A Behaviorological Thanatology: Foundations and Implications

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Foundation principles supporting a behaviorological thanatology are reviewed, including concepts of life, person, death, value, right, ethic, and body/person distinctions. These natural science foundations are contrasted with traditional foundations, and their respective implications are speculatively explored.

Key words: behaviorology, death, dying, person, thanatology

The convoluted practices with which we now cope with death often seem to be adrift in the swirling currents of ancient folklore. Many traditional practices implicitly accept the horror and agony that nature carelessly visits on terminally ill people. Such people play no further role in the contingencies of survival that impinge on their species. Therefore, in the grand scheme of nature they are unimportant, so biological evolution has afforded them no special relief. Thus, alleviation of their suffering is left entirely to behavioral interventions. Behaviorology (Fraley, 1997; Ledoux, 1997), a strictly natural science, affords a new perspective on death and dying and supports a relevant behavior technology. But that approach is unfamiliar, and people must have an opportunity to adjust to it if they are to understand and accept it.

FOUNDATION PRINCIPLES THAT SUPPORT BEHAVIOROLOGICAL THANATOLOGY

Although a behaviorological thanatology has unusual characteristics and supports conclusions that are different from traditional views, it develops logically and understandably from the basic assumptions and scientific principles of its disciplinary foundations.

The following reprise of relevant behaviorological principles relates the basic principles of that discipline to revisions in certain contemporary ethics and practices.

The Nature of Life

As it happens on this planet, through prebiological natural selection processes, certain carbon-based physical and chemical systems attain certain patterns of organization on a molecular scale. That is, their constituents become interrelated in certain critical ways. At some stage in that natural course of organization, the entity may begin to function naturally in a way called living. Some of those functions relate the entity to its environment in ways that capacitate the process called behavior. As biological evolution produces more complex life forms, behavior, in turn, is often superfluously declared to be symptomatic of an inferred causal agent, presumably of unnatural origin and nature, which putatively resides within the body and directs the body's behavioral activities. But an organism's innervated functional reactions to its environment (also known as behavior) occur naturally without the aid of nonspatiotemporal (mystical) agents and their unnatural interventions (Hayes & Brownstein, 1986). Thus, from a natural science perspective, neither life nor behavior are regarded as mystical events, and neither require explanatory reliance on ethereal entities. Life and behavior represent

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complex processes, but complexity, even when temporarily beyond our powers of description, does not imply mystical driving forces (Fraley, 1994).

Life is a process or function, not an entity having ontological status, and the functional relations definitive of life occur among real physical entities. When the process stops completely, in all of its varieties and manifestations, the status of the system thereby changes from "living" to "dead." Evidence for life is manifested in physical events, mostly in the class called movements, but from this perspective nothing actually lives in the traditional spiritual or mystical sense. Not even living organisms are alive in that way. Hypothetical constructs such as human spirits, souls, ghosts, and autonomous internal selves are construed as fictional entities that have been invented to support spurious explanations of life in the absence of a natural science of organic bodies and their interactions with their environments. In most of these convenient explanations, behavior is simplistically attributed to the exercised will of the invented mystical agent (of whatever name), and that conjured spirit-agent is always magically endowed with exactly those powers that would be necessary to produce whatever behavior is observed.

The various functional relations that actually define living are mediated via the nervous system and are exhibited at the different organizational levels of an organism, with evidence of life accruing in exhibits of operant and respondent behaviors: At the organ and tissue level are conditioned operants plus specific respondent behaviors and the physical and chemical functions of organic physiology; at the cellular level are the chemical functions of microphysiology. In carbon-based organisms of the kind produced by natural selection on this planet, the various manifestations of these relations, collectively and sometimes separately, called living, are essential to the maintenance of their mediating organism. When any of those kinds of relations are permanently dis-

rupted, within a short time the organism progressively (and for the most part irrevocably) disorganizes to a condition called death. Beyond somewhat immediate and quickly exceeded limits, the organism cannot, through current technology, be reorganized and restored sufficiently to reestablish those relations and thus be "brought back to life." However, although the whole organism cannot survive without functional organs and tissues, organs and tissue samples can be kept alive apart from the now-dead organism in which they developed.

The organic type of maintenance relations between a body and its constituent organs that have evolved and now prevail on this planet is not an absolute universal requirement for the integrity of entities capable of operant behavioral relations with their external environments. Though conceivable, creating non-carbon-based life forms is only now being approached on the frontier of computer and robotic technology (e.g., Dibbell, 1996; Kasparov, 1996; Wright, 1996). Those experiments hold the promise of escape from the demanding continuous maintenance imposed by organic construction. The possibility is of technological interest to those, for example, who face problems of what to do with certain kinds of occasionally needed individuals during prolonged intervals between those occasions—for example, crew members on long space journeys, or soldiers.

