) attempts to stifle free speech of the media (the lower level of the social hierarchy), the capabilities of its citizens to question its leaders are repressed. Table 2 summarizes the drives associated with the vertical, senior-junior duality.

Holonic drives associated with the internal-external duality

In the *AQAL* model, another important duality is *internal-external*, not to be confused with the interior-exterior. Wilber (2010, Excerpt C) specified that internal “simply means that which is an ingredient or constitutive element in any holon (in any quadrant)—that is, something is internal to a holon if it is following the agency of that holon (and it is external to the holon if it is not).” He further noted that “another way of saying this is that the internal/external axis is simply the axis of development that is envelopment (or enfoldment). Cells enfold, include, or envelop molecules in their makeup

Table 2. The vertical duality and its corresponding drives

<i>Higher-Lower (Senior-Junior Axis)</i>	<i>Higher Pole</i>	<i>Lower Pole</i>
Neutral	Ascension	Descension
Positive	Transcendence	Deeper Inclusion
Negative	Submission	Repression

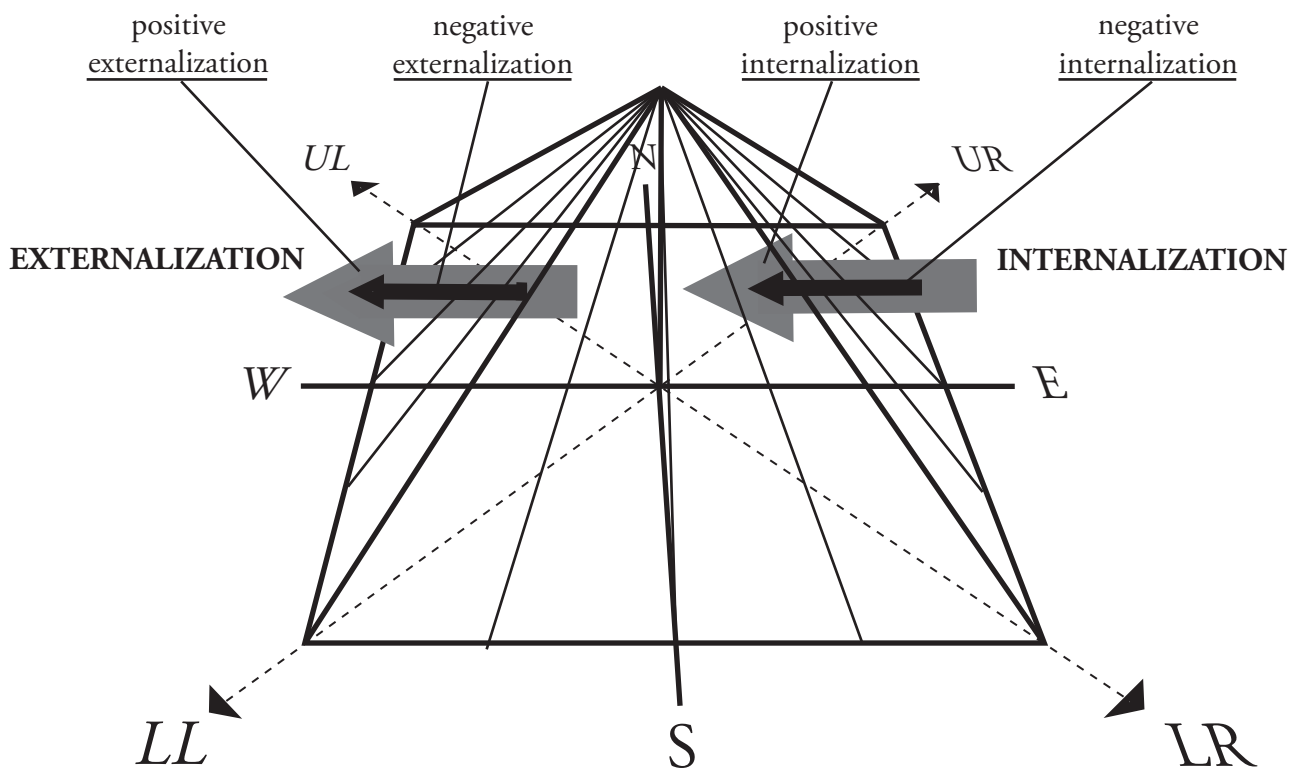
(so that molecules are internal to the cell); likewise, molecules enfold or envelop atoms in their makeup.” Atoms that are not taken up in a molecule are external to that molecule, as in all nitrogen atoms are external to a water molecule (which is made up of one oxygen and two hydrogen atoms). So the internal-external duality differs from the interior-exterior one, which contrasts realms of inner consciousness or mutual understanding with that of outer bodies or material artifacts.

