

Behaviorology, Death, & Life

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[This is another topical excerpt from “Person, Life, and Culture,” a later chapter of the author’s book, *General Behaviorology: The Natural Science of Human Behavior* (Fraley, in press). Given its relevance to improvements in ongoing cultural concerns, readers of this journal may find it pertinent.—Ed.]

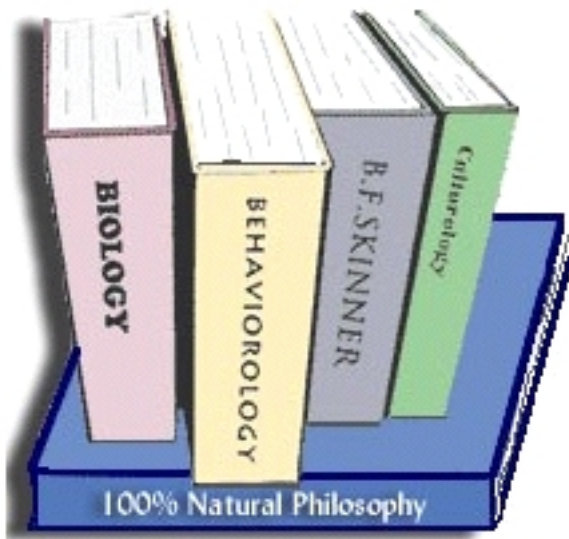
Defining *person* in terms of behavior has implications for the interpretation of dying. From the behaviorological perspective, dying is defined in terms of loss of the capacity to behave. Three kinds of dying have been delineated,¹ and will be discussed in this section.

How the Behaviorological Definition of a Person Affects Concepts of Death

First, consider the abrupt termination of behavior that is characteristic of the kind of sudden death experienced by victims of extreme trauma or acute disease (e.g., sudden death by gunshot or fatal heart attack). Abruptly, the person ends, and the body begins an irreversible differential biological dying across a relatively short and generally uninteresting interval. For convenience, an arbitrary time of death may be declared, which often coincides with the moment of the catastrophic event or with the discovery that the general physiological operations of the body can no longer be sustained (e.g., when it is recognized that the blood circulation has ceased irreversibly).

However, various parts of the body, isolated following the failure of the greater organic system upon which their vital maintenance has depended, continue independently to maintain their physiological functioning across different respective intervals. With body parts (and the individual cells of which they are composed) dying individually, *body death* is thus differential as those isolated body parts independently exhibit the dying process (the so-called *dying process* is actually a cessation of the ongoing physiological processes that define the status of living). Such a differential dying makes possible the harvesting of still viable organs from behaviorally dead persons so that those parts can be transplanted into the bodily systems of others.

Although the behaviorally defined person may be dead, the respondent behaviors necessary for a certain level of biological maintenance of the whole body may continue, as in the case of a permanently comatose indi-



vidual whose respiration, circulation, and other critical maintenance functions persist. If the respondent behaviors that drive those respective critical maintenance functions fail, at least some of those functions can be maintained by externally imposed interventions such as the use of a respirator. The behaviorally defined *person* will have been permanently ended insofar as the capacity for behaving operantly has been lost, while the body that formerly mediated the person remains biologically alive, perhaps with critical physiological functions continuing only with supplementation from external sources.

Thus, because body death involves the cessation of physiological functions, body death is different in nature from *person death*, which involves the termination of *behavioral* functions. Obviously, person death can occur without the concomitant biological death of the body. That is, the body can remain alive after its capacity to exhibit person-defining classes of behavior has been lost, and that is a common occurrence.

Final and total *person death* coincides with the irreversible cessation of all *operant* behavior plus the failure of conditioned respondent behavioral relations—that is, with the loss of the capacity to exhibit the behavior that has been conditioned during the person's lifetime. In cases of slow dying, often marked by the creeping progress of an eventually fatal disease, that loss of previously conditioned behavioral capacity occurs incrementally and may span a relatively long interval. That protracted erosion defines an interval during which the former *person* is progressively diminishing.