Summary. Life is a process. Therefore, life *happens*, but it does not exist as an entity; it can stop and start, but it cannot come and go. Life consists of various dynamic relations in and among body parts, which in carbon-based organisms, through the accidents of natural history on this planet, are essential for the maintenance of the whole behavior-mediating organism. Behavior consists of a set of innervated functional relations between the organism and elements of its environment. Both life and behavior are naturally occurring functions in all respects.

The Concept of Person and the Person/Body Dichotomy

From the perspective of the natural sciences, the concept of person is best construed as a concept of behavior, not of body. A body only mediates the behavior that we call a person. A person is a behavioral repertoire—a unique set of operant and respondent behaviors conditioned during a lifetime, plus a few unconditioned respondents capacitated as an inherited genetic endowment (Skinner, 1974, chap. 13).

The necessarily close association of (a) the behavioral events that define the person and (b) the particular organic body that mediates them has proven to be a troublesome if inescapable coincidence. Many people's reactions to another specific person, or to other persons in general, have inadvertently come to be evoked by the bodies of those other persons due to the inevitable pairing of their behaviors with their bodies. Reactions appropriate to the behavioral repertoires called persons are then evoked instead by the bodies that mediate those behaviors. The result is that bodies get treated like persons—an especially awkward and at times highly inappropriate reaction, especially in instances in which the behaviors that are the person have ceased, perhaps permanently, while the body continues to live at a biological level.

Death: Analysis and Definition

Behaviors are processes, not entities. It is perhaps more correct to say that behaviors happen than to say that they exist. It follows that when *person* is defined in terms of exhibited behavior, that a person, when he or she is said to die, merely stops happening. Permanently. If a person is a set of behaviors, that is all that behaviors can do on occasions described as dying: Behaviors that have been occurring in the presence of certain stimuli no longer occur when those stimuli are presented. Person death is defined as the ultimate cessation of operant behavior at the verbal and organismic levels, a condition said

to be reached when no stimulus can be found that will yield a behavioral response, either operant or respondent.

Bodies, as opposed to persons, are said to die when certain internal physical and chemical relations, critical to body maintenance, break down. Because some of the operant and respondent behavior that defines the person is also indirectly necessary to the maintenance of the body, a cessation of the person usually produces a delayed breakdown in the internal life functions of the body (e.g., a comatose person stops nourishing its mediating body, and the body subsequently starves or dehydrates to death). However, person-dead bodies can be kept alive indefinitely through intensive interventions. Collins (1987, p. 271) mentioned a patient who lingered in a "comatose vegetative state" for 37 years.

Body death is normally followed closely by organ and tissue death. That is, after the systemic life functions that interrelate parts of the body have ceased, the isolated parts themselves (organs and other tissues), maintained temporarily by their own internal physiological relations, begin to disorganize. In the life forms with which we are familiar, that decay quickly becomes irrevocable. That short timetable motivates the rapid harvesting of usefully viable organs and tissues from bodies declared to be "dead."

The whole dying process is sequential and in some cases can be slow paced across both the behavioral cessation and the subsequent body disorganization. The operant behavior of a person can stop while some respondents and nearly all of the internal physiological functions continue. The individual thus exists in a comatose condition, but the behavioral events that define the person are no longer occurring.

When the body maintenance functions fail locally in parts of the central nervous system where verbal behavior is mediated, the entire verbal repertoire of the individual can cease to occur, and it can be permanent. The individual may then remain partially responsive,

but exhibit only respondent behaviors and possibly some primitive nonverbal operants in direct response to environmental events. Nonverbal behavior, continuing among the individual's body parts, can maintain the internal economy of the body, produce reflexive retreats from sources of aversive stimulation, or respond with similar primitive and verbally unsupplemented operants. However, that living body would no longer mediate the behaviors of speaking, thinking, or those special verbal operants that we call awareness, consciousness, or "knowing about." (For a discussion of the basis for regarding these kinds of events as operant behaviors, see Skinner, 1953, pp. 288–292.)

Some fraction of any person's defining repertoire is manifested in operants that occur under direct stimulus control of environmental stimuli without verbal supplements. Fluent behaving, such as the playing of an accomplished musician, affords an example. However, most attributers would include few behaviors in which verbal behavior plays no part among the behaviors taken as definitive of a specific unique person. That is, very little of the "person" is considered to remain after the capacity for verbal behavior (speaking, thinking, knowing, perceiving, being aware, etc.) and the effects that once required it are subtracted. That condition is approximated by persons with advanced cases of Alzheimer's disease.

Conversely, the deterioration may occur only to parts of the body that mediate nonverbal behavior or that produce potentially enduring records of verbal behavior (e.g., speaking and writing). The private verbal behaviors continue to occur. That is, the person continues to manifest in the form of knowing, thinking, and various awareness reactions, but these events have little remaining capacity to affect the now unresponsive muscle-driven body parts. In that case, a substantial fraction of what previously defined the person is still construed to be present, as in the case of victims of amyotrophic lateral sclerosis (ALS). For example, Steven

Hawking (age 55 in 1997) has been ravaged by ALS for more than 25 years. By this time he can speak only in weak sounds interpretable solely by trained associates and can move only a few fingers to a very slight degree. Yet he remains an intense thinker and has been nominated for a Nobel prize in theoretical mathematical physics for his theories of the universe. Throughout his long and progressive illness he has remained a popular and respected member of the Cambridge academic community (Jaroff, 1988).

