

Class #19 - Behaviorism  
Skinner, from *Science and Human Behavior*  
Hempel, "The Logical Analysis of Psychology"  
Locke, "On the Inverted Spectrum"

## I. The Rise of Behaviorism

From the early seventeenth century through the nineteenth century, Cartesian dualism and the view of consciousness as definitive of the mental dominated philosophical thought about the mind.

The most influential philosopher of the eighteenth and nineteenth centuries, Immanuel Kant, agreed with Descartes that the ability to reason distinguished humans from other animals, that minds were different in kind from bodies, and that our understanding of ourselves must be rooted in our conscious experience.

Developments in the nineteenth and early twentieth centuries started to erode the Cartesian view.

Perhaps most saliently, the Cartesian, immaterialist view of persons (as minds or souls) was opposed by Darwin's work.

For the Cartesian, persons are markedly distinct from other animals by virtue of their distinct ability to reason.

Darwin's work evoked an understanding of human beings as no different in kind from other animals.

We have more advanced faculties than lower animals, but our ability to reason can be explained according to evolutionary principles.

By 1980s, there were at least four major alternatives to Cartesian dualism, and many minor variations.

Cartesian substance dualism is now mostly regarded as dead.

Latent Cartesian views about consciousness remain, but mostly in popular opinion, rather than in philosophical or scientific domains.

The most salient remaining question about which the Cartesian view remains vital concerns whether our first-person access to our mental states is somehow special or privileged.

We will return to that question at the end of our unit on mind.

The first sustained twentieth-century attack on Descartes's dualism came from a variety of sources which we can loosely group together as behaviorists.

Among the behaviorists were logical empiricists, psychological behaviorists, and linguistic philosophers.

The logical empiricists (e.g. Hempel) and the psychological behaviorists (e.g. Skinner) were united in their desire to dispense with metaphysical speculation in favor of concrete, observable scientific evidence.

The linguistic philosophers (e.g. Ryle and Wittgenstein) agreed with the logical empiricists and the psychological behaviorists that appeals to obscure internal processes were dispensable, and that we should explain behavior in terms of what is observable.

The discipline of psychology had declared its independence from philosophy in the late nineteenth century.

The methods of the early psychologists relied almost exclusively on introspection.

Freud, Adler, Jung, and William James all agree with the Cartesian view that we have privileged access to our mental states.

Such introspective psychologists believe that we can know about our own minds best by reflection and the only way to know about the minds of others is by their reports of their own mental states.

But the increasing importance of unconscious mental states to psychological explanation eroded the Cartesian notion that the essence of mental states is their consciousness.

Furthermore against the Cartesian view, pressures from empirical science led some psychologists to see

Cartesian substance dualism as untenably mysterious.

Gilbert Ryle derided the Cartesian view of the mind, which he calls the official theory, as of the ghost in the machine.

He calls unconscious mental states, “Channels tributary to the stream of consciousness.”

True, the evidence adduced recently by Freud seems to show that there exist channels tributary to this stream, which run hidden from their owner. People are actuated by impulses the existence of which they vigorously disavow; some of their thoughts differ from the thoughts which they acknowledge; and some of the actions which they think they will to perform they do not really will. They are thoroughly gulled by some of their own hypocrisies and they successfully ignore facts about their mental lives which on the official theory ought to be patent to them. Holders of the official theory tend, however, to maintain that anyhow in normal circumstances a person must be directly and authentically seized of the present state and workings of his own mind (Ryle, *The Concept of Mind*, p 14).

The existence of unconscious thought need not thoroughly devastate the Cartesian view of consciousness as the characteristic mark of the mental.

The introspective psychologist may maintain a focus on consciousness by noting that even unconscious mental states may eventually become conscious.

They are at least potentially conscious.

Further, the way that early psychologists tried to access unconscious mental states was through introspection.

More threatening to introspective psychology and its Cartesian roots is that there is no way to test or verify what some one says about their own mental states.

