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Zen and Behavior Analysis

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Zen's challenge for behavior analysis is to explain a repertoire that renders analysis itself meaningless—a result following not from scientific or philosophical arguments but rather from a unique verbal history generated by Zen's methods. Untying Zen's verbal knots suggests how meditation's and koans' effects on verbal behavior contribute to Enlightenment and Samādhi. The concept of stimulus singularity is introduced to account for why, within Zen's frame of reference, its methods can be studied but its primary outcomes (e.g., Samādhi and Satori) cannot be described in any conventional sense.

Key words: Zen, verbal behavior, meditation, enlightenment

If Shakespeare had been a Zen Buddhist, Hamlet's famous soliloquy might have begun "To be or not to be, *or neither*." How is such a statement to be understood?

A Zen monk might say that Hamlet's first two options exemplify the illusory distinctions cultures regularly transmit, but adding the *or neither* shows that he has moved beyond a verbally framed normal-life worldview and is edging toward Zen—and thus, possibly, Enlightenment. Conversely, a behavior analyst might argue that understanding Hamlet's statement requires a functional analysis of the conditions under which it was learned and used, and there is nothing special about the *or neither*. Should that conversation be continued? I will argue the affirmative with, it seems to me, the greater profit going to the behavior analyst.

Behavior analysts have addressed Buddhism broadly defined (e.g., Baum, 1995; Diller & Lattal, 2008; Williams, 1986) as a philosophy or religion. Zen is neither of those things; it is the outcome of Zen practices.[1] Discussion regarding the Eightfold Way, reincarnation, free will, and so on are about Buddhism, but they are not Zen any more than *About Behaviorism* (Skinner, 1976) is applied behavior analysis. Philosophies, especially philosophies of science, are foundations built under existing logical structures (e.g., Mach's positivism addressed Newtonian mechanics; logical positivism and operationalism, Einstein's relativity theory; etc.) and contribute little to the field per se. A more profitable approach to the relation between Zen and behavior analysis was implied in a conversation I had with B. F. Skinner.

The year was 1978. I was struggling to find good answers for epistemological questions (e.g., were private events, in some important way, dualistic, possibly epiphenomenal? Did Richard Rorty's, 1965, eliminative materialism fit a behavioral view better than other monistic accounts being given?). Dissatisfied with answers that professors, books, and journals provided, my wife and I drove to Cambridge, Massachusetts,

In gassho I thank Richard D. Kelley, behavior analyst, student of Zen, and voracious scholar, who exemplified how academics convert everyday life into joyful inquiry.

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[1] The Japanese *Zen* is an abbreviation of the ancient term *Zazen*, which means meditation, but today, Zen typically denotes the Enlightenment, Samādhi, and so on, that result from such meditation and various Zen practices. An earlier term, *Ch'an*, is a Chinese translation of the Sanskrit *Jhāna*, a term equivalent to *Prajñā* which is generally taken as synonymous with Zen.

where I hiked to the 7th floor of William James Hall and knocked on Skinner's door (actually his secretary's door). I told her I had a question for Skinner regarding behaviorism. She called his adjoining office and said "Someone here would like to meet you."

After I nervously posed my questions, he leaned back, looked up for about 5 seconds, resumed a normal posture and said "I don't care much for isms."

In what followed, he redirected my attention to verbal behavior, of which philosophy is a subset. Digesting his remarks led me to the giddy epiphany that *Verbal Behavior* (1957) was the unified field theory of academe—Skinner's analysis accomplished for human behavior what Einstein had sought for physics. And then along came Zen.

Such cruelty. I'd barely begun luxuriating in the comfortable notion that verbal behavior is epistemology's headwaters when years of meditating yielded a complementary insight, Samādhi.[2] Zen took me outside not just culture-bound distinctions but also distinctions themselves. There was antimatter, a parallel universe where verbal distinctions move one farther from Zen, not closer to knowledge, as with behavior analysis. And that reminded me of something Richard Malott said at the start of his principles of behavior lectures (ca. 1977): "Everything you know is wrong." What I've learned since is that in Zen's case, *anything* you know is wrong. My goal is to explain why.

THE ESTUARY

The unique repertoire called Enlightenment has been reported for 2,500 years and, if Zen Enlightenment results from behavioral processes, behavior analysis must apply. Unlike most other analyses of Eastern philosophy, this one will not follow the formula "their term X = our theoretical term Y" (e.g., Jung, 1959; Rosen & Crouse, 2000) or "our neurological event Y" (e.g., Austin, 1998; Bagchi & Wenger, 1957; Kasamatsu & Hirai, 1966; West, 1987). The goal is not to create a reductionist or operationalist thesaurus but rather to discover what grows in the estuary made by Zen and behavior analysis rather than Zen Buddhism and radical behaviorism.