In our culture, the status of "dead" has traditionally not been recognized until the internal relations that maintain the body have ceased and an irreversible chain of decay is in progress (often arbitrarily marked at the time that the heart stops beating). The behaviorally defined person could already have been terminated for some time. Certain parts of the body may also have ceased any functional contribution to the whole organism and may actually be in a state of organic decay (as with gangrene), yet the personless and even partially decayed individual would still be regarded as "alive." Modern technology can further blur the distinction between body life and body death through interventions that maintain the physiological status of critical body parts above thresholds of disorganization or decay.

When the behavior that defines the person will not again be possible, the residual body (dead or alive) may continue to evoke behaviors on the part of others that logically would be appropriate only if the behavioral person were still happening. However, that respectful behavior for the now-virtual person, if prolonged, tends to be viewed as inappropriate (e.g., the character, Norman Bates, in the classic horror movie *Psycho*, continued for years to interact with the mummified body of his dead mother as if she were still alive, a pattern of behavior accepted as evidence of insanity). A natural science perspective, in facilitating the distinction between persons and bodies, tends to keep regard for a person more under stimulus con-

trol of the behavioral repertoire and of the effects of that behavior and less under stimulus control of the body that mediates it. The body, being necessary for that person-mediating function, is important only for that reason, and only for as long as it can serve in that way.

Values, Rights, and Ethics

Cultural values related to death and dying, like other kinds of values, are simply whatever the group at large has conditioned its members to cherish (Fraley, 1997, chap. 23; Vargas, 1975). One's values are one's reinforcers. Except for primary reinforcers, those values do not exist independently to be discovered; rather, they acquire that status through operant conditioning. A right is defined as unhindered access to a reinforcer. When that access is threatened, the affected person tends to claim rights with respect to the obstructed reinforcer (value). Ethical behavior is then defined as behavior that respects those rights claims. One's conditioned values, and the related ethics and practices, are all arbitrary and are all subject to change. According to this formulation, there is nothing absolute about any of them: The currently functional reinforcing stimuli (values) are subject to change through various behavior-change procedures. Thus, nothing absolute or fixed stands in the way either of entirely new values with respect to death and dying or of the new cultural practices that would follow from those new values (Fraley, 1997, chap. 23).

One important implication is that the defense of values is not appropriately based on their mere existence. That would imply that, once discerned, they would then be subject to defense on the assumption that values per se are endowed with some natural and fixed intrinsic merit. Instead, the defense of values is more usefully based on their implications for the survival, and for the quality of life, of individuals, groups, and cultures.

PRACTICAL DISTINCTIONS BETWEEN BODIES AND PERSONS

About Bodies

Bodies have their greatest value as mediators of the behavioral repertoires called persons. When a person ceases to happen, or diminishes in range, frequency, and intensity until it loses its identity and thus its value as a person, the worth of the body that previously mediated that person is greatly diminished. It has some residual salvage value (e.g., transplantable parts are in demand). Beyond tissue recovery, bodies also have limited value for medical study and research. Currently, they are worth little as sources of nutrients, mineral constituents, and organic compounds. However, given the rate at which dead human bodies become available, were cultural values pertaining to their discard to change, new salvage market opportunities may be exploitable. For example, while still alive to enjoy the money, people could be given the opportunity to sell the salvage rights to their own bodies to disassemblers. Such businesses may come to be viewed as reputably as the contemporary funeral establishments that now waste bodies by burning or burying them.

The relativity of ethics. The arbitrary nature of ethical objections to seemingly strange implications of the body/person dichotomy is implicit in the ease with which contemporary audiences accept entertainment that exploits these issues. For example, in the popular "Star Trek: Deep Space Nine" television series, on a distant planet a fictional species of uninteresting and undistinguished persons known as the Trill exist only for the purpose of being joined with a symbiotic host organism that is artificially implanted inside a Trill's body. Only then can the combined form function as a complete and complex person of substantial recognizable worth to the culture. The related ethics provided by the program writers, which require acceptance of these circum-

stances within the fictional Trill culture and in other cultures that interact with the Trill, are, of course, constructed to comport to the fictional premise. But television audiences in our culture appear to tolerate that premise without the indignation that some may predict, and the Star Trek character, called "Dax," who represents such a joined individual is extremely popular ("Syndication," 1997).