Memories may be largely reconstructed.

Our reports of our own conscious thoughts are highly influenced by suggestion and context.

Proper scientific treatment of mental states requires greater objectivity than the Cartesian view seems to allow.

Scientists demand observational access to data and replicability of phenomena.

The behaviorists, attempting to put psychology on proper scientific footing, thus had at least three complaints about the Cartesian theory of mind.

1. The problem of mind/body interaction
2. The usefulness of positing unconscious mental states
3. The lack of third-person observational access

## II. Hempel and Logical Empiricism

Hempel was a member of the Vienna Circle, a group of scientists and philosophers whose members became known as logical empiricists.

The logical empiricists were inspired by Wittgenstein’s early work, the *Tractatus Logico-Philosophicus*, as well as the nineteenth- and early-twentieth-century developments in logic from Frege and Russell.

The *Tractatus* promoted a program of constructing representations of the world out of basic facts using logical tools.

The logical empiricist’s project was developed in and around Vienna between WWI and WWII by philosophers such as Rudolph Carnap, Otto Neurath, Moritz Schlick, and Herbert Feigl.

Their group came to be known as the Vienna Circle.

There was a similar, though less-influential, Berlin Circle, centered around the physicist Hans Reichenbach.

The young A.J. Ayer visited Vienna from England and wrote about the movement he found there. His *Language, Truth, and Logic* became the primary source for logical empiricism for English-speaking philosophers, though most of the logical empiricist's central works eventually were translated into English.

Wittgenstein eventually disavowed the *Tractatus* and abandoned the logical empiricist movement, though the logical empiricists continued without him.

The culmination of the logical empiricist's project was Carnap's 1928 *The Logical Structure of the World* or *Aufbau*, which was not available in English until 1967.

Carnap had been a student of Frege's in Jena, Germany.

In the *Aufbau*, Carnap attempts to develop scientific theory, using the tools of logic, out of sense-data, or sense experiences.

Wittgenstein and the logical empiricists were responding in large part to Hegelian idealism, and speculative metaphysics generally, which had taken root in Europe after Kant.

They were intent on ridding philosophy of what they deemed to be pseudo-problems, pseudo-questions, meaningless language, and controversial epistemology.

Focused on science, the logical empiricists derided such concerns as:

- A. The meaning of life
- B. The existence (or non-existence) of God
- C. Whether the world was created, with all its historical remnants and memories, say, five minutes ago
- D. Why there is something rather than nothing
- E. Emergent evolutionary theory, and the *elan vital*
- F. Freudian psychology
- G. Marxist theories of history

The logical empiricists presented a verificationist theory of meaning inspired directly by Hume.

Hume believed that for a term to be meaningful, it had to stand for an idea in one's mind that could be traced back (in some sense) to an initial sense impression.

For Hume, terms like 'God' and 'soul' are meaningless because they correspond to no sense impression.

The verification theory says that for a sentence to be meaningful, it must be verifiable on the basis of observation.

Any sentence which is unverifiable, like any of the examples A-G above, is meaningless.

They have no hope of being verified.

Furthermore, the logical empiricists believed that the meaning of a statement consists in just the methods we use to verify the statement.

So, 'John has a toothache' means that John holds his mouth, and cries, and has swollen gums, etc.

It does not mean that there is some inner sensation, pain.

Note that the logical empiricists are concerned with the meaning of psychological terms.

The focus on language was a central element of most twentieth-century philosophy.

The logical empiricists and linguistic philosophers wondered what 'pain' means, rather than what pain is.

Instead of trying to determine the nature of mental states, or whether the mind is material, the logical empiricists thought that these questions were pseudo-questions.

By ascribing verifiable, behavioral meanings to sentences referring to mental states, the logical empiricists turned such sentences into legitimate scientific hypotheses.

But, they ignored or denigrated any introspective aspect of mental-state vocabulary.

### III. Behaviorism and Logical Empiricism

Logical empiricism was a broad philosophical movement, a collection of related views about all sorts of philosophical topics.