Whether behavior analysts find these issues interesting or not, one thing is certain: Mentalism is uniquely ill suited for dealing with Zen's extreme parsimony. To step back from agency accounts (Vargas, 1996) and explanations "that appeal to events taking place somewhere else, at some other level of observation, described in different terms" (Skinner, 1950, p. 193) is to step toward Zen. Just as important, behavior analysis and Zen preserve no subject–object distinction. When contingencies are the units of analysis, the individual is part of an interactive context. So Zen's central notion of the *individual-inseparable-from-the-world* is consistent with behavior analysis and evolutionary biology. In addition, Zen matured in China, where a practical emphasis on techniques and outcomes whittled away the mysticism of its Indian origins, a process similar to behaviorism's role in psychology. This is not to suggest that, given time, Zen would become behavior analysis, or behavior analysis, Zen. But it does illustrate how they share at least some common ground that is the starting point of this discussion.

ZEN PRACTICE AND BEHAVIOR ANALYSIS

Probably the easiest way to explore those commonalities is to follow a beginner entering Zen practice. The

[2] *Samādhi*, like many terms used in Eastern practices, has various meanings, usually involving higher states of consciousness obtained through meditation. Here it refers to private events unmediated by verbal behavior, a definition consistent with this article's theses and, I believe, with Zen practitioners' uses.

results of such training, although actually a continuum, will be divided into stages for purposes of exposition.

Stage 1: Before Zen

Children who acquire verbal behavior develop discriminative repertoires, stimulus equivalence classes, conditioned motivating operations, relational frames, and so on, that the verbal community assembles into a collection of paradigms we call a worldview. So classes of things (mental, physical, spiritual, etc.), their properties (spatial, temporal, etc.), and the kinds of relations that can exist among them (e.g., causal, correlational, metaphorical, etc.) are culturally given. A child's reality is largely defined by his consistent use of, and behavioral correspondence with, these shared paradigms that are so generally accepted that they are often depicted as given in some basic, possibly genetic, sense (e.g., Kant's categories of understanding [Humphrey, 1992, Russell, 1945] and Chomsky's [1970] deep structure).

The effect of such paradigms on perception is a question of discriminative stimulus control. For example, a musician's ear training and a painter's instruction in texture and composition bring behavior under the control of stimuli that were always present. So, just as a word's meaning can vary across verbal communities (e.g., slang), so can the discrimination training that affects our immediate perceptions and what Michael (2004) calls stimulus and response analogies. Indeed, Skinner (1976) held that the study of private events is largely the study of verbal behavior within a given community, and that position is central here, too.

Zen beginners bring their verbal histories to the Master and often expect to get more of the same, or at least explanations that can be assimilated into their current worldviews. That doesn't happen. A famous anecdote in the Zen literature relates how a new monk was invited to tea with his Master, a high honor. The Master poured tea into the monk's cup until it overflowed and then continued pouring even as tea flowed onto the table and floor. The shocked and confused monk backed away as the Master said "You're like this cup of tea, you come to me overflowing. You must empty yourself before I can teach you."

Here, *empty* means to eliminate the effect one's verbal history has on private and public responses. This is a daunting task because, like most people, the Zen neophytes' verbal repertoires are so fluent that they cannot stop. Beginners must be taught how to peel verbal behavior away from the rest of their repertoires, undoing stimulus control established and nurtured since infancy. That is the central task of initial Zen training.

Emphasizing the distinction between Zen and verbally influenced public and private responses, especially those affected by commonly held cultural paradigms, does not mean that Zen practitioners are anti-intellectual, as some have charged (e.g., Bronowski, 1973). Quite the contrary, they do not attempt to destroy or dismantle one's normal-life worldview. Instead, they apply techniques to it that develop a complementary, verbally unmediated repertoire to be discussed below.

Stage 2: Becoming Quiet

Zen instruction typically begins with meditation training in the lotus position or an approximation of it. Later, walking meditation is interspersed with sitting meditation. A Zendo, where meditation occurs, is usually very plain, often with wooden floors, and walls of a uniform, typically white, color. Rituals are observed in varying degrees across Zendos, but during meditation, no talking occurs. Individuals meditate daily for at least 20 to 40 min, usually

longer, although during marathon meditations called sesshins, 15 to 16 hr per day for several days or even weeks is common (see Enomiya-Lassalle, 1987, for more on meditation techniques).