Following Whitehead, Wilber considers the highest level of the holon to be acting as the leader of the holon. For individual holons, this leadership location, from which internal subholons take their cues, is referred to as the *dominant monad* (Wilber, 2006, p. 145). Collective holons, on the other hand, have a *regnant-nexus* (analogous but different from the individual’s dominant

monad) that guides the behavior of the members, such as rules, customs, and directives of the leader or leaders (Wilber, 2010, Excerpt C). Only the intersections of the co-members are internal to the collective holon. For example, the laws and norms of the community guide the intersections of the members who are internal to the community when they follow them, not when they do not obey them. A *subholon* is internal to the dominant monad or regent nexus of a holon whenever it is following the agency of the holon. Again, internal should not be confused with interior. Both the interior (such as one’s intentions) and the exterior (such as one’s behaviors) can be internal to the individual holon.

There are also dynamic drives related to the internal-external duality if actions can result in a new internal or external aspect of a holon. *Internalization*

Figure 6. Holonic drives of internalization and externalization



Externalization is the drive to the outside of the holon; positive externalization moves the external boundary farther out, representing growth (gray arrow on left); negative externalization moves material outside of the external boundary, representing devolution, which decreases the pyramid’s volume in some way (black arrow on left). Internalization is the drive toward the internal area of the holon; positive internalization adds to the internal space of the holon, thus expanding its surface dimensions (gray arrow on right); negative internalization brings in aspects that diminish the internal space of the holon, thus reducing its volume (black arrow on right).

is introduced here as a neutral drive in or towards the agency of the holon (becoming internal to the holon) and *externalization* is the corresponding drive away from the agency of the holon (becoming external to the holon). Here internalization and externalization are considered to be horizontal drives which can each have positive and negative versions. The positive versions can simply be called *positive internalization* and *positive externalization* and the negative versions *negative internalization* and *negative externalization*. When the education of worker A makes worker B more productive and higher paid, A's acquisition and use of education is positive internalization for B. When a firm pollutes a river, this is negative internalization for the town downstream that must spend more to filter its drinking water, which it gets from the river. The cost, associated with cleaning the river borne by other townspeople, is externalized by the firm since the firm is not forced to filter the water.

An enforced tax on the firm for polluting will induce the firm to consider the costs of pollution in its decisions. It will lead to less pollution when the cost of reducing pollution is less than the savings from fewer tax liabilities from not polluting as much. The taxation that leads to less pollution, but more tax revenue, is negative internalization for the firm (in strictly monetary terms) and positive externalization for the downstream town. There is a net benefit to society when the costs of reducing pollution are less than the societal benefits of cleaner water, which comes from forcing the firm to internalize the pollution. If so, the tax policy is, on net, a positive internalization for society as a whole. Dynamic benefits could be larger if the firm is better at developing technologies to reduce the cost of eliminating pollution at the source than is the town downstream.

One can also think of releasing limiting thoughts or the destruction of a virus by antibodies as positive externalization. The loss of awareness by not maintaining

insights from a peak experience, or a regression to a more limited view, are examples of negative externalization. Schematically, the division between internal and external is represented by the surface of the pyramid. Internalization can be thought of as the drive towards the pyramid. Since larger volume in the pyramid represents greater development, positive internalization should increase the volume of the pyramid and negative internalization should decrease it. The opposite is true for externalization. (It is the drive away from the pyramid where positive externalization inflates and negative externalization deflates the pyramid). The internal-external duality and its corresponding drives are illustrated in Fig. 6 and summarized in Table 3; all of the dualities and drives are summarized in Table 4, along with an example or two of each.

