

Functionalism¹

Philosophy of mind is a branch of metaphysics, and different theories in philosophy of mind disagree on metaphysical questions about *what* exists and its nature. Questions about what exists are questions about ontology. A central question in metaphysics of mind is ‘is the mind a substance?’ Can your mind exist on its own, independently, or is it dependent on something else in order to exist? In particular, is your mind dependent on your body, perhaps especially your brain, in order to exist at all?

The view that the mind and the body are separate substances is known as *substance dualism*. Substance dualism claims that there are two fundamental *kinds* of substance - mental and physical. The most common alternative to substance dualism is the view that there is only one kind of substance, the substance that is investigated by physics. Physicalism claims that the only substance that exists is physical, and all properties, including mental properties, depend upon physical properties (if they exist at all).

Dualist and physicalist theories, then, propose accounts of the mind in relation to claims about what exists. Functionalism argues that we can and should understand what the mind and mental states are without making any claims about what kinds of substance exist. It is a theory about the mind that is compatible with both physicalism and dualism.

Functionalism claims that mental states are ‘functional’ states. We will need to understand what a ‘function’ is in more detail, but as a first definition, functionalism is the view that each mental state consists of a disposition to behave in particular ways and to have certain other mental states, given certain inputs from the senses and certain other mental states. In other words, we can give an analysis of what mental states are in terms of their ‘inputs’ and ‘outputs’. The inputs are inputs from the senses and other mental states; the outputs are behaviour and other mental states. The complete description of the mental state’s outputs for each possible set of inputs, is the description of its *function*. It describes what the mental state does.

WHAT IS A FUNCTION?

Causal role functionalism

Most functionalists understand the relations between inputs, mental states and outputs causally. Any functional state can be described in terms of what typically causes it, and what it typically causes in turn. We will call this ‘causal role’ functionalism.

¹ This handout is based on material from Lacewing, M. (2017) *Philosophy for A Level: Metaphysics of God and Metaphysics of Mind* (London: Routledge), Ch. 3, pp. 266-74

There are many kinds of functional state - states that fulfil a functional role. For example, in biology, 'being an eye' can be understood in terms of functional role. There are lots of different types of eyes that work in different ways and have different physical properties - human eyes, fish eyes, fly eyes, etc. What makes them all eyes is what they do - convert light waves into neural signals to enable an organism to navigate its environment. In biochemistry, 'being a poison' is also a functional property. There are lots of different sorts of poisons that work in different ways and are made of different chemicals. But what makes them poisons is their harmful chemical effect on living creatures. In engineering, 'being a carburettor' is a functional property. A carburettor is that part of an internal combustion engine that mixes air and fuel. They can be different sizes and shapes and made out of different materials. And there are lots of other examples. In all these cases, we can define what something is - an eye, a poison, a carburettor - in terms of its causal functional role.

Functionalism argues that the same is true of mental states and properties. What it is to be a mental state is just to be a state with certain typical causal relations to stimuli, behaviour and other mental states. Different mental states differ in their typical inputs and outputs. For example, the typical causes and effects of pain are quite different from the typical causes and effects of a belief that snow is white.

A computational notion of function

In fact, functionalist theories began in the 1960s with a different notion of function, related to computers. On this view, the mind essentially works like a computer. Mental states can be compared to software - the instructions for how the machine operates.

In 'The nature of mental states', Hilary Putnam first explained what he meant by 'function' in terms of how simple computers work. The functioning of a computer can be described by a 'machine table'. As Ned Block explains in 'Troubles with functionalism', this is a long list of conditional statements of the form 'if the machine is in state S_1 and receives input I_1 , then it produces output O_1 and goes into state S_2 ', 'if the machine is in state S_1 and receive input I_2 , then it produces O_2 and goes into state S_3 ' and so on. For example, a drinks dispenser that sells drinks at 70p would have a machine table that includes 'if the machine is in state S_1 and receives input of 20p, it should output the message 'Insert 50p' and go into state S_2 '; 'if the machine is in state S_2 and receives input of 50p, it should output a drink and go into state S_1 '. The machine table lists every possible combination of state and input, and assigns each combination an output.

Machine tables describe the operations of software. And software can be implemented by different systems. For instance, Microsoft Word is a programme that runs on desktop computers, tablets and phones. These machines have different physical constructions, different hardware. But that doesn't matter, says functionalism. The 'states' referred to in machine tables are defined just in terms of inputs, outputs and other states. All that matters, then, is that the hardware - *whatever it is* - can perform the functions that the machine table describes.

Putnam claims that mental states are simply machine table states. Any mental state, such as being in pain or believing that Paris is the capital of France can be completely described by a set of states and range of inputs within the machine table. Anything that can receive those inputs and have the functional states described by the machine table has the relevant mental state.

