Brain States Are All You Need

Ege Ersü

Department of Computer Engineering

Koc University

Istanbul, Turkey

`eersu16@ku.edu.tr`

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Abstract

This paper will revolve around two attacks. First, I will explain how Smart attacks dualism, proposing Identity Theory as an antidote. Second, I will explain how Putnam attacks Identity Theory, proposing Machine Functionalism as an antidote. I will attempt to give precise definitions of brain states and functional states in the process. My main objective will be to show that Putnam's critique of Identity Theory fails due to the brain state definition he seems to be operating with, but that his solution nevertheless contains valuable information for the Identity Theorist. Finally, I will show how Functionalism is compatible with dualism, whereas Identity Theory is not.

1 Smart's Identity Theory

Smart's defense of his version of Identity Theory is very straight-forward and does not have the aim of developing a nuanced empirical hypothesis. He proposes that the goal should be to give a full description of what is going on in a man, mentioning not just physical processes that are going within his body, but also his states of consciousness. Smart confesses that his main objective is to show that there is no argument for dualism that is both valid and sound; therefore, he takes the path of showing that states of consciousness such as sensations are also physical entities bound to physical laws. Smart does this by asserting sensations are just brain processes of a certain sort, and that there is a strict identity between the two. He also spends some time showing that he is not arguing that sensation statements and brain-process statements have the same logic or that they can be translated to one another or that they have the same meaning. For the purposes of this paper I will not comment on those claims but simply accept them. The main take-aways are that (1) reports of sensations are reports of brain processes due the proposed strict identity between the two and (2) sensations are not over and above brain processes. I believe these two are

sufficient to show that Smart's Identity Theory does not accommodate psychical things that are irreducible to physical things; making the theory incompatible with dualism.

2 Machine Functionalist Critique of Identity Theory

Who would object to such a clean ontology? Putnam does, by inviting us to consider a set of organisms with distinctive brain architectures: mammals, mollusks and reptiles. We start off with the assumption that all these organisms are capable of being in pain (I replaced feeling with being to make our life easier), which is all he needs to show us the contradiction. Once Smart reports that he is in pain, he thinks that a certain state of his brain, call it S1, at that very moment is (in the strict sense) pain. Since the assumption requires that lizards can also be in pain, Smart must also accept that whenever a lizard is in pain, its brain must be in state S1. If the lizard's brain architecture is such that it is not possible for its brain to be in state S1, Identity Theory collapses. It is also the case that if a possible extra-terrestrial organism was encountered whose brain was in state S1, but the organism showed no behavior that resembles pain behavior (e.g. it smiles), the Identity Theorist must still accept that the organism is in pain. But there is one additional step needed. Putnam wins if and only if he can show that there is a psychological predicate such that when it is true of two distinct organisms, it is impossible to find a brain state that both of their brains are in. But Putnam instead furtively uses the phrase "physical-chemical correlate" at the last step of his argument, which I think is a cheating move. A discussion of brain states is needed for me to make that point and also start motivating functional states.

3 Brain States

"Brain states are physical-chemical states of the brain" seems to be the definition both Smart and Putnam agree upon. Since a physical state roughly is a set of variables describing a physical system; a brain state could be as simple as the temperature of the brain and the total number of neurotransmitters, an arbitrary set of two variables. We can think of infinitely many physical systems that are in this state by simply keeping those two variables constant and adjusting a third variable (e.g. total mass of the brain). So, unless Putnam's brain states are states that fully specify the value of every possible variable out there, very different brains can be in the identical brain state; since only the specified variables must match and the rest could vary. Even if that's not what he means, one could always assign intervals to variables (e.g. the temperature of the brain is between 280K and 320K) or other sophisticated mathematical functions. The point is, either way, we can always come up with a sophisticated brain state specification that picks up only those brains that we wish to pick

up; in this case the ones that we think are in pain. I think this argument shows that Putnam's critique of Identity Theory does not give him the contradiction he needs. But still, the tricky part is deciding which organisms are in pain or not so that we can update our brain state specification such that it is true of a newly observed brain, if it is the brain of an organism that we think is in pain. Notice that the additional information (in pain or not in pain) cannot be inferred by looking at the brain, since that is already what we are trying to classify as in pain or not.

4   Functional States

After his critique of Identity Theory, Putnam introduces what he calls a functional state, evading the proposed contradiction he used against Identity Theorists. He claims that pain is not a brain state, but a functional state of an organism. He asserts that all organisms are probabilistic automata, and that a single automaton can be physically realized by different empirical systems. This way mammals, lizards and aliens can all be in pain despite the fact that their brain states are completely different. But the question remains: how do we know if an organism is in pain or not? For every possible combination of states and sets of sensory inputs, the machine table specifies transition probabilities for the next valid states and outputs of the system. By using this property, Putnam proposes that we can identify functional states on the basis of an organism's behavior. A thirsty mammal and a thirsty lizard would both show "unsatiated" behavior that is directed toward drinking. If two organisms show a similar behavioral pattern, one could conclude that they are also similar in functional organization. For Putnam, it does not necessitate a similarity in physical implementation.

5   Conclusions

Putnam is certainly motivated by the goal of finding psychological laws that are not species-specific; precise specifications of functional organizations that are necessary and sufficient for given psychological states. The Identity Theorist has a harder job, which is to adjust their species-independent brain state specifications such that whenever an organism is in a certain psychological state (e.g. pain or hunger), its brain will also be in the corresponding sophisticated brain state. Neither view proposes a robust criterion for identifying organisms that are pain, but the Identity Theorist could certainly accept Putnam's proposal of looking at behavioral patterns to determine which organisms are in pain or not; and still remain an Identity Theorist with no desire to discover hypothetical species-independent psychological laws. One could certainly argue that it is possible to model behavioral patterns and similarities without positing a separate kind of state.

Identity Theory is certainly incompatible with dualism, rejecting all psy-

chical things that are irreducible to physical things and the relations between them. That is not the case for functionalism. Putnam argues that a system that consists of a body and a soul can certainly be a probabilistic automaton, making it compatible with dualism. A literal interpretation of Putnam would also take machine tables, inputs and outputs to be non-physical things; giving ground for the argument that Functionalism must entail dualism.