Beginners often find meditation fraught with disorganized thinking that quickly jumps between topics. Dealing with this is a balancing act. Zen instruction clearly indicates that verbal behavior should diminish during meditation, but that goal should be accomplished with minimally intrusive techniques. For example, monks are taught to "walk their attention back to being quiet," counting breadths in cycles of 10, and saying "no" when attention drifts. At the same time, one must avoid creating a verbal editor that simply exchanges one verbal intrusion for another. The worst case scenario is becoming so upset with a lack of control over verbal behavior that motivating operations like anger spiral into ever greater disruptions. So verbal tactics are used to attenuate verbal behavior but can themselves become interference unless precisely applied, just like prompts used to change the probability of any behavior.

Besides the techniques described above (counting breaths, saying "no," and walking one's attention back) are (a) candle meditation (viewing a lit candle while sitting), (b) using a feedback system in which, for example, one imagines a marker moving from the side to the top of one's head as verbal behavior decreases, and (c) being struck with the Zen Master's stick (called a jooki), which is also used more benevolently to prompt correct posture, awaken a sleeping monk, and so on. Not all Zen Masters strike students, and such tactics may seem extreme, but in some cases it clearly works, which is why students occasionally request it when their meditation is undisciplined. The problems with negative motivating operations (e.g., ruminating) were described by clinical behavior therapists long ago (Ellis, 1962; Emed, 1996; Kwee & Ellis, 1998; Lazarus, 1971), and some cognitive behavior therapists have advocated Zen meditation as a way to overcome these and related problems (Gillani, Noor, & Smith, 2001). Zen Masters likewise noted the problems with aversive control and generally prefer the slower, but more positive, tactics.

Zen teachings unrelated to meditation and Enlightenment per se stress how marvelous the world is; hence the importance of an environmentally nonintrusive lifestyle with acceptance and gentle care of all living things (Katagiri, 1998; Young-Eisendrath & Martin, 1997). Although literally altruistic, this view in several ways also advances a monk's preparation for Enlightenment. First, because the world's greatness far exceeds what our paradigms can suggest, appreciating that world in its fullness requires extending our knowledge in a way paradigms cannot. (Again Shakespeare is relevant: "There are more things in heaven and earth, Horatio, Than are dreamt of in your philosophy," *Hamlet*, Act 1, Scene 5.) Second, practices necessary for achieving Enlightenment (e.g., meditation and the strict discipline of Zen monasteries) are more likely to occur as stimuli associated with such practices (e.g., talking about it, honoring those who achieve Enlightenment, etc.) become increasingly reinforcing. This is similar to how scientific communities attract and assimilate young, unrecognized researchers. Third, when Zen practices begin to yield results, the private events that accompany them can be frightening. Sometimes described as *detached* or *bright*, they can be unnerving because they are very unlike those from normal life. So Zen's strict discipline and the emotional accompaniments of breaking down normal-life paradigms may be more palatable if interpreted as necessary for becoming not just an observer of, but rather

continuous with, a marvelous world. Collectively, these tactics may function like advertising; individuals' behavior comes under the control of vicariously established reinforcers with which they have never had direct contact (Greer & Singer-Dudek, 2008).

Meditation and Stimulus Control

Skinner (1976) described Zen's practices as "extracting the essentials" (i.e., attenuated stimulus control): "This same principle underlies the practice of Zen, in which the archer, for example, learns to minimize the particular features of a single instance … the archer [is] said to 'transcend' the immediate situation; they [sic] become 'detached' from it" (pp. 196–197).

The foregoing discussion of meditation, though, suggests that this account cannot be complete. Zen meditation does not minimize all features of immediate situations; it attenuates and eventually eliminates a class of controls: verbal behavior. "When Zen Master Tokusan was asked, 'What is the most remarkable thing in Zen?' he answered 'There are no words or phrases in Zen'" (Suzuki, 1971, p. 39).

Skinner neither mentions nor suggests that altering verbal behavior is a key tactic in establishing Zen's stimulus control, although his discussion clearly does not rule this out, either. In fact, he was clear about the distortions that verbal behavior can impose on representations of events: "The [scientific] community is concerned with getting back to the original state of affairs and with avoiding any distortion due to the intervening verbal linkage" (Skinner, 1957, p. 420). Science ensures this word–event connection by creating a very discriminating vocabulary with precise stimulus control: "A special scientific vocabulary (used within a given 'universe of discourse') is relatively free of responses under other sorts of stimulus control" (p. 421). Likewise, Zen creates stimulus control that gets "back to the original state of affairs" by attenuating and eliminating verbal linkages, not by refining them. How Zen does this will clarify the notion of *detached* as it occurs in Zen practice.

