

## **Is Functionalism An Alternative To Behaviourism?**

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**ABSTRACT:** *Behaviourism is a theory which emphasizes on behaviour and attempts to demystify mind. This theory outrightly denies the existence of mind as an independent substance and supposes that behaviour is out and out determined by the physical conditions of the body and its interaction with the environment. Functionalism on the other hand is a theory according to which all mental states are identified by the role they play in the system. As a material monist theory of mind functionalism asserts that everything is physical. In contemporary philosophy Functionalism is supposed by some thinkers to be a theory of mind developed largely as an alternative to Behaviourism. But on through analysis it could be shown that Behaviourism is not an alternative to Functionalism. Both the theories attempt to analyse the concept of mind and mental states in their own ways and sometimes it seems that one is alternative to other. Thus in my paper I shall try to delineate the theory of functionalism and its different forms and the point in which this theory is alike to behaviourism. I shall also highlight the points of differences between these two theories. And finally show the ground for which functionalism is not an alternative to behaviourism.*

**KEY WORDS:** *Behaviourism, Functionalism, Mental States, Turing Test, C-fibre stimulation.*

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### **I. INTRODUCTION**

According to functionalism, all mental states are identified by the role they play in the system; they are not identified with what they are made of. Particular type of mental states like thought, desire, pain etc. do not depend for its identity on its internal constitution, a mental state is dependent for its identity on the way it functions or on the role it plays in the cognitive system of which it is a part. The causal relations to sensory stimulations, other mental states and behaviour determine the identity of a mental state.

Consider, for example, pain. The functionalists will say that a particular pain may be caused by bodily injury. The sufferer experiences anxiety and desires to get rid of this state. If the sufferer lacks any stronger or conflicting desires to withhold the expression of pain, he will manifest wincing or moaning. This theory holds that all those who are capable of being in pain are creatures that have internal pain states only if they meet these conditions. Analysing this, the functionalists hold that these conditions are met by human beings as they possess some distinctive kinds of neural activity, e.g. C-fibre stimulation and therefore by undergoing C-fibre stimulation they can be in pain. Moreover, this theory also holds that other creatures having different physical constitution such as, let us suppose for the sake of argument, silicon-based states of hypothetical Martians or inorganic states of hypothetical androids provided they meet the said conditions. Pain is multiply realizable, that is, pain can be realised by different types of physical states in different kind of creatures.

Functionalism holds that without taking into account the underlying physical medium, e.g., the brain, neurons etc, mental states can be sufficiently explained as because mental states are nothing but the corresponding functional role. Only higher-level functions in the cognitive system are sufficient to explain mental states. Thus, according to this theory mental states can be realised in multiple ways as because these are not limited to particular medium. Theoretically these can be realised even in non-biological systems such as computers. Mental states may very well be compared with a valve. A valve is said to be so, so long as it performs its proper functions- controlling the flow of liquid through a tube by blocking and unblocking its pathways. It does not matter, whether it is made of plastic or metal or whatever material, so long it does the job of a valve said to do.

Here, one thing can be said that functionalism is compatible with dualism which believes mental states to cause, and be caused by physical states. As this theory does not impose any logical restriction on the nature of the item that satisfies the conditions, so it permits non-physical states to play the relevant roles, and thus realize mental states. Thus this theory is called by some philosophers as “topic-neutral” because it believes a state’s causal relations with stimulations, behaviour and with one another.

It is to be noted here that the term “Functionalism” is not used in any specific sense. This point is openly admitted by Ned Block. In his article ‘Introduction: What Is Functionalism?’ Ned Block begins with the lines-

“It is doubtful whether doctrines known as “functionalism” in fields as disparate as anthropology, literary criticism, psychology, and philosophy of psychology have anything in common but the name.”<sup>1</sup>

The term ‘Functionalism’ is used in very vaguely and in different ways and that is why the critics of this theory argued that the theories of mind advocated by Place, Smart and even Armstrong were at bottom functionalists. It is said that there is very much affinities between the word ‘functionalist’ and the word ‘function’ in mathematics. These affinities can also be extended to ‘function in biology. A function in mathematics is a set of ordered n-tuples. If the functionalist define mental states and processes as a set of stimulus –response pairs then this definition is likely to be ‘functional’ in mathematical sense. In biology one defines ‘eye’ by its function. Here ‘eye’ means human eyes and not other animal’s eye. Because eye of fly and eye of dogs are anatomically and physiologically very different from that of human’s eye. Thus the biological use of the term ‘function’ and functionalist use of the term ‘function’ probably have a closer connection. Both mental states and processes and their causal roles are identified by functionalism and neural states and processes possess the functional roles. But this fact is denied by an eminent neurophysiologist Sir John Eccles. According to him, all functional roles are not possessed by neural states and processes. So some thinkers equate functionalism with that of a black box not in the sense of black box of an aeroplane.