On this planet, in a culture in which the exceptionally worthwhile person is the rare selectional accident among many individuals of lesser distinction, evolved ethics protective of the undistinguished majority include the ethic of equality, which is widely interpreted to mean that all are equally worthwhile. This, plus the myths of spiritual agency and the previously described person-to-body generalization, combine to foster a group-enforced respect for anything that takes human form. Often, it need only reflect the most inchoate human form and little more than the potential, in theory, to become a person (e.g., a zygote).

However, consider a culture that would (a) stringently limit its population to a resource-conserving minimum and (b) abandon reliance on the selection mechanism for human quality, instead behaviorally constructing each person to high-quality specifications. Multitudes from which to select would no longer be needed to get a person of dependable quality, so reproduction would be limited. Preservation of each person would become far more important than in contemporary culture, where lip service to that idea is not closely approximated by practical action. People would be too valuable to waste through unnecessary dying, and such currently unethical activities as cloning for spare body parts may predictably be among the practices seriously considered for prolonging the capacity of a body to maintain its highly valuable person. (The first reports of a successfully cloned mammal were Stewart, 1997, and Wilmut, Schnieke, McWhir, Kind, & Campbell, 1997.)

Confusion about Persons and Bodies

The verbal capacity as a measure of worth. The human species enjoys an extended capacity for verbal behavior. That kind of behavior shares in the control of other behavior and renders it more effective. This verbal enhancement of the controls on other behavior has rendered human behavior highly effective and resulted in human access to many otherwise unattainable reinforcers. The verbal capacity is often regarded as the essence of humanness. That capacity has therefore become appreciated as a reinforcing conditioned concept. It is made the object of various common rights statements and protective group-arranged contingencies. Those protective arrangements, in turn, have been codified into law (e.g., the American constitutional right of free speech). The ethics now protective of the capacity for verbal behavior in human social communities (and the bodies necessary to support verbal behavior) are elaborately detailed and rigorously enforced. Among humans, individuals who are permanently without a verbal capability tend not to be included under those protections, although the imprecise definitions tolerated by the traditional behavioral sciences are ambiguous and lead to inconsistency in the treatment of verbally deficient individuals.

The mass breeding and slaughter of other species for food, the sacrifice of individuals from other species for research and experimentation, and the mass extermination of animal pest species are all justified on the basis that nonhuman species, with their minimal or absent capacities for verbal behavior, are thus without the essential properties to which human worth is attached. Therefore they fall outside of the umbrella of ethical protection arranged in human cultures to respect the capacity for verbal behavior, a capacity often accepted as evidence that a species is intelligent. Increasingly, perhaps under the peripheral fringes of that umbrella,

tuna fishermen are being compelled to let dolphins, trapped with the tuna, escape from their nets, because dolphins are among those species discovered to exhibit rudimentary verbal skills.

Codification based on the person/body confusion. Although not all human bodies mediate respectable verbal repertoires, all respectable verbal repertoires are mediated by human bodies. Protections afforded to verbal capacities are accidentally extended to bodies in general. Those protected bodies in some cases do not mediate verbal repertoires and perhaps have never done so (or will never do so again). Some are bodies that could eventually be made to mediate a person but are not needed for that purpose.

The often-miscarried ethics based on these practices, once codified into law, become fixed insofar as behavior under law is rule governed and thus precise, instead of event governed and thus situationally flexible. Obviously, better behavioral science will be required to prevent or, preferably, preclude this potentially troublesome generalization. The behavioral processes by which that mistake occurs are both understood and preventable, as are the values and ethics that arise to perpetuate that troublesome transfer in stimulus control.

About Persons

A general regard for behaviorally defined persons has been an essential facet of human culture throughout most of its evolution. Despite contemporary rhetoric about intrinsic human worth and cultural rules prescribing respect for the equal worthiness of all persons, people have generally behaved in other important ways as if the worth of persons were attached to behavior rather than to bodies. That is because intrinsic human worth is a hypothetical construct with no basis in reality beyond the behavior said to reflect it, and applying the abstract concept of equal worth is not feasible in many practical situations.

All cultures manifest higher regard for complex, sophisticated, and produc-

tive behavioral repertoires than for the bodies that mediate those repertoires. To see that discrimination more clearly, one need only examine the prevailing cultural practices regarding bodies that are biologically alive but are *not* effectively mediating a person, either because the behavior called a person (a) has not yet been conditioned, (b) has terminated due to failures in certain supportive intrabody relations, or (c) is exhibited in forms failing to meet prevailing qualitative standards. Examples are the unborn, the senile, and the felon, which are respectively subject to abortion, neglect, and execution (or isolation).

Beyond such extreme cases, in everyday life people respect others in proportion to the quantitative and qualitative characteristics of exhibited behavioral repertoires. It is on that basis that people rate their friends, decide on a spouse, choose colleagues, and select leaders. Parenting is one long struggle to produce a high-quality person by shaping the most effective possible behavioral repertoire in the offspring. The expensive agency of education is justified on a similar basis. To rank one's acquaintances according to their respective worth as persons would not be a particularly difficult task for most people, because behavioral criteria would already have been governing their spectrum of reactions to those acquaintances. Behavioral characteristics of those acquaintances would already have been functioning, at an intuitive if not explicit level, as the most appropriate kind of criterion for one's dealings with them.