**The Relation Between
Vertical and Horizontal Development
and an Application of Deeper Inclusion
to the Ecological Crisis**

With the differentiation of the vertical drives, one can now better see why horizontal drives are called horizontal, rather than vertical drives that happen to be positioned in a particular quadrant. Horizontal development can occur with relatively greater transcendence or deeper inclusion. The centauric culture can deeply include traditional agents once it is influential enough to establish new conventions such that care for the environment is a new conventional moral code. Prior to influencing the overall culture, a family unit with parents centered at the integral stage will work to create a centauric culture for the immediate family. Traditional agents (whether adults within the broader collective or children in the family unit) can happily follow (society's or the family's) conventions without transformation to a higher stage beyond traditional if it helps them satisfy their correlative-level belongingness needs. Yet there can be *greater communion at the traditional stage* not just for traditional agents with deeper inclusion

Table 3. The internal-external duality and its corresponding drives

<i>Internal-External (Boundary of Pyramid)</i>	<i>Internal Pole</i>	<i>External Pole</i>
Neutral	Internalization	Externalization
Positive	Positive Internalization	Positive Externalization
Negative	Negative Internalization	Negative Externalization

Table 4. Examples of holarchical drives

<i>Individual-Collective Duality</i>	
Individual Pole	Collective Pole
POSITIVE DRIVES	
Autonomy Honoring individual choice; respecting the individual perspective for its partial truth	Communion Contributing to social value; learning the language of the collective
NEGATIVE DRIVES	
Dissociation Alienation from the collective; not honoring or understanding the individual perspective	Indiscrimination Accepting all individual choices as equally wise
<i>Interior-Exterior Duality</i>	
Interior Pole	Exterior Pole
POSITIVE DRIVES	
Reception Reading a book that expands one's understanding	Transmission Putting into writing a brilliant idea
NEGATIVE DRIVES	
Introversion Over-identifying with the interior, such as believing the New Age idea that one can change their <i>entire</i> reality by recognizing the exterior world as illusory	Extroversion Over-identifying with the exterior, such as maintaining that thoughts are only a product of chemicals in the brain, so one has little power to change them through conscious intention
<i>Higher-Lower Duality</i>	
Higher Pole (Senior Pole)	Lower Pole (Junior Pole)
POSITIVE DRIVES	
Transcendence Releasing attachment to the literal notion that demons cause illness in order to be more open to the germ theory of disease; emergence of a higher capacity	Deeper Inclusion Enjoying healthier eating so that the lower hunger drive is satisfied along with a rational understanding of how food affects the human system
NEGATIVE DRIVES	
Submission Denying the ability to attain higher awareness with integrative transformative practice (rather than thinking it is only through death or by a miracle that one can go higher)	Repression Denying greater potentials of the lower, such as believing that one <i>must</i> abstain from sex in order to transcend its lower expressions
<i>Internal-External Duality</i>	
Internal Pole	External Pole
POSITIVE DRIVES	
Positive Internalization For society, taxing gasoline to make drivers bear the cost of pollution	Positive Externalization Releasing limiting thoughts; the destruction of a virus by antibodies
NEGATIVE DRIVES	
Negative Internalization The absorption of pollution by an innocent bystander	Negative Externalization The loss of awareness from a peak experience that is not maintained

by the centauric culture. These conventions help to satisfy the belongingness needs potentially of all agents at or above the traditional stage and help agents at these different levels better commune with each other. Potentially this can open them up for greater understanding in other areas given this common link. An alternative is for conventional agents to satisfy their belongingness needs within a dogmatic church that may not help them care for the environment while relativistic agents satisfy their belongingness needs by joining other relativistic agents in a rally to support care for the environment while simultaneously mocking religion. In this case there is much less horizontal communion at the traditional level.

The intentional promotion of new, environmentally-friendly moral codes serves as an example of a relatively descendent change from the integral stage to the traditional stage that promoted a partial, theoretical solution to a current problem. But the proposition that traditional agents would then be contributing to the solution is a horizontal development at the traditional or conventional stage. Integral agents can be much more influential by aligning the needs of lower levels while trying to solve pressing problems of the day. A relatively ascendant strategy would be to work for larger numbers to develop up to the relativistic stage in which agents tend to care for the environment. Increasing span at that relatively high level would begin to change society's conventions because, eventually, the majority would be centered there. That is a relatively ascendant change that results in horizontal development at the traditional stage, since societal conventions would also favor healthy treatment of the environment, but by relative dominance not by persuasion. Neither the ascendant nor descendent change must imply the other.