Such an erosion of person-defining behavior can occur for two main reasons. First, the contingencies that control person-defining behavior may weaken so that the frequency of the behavior decreases, perhaps to zero. The body is still capable of producing the behavior, but certain behavioral manifestations of the person become less frequent due to changes in the contingencies to behave in those ways. This is a prime characteristic of slow dying, and social contingencies are often involved. A simple example is provided when slowly dying people who have always closely followed news reports of world and local events gradually stop doing so. As evidence mounts that the dying person will not be a part of the future that is implicit in those reports, the effect of that evidence on the dying person is a proportional weakening of the contingencies to attend to those reports.

Second, during the course of a slow-death episode, the physiological capacity of the body to produce operant behaviors may diminish incrementally as a disease progresses. These failures tend to occur differentially across different bodily systems so that the capacities of the whole body to behave in various ways are lost at different times—a progressive erosion of the behavioral repertoire

that reflects progressive structural failures throughout the body.

A disease that eventually affects various parts of the bodily system often begins in a single subsystem. For example, Alzheimer's disease, which destroys brain cells, results in the differential dying of a *person* over a long period of time as the capacity to behave under partial control of neural behavioral supplements is slowly and irreversibly lost, one nerve cell at a time. Other diseases affect muscles so as to render them progressively incapable of being innervated. In some cases the slow and progressive losses of the capacity to behave in certain ways tend to go unnoticed until the person comes under contingencies to behave in some way that the relevant body parts can no longer exhibit.

The behaviorological definition of *person* also has implications that manifest in the course of normal living. Because a *person* is essentially the operant behavioral repertoire that the elements of a general environment can evoke, a normal ongoing *person* necessarily always re-

² Reference to *the meaning of* something is such a common feature of ordinary discourse that it occasionally has been allowed to occur in some passages within this book to facilitate communication. Note, however, that *the meaning of something* is not actually a reference to any of its intrinsic properties but is instead a reference to how it affects behavior. For instance, to say that the word *rapid* means *quick* is to predict that a mediator will exhibit the same behavior in response to each of those verbal stimuli and to imply that a mediator would behave as if the statement "*The private's salute was both quick and rapid*" included a redundancy. However, like most pairs of synonyms, the two distinct terms remain extant because they sometimes occur under differing respective antecedent controls. While *quick* and *rapid* both signify smallness (which accounts for their synonymy), *quick* can pertain to a latency while *rapid* can pertain to a duration. To speak agentially, a listener who so interprets the statement about the salute would infer that the private, upon contact with the stimulus, did not hesitate long before saluting and then produced a swift salute. Importantly, that listener's public responding would be discriminative with respect to the terms *quick* and *rapid*, which we would then insist *did not mean the same thing to that person*.

³ In the context of this paragraph, changes that result in more or less behavior (and hence more or less of a behaviorally defined person) do not necessarily correspond respectively to a better or worse person. For instance, in a given situation the more discriminative person may be deemed the better person, although a less discriminative person may be exhibiting a wider range of response types (most of which may be inappropriate).

mains in a state of flux, waxing and waning with gains and losses in operant behavioral capacity. Many of those gains and losses among the operant repertoire are deemed to represent the normal outcomes of ordinary experience. Normal processes such as extinction, punishment, and forgetting, which diminish behavioral capacity, thereby diminish a *person*, while the process of reinforcement, which enlarges behavioral capacity, expands a *person*. With respect to respondent behavioral processes, the generalization process broadens the range of controls on a given behavior, thus in a sense expanding the behaviorally defined person, while the discrimination process, in narrowing the range of such controls, tends, in the corresponding sense, to contract the behaviorally defined person. A behaviorological analysis of *person* thus lends new meaning² to the adage “*People change!*”³

A behaviorally defined person, being mediated by a body that while alive is a dynamic system, is therefore never fixed, whether gauged qualitatively or quantitatively. Person fixation comes only with person-death and then only at a scale value of zero.

