

Contemporary Issues in Philosophy of Mind and Cognition

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Lecture No. # 18

Representation - II

In the last class, I was discussing about Representations, a special relation to Fodor representation and how Fodor is explaining a representations theory of mind. I have already shown you from the points of which I will be discussing in this topic and let us see this PPT.

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Contemporary Issues in Philosophy of Mind & Cognition

Representations

- (i) Representational Theory of Mind**
- (ii) Hypothesis of Language of Thought & Semantic Engine**
- (iii) Computational Theory of Mind**
- (iv) Propositional Attitudes**
- (v) Computational Representational Theory of Mind**
- (vi) Intentional Realism**



NPTEL

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A representation of theory of mind, hypothesis language of thought and semantic engines, computational theory of mind, propositional attitudes, computational representational theory of mind and intentional realism. And in this, I have explained about the representational theory of mind and then, how this representational theory of mind is related to hypothesis of language of thought and semantic engines. Then today, I will be discussing about the computational theory of mind, which is very important to

know about the representational theory of mind, because this computational theory of mind plays vital role in Fodorian concept of mind. And Fodor has explained mind not only in terms of mechanistic, but also in the non-mechanistic way it shows because, it is a dilemma in Fodorian concept of mind that will be very clearly if we go through all these things.

As we have seen in the last few lectures that, computational theory of mind maintains that the mental processes are computational processes, the theory of computation **has been** has become more popular after the publications of Alan Turing famous article on computing and intelligence. And this thesis explains the how the machine is functioning in a mechanistic way, the possibility of mechanistic a mind.

The Turing thesis maintains that machines have been intelligence and this intelligence capacity can find from the **the** mechanical devices and Turing thesis is said to be a programming abstract symbolism. In other words, if you see a Turing machine can perform symbol manipulations, the symbols appearing of the machines are read by its scanner and are altered by its printer in accordance with a set of rule, let down in the a program, the machine operates the program. The various formulas have their formal roles in virtue of their syntactic properties and not due to their semantic contents that is to say that a Turing machine does not have semantic contents.

Turing said, the reader must accept, it has a fact that, the digital computers can be constructed and indeed has been constructed according to the principles, we have a described and that they can in fact, meaning the action of **of** a human computer very closely, but if you see according to Jerry Fodor, machine operations are operations on symbols on semantically interpreted objects. Thus, it is entirely possible that, the machine could operate differently upon symbols, according to the formal rules without bringing in the semantic content of the symbols.

The computational theory of a mind argues that, mental states are identical with functional or a computational states and that mental processes are those operates specified by the machine table, that adequately describes mental functions. And if you see this means that, the mental states and processes are analogues to the states and operations of Turing machines, unlike a Turing machines that specifies, all that formal specifiable, symbol manipulations. The mind too is a symbol manipulating device

according to computational thesis of mind, the way even if Turing explains and that it too says that, the mind is a software for which the brain is a hardware and both the systems performs a computations and the symbols in their uniquely specified ways, both are devoid of semantic properties, but moreover both sets of symbols should be semantically interpreted.

And it is due to the semantic interpretations of the formula of the program that we can say that, the machine operates or rule governed and meaningful, similarly because the symbols upon which a computational operations are performed, are semantically interpreted, the operations of a computer are described in intentional idioms, insert the semantic interpretations help us to understand the computer as a semantic engines.

As we have seen in the last sections, semantic engines are possible in effect given an interpretation of formal systems with true axioms and truth preserving rules. The semantics of the formal systems will take care of itself, that is if you take care of syntax, the semantic will take care of itself, right kind of formal systems, interpretations, a machine can handle meaning, if we are not interpreting in the right way, then machine cannot handle the meaning, this basic insight is the underlying theory of cognitive science and artificial intelligence.

The argument that, the computational theory of mind is posing that, mental processes are computational in a Turing machine that establishes the legitimacy of the program of the artificial intelligence. Computational processes are both formal and symbolic, they are symbolic, because they are performed on symbols; similarly the mental processes are operations on some kind of symbols like object in virtue of inform or roughly, the syntax of the symbols. In this connection, it would be relevant to understand the structure of the proposition attitudes and how they can be computationally analyzed, the mental representations including the propositional attitudes, constitutes the (()) of the computational and the representational theory of mind.

Let us see the propositional attitudes; because, it is very necessary to explain, to understand the computational theory of mind, how this semantic is possible and if you take care of syntax, a semantic is possible. As you know generally, propositional attitudes are the attitudes towards propositions. In our day to day life, we have been struggling with our mental processes, the conception of mentality (()) with the notions

like, belief, desire, intentions, hope and etcetera, many other things like intentional attitudes.