Because the essence of persons is their behavior, especially their acquired operants, the behaviorological concept of the life of a person departs rather substantially from traditional ideas. There is no clearly demarcated beginning of a person. Even in a fetal state, operant conditioning can be demonstrated (e.g., DeCasper & Spence, 1986). Nor can a clearly demarcated end always be identified. The closest approximation of that probably occurs

in the abrupt termination of both persons and their bodies during severe and rapid traumatic events such as explosions and high-speed collisions. But during less sudden episodes of dying, the exhibited repertoire of behaviors shrinks over time for two kinds of reasons, one physical and one behavioral: (a) Most of the body, although still organically viable, moves inevitably through successive stages of physical disorganization resulting in a progressive loss of its capacity to mediate behavior, and (b) the contingencies¹ on the slowly dying person change, typically in ways that reduce behaving in general. The question of precisely when "life" begins and ends is biologically meaningless, and the question of when a *person* begins or ends is behaviorologically somewhat indeterminate and similarly imprecise. Outside of situations that call for arbitrary demarcations, it simply does not matter exactly when persons begin or end. The surviving version of that old question takes on an economic connotation: When does a person become worthwhile, and when does a person lose its value as such—in both cases, with respect to prevailing cost-benefit ratios? Those are questions of enduring relevance, because the answers determine the degree and nature of people's respect either for incipient or diminishing persons.

People exhibit a wide range of behavioral quality and quantity across their intervals of personhood. Despite rhetoric about all people being equal, when only one of many can be saved, the typical rescuer's choice behavior will be under control of the abstract qualities of each potential survivor's behavioral repertoire. That rescuer will save the person whose current or potential behavior seems most worthwhile (see Skinner, 1953, pp. 50–51, for an

anecdote along these lines). If one's behavior is indeed the essence of one's "life," then no two lives can be of equal worth.

In most cultures, enforced rules have been promulgated to compel citizens to behave as if all individuals were equally worthwhile. This has proven to be useful in a government's management of the public domain, but this approach also yields affectations of equality, especially rhetorical, while the natural contingencies, based more on economic and utilitarian relations, play the more definitive role in ordinary social intercourse. Public awareness of this reality is reflected in the widespread cynical humor with which people note that those who preach the precepts of equal worthiness seldom invite the nearest behaviorally ineffective derelict home to meet the family and have dinner. Unfortunately, in the practical affairs of everyday life, the equality rule is usually untenable, although nearly everyone continues to recite it respectfully in the abstract while continuing, as they must, to disregard it at nearly every turn. The exercise of this discrimination, which is both necessary and functional at the level of interpersonal relations, is by nature socially divisive. Its utility becomes less appropriate at the cultural level at which cohesiveness is important. For example, in the interest of cultural integrity, we hold each person equal before the law, but how many among us would find compelling the argument that a national president's official behavior in office is too important to the nation to be disrupted by sequences of court appearances to face a litany of small-incident charges filed against him by various mundane individuals?

Considering only quantity of behavior (as opposed to quality), at any given time, some persons are more "alive" than others, and at certain times a given person is more alive than at other times. Quality considerations aside, such liveliness *per se* can make a person seem more worthwhile. For instance, during dramatic performances about persons

¹ A contingency is a behavior-controlling or behavior-determining relation between the body and its environment. If mystical origins for behavior are disallowed, as is true of a natural science approach, then behavior can occur naturally only through such functional relations.

facing death threats, other things being equal, audiences tend to be more sympathetic toward potential victims who exhibit a lot of behavior. They seem "more alive" than persons who are subdued, and their loss seems more tragic. Directors, with a character who is to be killed under maximally tragic circumstances, will precondition the audience by teasing vivacious moments from the actor.

Persons, like the bodies that mediate them, can die very slowly. For example, some cases of Alzheimer's disease are now known to start early, long before clinical symptoms appear (Campion, 1996). Even after mild behavioral symptoms become detectable, they may be ignored or misinterpreted for some time. Many years may be required for the transition called person death to be completed, even though the subsequent body death is still far in the future.

CONTEMPORARY ETHICS AND PRACTICES

The Legacy of Nuisance Emotional Respondents

Universal social contingencies compel people to account for everyday events, but few people's science is adequate to do so, especially to explain behavioral events. Few, therefore, have escaped indoctrination in the convenient explanatory recourse to mystical causality, and a vast majority has always accepted mystical assumptions uncritically. Reliance on mysterious internal causes of behavior has prevailed throughout the evolution of human culture (Leahey, 1997), because it seems to provide quick and easy answers for difficult questions. However, with the emergence in recent times of natural science, some individuals have developed repertoires that are incompatible with nonspatiotemporal (mystical) assumptions. They often describe themselves as "knowing better" than to treat metaphysical events as real.

