WHAT IS METHODOLOGICAL BEHAVIORISM?

Methodological behaviorism is the prescriptive thesis that (a) psychological theories and explanations, as well as the concepts they deploy, should always be expressed in terms of publicly observable events, variables, and relations; because (b) science requires agreement; and (c) observables can be agreed upon. In other words, theories and explanations should not appeal directly to unobservable mental causes because they can’t be agreed upon. This thesis emerged during the first quarter of the 20th century. However, this thesis has been interpreted in several different ways in the last 100 years. We describe two ways in this summary.

INTERPRETATION #1 OF METHODOLOGICAL BEHAVIORISM

The first and original interpretation of methodological behaviorism was that psychologists should only describe relations between publicly observable stimuli and responses in an S-R model, and remain silent on everything else. Psychologists could even assume that mental causes existed, but that such causes should not be included in psychological theories and explanations. Anything directly about the mental should be dealt with by another discipline, such as philosophy or religion, but not science, which needed agreement through observability. Psychologists could further assume that explanations developed under Interpretation #1 would be scientifically satisfactory. This early interpretation still has some advocates, but it began to lose favor around 1930. By 1950 a second interpretation had largely replaced the first.

INTERPRETATION #2 OF METHODOLOGICAL BEHAVIORISM

The second interpretation was that psychologists could include unobservables in their theories and explanations after all, but only if those unobservables were designated as theoretical constructs and operationally defined in terms of observables. The operational definition specified the publicly observable factors entailed in the measurement of the construct. A construct might well be held to refer to some unobservable mental or cognitive phenomenon, but the operational definition in terms of observables made the construct scientifically legitimate because it could now be agreed upon. For example, the construct could be operationally defined in terms of (a) behavioral measures (e.g., taking reaction time to indicate the speed at which some cognitive process is said to operate) or (b) physiological measures (e.g., taking fMRI to indicate neural correlates of cognitive processes). In this way unobservables are included only indirectly, not directly, and the approach is taken to satisfy scientific concerns. The common method was to infer an O variable (“organismic”) inside the organism as a theoretical construct (synonyms are logical construct, theoretical term, hypothetical construct). The purpose of the construct was to mediate the relation between S and R. By mediate is meant that observable external stimuli activate or trigger one or more unobservable intervening or mediating structures that are causally connected in some complex but systematic way to an ensuing observable response. The result is that the subject is held to be in direct contact with only the mediating structure, not the observable external environment. A generic name for this approach is mediational S – O – R neobehaviorism. A mediational approach with operationally defined theoretical constructs is currently the most popular because it allows researchers and theorists to have their cake (mental causes) and eat it, too (have the approach be considered scientific because it designates the mental causes as O variables--operationally defined theoretical constructs; there can be agreement about these theoretical constructs because of the operational definition).
From the mid-1930s to the late 1940s psychologists debated a further matter in connection with Interpretation #2: Should the operational definition of the theoretical construct be regarded as exhaustive or partial? An exhaustive definition (i.e., the intervening variable interpretation) implies no surplus or other meaning to the construct beyond its current use or application. Because an exhaustive definition provides only a summary in a selected application, the construct is not assumed to refer to some variable that actually exists. In contrast, a partial definition (i.e., the hypothetical construct interpretation) admits surplus or other meaning beyond the current use or application. Because a partial definition provides for multiple uses or applications, here the construct may be assumed to refer to some variable that actually exists. If it did not, how could it have multiple applications? Since the late 1940s, psychologists have favored the hypothetical construct interpretation because it affords greater generality and flexibility in theory development, system building, and explanatory application.

Finally, a particular set of research and explanatory practices also developed in concert with Interpretation #2 of methodological behaviorism. According to these practices, the appropriate form of research was to propose either (a) S–O–R theories about mediating organismic variables (the “O” above), or (b) quantitative statements (e.g., models) about the relations between the variables under consideration. Predictions (i.e., deductions) of those theories are then tested under controlled conditions using various experimental groups according to a conventionally approved experimental design, with publicly observable independent and dependent variables, operationally defined theoretical terms, and so forth. The resulting data are evaluated using inferential statistics. Outcomes consistent with the predictions of the theories are taken to validate the theory about the O variable. Once validated, the theory is elevated to the status of a law. One form of this approach is called the “covering law” approach, and another is instantiation. Either is taken as an explanation of the event in question. Taken together, these practices are codified in courses in statistics, research methods, and experimental design in most college textbooks and curricula.

WHY DO SOME PSYCHOLOGISTS ADVOCATE METHODOLOGICAL BEHAVIORISM?

During the first quarter of the 20th century, the classic introspective approaches to psychology (e.g., structuralism, functionalism) came to be regarded as vague, ambiguous, unreliable, and generally ineffective because they talked of events, variables, and relations that were unobservable and couldn’t be agreed upon. For example, what did it mean to say a psychologist was investigating the “texture” of the “sensation of green”? Methodological behaviorism as represented in Interpretation #1 above arose in an attempt to resolve these concerns, by emphasizing publicly observable events, variables, and relations that could be agreed upon. After a few years, most psychologists came to think that the first interpretation was far too restrictive and not scientifically satisfactory after all—it couldn’t accommodate the richness and flexibility of behavior. Something more epistemologically sophisticated than the observables of an S–R model seemed to be necessary. After all, other sciences seemed to have advanced by postulating unobservables in the form of theoretical constructs. Shouldn’t psychology be allowed the same techniques?