It is presumed that brain activity has causal link with inner mental state which enable to cause behaviour. But the black box theory of functionalism puts everything into the black box without explaining the details of the connections except explaining the mental concepts in terms of functional role. This theory does not put emphasis in knowing the mechanism that occurs inside the black box. But it is our natural curiosity to know the inner mechanism of the brain which black box theory fails to fulfil and there by intellectually this theory is unsatisfactory.

## II. ANTECEDENTS OF FUNCTIONALISM

Aristotle’s theory of soul can be considered as an ancestor of functionalism. Aristotle developed his theory of soul in contrast to Plato who claims an independent existence of soul from body. Against this view, Aristotle holds that human body is natural and organized one where soul is the ‘form’ of this organization. Soul is the function of the body, as sight is the function of the eye. So describing the nature of body Aristotle says that human body is a set of powers or capacities which is enabled to express its *essential what ness*. The soul comprises whatever capacities are required for a body to live, to perceive, to reason and to act. Thus, according to Aristotle, soul is not a thing that comes into a body and goes out of it. It is rather a function. Thus it is clear that the basic idea of functionalism is not a new one. Its seeds were there in Aristotle’s philosophy.

Another philosopher of 16<sup>th</sup> century named Thomas Hobbes may also be called an ancestor of contemporary functionalism. In describing the nature of reasoning Hobbes said that reasoning is a kind of computation which proceeds by mechanistic principles. He compares reasoning with the rules of arithmetic. In his famous book *Leviathan*, He says-

Reasoning is “nothing but reckoning, that is, adding and subtracting, of the consequences of general names agreed upon for the marking and signifying of our thoughts.”<sup>2</sup>

He also says that reasoning, imagining, sensing and deliberating about action can be performed by the systems of various physical types because all of these proceed according to mechanistic principles. In the introduction to *Leviathan*, he says that all automata have an artificial life. As an engine can move by its spring and wheels similarly, heart is constituted by its springs and nerves are constituted by so many strings and so many wheels together constitute the joints.

It is claimed that in the first part of 20<sup>th</sup> century functionalism was very much influenced by Turing’s work (Turing, 1950). Many theorists of that time explicitly invoked his work. In order to make the question that “can machine think?” accessible Turing’s proposal was that the question may be replaced by another question like - “Is it theoretically possible for a finite states of digital computer to provide responses to questions that would fool an unknowing interrogator into thinking it is a human being?” in other words “Is it theoretically possible for a finite states and appropriately programmed digital computer to pass the Turing Test?” Turing argues that this replacement of the question is a legitimate one and the answer is in affirmative. He also says that states of a system are defined solely by their roles in producing further internal states and verbal outputs. The suggestion is that the concept of intelligence should be understood and explicated in terms of functionality and computability. This view of Turing has been incorporated in contemporary functionalists’ theories. A class of theories also was inspired by Turing’s argument. The machine-state theory was initiated by Hilary Putnam.

In the early-to-mid 20<sup>th</sup> century behaviourism emerged to explain the mind-body relation. These behaviouristic theories are also important recent antecedents of functionalism. Contemporary analytic

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1. N. Block (Ed.) (1980), *Reading in the Philosophy of Psychology*, Vol. – 1, p-171.

2. Thomas Hobbes (1651), *Leviathan*, ch. – 5, p-28.

functionalist theories retained and elaborated the idea of behaviourism that the meaning of mental-state terms and concepts show an essential tie between mental states and their typical behavioural expressions. Thus behaviourism can rightly be recognised as an ancestor of functionalism.

### III. DIFFERENT TYPES OF FUNCTIONALISM

There are different versions of Functionalism. These are – Machine-State Functionalism, Psycho-functionalism and Analytic Functionalism.

#### 1.1 Machine-State Functionalism

Putnam in his early functionalists' theories advocated such a type. This version was actually developed as a reaction to Behaviourism. Behaviourism as a scientific psychological theory faces some difficulties and functionalism tries to overcome these difficulties. Behaviourism attempts to explain belief with the help of desire and desire with the help of belief. This is an apparent circularity in this theory. But functionalism answered this objection by analysing the terms 'beliefs' and 'desires' in terms of their causal relations.

Behaviourism also fails to explain causal relation between mental states and external behaviour. This objection is also mitigated by functionalism by defining mental states partly in terms of their capacity to cause external behaviour.