These attitudes are identified by their propositional contents. For example, a belief that, snow is white is identified by the proposition that, snow is white; on the other hand, propositional attitudes are pervasive in our descriptive, explanatory and justificatory practices, but in this sections we shall see that, propositional attitudes are relations between organism and the external environment. Before analyzing the above point, now we have to clarify the relationship between intentionality and propositional attitudes; intentionality, you have to go back to Searlean concept of intentionality.

According to John Searle, intentionality is the property of many mental states and events by which they are directed at or about or of object and state of affairs in the world, this will be very clearer, if we go through this example, if I have a belief, it must be a belief that search and search is the case, if I have a fear, it must be a fear of something or that something will occur. Similarly, if I have a desire it must be a desire to do something, the ever grammar of intentionality shows that, the propositional attitudes are intentional; it might be a called grammatical form of intentionality. According to Fodor, propositional attitudes should be analyzed as relations.

For examples, the verb in a sentence like John believes it is raining, expresses relations, a relation between John and something else and a token of that sentence is true, if Johns stand in the belief relation to that thing. Johns believes it is raining is true in virtue of belief making relation between John and token of it is raining, and it is the complement of a belief ascribable that determines which internal formula is involved in it's truth conditions, that is in effect, it is raining, John believes it is raining, a functions as an index which fix out of it is raining, otherwise it is not.

For example, elephants have wings; that means, a Johns believes is only about it is raining, not it is about elephants have wings; therefore, Fodor has been trying to say that, as you have seen, every kind of mental capacities are productivity and systematic and here it is systematic and productive also. Fodor says that, this kind of systems is internal representational, which constitutes a language, that constitutes a language becomes a computational and that language is according to Fodor is a kind of code language, this code language especially has a syntax and a semantic that is specifying the language

involves saying that, what the properties are in virtue of which formula are well formed and what relations obtained between the formula and things in the world, this is kind of relationship there in the case of computational theory of mind.

We do not have the idea about the semantic, still the semantic is a taking care of itself, this is also a specifying the semantic for the intentional realism systems by saying that, some of its formula expresses in the propositions. Whenever we express the propositions, there semanticity is there, and if you do say, then we can make sense of the notion that proposition activities or relations to propositions. Therefore, they are mediator relations to propositions with internal representations doing the mediating.

But, on the other hand, folk psychology says that, the proposition attitudes like belief, desires, etcetera, that are real and that are part of the mental world of the human beings. Fodor, depends on folk psychology against anti folk psychologist like, Dennett and Church land and also connectionist model of mind and all of them are maintained that, the belief, the desire psychology is described as the human mind describable as the human mind is nothing but the brain. One of the connectionist model of mind, connectionist like **lambda m church land (())** who state that, mental states are identified with the brain state and so, if our mental states are in some sense identical with those states, then we have no region to be proved a materialism, but here church land holds that, folk psychology which displace proportional attitudes is similar with Mathematical, Physics, which display numerical attitudes.

For example, in folk psychology x pairs that p then, x digits that, not p . Dennett argues that, we can attribute internal functional states to human, not on the basis of any new psychological knowledge, which ordinarily people do not have, but on the basis of observation of have that persons behave in the light of what she or he perceives in his or her environment.

Dennett's puts it in **in** different way, but he says that, this behavioral output we project upon the certain functional way, the way every day our psychological explanations operates, and therefore, from the church land and Dennett thesis, it can be said that attribute in the **a** head functions neither as a result of certain referring to a real internal or intervening in the processes **a** rather we make such attributes as a result of guessing, what part when speaking in a special intentional functions way.

The brain and central nervous systems would have played in the complex products. So, line of perception inputs, central processing and behavioral outputs, if where and intentional engine and this intentional descriptions can be same to be expression of a particular sort of attitudes or stands, which the humans have to ask other humans and animals, Dennett's explanation is like this he said that, behavioral can be at least some times explained and predicate by relying on (()) of the systems of beliefs and desires like intention hopes and fear, etcetera and he calls such systems and predications intention extensions and predications in virtue of the intension of the idioms of believe and desire.

In general, one can take off the intentional stands in order to explain and predict and so plan to take an actions, but we should be clear that Dennett's view differ from Fodor, as Dennett's make it clear that, differentiation of integration systems, Dennett has given that this intentional systems really have belief, desire about that one can explain and predicate their behavior by ascribing believes and desires to them.

Here Dennett's finds out that, there are others stands beside the intentional stands, which we take of two things. For example, we might consider a machine from the point of view of its design and that is, he might take of the designs stand here, that the designs is that because of the particular design we can call it a designs stand and like that, there is a intention stands also there, according to Dennett.