Regarding questions about minds and mental states, logical empiricists tended to favor the psychological approach of the behaviorists.

The behaviorist approach to psychology rejected introspection in favor of behavioral analysis.

The logical empiricists interpreted terms which referred to mental states as shorthand for behavior.

The psychological behaviorists worked to describe and predict behavior.

Thus, B.F. Skinner (Hamilton class of 1926) writes that behavior is a function of environmental history.

The practice of looking inside the organism for an explanation of behavior has tended to obscure the variables which are immediately available for a scientific analysis. These variables lie outside the organism, in its immediate environment and in its environmental history (Skinner 162b).

If we knew all of a person's antecedent experiences, Skinner claims, we could predict with certainty his or her behavior.

Since we can not know all of a person's antecedent experiences, we can only predict with probability.

Still, in theory all that we need to know to predict a person's behavior is what happens to that person, and not what his or her inner, mental life is like.

Thus, for both the logical empiricist and the behaviorist, psychology can be a legitimate science.

We can have observational access to people's minds, since mental states are just behaviors and we can watch people behaving.

We can test specific psychological hypotheses, since they are hypotheses about behavior.

Hempel distinguishes his logical behaviorism from psychological behaviorism.

Logical behaviorism is a claim about the logic of psychological statements, that they are verified in the same way as other physical statements.

Since statements about the phenomenal aspects of my mental states as revealed by introspection can not be verified, they have no meaning.

The psychological behaviorist similarly denies that internal mental states play any role in predicting and explaining behavior.

So far, the two theses appear to be the same.

The psychological behaviorist may say that the domain of research must be restricted to stimulus and response.

The logical behaviorist accounts for this restriction, which Hempel doesn't even want to call a restriction, by claiming that any statement which does not admit of verification is not a real statement.

I will proceed by ignoring the differences between the two positions.

Hempel agrees that what is left of psychology after introspection is eliminated according to verificationist principles is a physicalistic science.

Terms of psychology really just mean their behavioral manifestations.

Behavioral manifestations are physical.

So, psychology is a physical science.

#### IV. The Redundancy of Introspective Explanation

Hempel uses Neurath's analogy of a watch to argue that introspective explanations are eliminable.

The complicated statements that would describe the movements of the hands of a watch in relation to one another, and relatively to the stars, are ordinarily summed up in an assertion of the following form: "This watch runs well (runs badly, etc.)." The term "runs" is introduced here as an auxiliary defined expression which makes it possible to formulate briefly a relatively complicated system of statements. It would thus be absurd to say, for example, that the movement of the hands is only a "physical symptom" which reveals the presence of a running which is intrinsically incapable of being grasped by physical means, or to ask, if the watch should stop, what has become of the running of the watch (Hempel 169a-b).

When we say that a watch is running well, we use that statement as a shorthand for a much longer statement about the correspondence between the movement of the watch and the rotation of the Earth and its revolution around the sun.

Further, Hempel argues that when we use psychological terms, we use them as shorthand for complicated statements about people's behavior.

Just as we don't look for something called the running of the watch, of which its running is just a symptom, and we don't look for some ineffable basis for the temperature of a gas, we should not look for something ineffable inside us when we attribute mental states to ourselves.

Our mental states are just their physical manifestations.

Skinner considers causal explanations which refer to supposedly-internal mental states, like "He eats because he is hungry."

He calls this sentence a redundant explanation and denigrates other internal mental-state ascriptions as of abilities and habits.

A single set of facts is described by the two statements: "He eats" and "He is hungry." A single set of facts is described by the two statements: "He smokes a great deal" and "He has the smoking habit." A single set of facts is described by the two statements: "He plays well" and "He has musical ability." The practice of explaining one statement in terms of the other is dangerous because it suggests that we have found the cause and therefore need search no further. Moreover, such terms as "hunger," "habit," and "intelligence" convert what are essentially the properties of a process or relation into what appear to be things. Thus we are unprepared for the properties eventually to be discovered in the behavior itself and continue to look for something which may not exist (Skinner 162a-b).