Wilber (2000c, p. 242) has written that formal operational is the first stage that is capable of having an ecological awareness, an awareness that becomes greater at the next stage. In this author's reading, the implication for Wilber seems to be that further development of individuals to higher stages is needed to solve the ecological crisis so that they can make the necessary changes individually and in society, a relatively ascendant approach as has been previously argued. Granted, promoting investment in the development of people to achieve higher awareness is a proposal with great merit, but this is a partial remedy at best. We may not have enough time for only that strategy considering the rapid industrialization with appalling pollution of China and India and the consensus in the scientific community that the window of opportunity

to solve the problem is disturbingly narrow.⁴ Solutions to the problem exist if political agreement could be found to enact them. Solutions include taxes on pollution (to encourage cleaner consumption and production), subsidizing investment into the production of alternative fuels (to make them cost effective in their development and use), campaign finance reform to diminish the power of special interests that, in part, prevent collective responses to social problems with free rider issues (the free rider problem is evoked in the statement, "why privately pay for environmental cleanup if we benefit very little and just as much when some other person pays the same amount"), and so on.

Educating the public of these issues must be done in a way that converts relativistic-level drives into practical ones that do not bring about the defenses of rational and traditional agents. These three stages of traditional, rational, and relativistic make up a large majority of adults in the developed world according to rough estimates cited by Wilber. In order to stably operate from the integral stage, agents must reconcile their lower selves (physical, emotional, and rational). Analogously, investments can be directed to build a centauric culture that reconciles behaviors of agents centered at lower levels as well. This is a relatively deeper inclusive form of investment rather than, for example, writing books about esoteric aspects of the transpersonal domain which may have limited immediate practical application, or even trying only to appeal to agents at the late, relativistic stage, to foster a transformation to integral within them.

More generally, integral observers should not merely engage in transcendent endeavors while waiting for a rise in consciousness of First-Tier agents in hopes that these choices will change culture. Nor should integral-level change agents work only to promote the elevation of consciousness in First-Tier agents to higher levels. No matter how small the number of agents at Second-Tier, they should also work for a culture centered at the centaur level, one that deeply includes First-Tier agents in their more horizontally developed form at the level they currently reside. So integral consciousness can leverage its power in the wider collective by resonating with its own individual, internal, subholonic lower levels as the integral vision and embodiment uniquely can (relative to First-Tier consciousness) and then convert that experience into ideas and language that individuals centered at lower levels can understand and act upon to help save us from ecological collapse by aligning the incentives of people at differing levels of values and needs.

For example, an integral political movement could attempt to include the traditional-level, religious right without turning off other groups. Spiritual leaders like Michael Dowd (2008) are able to describe today's challenges including environmental ones in spiritual language that resonates with the healthier agents at the conventional stage and in ways that do not marginalize other religious traditions. In this way the concept of deeper inclusion encourages *cultural transformation* to embrace lower stages for a more powerful application of Wilber's important Prime Directive - to work for healthier expressions of agents at whatever level they reside (Wilber, 2000d, p. 56).

Of course the environmental platform I suggest would appeal to the relativistic stage as well. Appealing to rational agents, however, requires solutions to these problems with smart, targeted tax and subsidies, without greater intrusion than necessary into what the private market does well such as innovation, once incentives are properly aligned, that confers a competitive advantage, and bringing those with knowledge of needs and abilities together. When relativistic agents deconstruct capitalism and modernity without including their contributions, a way forward is missing. We must harness the power of firms, inventors, universities, governments, and so on, through a wiser steering of the rational achievement drive, not by denying that drive as the relativistic drive tends to do. The force of these arguments is hard to deny and made more politically plausible as long as lower-level agents' needs are being met. Again, belongingness according to Wilber (2000b, p. 212) is the traditional-level need, while self-esteem is the rational stage need. As long as traditional agents and their values can be horizontally transformed as Dowd works for, they will be made to *belong* in the centauric culture. As long as agents and firms centered at the rational level are transformed horizontally by appropriate taxes, subsidies, norms, etcetera, their self-esteem needs can still be satisfied while contributing solutions to the pressing needs of today. If so, this will help satisfy the self-actualization needs of integral agents that helped direct the deeply inclusive centauric culture.

This section has described a relatively deeply inclusive approach that also makes use of transmission into the exterior-collective relative to what, at least, comes across as Wilber's interior and transcendent approach (of integral transformative practice to encourage further consciousness development of individuals, for example). Both approaches should be promoted by the integral community. Bowman (in press) analyzed the political-

economic decision making process of our present system using the integral approach and provided a more detailed proposal for what integral change agents can work for, in general, for better political-economic policies, including those that are environmentally responsible.