Verbal stimulus control during meditation can be attenuated by concentrating on a single word or image called a mantra. The use of mantras probably originated in India, where they are called *dharani*, which in English means *spell* in the sense of transfixing someone on a single point—a condition some Zen Buddhists call *stationary*. In Zen, stationary responding does not denote weakened stimulus control, as with habituation, for example, but rather verbally unmediated attention. This does not imply that one is not perceiving or is oblivious to one's surroundings. Quite the contrary, such perception is very clear but is undifferentiated in the sense that it is devoid of verbal components.

In addition to mantras, some Zen teachers, usually those in the Rinzai sect, go a step further and assign unsolvable meditative riddles called koans. For example, one may be asked to meditate on "All things return to the One; where does the One return?" Clearly there's no logical answer, so verbal behavior is weakened via extinction (its use without resolving the question). Weakening normal-life verbal behavior may result in resurgence influenced by Zen training that emphasizes the futility of finding Enlightenment via logic. More koans will be considered later.

Meditation and Consequences

The beginning stages of meditation are clearly shaped by consequences. For example, *leading attention back* is designed to help suppress unwanted verbal intruders.

Likewise, the technique of saying "no" when verbal behavior occurs

during meditation also targets consequences. This "no" is not for stopping ideation, feelings, and so on. It is for eliminating verbal mediation that draws attention away from observing the world *as it is*: "The basic form of abuse of No is to interpret and practice it in a negative way, using it to make the mind blank and shut out reality instead of using it to make the mind clear and open to reality" (Cleary, 1997, p. 5). In behavior-analytic terms, Zen techniques are designed to move an individual from responding mediated by verbal behavior, especially conceptual stimulus control, to verbally free, contingency-shaped behavior.

Describing Zen

Such stimulus control plays into a Catch-22 regarding why Masters resist requests to describe Zen: Meditative practices are designed to minimize the effects of verbal behavior, the very medium one is being asked to use when describing the outcomes of such practices. Any answer that consists of paradigms or language games learned within typical verbal communities would move one farther from what one seeks, a point made by Wittgenstein and Zen Buddhists (Shibles, 1969).

No answer in the conventional sense can be an answer; the only answer is the Zen technique's effect, not the effect's description. In short, Zen Masters create the repertoire that the questioner would have them merely describe. That is why Masters say that Zen's answers are so clear and simple that they are missed: The questioner seeks a verbal reply, but the Master creates a context in which Zen occurs if the monk is prepared. A Zen Buddhist might say that the goal is to hear the sound, not the echo.

Stage 3: Establishing and Discriminating a Zen Repertoire

As the verbally unmediated meditative repertoire develops, it begins to generalize and be discriminated from normal-life, verbally mediated responses. This contrast is often metaphorically described as either a peaceful overarching context containing the bustle of everyday activities, or as a body of water on which the surface can be rough yet the depths serenely calm and unaffected. Eventually this calm background's duration and functional independence from changes in the stream of contingencies reach a threshold at which moments of sustained perceptual lucidity occur that lack distinctions commonly imposed by one's verbal repertoire. In Zen this is called *Samādhi*, which implies a unification with the world. A literal translation is *a state of one-pointedness*, of intense yet effortless concentration where, if words functioned as response mediators, they would degrade the stimulus control. This one-pointedness concentration should not be confused with Enlightenment, which penetrates all parts of one's repertoire.

Of special interest to behavior analysts is that the first occurrences of Samādhi usually accompany fluent responses:

> It was his habit to train himself in the use of the spear in the evening in the temple grounds. What engaged his mind most intently on these occasions was not the meeting of the techniques or spearmanship, for he was already an expert. What he wanted was to realize a state of mind in which there was perfect unification of Inye: himself and his spear, of man and instrument, subject and object, actor and action, thought and deed. This unification is called Samādhi. (Suzuki, 1959, p. 223)

This example illustrates that the task one chooses to perfect is probably irrelevant as long as it can be repeated to high levels of fluency. For example, my Samādhi typically occur while bicycling, an activity with a few, repeated components. Although an avid bicyclist for over 25 years, Samādhi did not occur until I was in the midst of an intense cross-country trip from Wisconsin to deep in the Colorado Rockies. The utter

simplicity and repetition of pedaling and shifting gears over weeks created fluent responses requiring no verbal mediation for long periods of time. The number and duration of Samādhi rose following my return to Wisconsin, where my time spent meditating increased.

Similar conditions are fostered in Zendos in which tasks such as raking stones in Japanese gardens, making pottery, and practicing archery, swordsmanship, and the tea ceremony are done repeatedly over years within the narrowly defined parameters of centuries-old rituals.

