

The Multiple Realizability Argument

Suppose in humans pain is correlated with C-fiber stimulations. Type Identity theory might say:

To be in a pain-state just is to be in a state where one's C-fibers are stimulated.

But what about mollusks, reptiles, etc. which may have radically different physiologies of pain? Also, consider a thought experiment:

We come across Martians who are roughly humanoid, and share a tremendous amount of their behavior and dispositions with humans. In particular, when you cut or otherwise "injure" these martians, they scream and exhibit other kinds of human pain behavior. But after a few years, we open up one of their heads and find that what is correlated with their cognitive life is not a brain but a network of impulses coursing through some blue goop. Do you think these Martians could still feel pain?

Some philosophers have concluded on the basis of these thought experiments that *the actual physical basis* of a mental state like being in pain (in our case: brain matter) is irrelevant, since that mental state can always have a *different* physical basis.

Philosophers say that a pain-state can be ***multiply realized*** in different physical bases.

This is a potential problem for (mind-brain) *type* identity theory: that theory identifies mental states with types of brain states which might not be 'shareable' by multiple species. It's not obviously a problem for *token* identity theory.

Functionalism

Picking out an object by its *functional role*:

- Mouse Trap: something which, upon the introduction of a mouse, changes its state to one which traps or kills the mouse.
- Valve: something which has a knob or button which, when toggled, switches between two states: one which allows a liquid or gas to pass through it, and other which blocks liquid or gas.
- Engine: A device which takes some form of fuel as input and, through various changes in its internal states, outputs mechanical power.

- (A) What makes an object one of these things (mouse trap, valve, engine) is *not* its internal constitution, but its *causal role*: how it takes inputs, changes its internal state, and generates outputs.
- (B) The "same" physical thing can play different causal roles depending on where it is situated. (e.g. what is a *lever* in one context might be a *supporting prop*, a *balance*, or a *conduit* in another)

Suggestion: maybe a *mind* is more like *an object singled out by its function*. It's not something that can be picked out by its constitution, but rather only by its causal role in a larger system.

A **functional state or property** is a state or property which an object has because of its causal role.

Functionalism: mental states are functional states.

This is sometimes put: "the mind is the software of the brain"

A **machine table**: list of states, and for each "input" how the state changes, and what output is given.

A Coke Vendor Machine Table

On input...	If in state...	...go to state...	...and output:
Nickel	State ₀	State ₅	nothing
	State ₅	State ₁₀	nothing
	State ₁₀	State ₀	coke
Dime	State ₀	State ₁₀	nothing
	State ₅	State ₀	coke
	State ₁₀	State ₀	coke & nickel

The machine table specifies a kind of "program" that could run on different "hardware".

Every program, no matter how complicated, can be put in this general form.

Extending this idea to the *mind*, for each mental state we would need to say:

- (1) How system responds to inputs when in that state. (sensory inputs)
- (2) How internal mental states affect each other. (other mental states)
- (3) What outputs the system gives in that state. (behavior)

E.g. Pain = the state...

...caused by bodily injury that...

...causes the belief that one is in pain and...

...makes pain behavior (screaming, retraction from source of injury, etc.) more likely.

Belief that there is ice cream in front of you = the state...

...generally caused by the presence of ice cream that...

...along with a desire for ice cream, leads to the intention to eat what is in front of you and...

...generates ice-cream-eating behavior.