

[Column 70 Set 2] Exploring More Mysteries of Living: Culturology Helps Study Cultural Evolution



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Why these Columns? Because human behavior causes global problems, and solving these problems requires changes in human behavior... So *everyone* benefits from knowing something about the natural science of human behavior that these columns describe. See the 72 columns of the first set, in the *Explaining Mysteries of Living* book or on **BehaviorInfo.com**, for the *basics* of this science.

This column expands the examination of cultural evolution. The expansion involves another level, a cultural level, of the life sciences.

For problems at the individual level, solutions reinforce the behaviors that produced them. Then the behaviors that solve problems serve as models for the behaviors of others that share the problems. That is, the occurrences of reinforcing solutions for some individuals function as evocative stimuli for the imitative solution behaviors of other individuals. When contingencies on the group make these solution practices become widespread across a group, they begin to affect the group *as a group*, often becoming socially institutionalized (e.g., *formal* education of individual group members).

Rather than depending mainly on the reinforcing consequences on individual group members, group benefits, including group survival, come to depend on the effects on the group, the group effects, that the group practices produce. These changes in group effects select changes in group practices, and this group-practices selection, or “cultural selection,” results in cultural evolution.

Considering *selection by consequences* across genetic, behavioral, and cultural levels helps us to appreciate its status as a fundamental and universal process. Understanding it this way helps us better deal with the world around us. At the behavioral level, past columns, along with the work of innumerable other natural science of behavior researchers, have shown this process at work in the conditioned behavior of other phyla as well as our own, including the inducing of the verbal behavior of languages.

At the cultural level, the process is at work in the conditioned behavior that accumulates as cultural practices, the practices that define cultures. At the biological level, we see the process all around us in speciation and extinction. And we understand the selection

process better as we build interdisciplinary connections with our physiology and other natural–science colleagues. This brings us to a look at the closest disciplinary overlaps among behaviorology and its neighbors.

Before looking at those overlaps, consider B. F. Skinner’s summary of the position of behavior in evolution and selection processes from page 55 of his 1987 book, *Upon Further Reflection*: “In summary, then, human behavior is the joint product of (1) the contingencies of survival responsible for the natural selection of the species and (2) the contingencies of reinforcement responsible for the repertoires acquired by its members, including (3) the special contingencies maintained by an evolved social environment. (Ultimately, of course, it is all a matter of natural selection, since operant conditioning is an evolved process, of which cultural practices are special applications.)”

That sets the stage for looking at disciplinary overlaps. Behaviorology is one of the foundation *life* sciences (along with biology) rather than one of the foundation physical sciences (such as physics or chemistry). The life sciences stretch across a continuum of analysis levels, from molecules to cultures. The sub–cellular and cellular levels of the organism reside at one end of this continuum. The level of individual organisms and their activities resides in the middle. And the level of groups or populations of organisms resides on the other end.

Names already exist for the sub–individual level, and individual level, of the life–science continuum, biology and behaviorology respectively. No name, however, has covered the behavior–oriented, natural–science, group or population level.

Sociology might have worked, but attempts to turn it into a natural science remain unsuccessful. One area of another contender, anthropology, contains a natural–science philosophy of science, namely the cultural materialism that Marvin Harris described in his 1979 book of the same name. However, no separate disciplinary name for a natural–science anthropology has yet arisen.

So, since 1986, my colleague Lawrence Fraley and I have been using the term *culturology* as a label to fill this gap. This label provides a conveniently short substitute for “anthropology informed by cultural materialism” although, in due time, natural–science anthropologists will likely provide their own name for their discipline. Stay tuned (or better yet, see the “Revisiting Culturology” paper in a later part of the book containing the first set of columns; see the reference).

Each of the three life–science disciplines studies functional relations at its own level of analysis. *Biology* studies the functional relations both in the history of species and in the physical and chemical processes of individuals from the sub–cellular parts to the whole organism. *Behaviorology* studies the functional relations between environments (both internal and external) and the behavior (both overt and covert) of individual organisms during their lifetimes. And *culturology* studies the functional relations in the behavior of social and cultural groups, particularly group–produced effects that can outlast the lifetimes of the individuals that make up the group.

Each of those disciplines, however, also overlaps somewhat with the others. Biologists and behaviorologists share interests in the physiological mechanisms through which the body mediates behavior, particularly purely neural behavior. Behaviorologists and culturologists, meanwhile, share interests in the operation of the laws of behavior

because, while the same laws apply at both levels, outcomes can differ due to the complexity increment that comes from dealing with groups of interacting individuals rather than with single individuals. Furthermore, some applied fields (i.e., an area where one applies a foundation science discipline) of interest to behaviorologists, such as solving global problems, reside as well, if not more so, in the province of culturologists. The figure illustrates the positions of these three disciplines along a life–science continuum.