It is not the case that a private inner state is a cause of a separate, observable action.

There is one set of facts with two different descriptions: an obscure, eliminable one which refers to unobservable internal processes and a scientifically-respectable one which refers to behaviors.

Skinner's claim is revolutionary, both exciting and contentious.

Against Skinner, in some cases, there do seem to be two states at issue.

First, there is a mental state of hunger.

Second, there is a physical state of the body desiring food.

Certainly, Descartes would posit two states.

Skinner's argument against there being two states is that reference to internal states is otiose.

It is obvious that the mind and the ideas, together with their special characteristics, are being invented on the spot to provide spurious explanations (Skinner 162a).

Skinner provides a range of examples of such spurious pseudo-explanations: absent-mindedness, confused ideas, nervous breakdowns, shell shock.

All of these examples posit an internal state to explain what seems to Skinner to lack a cause. Insofar as such explanations lack scientific, neurological basis, Skinner is right that they are spurious. Or, perhaps better, they seem unsubstantiated.

Additionally, parsimony is in the behaviorist's favor.

If we really could predict all of a person's behavior without reference to introspective mental states, then we could at least eliminate them from behavioral science.

Eliminating internal states would limit the scope of psychology, both as evidence and phenomena to be explained.

The question is whether the advantages in simplicity outweigh any potential losses in explanatory power.

A more-refined approach to the question of whether internal states are otiose might distinguish among Skinner's cases.

Absent-mindedness does seem to be non-explanatory, as Skinner claims.

Saying that I forgot to turn off the oven because I am absent-minded seems not to provide an explanation. In contrast consider, "She screamed because she was in pain," as a result of a piano falling on someone's foot.

The pain seems to be an essential element of the explanation.

If the piano, for some reason, did not cause any pain, there would be little reason for the screaming.

'Pain' and 'absent-mindedness' seem to be different kinds of terms.

'Pain' seems to refer to something really causally efficacious.

So, are inner states the causes of behavior (as the Cartesian claims) or identical to them (as the behaviorist claims)?

## V. Troubles for Behaviorism

The standard objections to behaviorism invoke mental states with no attendant observable behavior.

I can be in pain but not scream or wince.

Furthermore, often our overt behavior is the result of long causal chains of thoughts.

Jerry Fodor, whose work on functionalism we will consider next week, considers a chess player who quietly thinks about a range of possible moves before acting.

There is no overt behavior to distinguish among the distinct thoughts, to guide the train of thought.

A related worry comes from a thought experiment, [the inverted spectrum](#), constructed by John Locke.

Even if my inner images of colors were inverted relative to your mental images, we might have the same behaviors regarding those colors.

Still, there seems to be a difference between our mental states.

Skinner argues for behaviorism because observable behavior is available for scientific analysis.

But, if internal states were available for scientific analysis, then we might develop a scientific theory of introspective states.

Behaviorism would be under-motivated.

The question is how one could develop a scientific theory of consciousness.  
Such a theory could be pursued in two ways.  
We could examine brains and their states.  
Or, we could try to look at mental states directly.

Against the first suggestion, Skinner argues that detailed neurological information would be useless for a theory of behavior.

We do not have and may never have this sort of neurological information at the moment it is needed in order to predict a specific instance of behavior. It is even more unlikely that we shall be able to alter the nervous system directly in order to set up the antecedent conditions of a particular instance. The causes to be sought in the nervous system are, therefore, of limited usefulness in the prediction and control of specific behavior (Skinner 161a).