FUNCTIONALISM AND MULTIPLE REALISABILITY

Inner states

Whether it understands functions in terms of causal roles or in terms of machine tables, functionalism claims that for something to have functional states, it must have a complex internal organisation. If a functional state is a state with a particular causal role, that causal role will need to be filled by an inner state of whatever possesses the function. For example, to fulfil its function, an eye has to have parts that enable it to convert light waves into nerve firings. Different types of eye have different parts, different structures, but they must all have *some* structure or they couldn't enable the creature to see. Or again, a machine that implements a machine table must have a number of distinct physical states that it moves between in response to various inputs and that produce distinct outputs. Again, we need not know what these inner states are, what they are made of, or exactly what mechanisms make them work as they do, but there must be inner states that match each of the functions described by the machine table.

This applies just as much to mental states, since mental states are functional state. For something - whether it is a machine or an animal or a human being - to have mental states, it must have a complex organisation of inner states that work in ways that fulfil the necessary functional roles. These inner states could be states of the brain, but they don't have to be. Things without brains could have mental states, as long as the relevant functions are performed by some part of them.

Functionalists say that the inner state 'realises' the function - it has that functional property. Using our earlier examples, for each eye, some arrangement of light-sensitive and other cells realises the functional property of being an eye; for each poison, some chemical state or other realises 'being a poison'. In each instance, the causal role that defines what it is to be an eye or a poison is played by some biological or biochemical state or other. What this is can vary from one case to another. The state will be whatever state fulfils the functional role. The nature of the inner state that realises the function isn't important.

The functionalist argues that each mental property, e.g. 'being in pain', is also a functional property. There may be lots of different states, e.g. different brain states, that have this functional property. The states can vary from one species to another. But as long as some state of the creature has the function that defines pain - given certain inputs, it causes certain outputs - then the creature is in pain.

Multiple realisability

Putnam argues that mental properties are not *identical* to physical properties because the *same* mental property can be related to or supervene on *different* physical properties. For example, the brain states that relate to pain may well be

different in different species, in humans and birds, say, but pain is the same mental state. If this is true, there are creatures who, when they are in pain, have different physical properties from us when we are in pain. Therefore, 'being in pain' cannot be exactly the same thing as having a particular physical property. This is the argument from 'multiple realisability'.

The term 'realise' here means 'to give actual form to' or 'to bring into reality'. For instance, we can talk of a design for a dress being beautifully realised in the final product. Similarly, in metaphysics, philosophers talk of one property 'realising' another. To say that a particular neurophysiological property 'realises' pain in human beings is to say what pain is, the form of existence it has, is given by that neurophysiological property.

According to functionalism, mental properties are multiply realisable because functional properties *in general* are multiply realisable. As we've seen, 'being an eye' is multiply realisable. What identifies the property 'being an eye' is a particular causal role. In humans, in fish, in flies, the occurrence of a particular arrangement of cells fulfils this causal role, and so has the functional property of being an eye.

Functionalism identifies mental properties not with the physical properties of brain states, but with what brain states can *do*. And what one brain state can do may be something that a different brain state, or even a state of something that isn't a brain, e.g. a computer, can also do. Things with very different states - different constitutions or internal organisation - can realise the same mental states as long as they are states with the same causal roles (or realise the same machine table). The nature of the state - biological, electronic, etc. - doesn't tell us anything essential about the mental state, which is purely a matter of functional role.

This also explains why functionalism is compatible with both dualism and physicalism. The metaphysical nature of the state that plays the functional role could be anything. Mental states are mental states in virtue of what they do, not in virtue of the nature of the *substances* or *properties* that realise those mental states. Mental states could be realised by physical states, e.g. of the brain, or they could be realised by states in a distinct mental substance, or they could be realised by a creature composed of both mental and physical substances. However, while functionalism is compatible with dualism, most functionalists are physicalists.

Functionalism is compatible with physicalism because functional properties in general supervene on physical properties. As we've seen, functional properties occur throughout science, e.g. being an eye. Once something has a certain internal complexity and organisation, and it can receive certain inputs and produce certain outputs, then it can have the functional property of being an eye. All this - its internal structure, inputs and outputs - can be described and explained in terms of its physical properties. Nothing more is needed. Its physical properties fix its functional properties. These functional properties are not themselves physical properties, according to functionalism, because there are lots of different ways in which eyes can be constituted physically. However, functional properties are properties which are realised by physical properties operating in causal

relationships. And what is true of 'being an eye', functionalism claims, is true of 'being a pain' or 'being a belief'. If physicalism is true, then it is a physical substance and its physical states, e.g. the physical states of a brain, that realise mental states.