The *quality* of a person inheres in the efficiency, effectiveness, and appropriateness of the individual's behavioral outcomes, and a person may be regarded as behavior through which those outcomes are produced. From any given perspective, some behavioral outcomes are worthwhile and some are not, so from that perspective some facets of a *person* represent behavioral capacities the loss of which is deemed to be beneficial, while other facets of the person represent capacities for beneficial outcomes, an enlargement of which would be deemed advantageous.

Social death represents a third kind of dying (in addition to *body death* and *person death*). It is actually a subclass of person death, but its importance contributes to its special categorization. Social death is marked by the breakdown of the contingencies under which various classes of social relations have been maintained. It occurs in stages as the impending end of life alters the contingencies under which one behaves with respect to other people. Also, the body of a slowly dying individual may be experiencing a progressive physiological failure, and the erosion of its overall capacity to exhibit its operant repertoire will, in time, inevitably affect the social aspects of what is left of that person.

Eventually, for a slowly dying individual, these two change factors (changes in contingencies and changes in physiological structure of the body), separately or collectively result in a reduction in the behaviors that characterize each kind of social relation in which the person has been involved. Among such affected relations are business and professional relations as well as the social relations that define friendships, family ties, and one's most intimate interactions with loved ones. A time is reached beyond

which each such class of social relations is no longer sustained in the traditional ways if at all. The eventual termination of *all* such relations, respectively due either to accumulating losses of physiological capacity or losses of the opportunities to exhibit the kinds of behaviors that define those relations, represents the final social death of a whole person. A slowly dying person experiences a partial social death for each such relation that, in turn, comes to an end, often to the dismay of the other people who have been involved in those progressively extinguishing relations.

Theoretically, given its nature, social death may precede person death. Thus, a slowly dying person can experience a progressive social isolation. The final stage of person-death is often a period of extreme loneliness that cannot necessarily be mitigated by the mere presence of previously close associates. Such a withering of social relations, even in the presence of those with whom they have been well established, can occur (a) due to progressive loss of effectiveness by the antecedent and consequating stimuli in the previously effective social contingencies or (b) the body's progressive loss of capacity to further mediate the social behavior. This accounts for the practicality of the widespread practice of involved parties saying their good-byes in the context of their traditional social contingencies before the progress of social death deprives the dying person of the capacity to do so.

The common allusive phrase ...*as lonesome as dying* (as in “trekking cross-country alone can feel as lonesome as dying”) connotes the widespread intuitive grasp of this reality. The urgency with which close others “being there at the *very end*” is touted may connote more its therapeutic worth for a mourner than for a prospective decedent, although there is normally a preceding interval during which those eroding social relations still have some functional integrity, ...an interval during which the dying person can still contact at least some of the potential social reinforcers that are being provided by those in company. It is during that penultimate interval that a dying person may utter the classic plea “...please stay with me till the end” (although, as this chapter makes clear, *end* can become quite ambiguous). Across different cases, the intervals that are being discussed here may differ in duration ...lasting seconds, minutes, hours, days, or even longer.

A Summary of Life and Death

Although on a microscale the distinction between matter and energy tends to disappear, on a macroscale, matter and energy manifest respectively as structure and process. In that regard, the related concepts of matter (as structure) and energy (as process) provide an analogy to the related concepts of body and life.

Matter, existing in some structural form, may receive additional energy, and its effect may be reflected as change in process exhibited by that structure. That is,

energy transferred to structure, unless stored in a potential form as more structure, can result in a new state that is detected as increased process. Process is thus something that is *happening* to structure in some relation to the energy that the structure receives or loses. If mechanical energy is transferred to a swinging pendulum, the pendulum swings through a greater arc. An input of thermal energy manifests as increased molecular agitation.

