

**EXP
PSY**

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Submissions Welcome!

The Editors encourage submission of any announcements, and/or letters to the editors, regarding psychological science.

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President's Message

A True Master of "Change"

Ed Wasserman

He is a "Son of the South" in South Carolina, an evangelical pastor in Kansas, an economic populist in Michigan, and a "family values" advocate in California. Following the adage that "all politics is local," this presidential candidate adroitly adapts his campaign message to his current constituency as he crisscrosses the country in search of his party's coveted nomination.

Tailoring one's political pitch to the immediate concerns of the upcoming primary or caucus contest can be an effective strategy for electoral success, unless your opponent counterattacks and accuses you of blatant pandering: trying to be all things to all people.

PsychDrollery

(Humor from members and the internet)



<http://www.nearingzero.net/work.html>

Retrieved 4/1/2008

Beyond the intimidating intricacies of presidential politics, all animals—human and nonhuman—face daunting challenges in their imperative to survive and to reproduce. Complex and ever-changing contingencies truly separate the proverbial wheat from chaff.

Natural selection and selection by consequences are the two best-known ways in which an organism's behavior can promote adaptation (Skinner, 1981), although habituation and sensitization also enhance an organism's chances of survival.

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Natural selection

For some behaviors, the interaction between organism and environment has been shaped by a relatively stable world over countless generations. Those behaviors are highly typical of all species members and they are rather narrowly effective, being confined to the conditions under which the behaviors were selected.

Selection by consequences

Through Pavlovian and operant conditioning, individual organisms can adapt to the novel and peculiar circumstances that may confront them, thereby broadening the range of adaptive actions. Skinner deemed operant conditioning to represent a second kind of behavioral selection beyond natural selection. Here, the consequences of an individual animal's actions change the likelihood of those actions being repeated in that situation.

Design without a designer

In both natural selection and selection by consequences, there is apparent design without an intelligent designer. Variations arise, some are selected, and those selected variants are retained.

In natural selection, heritable variations exist within a population of organisms, natural contingencies of survival favor some over others, and those favored variants are more likely to survive and to reproduce. In operant conditioning, behavioral variants exist within an individual organism's response repertoire, some are followed by reinforcing consequences, and those reinforced variants are more likely to be performed again.

Both natural selection and selection by consequences suggest different forms of intelligence. But, interpretive hazards arise when spiritual and mental forces are imagined to be the intellect at work (Blumberg & Wasserman, 1995; Wasserman & Blumberg, 2006).

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Nature's quick-change artists

A report recently appeared in the New York Times (February 19, 2008) entitled, "Revealed: Secrets of the camouflage masters." In it, author Carl Zimmer, describes the fascinating research of Dr. Roger Hanlon (at the Marine Biological Laboratory in Woods Hole, MA) into the camouflage patterning of cuttlefish. These creatures are not fish at all, but marine mollusks. If Olympic medals were to be awarded in camouflage, then cuttlefish (and their close invertebrate cousins, octopus and squid) would surely garner the gold.

Unlike some animals whose fixed patterns of coloration closely match their customary surroundings, these animals are not "one-trick ponies." Cuttlefish can change their "smart" skin to match their milieu with a speed and diversity unequalled in the animal kingdom: some cuttlefish can display 30 to 50 different disguises within a quarter of a second!



Consider Hanlon's compelling characterization of the adaptation in further depth:

[The ability of cuttlefish] to change appropriately requires a visual system that can rapidly assess complex visual scenes and produce the motor output—the neurally controlled body patterns—that achieves camouflage. The body patterns themselves must be well designed and sophisticated enough to defeat the visual prowess of diverse predators. [With] their keen vision and sophisticated skin—with direct neural control for rapid change and fine-tuned optical diversity—they move where they wish and can adapt their body pattern for appropriate camouflage against a staggering array of visual backgrounds: colorful coral reefs, temperate rock reefs, kelp forests, sand or mud plains, seagrass beds, and others." (Hanlon, 2007, p. 400)

The selective pressure for this behavior is that soft-bodied cephalopods are preyed upon by nearly all of the major carnivores in the ocean.... Thus, camouflage is the primary defense of these unusual mollusks, and they deploy some form of camouflage most of the time when they are out foraging or seeking mates.” (Hanlon, 2007, p. 401)

The cuttlefish conundrum

So, here we have an individual organism quickly and adaptively changing its appearance in response to rapid changes in the environment; such flexible behavior to novel and peculiar circumstances might reasonably suggest selection by consequences. Yet, the selective pressure for this behavior—in the form of fierce predation by many different aquatic animals—suggests that its origins might best be understood in terms of natural selection. Can this camouflage behavior be both acquired and innate?

Learning and instinct

Resolving the cuttlefish conundrum will clearly require much greater study into the ontogeny of camouflage behavior, a task which seems altogether doable and which might effectively enlist the skills of both marine biologists and experimental psychologists. Elucidating the mystery of cuttlefish camouflage might also be a marvelous opportunity to take a fresh look at the intricate interplay of learning and instinct—experience and inheritance—in adaptive behavior (Blumberg, 2005). Lessons learned here may prove applicable to other persistent problems in experimental psychology, including the learning of language.

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