So from a behavior-analytic point of view, Samādhi can result from a four-step sequence. First, meditation reduces the effects of verbal behavior on our repertoire. Second, this meditative repertoire spreads beyond the fluent responding where it typically first appears (possibly from stimulus equivalence, relational frames, generalization, etc.). Third, normal-life and meditative repertoires are no longer mutually exclusive and eventually occur simultaneously (yielding the overarching peace and ocean metaphors). Fourth, Samādhi occurs when the meditative repertoire is strong and the accompanying repertoire from normal life is exceptionally fluent, therefore requiring few or no verbal mediators.

Samādhi is far more sustained than the *aha* experience produced by contingency adduction (Epstein, 1993; Epstein, Kirschmit, Lanza, & Rubin, 1984). In my case, 20 to 40 seconds is common, but Zen monks often report far longer durations (up to several hours) and the ability to control its occurrence. This may partially account for Zen's unique contributions to haiku literature, oriental gardens, martial arts, minimalist paintings, and other areas of Japanese culture (Suzuki, 1959).

Can Samādhi be described literally? No. Distinctions drawn from normal-life paradigms would be meaningless because they are the barriers to Zen that Zen's techniques eliminate. It is tempting to suggest that Samādhi results from verbal contingencies that are the antithesis of what produces our normal-life point of view, but even that is wrong because *antithesis* implies an opposite, and polarities are inconsistent with a Zen Master's methods. Remember, ''There are no words or phrases in Zen.''

Samādhi cannot be juxtaposed to anything because juxtaposing and comparing require relational frames or rule-governed behavior that by definition are excluded from it. As Zen Buddhists often emphasize, all talk about Zen is done from the outside looking in and is meaningless from the Zen point of view. There's no *one* and no *point of view*, there's not even a *no* or negation because that implies affirmation and such polarities are absent. So whether introducing Zen or behavior analysis, commonly held distinctions do not apply, but Zen goes further because distinctions themselves don't apply. That concept appears throughout Eastern mysticism and is the core of Lao Tzu's *Tao Te Ching*: ''There are ways, but the Way is uncharted'' (Blakney, 1983, p. 53).

To summarize, Zen practices attenuate or eliminate language's discriminating, mediating effects on perception; consequently, a verbal community's distinctions are not applicable to Samādhi and Enlightenment. The first occurrences of these experiences follow long periods of verbal-less activity (an outcome of meditation) and assemblages of those private events (through such processes as generativity, stimulus equivalence, and transformational functions; see Dougher, Perkins, Greenway, Koons, & Chiasson, 2002) that meld them into a stimulus equivalence singularity (a single equivalence class without verbal mediators) described as *oneness*. That such processes are critical, and not their private accompaniments, accounts

for why Zen Masters warn monks to ignore the experiential sideshows produced by Zen practice; they do not lead to Zen for the same reasons that they do not lead to behavior analysis.

Nature and Koan

The etymology of *nature* and *koan* may make Zen more accessible to Westerners. In Japanese, *nature* is written with two kanji symbols; one means *self* and the other means *being*. This can be translated as *things exist in themselves*; they are their own existences, totally independent of paradigms we impose on them. Zen, we are told, gets us to *things in themselves* (i.e., independent of distinctions we bring). In a sense, Zen is ancient, Eastern science, a distortion-free means for, as Skinner said, ''Getting back to the original.''

Koan means *where the truth is.* They are often used in what's called the *transmission of Dharma*, which can be roughly translated as establishing prerequisites for Enlightenment or bringing about small Enlightenment episodes (sometimes called *little Satori*) of the same type that began with the Buddha. Speaking behavior analytically, this transmission involves developing a Zen repertoire and using koans as transitivity tests to measure its development. To illustrate, consider three of the Mumonkan's 48 koans that Zen Masters have used for centuries.

Koan 1: Zhaozhou's Dog. A monk asked ''Does even a dog have the Buddha-nature?'' Zhaozhou (pronounced ''Jow-Joe'') answered ''no.'' A generally accepted interpretation of this koan is that every monk is taught early on that all sentient life has the Buddha-nature; that fact was well known by the monk asking the question. Zhaozhou, the Zen Master, replied ''no'' not to the question's content but rather to the normal-life reasoning that gave rise to it. So this ''no'' was not a response to the question, it was an admonition to stop the entire edifice of normal-life, relativistic reasoning. The monk asked the question as if from the point of view of normal-life logic; Zhaozhou answered from the point of view of a Zen Master. Taken together they represent the right and left hands of initial Zen training, and that is what the Master communicated in a uniquely Zen way that tested the monk's progress.