Organic bodies are structures, and what we call “life” consists of classes of processes that are exhibited by those structures. One large class among the processes that collectively represent organic “life” works mainly through nutritional biophysical and biochemical functions that maintain specific bodily structures. Body substructures (such as hearts, for example) are thereby kept within a structurally defined range that can support the kind of respondent behavioral processes (e.g., heartbeats) that contribute to one kind of definition of biological “life.” The kinds of processes that maintain the structural integrity of body parts, plus the kinds of behavioral interactions of those parts that endow bodies with their systemic nature, constitute the main subject matter of physiology. Collectively, those processes are said to pertain to the internal economy of an organic body.

Another class of life processes is often described as the “behaviors” exhibited *by* that body, and, in that context, the sociocultural behaviors that concern behavior scientists are mostly operant. The behaviors in that class (a) are stimulated (i.e., triggered) by events in the behavior-controlling environment, many external to the body, (b) tend, in turn, to have effects on that environment, and (c) are finally rendered more or less probable by micro-structural changes to the body that occur in reaction to those behavior-produced environmental changes (the term *reaction* alludes to the effect of an energy transmittal back to the body from the behavior-altered environment, alterations to the environment that are categorized as the *consequences* of that behavior). Thus, the (c)—part of the overall process is known as *consequation*. While (a), (b), and (c) characterize the total process of operant conditioning, it is (c) that represents its essence via some neural microstructuring insofar as energy returning to the body from the behavior-altered environment results in some neural microrestructuring that alters the future evocability of the initial behavior.

Life (a compound process) begins when the developing structure of the body gains the capacity to respond with the kind of processes that are evidence of a state of living. In natural organic reproduction, the parentally contributed materials are already endowed with certain primitive life-defining processes, so “life” (as defined by function and process) remains continuous across episodes of organic reproduction. Although life is thus continu-

ous, the degree and diversity of its manifestations undergo variation across successive generations.

A technological procedure to originate life from a point in time without the historical continuity of biological reproduction would require only that the appropriate structures be produced and energized within the necessary ranges. With such a structural capacity for life having been created, given contact with the kind of environmental events that control a given life process, that process would occur inevitably to that structure.

One theoretical implication is that, if, in a laboratory, we constructed a body to the precise structural specifications of a live model and endowed it with corresponding kinds and amounts of energy, the constructed copy would also be coming alive as the critical aspects of the construction were completed—meaning nothing more than that certain processes that are definitive of life could and would begin as soon as their appropriately energized capacitating structural elements were in place with respect to one another and with respect to a supportive environment. The life processes would then occur automatically in the same sense that a marble, released six feet above the floor, would automatically begin to accelerate downward. It is simply what starts to happen given the necessary conditions.

The complexity of the bodily structure of a living organism, plus the complexity of the energizing that is involved in its invigoration together have tended to discourage attempts to synthesize a living organism in a laboratory, especially a more complex type of organism that would be of interest to most people. Currently, however, certain biologists are working diligently to synthesize a simple primitive form of living matter. Most of this work seeks to duplicate in laboratories the conditions that are believed to have prevailed on this planet when the first life presumably emerged via natural processes. Presumably, if those primordial conditions can be sufficiently approximated, primitive life will emerge—this time, under controlled conditions in a laboratory. Another theory suggests that the first life on this planet was carried here in bombarding asteroids. If true, this could complicate efforts to duplicate the initiation of life functions, but it does not render the successful outcome absolutely impossible. In any case, scientists who are familiar with such lines of research now predict that primitive forms of life will soon be created in a scientifically controlled way.

Modern biotechnologists may not yet synthesize equivalents of the natural outcomes of a course of biological evolution that has steadily continued across the entire biological history of this planet. However, while the complexity of nature defines the challenges faced by scientists, no degree of naturally produced complexity rises to the level of an absolute restriction on scientific

progress toward the explication and control of the natural processes that define life.