The effectiveness of modern science in practical matters has promoted a general respect for scientific thought even

among many who cannot exhibit it themselves. This group includes substantial fractions of modern technological societies like our own in which blanket condemnations of science have become somewhat unfashionable—roughly in proportion to the amount of general education to which people have been exposed, including studies in the sciences. However, many such people will earlier have spent formative years among verbal subcommunities that shape mystical assumptions. Those subcommunities punish deviations from an explanatory reliance on their featured versions of unnatural causality for behavior. That punishment automatically conditions aversive respondent emotional reactions in those who act, or start to act, contrary to those assumptions, for example, by pursuing the implications of the alternative functional analyses featured in a natural science of behavior (Skinner, 1953, pp. 186–190).

When such individuals subsequently begin to operate in the scientific verbal communities at large, their verbal behavior pertaining to the spirit world is subject to operant extinction, and some of them stop exhibiting such mystical explanations for behavior. Although they quit talking that way, their formerly conditioned capacity for internal private aversive respondents does not weaken according to the same timetable. That is because different behavioral and physiological mechanisms are involved in operant and respondent behavioral processes, and the emotional respondents (felt as a sense of sin or shame) simply do not decondition at the same rate as the related operants undergo the operant processes of forgetting, extinction, or suppression. Thus, long after contemporary individuals have come to "know better" than their old and now-rejected explanatory reliance on immaterial variables, they frequently continue to experience, on occasions of their new ideas, residual automatically elicited aversive respondents, now perhaps not only useless but interfering. These are aversive emotional respondents that originally were concomitant-

ly conditioned as part of acquiring the now-absent verbal recourse to mysterious causality. Put simply, they know better but still feel a twinge of shame when they now behave in accordance with their more enlightened and logical ideas.

Such people may no longer talk as if bodies were guided by spirits and may point instead to functional relations between behavior and environment, but whenever they begin to behave further as if that were true, they do not feel right about it. Usually they do not know why, but they tend to escape from that respondent discomfort by retreating to low-profile or disguised courses of action that do not compromise what would be the interests of those spirits were they to exist. The result at the cultural level is a significant segment of the population whose members describe themselves as supportive and respectful of science. These are people who dismiss belief in mystical causes in most practical matters, yet who turn away from social or cultural practices that, though otherwise following as rather straightforward and rational implications of their scientific ideas about bodies and behaving, make them feel bad. These are practices that would damage the interests of any lingering spirits, were they merely immured rather than ontologically disqualified.

Behaviorologists, behavior analysts, behavioral psychologists, and others who share elements of the natural science perspective on behavior do not enjoy immunity from any of these behavioral effects, but they have an advantage in countercontrolling those troublesome respondent residues. In knowing accurately the nature of the behavioral processes that are responsible, behaviorologists can develop more appropriate countercontrols and more precisely target the applications of those countercontrols. They can arrange conditioning and shaping programs for themselves that yield values, ethical prescriptions, and attendant emotional respondents that are *supportive* of any current practices that portend preferred outcomes.

That way, regardless of early counter-conditioning, behaviorologists are less helpless in the face of their own emotional resistance to the implications of their own science when those implications lead away from the common lore.

Sudden Death Versus Slow Death

Sudden death is largely irrelevant to the concerns of this article. Usually unexpected, it is often accidental. Bodies that still exhibit worthwhile behavioral repertoires are suddenly disorganized. All behavior stops abruptly, which is total person-death. As a preventative measure, substantial resources are typically expended at the cultural level on programs of accident and crime prevention.

Sometimes, however, under contingencies of negative reinforcement, the opposite is true: Programs of abrupt elimination are undertaken because the cost-benefit ratio for persons in some group or class has dropped below certain standards. Typical examples include war at the group level and criminal executions at the individual level. But in cases of sudden death, whether deemed good or bad, the focus of intervention is on events other than the dying per se, which may last only minutes, seconds, or less. The important issues in quick dying pertain either to prevention or to developing the means for more efficient dispatch, as the case may be.

The behavior of a dying person becomes important only in cases of prolonged dying. In that case, a need exists for programs of behavior management as all parties respond to the long sequence of mostly aversive events.

Myths and Realities about Slow Dying

Conservation of spirit. Those who treat a person as some sort of spiritual entity that departs from a body when the body "dies" can have difficulty interpreting phases in the course of differential dying. The successive stages are defined by a progressive narrowing

of the range of behaviors exhibited by the dying individual. Many who believe in an agent spirit respect a principle that can be described as "conservation of spirit," according to which the essence of a person is not only spiritual but the integrity (and sometimes the worth) of the spirit remains fixed. From whenever the enduring and immutable spirit is assumed to take up residence in the body, until its departure, its assumed ontological properties remain constant, and any observed decrease in the intensity or frequency of its behavioral reflections is attributed to differential masking effects as its accommodating body slowly fails. Because, under such assumptions, respect for the person is respect for the spirit, the practices of respect for the diminishing person must be maintained commensurate with the presumably undiminished status of the resident spiritual entity.