There are significant theories of mind known as "Computational Theories" which are rivals to behaviourism. Machine state functionalism endorses these computational theories. Putnam in his 'machine state functionalism' holds that all creatures that possess mind can be regarded as a 'Turing Machine'. Moreover, operation of the Turing machine can be specified fully by a set of instructions (a "machine table" or programme). Each of these machines has the form:

'If the machine is in state  $S_i$  and receives input  $I_j$ , it will go into state  $S_k$  and produce output  $O_l$ '<sup>3</sup> (for a finite number of states, inputs and outputs)

There are debates among functionalists on the question whether this sort of machine state operation is deterministic automaton or probabilistic automaton. Some thinkers describe this sort of machine state as the operation of a *deterministic* automaton, while Putnam's (1967) and others' view is that the proper model for the mind to be that of a *probabilistic* automaton.

It is true that for the early functionalist theories this Turing machines provided a fruitful model. But subsequently this theory has been losing its earlier importance. It is because of its equation of mental states with machine table states by the early functionalist. The machine table states are defined and understood in the context of the total states of a system. There are complex and distinct internal states that are realised in human subject with intentional properties. But this theory is unable to make functional characterisation of the realisation of these properties and thus as a model of mind it lost its initial appeal. But all these drawbacks of this theory do not mean that it has no utility in contemporary discussion. In spite of its weakness the rich and important idea that relations of input and output play crucial role in understanding internal states is the contribution of functionalism to philosophy of mind.

#### 1.2 Psycho-functionalism:

The second form of functionalism is known as Psycho-functionalism. This theory developed as a reaction to the behaviourist theories of mind in psychology and replaced this theory by the empirical cognitive model. Jerry Fodor and Zenon Pylyshyn are closely associated with this view. This theory regards psychology as an irreducible science. It also says that in describing the entities and properties of mind, we use different terms in our best psychological theories, but in terms of simple behavioural dispositions these terms cannot be redefined. This theory believes that like biological sciences, psychology also employs the same sort of irreducible teleological or purposive explanations. The biological sciences mention the different functions of internal organs of human beings, such as heart, kidney etc. For example, heart's function or role is to pump blood, that of kidney's is to filter this blood and to maintain certain chemical balances and so on. These functions are accounted for the purposes of the scientific explanation and taxonomy. This theory believes that for all of the mechanisms there may be an infinite variety of physical realization, but in the overall biological theory the important thing is only the role they play. In a similar manner the psycho functionalism says that the role of mental states, such as belief and desire, is determined by the functional or causal role that is designated for them in scientific psychological theory.

Thus the distinctive feature of psycho- functionalism is that mental states and processes are nothing but those entities or properties which are postulated by human behaviour's scientific explanation. By this it is clear that in the characterization of mental states and processes, one should not depend only on the information

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3. D. Chalmers (ed.) (2002), *Philosophy of Mind: Classical and Contemporary Readings*, P – 10.

derived from common language or common sense. He must also depend on the information derived from observation and experiment that are done carefully and available in our hands. For example, there are phenomena, such as depression from sadness or listlessness which the psycho functional theory might be able to distinguish. But it is very difficult to untangle the distinctive causes and effect of these syndromes solely by consulting intuition or appealing to common sense.

There are certain things, such as buyer's regret or hysteria which have no scientific evidence. The psycho functional theories refuse to characterize these as mental state although commonsense affirms the existence and efficacy of such states.

### **1.3 Analytic Functionalism**

The third form of functionalism is known as Analytic Functionalism which is concerned with the translation or analysis of our ordinary mental state terms or concepts. In this respect this theory is very similar to logical behaviourism. But yet analytic functionalism is different and has richer resources than latter as it admits causal relation of stimulation, behaviour and other mental states. According to this theory, the theoretical terms which are used in a particular theory are implicitly defined by that theory. For example, the terms 'belief', 'desire' or 'hunger' become meaningful when these are used in our commonsense "folk psychological" theories. These terms are analysed conceptually. Under the following form these can be expressed:

*"Mental state M is the state that is caused by P and causes Q.* For example, pain is caused by something, e.g., sitting on a tack. This pain also causes one to moan. Thus there is a causal role in such a chain that defines 'pain'.

In addition to these different types of functionalism Ned Block mentions another type of functionalism called Metaphysical functionalism. According to him, this type of functionalism deals with the question –what are mental state? This type does not concern with how mental states account for behaviour. In response to the question this theory says that mental states are functional states.