Skinner provides no evidence that neurological information is irrelevant to explanations of behavior. And the evidence seems to favor at least some neurological explanations. We can affect how people think and behave by stimulating different areas of their brains. For example, consider [transcranial magnetic stimulation](#) (TMS). By stimulating neurons, we can alleviate depression in some patients. That is, we can change people's mental states merely by massaging their brains. This seems like evidence that the workings of the brain are in some deep way related to our mental states. Of course, punching me in the gut will affect my mental states, as well. But, the brain seems to have a deeper causal connection with my mental states. Skinner's objection seems to be based on his pragmatic goals of predicting and manipulating behavior. Perhaps the philosopher's goal of understanding and explaining behavior would be more amenable to neurological analyses of mental states.

The second suggestion for a neuroscientific account of consciousness, looking directly at mental states by observing brains, would be even more damaging to Skinner. But it is not clear that this suggestion is even remotely plausible. When we look at brains, we see neural firings, not pains or beliefs. The hard problem of consciousness rears its head.

While advances in neuroscience have contributed to the implausibility of Skinner's denigration of brain states, some recent studies may be interpreted as supporting roughly-Skinnerian principles. [Benjamin Libet](#) has shown that our deliberations about some actions actual succeed (temporally) the physiological inception of those acts. Our thoughts about whether to do P or Q come after our bodies have already begun to do one or the other. Our internal decision procedures may be better viewed, at least in some cases, as rationalizations of actions we are already committing rather than decisions to act.

Some folks are skeptical of Libet's conclusions. There seem to be some difficulty measuring the relevant variables. But if Libet's claims turn out to be robust, some aspects of Skinnerian skepticism about internal processes could be vindicated.

## VI. Behaviorism and Dualism

Since behaviorism was developed to avoid dualism and its problem of interaction, it is interesting to note that the two theories are not inconsistent.

Skinner and Hempel wanted to form scientific theories of human behavior which eschewed appeal to the inner workings of the mind.

A dualist might be willing to accept their accounts of human behavior, while maintaining that mental states are real, nonetheless.

The behaviorist could have the domain of behavior, and the dualist can retain a mental life.

This would be a major concession on the part of the dualist, of course, since the dualist would be admitting that mental states play no causal role in behavior.

Still, as far as the psychological and logical behaviorist accounts are concerned, one could maintain at least an epiphenomenal account.

Epiphenomenalism says that there are irreducibly mental states, but they do not affect physical ones.

Physical states cause mental states but mental states do not return the favor.

On epiphenomenalism, which we will examine in a couple of weeks, there are mental states, but the direction of causation goes just from the physical to the mental.

Epiphenomenalism is thus a weak form of substance dualism.

Later behaviorists, especially Ryle, strove to eliminate the compatibility of behaviorism and dualism, using logical and linguistic tools.

Ryle argues that proponents of Cartesian dualism make a category mistake.

His idea is that mental states are just another way of looking at physical (behavioral) states, and not additional kinds of states.

In order to account for mental states which do not correlate with actual verifiable behavior, Ryle supplements the original behaviorist account by identifying mental states with dispositions to behave.

Pain, for the later behaviorist, is not an introspective state but the disposition to scream, cry, wince, etc.

The stoic who endures pain without showing it seems to be a counterexample to Skinner's early behaviorism.

But Ryle is able to accommodate some mental states which have no associated behavior.

If I have a disposition to scream and wince, then the behaviorist can ascribe to me the pain, even when I manifest no attached behavior.

The later behaviorist maintains that mental states are identified with at least some disposition to behave.

The dispositional theory maintains Skinner's denigration of causal explanations which refer to internal states.

I don't cry because I am sad; my sadness is my disposition to cry.

I don't say that the apple looks red because I see red; my seeing red just is my statement, and other related behaviors.

So even the later dispositional behaviorist is liable to objections from those who believe in mental causes.

If somebody speaks or acts in certain ways, it is natural to speak of this speech and action as the *expression* of his thought.

Even for the dispositional behaviorist, the question of why I scream when I am in pain remains without an internal account.

Furthermore, problems of inverted spectra cannot be solved by appeals to dispositions.

The materialists, or identity theorists, believe that they have a better alternative, one which relies on brains and their states.