According to this fallacy, the spiritual person remains well, but can no longer fully manifest its presence or potential by way of the disintegrating body. As the myth goes in most religious versions, according to some ancient rule the spirit-person may not depart until the body reaches an advanced state of disintegration sufficient to classify it as dead. Thus, the increasingly incommunicative person-as-spirit is left trapped in the failing body, perhaps to lament its declining capacity to produce worldly effects by way of a mediating body and to contemplate the duration of its progressive immurement. In some more secular versions, the spirit is called a ghost and can continue to reside in the decaying corpse, but on its own volition may take out-of-body excursions and linger around the vicinity previously frequented by its host body when alive. In the less common zombie version, the departed spirit can reenter and reanimate its former host body, the behavior of which must then be exhibited awkwardly by the decayed and unappealing corpse.

Algebraic dying. The phrase *dying person* implies a decrease in the frequency of the behaviors that define a

person, but it tends to be interpreted imprecisely. It usually refers to the end of one's life span when an irreversible and accelerating disintegration of the body is also taking place. In a different sense, a partial dying occurs when the behavioral repertoire definitive of a person is undergoing subtractions due to forgetting, extinction, or punishment. Across the same intervals, throughout a life span, processes of reinforcement are capacitating additional behaviors. Because part of the total repertoire definitive of a person can be decreasing while other parts are expanding, the total behavioral capacity can take on an algebraic characteristic, with behavioral expansion in parts of the total repertoire (positive) in opposition to the behavioral contraction in other parts (negative), although the reductions are seldom regarded as partial dying. Near the end of life, as the failure of the behavior-mediating body progresses, this equilibration process becomes progressively imbalanced toward diminished behavior, and as that imbalance carries to extreme, the person defined by that behavior vanishes accordingly.

Forcing the "good show." Pleasing others is a relatively effective generalized reinforcer for most people, and a dying person may exhibit any social behavior that appears to reinforce others. Doing so simply continues a history through which that sort of activity has become reinforcing. A dying person who has always liked being nice to others, although dying, continues for a time to behave in that way. However, those previously effective conditioned social reinforcers (the "pleased" reactions of others) will, like many other kinds, be losing their potency. In many cases, at some point, it is noted that the dying person has "stopped caring about others." In fact, slowly dying people often exhibit a behaviorally induced depression exceeding that necessitated by the condition of the body at the time. People may be heard responding to that disparity with such familiar observations as "even his favorite things no

longer interest him," or "she's so depressed now; she's just not herself."

Those in the dying person's intimate social circle usually dwell on two options to restimulate the former frequencies of behaving: They strengthen the more naturally occurring contingencies in the behavior-controlling environment, or they impose more stringent supplementary social contingencies on the dying person to continue exhibiting the old repertoire, now for social reasons if not the more natural ones. In the former approach, the interventions may insure more frequent contacts with salient forms of previously effective antecedent stimuli. For example, a slowly dying person who had long enjoyed dabbling with watercolors may be supplied with an intriguing assortment of painting materials plus exposure to previously favored themes.

On the other hand, imposing social pressure to maintain the diminishing person often brings to bear powerful contingencies of negative reinforcement. A lifetime of social conditioning has left the dying person, like everyone else, with a history of social punishment for ignoring the mands² of close social partners. The effective conditioned punisher in these contingencies is evidence that one has decreased the reinforcers, or increased the aversives, for others in one's intimate social circle (we don't like to depress or disappoint those close to us). That history of conditioning leaves dying persons susceptible to mands provided by those around them, in this case, mands to maintain the reinforcing output of their social normality.

In this way, the behavior-controlling arrangements may be progressively usurped by those who surround the de-

clining person. Subtle or not-so-subtle mands, often quite compelling, are increasingly imposed on the dying person to continue exhibiting behaviors that previously tended to occur under at least partial control of naturally encountered contingencies of positive reinforcement. The specific behaviors mandated are typically those formerly definitive of the now-much-extinguished person, and those, of course, are behaviors that are especially reinforcing to the manders. Dying people are often thus preoccupied with maintaining social pretenses of their former selves (keeping up a good face, or putting on a good show) "for the sake of those about whom they care," either in response to such manding by others or in anticipation of how others are feeling (a virtual mand). In dying people for whom the more natural controls exerted by their former interests have become ineffective, the continuation of behavior under only this kind of negative reinforcement, if discriminated by others, is described as "pretense," "insincerity," or more favorably as "a display of courage."