How an Expanded View of Holonic Drives in the AQAL Model Helps to Answer Critics

Wilber's *AQAL* model has been validly criticized on a number of points, four of which will be addressed here. First, it has been noted the static domains of the four quadrants do not appear to offer a sufficiently dynamic model of development. Second, Wilber's analysis of holonic development tends to reflect an ascending bias. Third, his approach is excessively masculine and hierarchical, giving insufficient consideration for feminine models of growth and development. Fourth, the *AQAL* model fails to hold sufficient respect for indigenous ways. However, the addition of the holonic drives to the *AQAL* model, including the adaptations required to effect this modification, appear to offer at least partial solutions to these deficiencies.

Adding Dynamic Processes to the AQAL Model

In *Transforming Voyage*, Collins (2004) has claimed that *AQAL* is a static model and does not lend itself to dynamic modeling of reality. It is true that the formal aspects of *AQAL* are primarily static in their current four-quadrant, many-level form. Edwards (2008) analyzed meta-theorizing along with his meta-analysis of the field of organizational transformation, and established that all main components of Ken Wilber's *AQAL* model are found across that discipline; conversely, only a small number of features from the organizational transformation literature are not included in *AQAL*. Edwards recommended the inclusion of stakeholders and some dynamic processes. O'Connor's (2008) integration of action strategies into *AQAL* can be seen as a step toward these goals, one that improves upon the dynamics of *AQAL*. In addition, the integration of a field of horizontal and vertical holonic drives into the *AQAL* model, as proposed by this paper, helps to formalize the multi-directional and dialectical nature of dynamic developmental processes relative to the four-quadrant rubric.

Bowman (2008) has created a mathematical, dynamic version of *AQAL* using techniques from economic growth modeling. An important result of this model is its prediction that as existing needs are met, new higher needs tends to emerge, requiring investment to develop one's capabilities up to the higher level that is necessary in order to provide for the correlative needs. Bowman (in

press) has begun to work with multiple stakeholder groups (firms, voters, politicians, and environmental groups) by level (pre-conventional, traditional, rational, relativistic, and integral), and by type (conservative, liberal and radical) in order to better analyze the actions of multiple agents that influence economic public policymaking.

Correcting for Ascending Bias in the AQAL Model

Washburn (1998) has argued that the model is too linear and that the importance of higher levels is overemphasized, at least with respect to what depth psychology refers to as dynamic potentials (a term that includes bodily sensing, bioinstinctuality, embodied affect, and autosymbolic process; Washburn, 2003). Washburn's implication of ascending bias in Wilber's structural-hierarchical model is different from Wilber's use of it; Wilber has employed it to refer to an overemphasis on the other world, as described earlier in this paper. This analysis agrees that Wilber overly attributes greater development to the emergence of higher capacities (later emergents in the developmental sequence) than he does to complete inclusion of, or more significant use of, earlier capacities. Compared to his less formal writing on development, Wilber's formal vertical drives of Tenet 2 are even more starkly biased in the favor of ascending development. There is an ascending vertical drive of self-transcendence and a descending, negative drive of self-dissolution. Self-transcendence, the ascending drive, is the only vertical drive with a positive connotation; this necessarily creates an ascending bias. Yet even beyond his formal dynamic specifications, it has been argued here that the general view of Wilber's as it stands at phase-5 is one that is overly linear and ascendant where there is no exploration of what has been described in this paper as deeper inclusion.

Yet, by allowing for differing relative intensities of development that correlate with various developmental stages, Washburn's point can be honored and his criticism answered. For example, the relatively higher integral stage of development (and a post-personal stage) needs to include a *deeper essence* of lower levels than the personal stage does. Rather than rational-stage minimization of emotions that were once more active at previous levels, for example, the integral stage can better integrate emotions with instinct, reason and other aspects of being. The earlier analysis of action strategies has shown that vertical transformations contain both ascending and descending aspects where those aspects can vary in their relative intensity. Although this paper has accommodated Washburn's critique, it has done so by retaining the necessary contribution of Wilber's structural-hierarchical view of development. This view has

Holonic Development

allowed Wilber to show that the field of transpersonal psychology was vulnerable to a version of Wilber's (2000c, p. 210-213) pre/trans fallacy in which too much of pre-rational experience was elevated as post-rational spiritual experience, what Wilber calls elevationism. Nevertheless, the user of a model that assumes each successive transformation is vertically balanced will over diagnose as elevationsism arguments by others, for instance, that the egoic level of development and the rational, modern worldview needs to reintegrate lost aspects of previous stages in order to enter transpersonal realms of individual and collective development.

