

## Behaviorism, Materialism and Functionalism

Churchland



## Strategy

- Churchland reviews several different views or theories on the nature of the mind and considers arguments for and against each.
- Ultimately, he advocates Eliminative Materialism

## Reductive Materialism

- **Reductive Materialism** (the identity theory): the view that mental states are brain states
  - Each type of mental state is one and the same thing as some type of physical state in the brain
  - Current neuroscience is not yet able to state what these type-type identities are, but the identity theorist is committed to this identity
    - Despite the lack of corroborating science, there are historical parallels that make such an identity plausible (e.g., heat, lightening, sound, etc.)

## Intertheoretic Reduction

- **Intertheoretic reduction**: the case where the propositions and predictions of one theory perfectly (or near perfectly) match the propositions and predictions of some older theory.
  - The new theory's principles have the same structure and explanatory power as the principles in the older theory and at the same time provide greater explanatory and predictive power than the older theory
  - Because the new theory explains everything the older theory does, then the newer theory is thought to describe reality accurately and provide a "more penetrating conceptual framework"

## Folk Psychology

- If neuroscience were to develop a theory that near perfectly matched the conceptual framework of folk psychology, then mental states would be successfully reduced to brain states
  - This mind-brain reduction would be similar to the reductions of heat to MMKE or light to electromagnetic radiation
- **Folk Psychology:** commonsense platitudes about the mind/mental that are used by the average person
  - Beliefs, desires, sensations, and other parts of one's mental life are included
  - Sometimes called commonsense or naive psychology

## First Argument For Identity Theory

1. We know that humans develop from genetically programmed cells (fertilized egg).
  2. From this fertilized egg, cell replication and growth continues along a path controlled by one's DNA.
  3. Growth process is a purely physical process.
  4. Behavior arises within this purely physical biological organism from internal operations and interactions with the environment.
  5. Neuroscience concerns itself with an organism's internal operations controlling behavior.
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6. Thus, the "correct account of human-behavior-and-its-causes must reside in the physical neurosciences."

## Second Argument For Identity Theory

1. Each type of animal has purely physical origins.
  2. Evolutionary biology provides an explanation of the behavior-controlling capacities of the brain and central nervous system.
  3. Thus, behavior has its origins in neural activity.
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4. Thus, the "correct account of human-behavior-and-its-causes must reside in the physical neurosciences."

## Third Argument For Identity Theory

1. All mental phenomena systematically depend on neural activity.
  2. Material reduction (identity theory) is the simplest explanation.
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3. Thus, the "correct account of human-behavior-and-its-causes must reside in the physical neurosciences."

## Fourth Argument For Identity Theory

1. Progress in neuroscience continues to reveal the relationship between the brain and behavior.
  2. There is good reason to think future research will continue to reveal the connection of the brain to behaviors.
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3. Thus, the "correct account of human-behavior-and-its-causes must reside in the physical neurosciences."

## Reservations about Identity Theory

- Churchland admits that these arguments provide a strong case for thinking that all behavior is physical in nature
- But, these arguments do not necessarily establish the identity theory
  - "It [the identity theory] claims that neuroscience will discover a taxonomy of neural states that stand in a one-to-one correspondence with the mental states of our common-sense taxonomy. Claims for intertheoretic identity will be justified only if such a match-up can be found. But nothing in the preceding arguments guarantees that the old and new frameworks will match up in this way even if the new framework is a roaring success at explaining and predicting our behavior." (288)

## Philosophical Behaviorism

- **Philosophical Behaviorism (PB)**: not a theory about the nature of mental states but a theory about how we talk about or analyze mental states
  - Talk about beliefs, desires, sensations and other mental states is shorthand for actual and potential patterns of behavior
  - PB claims that talk about mental states can be re-characterized into a statement about what behavioral outcomes would result given the person is in some observable situation

## Mental States are Dispositional Properties

- Dispositions are the capacity of one thing to be effected by another thing
  - Salt put in water dissolves.
  - If one were to put a match to a piece of paper, it would burn.
- "There is no point in worrying about the 'relation' between the mind and the body, on this view. To talk of Marie Curie's mind, for example, is not to talk about some 'thing' that she 'possesses'; it is to talk about certain of her extraordinary capacities and dispositions. The mind-body problem concludes the behaviorist, is a pseudo-problem." (285-86)

## Problems with Behaviorism

- PB ignored our internal mental states. A pain's internal expression was irrelevant. What mattered was the outward expression of pain.
- But, pains and other mental states have a distinctive inner characteristic, or qualia
- A theory of mind which ignores qualia seems inadequate
- Attempts to clarify the dispositional conditionals resulted in the introduction of mental states, exactly what was supposed to be unnecessary and unwanted

## Functionalism

- **Functionalism:** the view that any mental state can be defined by appeal to the causal relations existing between some environmental effects, internal mental states, and behaviors resulting from the first two.
- ISO functionalism is a way of talking about these causal relations in terms of **Inputs**, mental **States** and **Outputs**
- Pain: being stabbed causes an uncomfortable internal feeling which leads to distress and the desire to stop it which leads to some outward actions
- Functionalism is similar to Behaviorism except that the functionalist denies the possibility of providing a reductive definition of the mental without appealing to the causal influences of internal mental states and their role on behavior

## Improvements on Identity Theory

- Example of Silicon Man
  - Silicon Man is made of silicon and its brain would have a different chemistry and physical structure than our carbon-based physiology
  - At the same time, one could provide an ISO functionalist definition of Silicon Man
  - But, this means "there is no single type of physical state to which a given type of mental state must always correspond." (293)
    - There does not appear to be a one-to-one match between mental states and physical states. But this is what the identity theory is supposed to require.
    - Type-type identities are rejected while token-token identities are preserved

## Functionalism

- Because functionalism can explain the mental by appeal to the causal relations between inputs, mental states, and behavioral outputs, then it is not the physiological structures of the brain to which the mental needs to be reduced.
- Rather, a functionalist definition is a psychological theory that is independent from other sciences and their "engineering details"

## Problems with Functionalism

- Inverted Spectrum and Absent Qualia counterarguments

1. An essential aspect of some mental states is the qualitative feel of those states

2. Functionalism maintains the essential aspects of mental states to be a state's relational (causal) properties.

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3. Therefore, functionalism fails to capture all there is to mental states.

## Resolving the Problems

- Inverted spectrum response
  - We can type identify our visual sensation according to their functional role because our functional states have an inherent nature that makes it possible to introspectively identify those states
  - But, an inversion is possible without functional inversion because the inherent nature of the functional state is not essential to the type-identity of a particular mental state. (294-95)
- "But specific qualia are not essential to the type-identity of mental states, any more than black-on-orange stripes are essential the the type-identity of tigers." (295)

## Being Isomorphic

- What matters for the functionalist is that two physical systems (of two beings having two different qualitative experiences) are functionally isomorphic.
- If the two systems are functionally isomorphic, then they will make the same discriminations
- **Isomorphic:** having the same form and relations (causal)
- Qualia are the result of such functional systems, even though one may not be able to "see" another's qualia

## Functionalism and Identity Theory

- The defense of qualia leads functionalism closer to the identity theory
  - For example, while there is an identity of temperature with mean molecular kinetic energy, this is true only for things that have molecules
    - In solids, plasma, and vacuums, temperature is expressed differently
  - Temperature is multiply instantiated
- Similarly, one might argue that psychological states are multiply realized
  - Psychological reductions are "domain-specific"
  - Some psychological reductions will be more specific and narrow than what the identity theorist had originally intended
  - "And last, it suggests that functionalism is not so profoundly different from the identity theory as was first made out. . . ." (296)