An unschooled observer of Zen may well have answered the question ''yes'' and pointed the monk to the relevant teaching, thus perpetuating the monk's irrelevant discussion. That the monk asking the question already knew this basic point indicates that he was testing the Master with dueling koans, a common practice in Zen exchanges.

So in summary, this koan is about the question of whether Enlightenment can be found via everyday normal-life reasoning and discussion. Zhaozhou's answer is ''no''—the special ''no'' that quells the uncontrolled flow of private, verbally influenced responses during meditation. To stop such verbal activity is a step toward cessation of ''the whole worldview, one's personal idea of reality is suspended'' (Cleary, 1997, p. 5). This is prerequisite to Enlightenment but should not be confused with opting for ignorance or ignoring the world. Koan 2 deals with that mistake.

Koan 2: Wild Fox. Zhaozhou's Dog emphasizes the need to separate behavior from the organization imposed by language (e.g., logical, culturally bound distinctions), but the Wild Fox deals with cause and effect, specifically, that Zhaozhou's ''no'' does not negate cause–effect observations. A summary of this relatively long koan is that a Zen monk asked Master Baizhang whether enlightened persons are subject to causality. The Master replied ''They are not blind to cause and effect.'' This immediately enlightened the monk.

Zen commentators often indicate that this koan juxtaposes normal-life and Zen; that is, that cause and effect, and relations in general, can be simultaneously held in two ways. On the one hand is the normal-life interpretation like that of Master Gao Feng Miao who "denies the presumption that it is possible to attain real liberation by denying causality, and [he denies also] the assumption that recognition of causality means loss of freedom" (Cleary, 1997, p. 15). This view is very close to Skinner's arguments against explanatory fictions (Baum, 1994; Skinner, 1969) because it rejects causality that includes "limitations psychologically imposed by fixation on *imagined or fabricated causal chains* [italics added]" (Cleary, p. 14).

On the other hand, cause and effect from a Zen point of view is not conceptual: "Zen practice does not exempt; it frees us to see what is really happening" (Cleary, 1997, p. 12). Within this framework, Zen is a direct conduit to cause–effect relations, a conduit devoid of precast, verbally mediated paradigms that affect what is sensed. So cause and effect within Zen is fundamental to paradigms for interpreting the world (we are not blind to causality) but simultaneously is not blinding us to verbally unmediated perceptions of, and interactions with, that world, either. This koan, like many, requires a Zen monk to hold normal-life and Zen worldviews concurrently, a skill necessary for Stage 4, described below.

A related Zen lesson is Zhaozhou's shoes. Zhaozhou visited a Master who posed a question as if expecting a logical reply. Zhaozhou put his shoes on his head and walked out of the room. A common interpretation of this exchange is that Zhaozhou illustrated how a tool (shoes [words]) for achieving our ends (walking [exceeding the limits of verbally mediated behavior]) is using us, and thereby restricting us, to only those ends it can achieve. Likewise, researchers cannot exceed the limits of their research methodologies, and the outcomes of those various methods may not be reducible to each other (e.g., aggregated data often reveal nothing about behavioral processes in individuals; Sidman, 1960).

Koan 3: One finger. Zen Master Judi's answer for all questions was to point his index finger upward. A servant boy imitated this when asked what his Master taught. Judi learned of this exchange, cut off the boy's finger, and, as the child ran away, called the child's name and raised an index finger. The child was immediately enlightened.

Explanations of this koan often refer to how a finger pointing to the moon should not be mistaken for the moon itself, emphasizing again the distinction between things and representations. The child had to lose the symbolic representation for Zen before Zen itself could emerge.

How Koans Work

If Zen koans contribute to creating a repertoire in which the effects of verbal behavior are minimized or suspended, probably several behavioral processes are involved. Extinction, counterconditioning, and related processes for weakening behavior could operate for years while one works on a koan with no answer in the conventional sense. At the start of koan study, Zen monks are often told that they will feel as if they have swallowed a molten pellet that will burn until resolved. Monks commonly cannot sleep or eat, and some are driven to such extremes that their Zen Masters change their koans.

Such distress probably reflects the strength of verbal behavior, whose use is encouraged throughout life and is left to operate unrestrained by instruction on how to control its effects on the rest of our behavior. Koans target those effects by posing questions that normal-life worldviews

cannot solve, thus weakening them, while Zen practices (e.g., meditation, rituals, etc.) build a complementary, verbal-less (unmediated) repertoire. Because verbal behavior is fluent and integrated into so much of our repertoire, the first fruits of Zen study often do not blossom for years, sometimes decades.