If you want know exactly, how a computer or a machine each designed, one can predict it is it is designed to response any more one makes by following the professional instruction of the program. For example, if you see this example that will be very clear, the radio engineers are varying the diagrams have symbols for each resistor and capacity resistors, capacitor, transistor and etcetera, each it has to perform an (()) here is is can give the design stands predications which are generated by assuming that, each elements performs it's task. The essential feature of a designs stands is that, we make predications slowly from knowledge or assumptions about the symbols functional designs in functional designs, irrespective of the physical concession of the particular object.

Therefore, here there is a physical objects are there, therefore, Dennett call it is a physical stands and design stands then, physical stands and these attitudes or stands is to consider something only in so far as it is, made of certain material or certain type of metal which have certain properties to take of the physical stands or to human is to

investigate their psychology or at a more basic level; their physical level or chemistry and however, on the other hand, the core of a restricts account of intelligent lives in each account of the human brain and its perceptual organs as an information processing systems, which in terms is based on intentional theory **depends** developed by the cognitive theories.

And this information processing account of power mental life is purely physio listing in nature, because for **for** distinct accounts of intentionality of mental function is materialistic, the intentional processing input mechanism is called the **sense**, senses and by creating the brain as an information processor, we can build up an account of intentional state such as knowledge, and a belief, from here **(())** suggesting is that human perception and cognitive system is based on the transformation of information for analysis of the digital form and it is the successful conversation of information into digital form, that constitute the essence of cognitive activities.

Now, we have to find out, how physical structure which carry information in analog form, can be transformed into the physical structure; that carry information into digital form. So that, this digitalized information becomes a true semantic content and, so able to give the content of some mental act such as, a belief. For example, humans occur the correct concept of a red by seeing to red objects and that is by having his or her visual perception stimulated, by red objects.

Internally, some structures will be select on the analogues register in structure for red, simulation of the visual systems, if the persons concerned is also exposed to a good number of things, which are not red, such structures become one which has semantic content and so on which, is representing a utilizable concept of red to the person, which brain contain structures only when this structures has been made precise and determined. In this way it can be shown that, the semantic content has nothing to do with their behavioral output of the systems. Now, when this semantic content is utilized, so as to guide behavioral is employed as a map by which the person, whose head contains this semantics structures finds this way about the world.

And here, the semanticity relationship either and this semantic content becomes belief in so far as used as maps or represented to guide output of behavior therefore, semantic content becomes a cognitive content with when it gains a functional role and these

propositional attitudes can be defined in this way. So, therefore, there is a **a** computational model of mind and then, Fodor is combining both this computational theory of mind and representational theory of mind in order to explain, you have to build a the gap between syntax and semantics.

Let us see, this computational representational theory of mind, Fodor has adopted the computational representational theory of mind and this theory is unlike the non-computational versions of representational theory of mind, this C R T M Computational Representational Theory of Mind makes a strong assumptions about mental processes; mental processes are computational processes and therefore, the formal operations is defined over symbols according to C R T M and consequently, the computational representational theory is a based on two important assumptions; the first one is, the language of thought and the second one is, the psychological explanation, which is both intentional and nomological that is to say that, it inverse **(())** like a generalization which refers to or quantify over the content of the propositional attitudes, Jacob called as the unique intentional character of mental causations.

According to Dennett, mental representations are not only constructed realistically, but only as a sort of useful predictive psychological calculus and possibly **(())**of thoughts **s** are simply attempts to explain behavior in the phase of massive ignorance of the internal dynamics. For example, a small child may speak grammatical correct English and we may say **of our** that, she knows that corn is a noun; however, for this it would be the import that the child actually deploys a mental representations and representation that itself literally means that, a corn is a noun, but it could be said that, some specific cognitive architecture is installed in the child brain, because of which seem implicitly knows corn within the quote to be a noun, not that she manipulate any representations explicitly representing corn is a noun.

The child knowledge is perhaps best viewed as simply a state **(())** to any cognitive architectures, and on the other hand, if you see, like for a representationalist, not only thought **(())** do points to specific mental representations, but also those that, do not nevertheless and depend upon this, that do strictly that do, strictly speaking in the child does not think like the corn is noun, because it does not have any idea about the **the** noun and also although in the case of verb also, rather see literally think that it is permissible to attempt please pass the corn, not please corn the plate and here, his making this

decision in the literally way, a representationalist will hold that the child's way with corn is the result of our processing specific mental representations in a certain way. According to Fodor, the computational representational theory of mind or C R T M; provides two fold way of type, individuated mental, state that is the mental states can be individuated either on the basis of the kind of the computational relations they have or on the basis of content of the representations.

Here, the belief is that, the snow is white is differentiated from the belief that, snow is black, on the basis of differentiation in the content of string of symbols and express and that express the corresponding prepositions, it has correspond relationship with the fact whatever we say, because if it is not corresponding that may not to be the ideal of explanations. Similarly, the belief is that snow is white differentiated from the doubt that the snow is black and the account of differences in syntactically or computationally relations.