For another example of deeper inclusion, suppose a rational person knows how to eat healthily, but chooses to eat unhealthy foods to satisfy his or her bodily tastes. Deeper inclusion would permit the lining up of the bodily tastes to conform to the rational knowledge of a healthy diet. That person could begin to enjoy eating more healthily while starting to cultivate healthier tastes. Hunger is a lower drive associated with the physical body, but there can be a transformation in the energy that drives hunger, perhaps with the inclusion of this energy into a higher-ordered energy. Alternatively, the health conscious individual could choose to transcend to a rational diet while also repressing the hunger drive and eating solely for health, not for the satisfaction of hunger. In this case, to eat healthy implies turning off aspects of, not transforming, the hunger drive, and the hunger drive may unconsciously act on the individual. Imagine an individual who mocks his roommate for buying sugary cereal only to be found late at night eating half of the boxed cereal himself (this anecdote is based on the personal experience of the author's colleague).

Similarly, but in an example that may not imply pathology or repression, one can abstain from sex, learn to let sexual impulses arise but quickly pass in order to focus one's thoughts on working to actualize a higher-order connectedness with All-That-Is. Or one can choose an alternative path with deeper inclusion when one works to transform the sexual energy into sexual experiences that are consistent with meaningful, deep connections with another soul. This latter approach is consistent with transcendence but is also deeply inclusive.

It may be that some aspects of development do not develop through Wilber's version of transcendence and inclusion in the way that basic structures subject to his vertical descriptions do, such as cognitive development. However, Wilber does not appear to confine his claims about holonic dynamics to basic structures. At times this paper does use the levels in their general sense

to represent correlative stages through which various lines develop, as Wilber also tends to do. This does not undercut the present effort to refine the holonic drives, for even if cognitive development were to develop strictly with increases in ascending and descending development in fixed proportions, how one uses cognitive ability can be intentionally applied in various holonic directions, including vertical ones; an example of this principle was seen in the previously offered hypothetical of a health worker who can choose either to explain hygienic procedures to indigenous groups by framing them in terms that reach downward to include mythic images, or further advance his or her own rational understanding of infection processes by reading technical literature. Furthermore, a clear distinction between transcendence and inclusion rather than treating them as proportionally linked pairings is essential to test a hypothesis that capacities do transform proportionally (with an emergent capacity that fully includes earlier capacities) essentially as one process in basic structural lines, but not in others.

Representing the Feminine

Wright (1998) has criticized Wilber's (1995) ascending bias for its sexist overtones. Given that a case has been made that Wilber's writing reflects an ascending bias, and that Wilber (2000a, p. 232) associated ascending movement with the masculine and descending movement with the feminine, it can also be stated that Wilber's approach also reflects a masculine bias. However, by differentiating the ascending and descending drives and recognizing that positive and negative drives exist in both directions, the ascending bias can be eliminated and Wright's critique answered, at least in part.

Honoring the Indigenous

Kremer (1998) has noted that the negative aspects of development receive insufficient attention in the formal specifications of *AQAL*, thus devaluing tribal and traditional cultures in a manner that reflects the perspective of a technological society. This paper acknowledges that there are perspectives of lower stages such as those from tribal and traditional cultures that can be better included, without indiscriminately accepting their limiting awareness, in a truly integral society. The formalization of both positive and negative drives embedded into the quadrants and levels, along with the allowance for relatively greater degrees of transcendence versus deeper inclusion, act as a check against this pro-development bias. The resulting model, with its positive descending dynamic, may also partially respond to Puhakka's (1998) thought provoking call to play.

Conclusion

This paper contributes to a better recognition of healthy or pathological expressions within the structures of holons. This is done with a careful mapping of the drives emanating in, towards, or through the quadrants and levels of holons. The four drives from Wilber's Twenty Tenets were mapped to the dualities in the *AQAL* model. This mapping allowed unmatched *AQAL* dualities to predict a full set of eight neutral drives. Wilber's analysis of progress and regress suggested that positive and negative versions of each drive were necessary.

The analysis of the ecological crisis demonstrated the value of reconciling the ascending and descending currents of vertical development. Deeper inclusion (positive descending development) that can take the form of aligning the incentives of each level towards a solution is needed as much as positive ascending development, such as encouraging the further development of individuals to higher levels, levels historically associated with more care for the environment.