In his research on creativity, Epstein (1993) described the use of inconsistent antecedents to occasion creative and insightful behavior (e.g., a traffic light with red and green lights lit simultaneously). Zen's attacks on normal-life verbal repertoires are laden with such stimulus control: You are to answer koans, but in ways that do not follow conventional logic; a question is posed, but the answer cannot be given in the verbal medium of the question; two individuals give the same answer to the same koan, but only one is correct.

In summary, koans lead not to answers in any normal-life sense, but rather to behavioral change that by definition defies description. To understand a koan is for it to produce verbally unmediated stimulus control. Koans are not designed to be interpreted; they are not antecedents occasioning more verbal behavior. They are a mechanism for unraveling verbal behavior's effects on the rest of what we do.

For example, consider tacting. Children acquire thousands of discriminations under private and public control. Escaping such distinctions requires weakening them in the service of generating what is called Zen. In short, Zhaozhou's shoes are on our heads, and unless we remove them, verbal behavior will create the only worldviews possible. To be affected by the larger context that Zen says we can know directly—and behavior analysis assumes everything is a subset of—requires the Zen complement of our verbal filters.

That is why koans cannot be explained with normal-life verbal repertoires founded on the distinctions Zen is designed to extricate. As Zen Buddhists note, "According to Zen teachings, there is really no way to comprehend koans except through themselves" (Cleary, 1997, p. xvi). And because that comprehension is Zen and not of Zen, it is reasonable to conclude that all koans have the same function—to produce Zen. As Zen Masters say, "If you break through one koan, hundreds and thousands of koan have all been penetrated at once" and "It is like cutting a reel of thread: one cut, and all is cut" (Shibayama, 1974, p. 23).

Stage 4: Enlightenment

Merging Two Repertoires

Despite the decades of work and personal anguish required to develop a Zen repertoire, it is not enough for Enlightenment. That, according to the Zen literature, involves unifying the Zen and normal-life repertoires into a third called the *Middle Way*. So the generativity of those repertoires is the road to Enlightenment.

That road may be paved with stimulus equivalence and related phenomena. For example, if Zen practices create a large, verbally unmediated stimulus equivalence class, then combining this class with normal-life stimulus equivalence relations could account for descriptions of post-Enlightenment metaphors involving multiplicity embedded in a unity. As Wumen in the 13th century wrote, "The inclusion of relative reality within absolute reality; whatever relative reality may be, or however it may be described, it is enveloped and pervaded by absolute reality" (Cleary, 1997, p. 188).

Besides describing the integration of unity and multiplicity, Wumen may be suggesting that relative reality is the more obscure and difficult to grasp. In the West, to understand is to encase the world in a paradigm. In Wumen's China, the opposite held: To grasp the world directly required

standing outside paradigms. This distinction may be part of why Zen is so difficult for Westerners.

Interpretations of Zen based on stimulus equivalence and generativity, for example, could also explain the speed with which Enlightenment commences. It is like insight—an immediate, automatic transitivity relation. In fact, if one thinks about the answer, it is already incorrect because, as Zen Masters point out, it is being approached from the relativistic point of view. So again, under this behavior-analytic interpretation, koans are transitivity tests—assessments of a Zen repertoire's development and whether it is ready to merge with normal-life behavior in the generative production of the Middle Way.

DISCUSSION

Skinner (1957) defined verbal behavior as socially mediated responding, even when someone is his or her own audience. This may contribute to why research questions regarding verbal behavior (e.g., Sundberg, 1991) do not address what would happen if a typical verbal community's practices were replaced with those Zen Masters use to generate verbally unmediated responding. Ignoring Zen practices preludes discussing complementary repertoires that can become the Middle Way, and encourages academics to homogenize paradigms of Zen and behavior analysis, thus burying key distinctions. The result is not Zen, it is articles *about* Zen, like this one.

Moving beyond "aboutism" will require (a) researching the verbal repertoires commonly called worldviews, especially worldviews' effects on perception, and (b) developing probes like koans to fathom that verbal behavior and discriminate who is and is not progressing toward Satori. Some guidance may come from Kuhn's (1970) notion of incommensurability, that persons who operate within different paradigms literally do not perceive the world in the same way and so may not be able to effectively communicate. That may be why Zen Masters' conversations are meaningless to those with typical verbal histories.

Skinner makes a similar point: "Different verbal communities generate different kinds and amounts of consciousness or awareness" (Skinner, 1976, p. 243). This statement's context is the argument that the study of subjective states requires the study of verbal communities' practices. Zen is especially interesting in this context because it does not build new verbal distinctions via increasingly discriminative contingencies. Instead, it reduces distinctions by, in part, reducing verbal behavior's effects and then merging that repertoire with normal-life verbal behavior to create the Middle Way. This merger salvages the features of each; that is, Zen Masters can perceive unfettered by normal-life influences yet retain the option of operating within culturally given (language-based) paradigms.