That holds true with regard to the problem of synthesizing copies of more complex natural products, including a living and fully functional human being. After all, the definitive characteristics of any person have a structural basis. Let us imagine some relevant events that lie beyond the range of current scientific and technological capacity. Suppose, for instance, that a future team of scientists in a laboratory synthesized a fully nourished human body whose parameters fall within the range of a normal living thirty-seven year old man or woman. Because the behavioral experiences of a body are reflected in a microstructural kind of record, such a project would have involved the synthesis of the microstructuring that would correspond to a particular behavioral history that had never actually occurred to that newly constructed body.

For instance, a newly created and *exact* duplicate of you, as you are structured and energized at this instant, given the appropriate evocative stimulation, would be capable of describing the details of your seventh birthday party to the same extent that you are now prepared to do so in response to the same kind of stimulation. Such an accomplishment may remain indefinitely impracticable, impractical, or both, but impracticality does not necessarily invalidate theoretical possibility.

Death of the body as a whole (and hence, necessarily, of the person), occurs with the cessation of the interactive processes that define the systemic aspects of body life. A state of body death ensues when certain systemic processes can no longer happen just as earlier, and for equally natural reasons, the attainment of the capacities for those same processes insured the start of the processes that contributed to the *life* of that body. The concept of the start and end of a given life process gives rise to no ontological implications in the sense of requisite managerial or agential entities beyond whatever bodily structure supports the manifestation of that process. In terms of process, which is the essence of life, to die is merely for certain naturally occurring processes to cease, because the structural capacity to exhibit them has been lost or the necessary supportive energy inputs (either from internal reserves or from more remote parts of the environment) have stopped.

Given a bodily structure that is necessary to mediate a specific life process, that process of bodily life is subject only to functional control, and the proximal independent variables are the energy inputs to that body structure. Those energy inputs may be relatively minuscule and merely trigger the release of potential energy to support the life process, or the energy inputs may represent a larger part of the necessary energy for that body part to operate in way that endows it with an alive status.

The total body, considered as a structure, can *live* in the sense that (a) its structural subsystems are being maintained and (b) the interrelations among them continue to occur thus insuring the vital integrity of the body as a biological entity. Some aspects of those interrelations among bodily systems are supported by respondent kinds of behavior that directly affect only the internal economy of the organism (e.g., heartbeats, routine breathing, various endocrine functions, etc.). The evidence that such a *body* is alive need not include operant behavior that directly affects the external environment (i.e., the behaviors that characterize a *person*).

Thus, a body may remain biologically alive although it may lack the operant capacity as well as much of the respondent capacity to interact behaviorally with the outside environment (e.g., a deeply comatose individual). Such a body is biologically alive but person-dead. If, on the other hand, the structural capacity of the body for functional relations between the external environment and the body has been maintained, especially for operant kinds of responding, then the individual is prepared to interact behaviorally with its external environment in ways that define a *person*. However, if a behavior is not stimulated it does not occur even though the structure may be in place to support its manifestation. That is, behavior may fail to occur for lack of stimulation as well as for lack of the structure required for its occurrence. Person death for either kind of reason is therefore possible.

Person death that occurs merely for lack of stimulation implies the theoretical possibility of a special kind of dying. That idea has been exploited in theoretical proposals for a prison in which person-death is approximated through stimulus-starvation while body life is maintained. Procedurally, the external environment is contrived to be stimulus free, although the body is kept alive and maintained in a state that remains capable of reacting to its external environment (usually called a *conscious state*). However, in such a procedure of extreme preclusion, an external environment is created that minimizes behavior-producing energy transfers of any kind from environment to body. With the environment arranged to be as stimulus-free as possible, little if any behavior is elicited or evoked. In proportion to the extent to which the environment thus loses its definition, the behaviorally defined sociocultural *person* is precluded from manifesting as such, although the structural capacity of the body to do so is extant.