It has been shown that an incomplete specification of drives can lead to overly restrictive applications of the model by presenting an alternative view in which holonic actions can differ in relative intensity of direction, even in relatively healthy developments. This is *not* made possible in the *AQAL* model if, nearly by definition, a higher level must transcend and include and differentiate and integrate the lower level while the lower level must have balanced horizontal drives. Any imbalances, instead, tend to be interpreted as pathological.

The resulting model of holarchical development brings to mind interesting questions. For example, is it possible that modernity can be described as having all of the following: relatively greater transcendence than inclusion (such as favoring reason and minimizing feelings), greater differentiation than integration (as in the differentiation and dissociation of the Big Three described in Wilber, 2000c, pp. 384-418), greater autonomy than communion (as in the early atomistic approach to empirical science, dominant theories such as the invisible hand and survival of the fittest, and the emphasis on individual rights over responsibilities), and greater transmission than reception (with the collapse of the Kosmos to the exterior domain)? Can the emergence of the modern, rational stage 4 in the four quadrants of Figure 1 therefore be described as relatively masculine in drive? Recall that Wilber links the ascending and autonomy drives with the masculine type. Recall also that Beck and Cowan (1996) consider the rational stage to be individualistic. Are the masculine

and feminine energies therefore polar opposites encompassing each of these dualities? Can the relativistic stage then be described as oscillatory movement towards the opposing poles of all *AQAL* dualities - a feminine drive (descendant and compassionate of marginalized groups and the environment, communal and in touch with interior feelings with emphasis on non-judgmental interior understanding)? Does Second-Tier functioning require unusual degrees of integration of masculine and feminine in each of these dualities (consistent with a view that attachment to distinct personality typologies lessen at transpersonal levels)? These are questions for further research.

Although I argue that the formal specification of Wilber's integral model is biased as are some of his applications of it, he has done more to bring a nondual perspective to the major, important dualities of the Kosmos. It is because of this accomplishment, because of the significance of his work, and because the likelihood that the model's biases can have consequential effects, that this paper sought to refine it. These biases or limitations have not been presented as inherent problems with the statics of the *AQAL* model, unlike others to whom Wilber (2000c, pp. 469-477) legitimately responds, such as those that hold to a strict Eco-Romanticism while advocating a return to a lost paradise of old. And one cannot necessarily expect Wilber to create a completely consistent model with as large a leap he has made given the scope of his impressive body of work.

Nonetheless, I hope that the linking of drives to the *AQAL* spaces and the fuller specification of holarchical drives contributes to a healthier exchange between theorists who have important autonomous points to transmit, but where opposing biases may prevent reception and communion.

Notes

1. This is the December 2009 version resubmitted by request to the *International Journal of Transpersonal Studies*. The concepts in this paper were first presented at the *Association of Transpersonal Psychology Conference* in Palo Alto, CA in September 2006.

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2. There are actually nineteen tenets counting the sub-parts of each numbered tenet.
3. The arguments I make are dependent on the way the terms are defined and applied, not on the labels I, or others, decide to use. It is helpful, however, to choose labels that closely correspond to how they are generally used
4. Even if the path we are on does not predict with very high probability ecological disaster, it is an outcome with an enormous downside risk.

References

- Argyris, C., and Schon, D. (1978). *Organizational learning: A theory of action perspective*. Reading, PA: Addison-Wesley.
- Beck, D. E. and Cowan, C. (1996). *Spiral dynamics: Mastering values, leadership, and change*. Malden, MA: Blackwell.
- Bowman, K. (2008). Integral neoclassical economic growth. *Journal of Integral Theory and Practice*, 3(4): 17-38.
- Bowman, K. (in press). Integral political economy. *Journal of Integral Theory and Practice*.
- Collins, P. *Transforming Voyage*. Retrieved October, 2004 from <http://www.iol.ie/~peter/trans.htm>
- Dowd, M. (2008). *Thank God for evolution*. New York, NY: Viking.
- Edwards, M. (2008, August). *Of elephants and butterflies: An integral metatheory for organizational transformation*. Paper presented at the Integral Theory Conference, Pleasant Hill, CA.
- O'Connor, D. (2008, August). *Integral catallactics: An integral reconstruction of market theory and practice*. Paper presented at the Integral Theory Conference, Pleasant Hill, CA.
- Kremer, J. W. (1998). The shadow of evolutionary thinking. In D. Rothberg & S. Kelly (Eds.), *Ken Wilber in dialogue: Conversations with leading transpersonal thinkers* (pp. 237-258). Wheaton, IL: Quest Books.