This analysis also explains Zen Masters' baffling verbal behavior. Elements of existing stimulus equivalence classes can be given new functions that are automatically passed throughout them (Hayes, Hayes, Sato, & Ono, 1994). For example, conditioned reinforcement and punishment (Dougher et al., 2002; Greenway, Dougher, & Wulfert, 1996) and respondents (Roche & Barnes, 1997), but more important for this discussion is research on discriminative stimulus functions (de Rose, McIlvane, Dube, Galpin, & Stoddard, 1988) and contextual stimulus control (Hayes, Kohlenberg, & Hayes, 1991). If, through such processes, Zen training produced unmediated equivalence classes and relational frames, then something unique would result (probably aggregates of previously verbally discriminated stimuli) and, with them, different private events (e.g., a sense of whole-

ness, oneness, etc.) Such histories could create verbal repertoires that drift from distinctions made by the mainstream culture and allow Zen masters to immediately grasp koans that beginners need decades to resolve.

The stimulus singularity concept also sheds some light on how Zen deals with meaning. Referential models clearly do not fit Zen's usage, nor do synonyms (i.e., words reflecting similar verbal histories) or operationalist criteria such as meaning as the method of measurement. Instead, Zen poses the problem of expressing meaning without distinctions. This is accomplished with koans and meditation in which a stimulus singularity, or steps toward developing it, is the meaning (i.e., a repertoire that by definition allows no verbal distinctions within it). Zen's core enigma is the creation of such meaning.

So Zen and behavior analysis part company on this issue: In Zen, meaning is communicated by creating the singularity—conditions under which verbal behavior is excluded—whereas behavior analysis requires describing and controlling the conditions under which a word is used. This difference is why Zen Buddhists state that Zen is so literal that its meaning is missed; meaning *is* the immediately given paradigm-free context, a context lost the instant description of it begins. Conversely, behavior analysis, like all science, cannot begin prior to such description because analysis implies it.

That difference also raises a question regarding epistemological primacy that I shall state as a slightly revised koan given earlier: If knowledge returns to models and words, where do the models and words return? Both behavior analysts and Zen Buddhists may agree that it returns to a larger world that generates verbal behavior but is not itself affected by verbal behavior in anything like the way normal-life repertoires are affected. The difference between them is that Zen produces an unmediated perception of that world, a stimulus singularity, whereas behavior analysis produces models. That distinction is the source of Zen's challenges for a science of behavior: (a) Describe the effects of verbal histories designed to eliminate the effects of verbal histories and (b) reliably assess a stimulus singularity, a private, discrimination-free repertoire.

Hamlet's Soliloquy Revisited

Hamlet's *or neither* results from behavioral processes that organize repertoires devoid of verbal influences. For example, during Samādhi, verbal behavior is disengaged from other responses concurrent with perception becoming exceedingly clear and immediate. This results in the formation of verbally unmediated stimulus equivalence classes. These could have the private accompaniments described by Zen Masters and yield what is often noted about their public behavior: It is fluent, very sensitive to the environment, and seemingly without mediation.

As these verbal-less stimulus equivalence classes grow, they accentuate the arbitrariness of common distinctions within our normal-life verbal behavior. For example, subject–object discriminations would be minimized as they are in the literatures of Zen and behavior analysis. With no I or self (i.e., no agency), the world is not what we know, it is what we are, without division between us and it. Other distinctions born from an I–world (subject–object) relation would also become untenable. For example, with no I, there is no life or death and no I that suffers: "If a man understands the Tao in the morning, it is well with him even if he dies in the evening" (Suzuki, 1949, pp. 22–23).

The reduced number of verbally mediated distinctions, mixed with increased numbers of stimulus equivalence classes devoid of verbal com-

ponents and contextual control, could create, with years of difficult work, a large, single class. As noted, this would be, in a sense, like a cosmological singularity in which everything exists united within a distinctionless universe. Such behavior devoid of verbal influences could be described, as Hui Neng (sixth Zen Patriarch, 638–713) said, "From the first, not a thing is" (Suzuki, 1972, p. 22), which is consistent with descriptions of Enlightenment, Nirvana, and Samādhi: *oneness* purged of verbal distinctions. And when distinctions imposed by language are gone, so is the cycle of life and death, as are all normal-life paradoxes and polarities. This would allow an Enlightened Shakespeare to reflect his normal-life and Zen repertoires as he writes "To be or not to be, or neither."

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