The contingencies on those encirclers to maintain their manding can be strong. They are losing access to the powerful, copious, and largely social reinforcers long mediated by the dying person. In the past, those forthcoming reinforcers have constituted valid demonstrations that that access is still open. Now they mand similar demonstrations from the dying person. Continuing behavioral evidence that "the person" is still there functions as a generalized conditioned reinforcer for the manders (see Skinner, 1953, pp. 76-81, on conditioned and generalized reinforcers). Even after the dying person has obviously lost the capacity to respond to those mands, the mands, now magical (Skinner, 1957, pp. 48-49), may continue: "Please speak to me," "Try to eat," "Greet your uncle Charlie"—or finally, "Please come back," "Don't leave me"—all spoken in vain to a body that perhaps for some time has been under-

² A *mand* is roughly equivalent to a demand. A person is put under a threatening contingency and can reduce the threat by behaving in a manner that is reinforcing to the party who imposed the mand. A mand can feature a substantial threat ("Your money or your life!") or it can be mild ("Walk with me while we talk."). For a detailed description of the manding process, see Skinner (1957, chap. 3).

stood by all parties to be incapable of any further effective responding.

As a multitude of strong contingencies to behave in unsociable ways arise in connection with dying, little or nothing can be done at that time to bolster the natural social contingencies that yield the altruistic self. On the other hand, the contingencies of mandated altruism remain under management of the manders, who, given evidence that failure of the body is destroying the capacity of normal social stimuli to function as positive reinforcers, can vigorously reorganize the negatively reinforcing contingencies, bolstering them with whatever strength is necessary to produce the desired behavioral effect in the dying person. It is no contest. Across some range of time, the social behavior being maintained by the dying person under positively reinforcing contingencies to please others will fade, whereupon the slack tends to be taken up by the manders who prolong the exhibition of that repertoire under increasingly strengthened contingencies of negative reinforcement, until the functional limits of that process are also reached. They simply use social pressure to compel a "good show" by the dying person for as long as possible. Whether dying people should be subjected to any of these contingencies is another debate to which all can contribute. My own address of that issue is to be found in Fralvey (in press).

Reasons why relations that evoke the behavior said to represent an "interest in life" break down at a particular time in a particular case may be difficult to specify, but the fact that controls on different behaviors break down differentially is to be expected. After all, the many behavior-evoking relations that define a person have different histories of conditioning and, hence, different strengths, and the featured behaviors are reinforced on different schedules.

The deceptive disappearance. Any particular element of the complex multifaceted behavioral repertoire known as the "person" is only occasionally exhibited. *Some* element of it is always

evident, which insures that some facet of the environmentally evoked person is always visible, at least while the individual is awake or conscious. But at any given time the vast majority of the behaviors that define the person exist only in the potential mode and must await appropriate evocative or elicitive antecedents to make them reoccur. Yet, observers always see the body. Due to the close association of the body with all prior occasions of exhibited behavior, it has, through pairing, come to function as two kinds of stimuli: (a) The body has become a respondently conditioned stimulus that elicits emotions in others appropriate either to the behavior of the total person or to behavioral subsets of the total person. That is, the body elicits feelings in others that more appropriately relate to certain of the person-defining behaviors that the body has mediated. (b) The body has become a stimulus that evokes from others certain operant behaviors that were originally conditioned on prior occasions of that body's behaving. These are operants that are more appropriate to the person than to the body that has been mediating the person. This discrepancy becomes evident when someone talks to a vegetative body as if it were still mediating the now-permanently-quieted person.

During the phase of slow dying, the changing contingencies on the dying individual can leave substantial parts of the person unlikely to be reevoked. People around the dying person, whose lives will continue, may not effectively analyze how contingencies on a dying person can drift. Also, the body of the dying person can be losing, progressively and quiescently, its physiological capacity to mediate some of the person. Those internal changes, usually occurring as latent physiological events, typically go unnoticed by others, because they represent changes only in the capacity or potential to behave. Without attracting notice, the capacity to produce elements of the person will have been lost, while the external appearance of the body may remain unchanged.

Predictions of the dying person's responses can remain unaltered, because people have not recognized the latent erosion of the potential of the failing body to fulfill their expectations for behavior. The close associates—caregivers, loved ones, friends, family, or clan members—may have a significantly changed person on their hands and often will not know that. The result can be a lot of irrelevant and often inappropriate behavior on their part, some of it perhaps unintentionally aversive to what is left of the dying person. This unfortunate situation is exacerbated in those early stages of dying while the body of the dying person still retains many of its former topographical properties, even though the potential behavioral repertoire has eroded significantly. This troublesome disparity between (a) capacity to behave and (b) appearance of the body is simply the result of those two classes of events being defined by different kinds of variables that function under entirely different controls. Thus they are subject to different concurrent change schedules.

CONCLUSION

The kind of scientific and philosophical foundations upon which people base their practices for coping with the dying process substantially affect their practices. This article applies the philosophy and science of behaviorology to the interpretation of the events associated with death and dying, redefining terms, and describing new concepts that emerge from the analysis. Upon this new foundation new perspectives and practices can be constructed, and it is to facilitate such an exploration of the behavioral approaches to the issues of death and dying that this work is dedicated.

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