- McIntosh, S. (2007). *Integral consciousness and the future of evolution*. St. Paul, MN: Paragon House.
- Puhakka, K. (1998). Contemplating everything: Wilber's evolutionary theory in dialectical perspective. In D. Rothberg & S. Kelly (Eds.), *Ken Wilber in dialogue: Conversations with leading transpersonal thinkers* (pp. 283-304). Wheaton, IL: Quest Books.
- Washburn, M. (1998). The pre/trans fallacy reconsidered. In D. Rothberg & S. Kelly (Eds.), *Ken Wilber in dialogue: Conversations with leading transpersonal thinkers* (pp. 62-83). Wheaton, IL: Quest Books.
- Washburn, M. (2003). Transpersonal dialogue. *Journal of Transpersonal Psychology*, 35(1), 1-19.
- Wilber, K. (1980). *The atman project*. Wheaton, IL: Quest Books.
- Wilber, K. (1983). *Eye to eye*. New York, NY: Doubleday.
- Wilber, K. (1995). *Sex, ecology, spirituality*. Boston, MA: Shambhala Publications, Inc.
- Wilber, K. (1999a). Introduction to volume two. In K. Wilber, *The collected works of Ken Wilber*, Vol. 2 (pp. 1-12). Boston, MA: Shambhala.
- Wilber, K. (1999b). Introduction to volume three. In K. Wilber, *The collected works of Ken Wilber*, Vol. 3 (pp. 1-20). Boston, MA: Shambhala.
- Wilber, K. (2000a). *A brief history of everything* (Rev. ed.). Boston, MA: Shambhala.
- Wilber, K. (2000b). *Integral psychology*. Boston, MA: Shambhala.
- Wilber, K. (2000c). *Sex, ecology, spirituality*. (Rev. ed.). Boston, MA: Shambhala.
- Wilber, K. (2000d). *A theory of everything*. Boston, MA: Shambhala.
- Wilber, K. (2006). *Integral spirituality*. Boston, MA: Integral Books.
- Wilber, K. (2010). *Kosmic karma and creativity*. Boston, MA: Shambhala. Retrieved July, 2004 from <http://wilber.shambhala.com>
- Wright, P. A. (1998). Gender Issues in Ken Wilber's Transpersonal Theory. In D. Rothberg & S. Kelly (Eds.), *Ken Wilber in dialogue: Conversations with leading transpersonal thinkers* (pp. 207-236). Wheaton, IL: Quest Books.

Appendix

The Original (Approximately) Twenty Tenets

(from Wilber, 2000c, chapter 2):

1. Reality as a whole is composed of holons.
2. Holons display four fundamental capacities or drives: a) self-

preservation (autonomy), b) self-adaptation (communion), c) self-transcendence, and d) self-dissolution.

3. Holons emerge.
4. Holons emerge holarchically.
5. Each emergent holon transcends and includes its predecessor.
6. The lower sets the possibilities of the higher; the higher sets the probabilities of the lower.
7. The number of levels in a holon comprises determines its depth; and the number of holons on any given level determines its span.
8. Each successive level of evolution produces greater depth and less span.
9. Destroy any type of holon, and you will destroy all of the holons above it and none of the holons below it.
10. Holarchies coevolve.
11. The micro is in relational exchange with the macro at all levels of its depth (same level relational exchange)
12. Evolution has directionality: a) increasing complexity, b) increasing differentiation/integration, c) increasing organization/structuration, d) increasing relative autonomy (increased capacity of the holon for "self-preservation in the midst of environmental fluctuations," i.e., agency, e) increasing telos ("the end point, of the system tends to 'pull' the holon's actualization, or development, in that direction").

About the Author

Kevin James Bowman, PhD, is Assistant Professor of Economics at Augsburg College where he teaches Economic Development, Intermediate Macroeconomics, International Economics, and Principles of Microeconomics. He is published in peer-reviewed journals of three fields: economics, Integral studies, and transpersonal psychology. His initial work was the first to include, in a mathematical model of growth, Schumpeter's three forces of technological change: invention, innovation, and diffusion, which helped explain some puzzles in the relationship between economic growth and inequality. More recently he has developed the first mathematical model for Integral philosophy and the first Integral approach to economic growth and political economy. Kevin can be contacted at bowmank@augsb.org.