The different theories of functionalism are sometimes described as 'functional state identity theses'. The important question with which these theories deal is –'What is pain?' In other words their main concern is to find out the common features of pain by virtue of which all pains are called pain. It is to be mentioned here that metaphysical functionalism is not concerned with any particular pain or tokens rather this theory deals with mental state *types*. In explaining the common features of pain both metaphysical functionalism and physicalism differ. According to functionalism, it is function which is common in all pains but according to physicalism, it is physical. Similarly, the behaviourism says that it is behavioural. Thus one of the disagreements between functionalism and physicalism and behaviourism is that of metaphysical and not ontological. In describing the difference between functionalism and physicalism Ned Block says,

"Functionalism can be physicalist in allowing that all the entities (things, states, events, and so on) that exist are physical entities, denying only that what binds certain types of things together is a physical property".<sup>4</sup>

As a material monist theory of mind functionalism asserts that everything is physical. This theory is significant as it is both a response to and a development of behaviourism and at the same time it paved the way for empirical work in neuron-physiology and also for cognitive science. Behaviourism understands consciousness in terms of sensory input and behavioural output. Functionalism also believes such system but in addition to input/output they add 'function' as an intermediary step. To them, before any output, sensory input is processed by a function. Functionalism supposes that:

- 1) Inputs generate some functions in the system
- 2) Outputs of a function, either some or all, without any expressive behaviour, can form the input to another internal function.
- 3) One type of function can lead to one or many outputs.

The diversity of the mind can be theoretically accounted for with the help of this simple device. For example, a car receives multiple inputs in the form of oil, water, air etc. and it produces output in the form of motion, heat, gases etc. There is a process or function in between input and output. In this case the car's motion can be used to generate electricity which in turn also forms inputs to the combustion process.

In his introductory chapter of 'What Is Functionalism' Ned Block mentions that there are many functionalists who consider themselves to be descendants of behaviourists. Among them David Lewis, D.M. Armstrong and J. J. C. Smart are prominent. They attempted to define a mental state in terms of specified stimuli and potential behaviour. For example, there are a set of dispositions with which the desire for an object, say ice-cream cone might be identified. Other things being equal, it also includes the disposition to reach on

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4 . N. Block (ed.), (1980) , *Reading in the Philosophy and Psychology*, Vol. I, p – 172.

the spot where it is available and grasp an ice cream cone on condition that it is offered by someone. But emphasizing the phrase “other things being equal” the critics have declared that this phrase is behaviouristically illicit. Because according to them, with reference to *other mental state* it can only be filled in. These dispositions include the capacity to reach on the spot where it is available, other things being equal. Criticising this explanations the functionalists hold that the phrase “other things being equal” is behaviouristically illicit. Because according to them with reference to other mental states it can be filled in. The person who desire for an ice cream cone will be able to reach on the spot for it only on the condition that he knows very well that it is really an ice cream cone. Not only this, the person must also be sure that his taking of desired ice cream will not create any conflict with other desired objects which seem to be more important to him.

There are two major respects in which functionalism in all its forms differs from behaviourism. Firstly, mental states are defined by the behaviourism in terms of stimuli and responses. This theory does not consider mental states as the causes and the effects of the response and stimuli. Rather it takes mental states as ‘pure dispositions’. In this connection I may refer the view of Ryle who emphatically says that possession of dispositional property does not mean a particular state or a particular change. This fact is highlighted by him with the example that brittleness means breaking easily. In no way it means cause of breaking. In the same way it is said that to attribute pain to someone means what the person concerned would do in certain circumstances. In no way it attributes a cause or effect of anything.

Lewis in his paper (1966, p-166) narrates the features of functionalism which is in contrast to behaviourism. According to him, experiences are something real and as such these experiences are to be the effects of their occasions and at the same time causes of their manifestations. Armstrong also says that we speak or act not for fulfilling certain conditions that yet not fulfilled. He says that these are something which is currently going on and this fact is denied by Rylean behaviourism. It is for this reason Armstrong says that Rylean behaviourism is unsatisfactory.

Another difference between functionalism and behaviourism is mentioned by Ned Block. According to him, in describing ‘pain’ behaviourist emphasizes on the connection between stimuli and responses. But in addition to just connection between pain and its stimuli and responses, functionalism emphasizes its connection to other mental states.

But in spite of their differences, in spirit both the theories are not far from each other. In explaining their proximity Shoemaker says, “On one construal of it, functionalism in the philosophy of mind is the doctrine that mental, or psychological, terms are, in principle, eliminable in a certain way.”<sup>5</sup>

#### IV. CONCLUSION

Both behaviourism and functionalism are materialistic theory. Both these theories attempt to explain mental phenomena in their own way and in this analysis both come in close relation. but in spite of their close affinity there are differences between these two. It can be said that behaviourism is crudest form of materialism where as functionalism is more refined. There are different objections that have been faced by the theory of behaviourism are met by the theory of functionalism. From this I can say that functionalism is not an alternative to Behaviourism. Rather I can say that both the theory of behaviourism and the theory of functionalism are closed to each other in explaining the nature of mind as both these theories belong to same ism, i.e., materialism.

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