Interpretation #2 came into favor when psychologists realized that new ideas about theory development based on operationism didn’t require the psychologists to remain silent on the mental after all. Including mental causes was judged to be scientifically legitimate and not to conflict with the thesis of methodological behaviorism if those causes were operationally defined in terms of observables. This indirect approach allowed psychologists to agree upon their meaning, and allowed for the entire enterprise to be considered scientific.
WHY DO RADICAL BEHAVIORISTS OPPOSE METHODOLOGICAL BEHAVIORISM?

Radical behaviorists agree that classical introspective approaches to psychology are a problem. Radical behaviorists also agree that attempts to reduce all forms of behavior to the S – R model are a problem. Nevertheless, radical behaviorists reject methodological behaviorism as a solution for either or usually both of two reasons. First, by denying or ignoring certain events inside the skin, both Interpretations #1 and #2 of methodological behaviorism fail to address an important aspect of human behavior, by failing to accept that those events can be fundamentally behavioral in nature and functionally related to environmental circumstances. There seems to be no good reason to rule these events out of consideration just because they are not accessible from the vantage point of a second observer.

Second, Interpretation #2 of methodological behaviorism implicitly accepts a mentalistic view of the behavior of both (a) a subject or participant and (b) a scientist. The behavior of a subject is attributed to the mediating O variables. The origin of the O variables lies in mentalism, which makes the entire enterprise little more than an institutionally disguised form of mentalism. The behavior of a scientist is similarly conceived of in mentalistic terms, by asserting that this is the scientifically respectable way scientists should deal with mental causes of behavior.

WHAT DO MENTAL TERMS MEAN?

The five categories in the table below suggest a way to understand terms commonly thought to be mental terms. The terms in columns 1-4 of the table reflect observations and extensions in the same domain that behavior takes place. As such, these terms help us to understand how behavior is related to environmental circumstances. However, the terms do not tacit causes of behavior. The causes of behavior are in the contingencies. In general, the terms reflect various features or aspects of the behavioral events that the contingencies generate. Let us now review these terms.

<table>
<thead>
<tr>
<th>Private behavioral events</th>
<th>Physiology</th>
<th>Behavioral dispositions</th>
<th>Behavioral relations</th>
<th>Explanatory fictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal reports</td>
<td>Gap within</td>
<td>Propositional attitudes</td>
<td>Attention</td>
<td>Folk psychology</td>
</tr>
<tr>
<td>Covert operants</td>
<td>Gap between</td>
<td>Intentional idiom</td>
<td>Discrimination</td>
<td>Language practices</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>Generalization</td>
<td>Inappropriate metaphors</td>
</tr>
</tbody>
</table>

- Terms in column 1 have a source of control in private behavioral events. These terms tacit verbal reports about internal sensations and feelings (e.g., statements about personal experiences involving pain, pleasure, anxiety) or covert operants (e.g., thinking, problem solving).
- Terms in column 2 have a source of control in physiology. These terms tacit physiological processes in the gaps either within a behavioral event (e.g., recruitment) or between behavioral events (e.g., consolidation).
- Terms in column 3 have a source of control in behavioral dispositions. These terms tacit the probability of a particular form of behavior in particular circumstances (e.g., propositional attitudes, the intentional idiom: belief, desire, intention).
- Terms in column 4 have a source of control in stimulus control relations. These terms tacit the influence of antecedent environmental circumstances on behavior (e.g., attention, discrimination, generalization).

The terms in column 5 may be traced more to irrelevant and extraneous social factors, such as
conforming to authority or uncritically accepting social conventions and culturally conditioned practices, than to the tact relation. Terms with these sources of control are simply explanatory fictions: supposed acts, states, mechanisms, processes, entities, and structures (e.g., encoding, representations, storage-retrieval) in a supposed domain (e.g., hypothetical, cognitive, mental, spiritual, psychic, or subjective) that differs from the behavioral domain. These terms come about largely through spurious echoic, textual, and intraverbal processes. These supposed acts, states, etc. are evident in folk psychology, our appeals to inappropriate metaphors, and follow from our linguistic practices, such as when we convert adjectives and adverbs into nouns and then assume the nouns then stand for causal acts, states, etc. that really exist in a nonbehavioral, mental domain. Terms with these sources of control are troublesome because they ultimately lead to the counterproductive practices called mentalism and methodological behaviorism. Skinner’s concept of the operational analysis of psychological terms is concerned with identifying the sources of control over the verbal behavior in question, so that we may decide whether the verbal behavior can contribute to an effective science of behavior.

SUMMARY

Ultimately, radical behaviorists argue that modern forms of methodological behaviorism are problematic on pragmatic grounds, just as are other forms of mentalism: Methodological behaviorism doesn’t engender prediction and control that are as effective as they need to be. Radical behaviorists argue that unfortunately, methodological behaviorism is the orthodox position in contemporary psychological theorizing. Operational definitions are very important for science, but for a different reason than found in methodological behaviorism. That is, they don’t make talk of the mental scientifically legitimate, as methodological behaviorists assume they do. Rather, operational definitions help identify the extent to which scientific operations and the resulting data, rather than social-cultural traditions, linguistic practices, and faulty metaphors, enter into the contingencies that govern our analytic and explanatory terms.