In one version, the body is suspended in darkness within a fluid having a temperature matched to that of the individual's body, while air that is at body temperature is silently supplied by tube to a face mask. The body is bound by soft restraints that gently prevent the movement of its parts relative to one another. Nutrients are

supplied intravenously, and waste is removed in similarly unstimulating ways.

Under such an arrangement, most of the behavior that defines the person cannot manifest for lack of the necessary stimulation. Some sequences of private verbal behavior may continue. However, without even occasional links to the outside, those private events would remain largely and indefinitely divorced from the reality of the external environment. That kind of isolation would leave such private neural behavior prone to the increasingly deviant forms that characterize bizarre hallucinations. For a time, this kind of person death retains the theoretical possibility of some degree of resurrection through a restoration of environmental stimulation, although unexercised body parts cannot indefinitely retain their respective capacities to mediate behavior.

The Abstract Person

The qualitative differential that inheres in the behaviorologically defined person (to which most everyone hews in proportion to the practicality of their specific situations) confronts people with the issue of the relative worth of any given person at any given time. Regardless of the validity of variance in the worth of a person, that concept tends to be fraught with disruptive implications for the kinds of social relations that have generally been conditioned within human culture.

While the powerful contingencies of practicality compel adherence behavior with respect to the relative worth of persons as behaviorologically defined, the avoidance of many troublesome social implications has been accomplished through the emergence of an abstract class into which all biologically alive human bodies are conceptually posited and declared by rule to be of equal worth. People refer to a member of that abstract class as a *person* or a *human being*, and laws are adopted that protect those abstract beings by granting them certain rights.

Practical contradictions are then handled through defined exceptions. Those whose conduct matches such a definition are transferred conceptually to an excepted class and thus rendered susceptible to treatment in an unpersonlike or inhumane way. For instance, a person whose social conduct is intolerable in certain specified ways may be categorized as a criminal, ... an abstract classification that, under the auspices of the state, qualifies the individual to be stored in a cage or killed according to the ritualized ceremony of execution. Another example features the maintenance of a live body that can no longer mediate a behavioral person and is very unlikely ever again to do so. The responsibility for that maintenance may be transferred legally to the management of a party who is entitled to terminate life support for the person-dead body under what is usually a combination of economic and social contingencies.

Such conceptual devices of exception and exclusion, and the sociocultural arrangements that follow as their implications, permit people to ignore the universal classification of abstract *person* or *human being* and instead to behave toward a specific individual in relation to the behavioral worth of that individual as dictated by practical contingencies. These sociocultural devices seemingly mitigate some of the troublesome intrinsic relativity in the behaviorally established worth of a person by creating a bifurcation of status. The individual remains a person or human being in the abstract while concurrently being consigned to a practical category to which specially contrived procedures are then exclusively applicable. Thus, at the moment that a jury announces a guilty verdict, the defendant may remain a human being in the abstract while undergoing an instantaneous change in practical social status. Under the umbrella of such a conceptual bifurcation of the abstract and the practical, people can continue to speak as if a convicted murderer retains an equal "personhood" (in the abstract) yet in the practical domain treat that individual as behaviorally threatening and worth relatively little. That treatment may involve prolonged isolation through incarceration or quick and permanent riddance through the infliction of extreme trauma.

In cases where less is at stake, informal conventions accomplish the same dichotomy between the abstraction of one's equal personhood and the realities of one's relative worth in practical situations. Given two applicants for the same occupational position, the relative worth of each individual's relevant behavioral repertoire is the criterion for selection. In such practical situations no one expects their equality, as endowed through their abstract personhood, to count for anything among the selection criteria, although it may be cited as the basis for any individual's opportunity to be considered for the position. Nevertheless, the exploitation of such an opportunity is by way of exhibiting the behaviors of self-presentation, and those behaviors are subject to evaluation in terms of relative worth. An allusion to that reality inheres in statements about a person making or not making a good first impression.....✻

References

- Fraley, L.E. (in press). *General Behaviorology: The Natural Science of Human Behavior*. Canton, NY: ABCs. ✻