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Why would we ever doubt that species are intelligent?

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Intelligence is the apt application of information, technique, or structure to the situation of an individual. Intelligence is a teleonomic concept (Pittendrigh 1958; Thompson 1987a). To say that an individual is intelligent is to make a value judgment concerning the quality of the design of its behavior. We judge the intelligence of an individual by watching it apply its knowledge to the various situations it encounters. If it repeatedly applies the appropriate technique from its repertoire to each situation it encounters, we say its behavior is intelligent. Intelligent behavior is well-designed behavior.

Adaptation is the apt application of information, technique, or structure to the situation of a phyletic individual. Adaptation is also a teleonomic concept. To say that a phylum has adapted involves a value judgment about the quality of the responses of that phylum to the situations it has encountered. If a phylum repeatedly applies the appropriate technique from its repertoire of techniques to each situation it encounters, we say that it has adapted. Adapted behavior is also well-designed behavior (Thompson 1981; 1986).

Operationally speaking, our procedures for identifying intelligence in individuals and adaptation in phyla are precisely the same. If we eliminate the difference in time scale envisaged by the two concepts, they become indistinguishable. To see this, engage in the following thought experiments: Imagine an individual who made the kinds of adjustments in a daily time scale that we expect of adapted phyla in a geological time scale. Would we not call that individual's behavior intelligent? Further, imagine a phylum that made the kinds of adjustments in a geologic time scale that we expect of intelligent individuals in a daily time scale. Would we not call that phylum adapted? The answer to both questions is obviously yes.

If one grants the argument so far, and if one grants also that a belief in evolution entails a belief in adaptation, then it follows that belief in evolution entails a belief in the intelligence of species. Because I would assume that all readers of this journal believe in evolution, I cannot see how anybody could disagree with Schull's proposition.

The idea that phyla are intelligent is controversial is because many people still hold doctrines of causal mentalism and private access. Causal mentalism is the notion that behavior can be explained by reference to mental kinds (Thompson 1987b). We appeal to causal mentalism whenever we explain behavior by reference to thoughts, to feelings, or to attributes of persons such as intelligence. Because causal mentalism is a convention of every day speech, we are justly afraid that if we say that phyla are intelligent, somebody will soon assert that they adapt *because of their intelligence*. The hazard is a real one; circular reasoning is a frequent component of evolutionary and behavioral discourse (Lipton & Thompson 1988).

The doctrine of private access is the additional notion that individuals have privileged awareness of the mental kinds that cause their own behavior. We make use of the doctrine of private access whenever we claim to know our own actions in advance because we have direct knowledge of the thoughts, feelings, or personal attributes on which they are based. Because the doctrine of private access is a convention of everyday speech, we are afraid that if we say that phyla are intelligent, somebody will soon assert that phyla consciously weigh the alternatives before they take action. This hazard is also real, because the doctrine of private access still lies at the core of many behavioral scientists' approaches to their craft (Thompson 1987b).

That the truth may be misused by the unthinking is never a reason not to speak it, not at least in academic discourse. Schull is right. Species are intelligent. I only wish the target article had addressed more frankly the question of why the issue is controversial. Schull does so implicitly when he asserts that he does not mean that phyla are "sentient." In making this disclaimer, he seems to concede that although causal mentalism and private access have no role in explaining the intelligent behavior of phyla, they may have a role in explaining intelligent behavior in other entities. I think this tactical concession is unwise. What is most exciting about Schull's enterprise is the manner in which it challenges common dualistic assumptions about what sorts of entities can be properly described by reference to mental kinds. Any concession to *causal mentalism*, in general, and to the notion of private access, in particular, blunts that challenge.

Editorial commentary

We are, of course, free to use "intelligent" as we see fit: to so dub any activity of a person, creature, gadget, ant colony, or geological process that we regard as clever. We can even commit ourselves to objective necessary and sufficient conditions on processes and products that will dignify an activity as "intelligent" no matter who or what is performing it, so long as it meets those conditions. And we may be right to do so. We may be successfully picking out a natural kind that way, much as we pick out matter, energy, flight, or language. Or we may be wrong. After all, the primal intuition on which our notion of intelligence draws is subjective (and is hence wedded, for better or for worse, to the mind/body problem). We all know what it's like to *do* something intelligent because we each know what it's like to *be* intelligent. And, at bottom, when we deny *that* of a teacup, it has less to do with what we think a teacup can or cannot do than with what we think a teacup can or cannot be. It is a useful exercise, for example, to reflect on how intimately our primal intuition about intelligence is linked to our intuitions about who/what can or cannot have (something like) a toothache: Is a nation or a corporation or a species the kind of thing that can, like the compact symbiotic population of living cells we are, have a toothache? If not, is it really the kind of thing that can be intelligent?

Author's Response

Are species intelligent?: Not a yes or no question

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1. Introduction

Are species intelligent? I think it is clear from the diversity of positions represented in the commentaries that the question remains open. Although most of this Response is devoted to rebuttal and clarification, I was pleased that virtually all of the commentators used the target article as