But, if you see according to this computational representational theory of mind, we will throw light on the three questions, which are inter related with each other; the first questions is, how can complex propositional attitudes have complex semantic properties on the basis of simple semantic properties of the consequents, the second question is how can the propositional attitudes generate other propositional attitudes, thirdly how can propositional attitudes be involved in the production of intentional behavior. If we think, one individuals language of thought, on the model of a digital computers machine language, then the computer model of mind promises to provide an answer to these questions. It can explains, how the semantic properties are assigned to the propositional attitudes and also have causal properties as ascribed to **to** them.

In the language of thought, as you have seen, there are two ingredients namely; semantic ingredients and syntactic ingredients. Thus, this language of thoughts provides with the reasonable explanation of the compositionality of semantic properties of an individual's propositional attitudes constitute with the assumption of intentional realism.

And the propositional theory reduces the semantic properties of an individual property attitude to the semantic properties of mental representations, that is later reduces in the semantic properties of symbols in the language of thought; it is a kind of machine language.

As you have seen, for the computational theory of mind, the mental states causally interact among themselves and produce over behavior just by virtue of the internal representations and this means that, for the type of individuals of an mental states, the form of the internal representations has to be taken into account. Fodor argument is that, we do not have to bother about the content of mental state as such, because the formal aspect of the mental representation execute to them by again he says that, if the mental process are formal, then they have access only to the formal properties of such as, representations of the environment as the senses provided to it. Hence, they have no access to the semantic properties of such as, representation including properties of being to having a referent or indeed and the property of being representation of the environment.

The idea that, the content of **of** a mental state can be reconstructed as an aspect of its forms that is, that mental states have different content only if they are relation to formal distinct mental representations and successfully explain the capacity of propositional attitudes. The difference in **in** the content of mental states implies that, the internal representations or formal distinct; this means that, if the mental states differ in content, they are also functionally different, because they have functional relation to formally different techniques of the formula of the internal language and that internal language as you know is equal to mentalist, which we have seen in this lectures to be precise, according to Fodor, the mental events differs in their computational structures as also by using the notion of a computation content together.

It is possible to explain, a mental states are sensitive for their contents in the causal interaction of the various mental states and the productions over behavior, this is one within those syntactic framework of the computational representational theory of mind, this semantic notions such as, truth and representation do not have any explanatory role in the syntactic theory, because the semantic notions, because do not finger in the formal structure therefore, according to the Fodor, the ideal mental processes are basically a formal in the sense, that they can be explained computationally according to formal rule.

Now, you have to see the intentional realism, because it is very important to explain about the Fodor intentional realism, because this intentional realism is really explaining, how Fodor is combining the syntax and semantic in both the ways, in a computational way.

And now, I will be explaining about the intentional realism which is one of the important cases of Fodor concept of mind, how Fodor is building or establishing the relationship between mind and body at the same time, he is trying to show how the syntax and semantics will go to whether in this intentional realism.

A realistic theory of mind holds that, intentional realism holds that, intentional realism is a thesis that the mind is a primarily representational system or individuals mind is just a system its job is to deliver representation of the environment for the benefit of the individual, whose mind it is. An important problem for intentional realism is to offer and account of how internal states can be causally related to one another and to the world and to the behavior of the rational agents and it plays a very vital role, because it says some kind of relationship between the agent and the world and this intentionality is admitted by Jerry Fodor as the real feature of the mental representations, which can be computationally studied.

But, there is a distinction between the intentional realism and intentional irrealism, and which sense of representation is intentional irrealism, according to intentional irrealism thesis which claims that, propositional attitudes can be thought of mental representations of state of affairs and this is the about the intentional irrealism. And which is, we can say that, weak sense of representationalism, **attitudes** .in the case of strong sense of co-representationalism which is the claim that, the representational properties of proposition attitudes can take up some way towards understanding aspect of conscious experience.

According to intentional realism of sentences ascribing semantic properties to an individual propositional attitudes express any attendance calls properties and intentional realistic is also known as eliminative materialist and according to whom, no mental representational without some physical defects. Let us see, what is eliminative materialism? According to eliminate, eliminative materialism their eliminating instance of mind and there is nothing called a mind.

The thesis that, our commonsense conception of psychological phenomena constitute a radically holds theory; a theory so fundamentally depective that both the principles and the anthology of that theory will eventually be displaced, rather than smoothly reduced by complicated neuroscience. And this theory says that, our folk concept of proposition attitudes with that properties semantic properties are best compare to such concept as the

physical and chemical concept of carbolic or other chemical things which is happening in the brain, that all those concepts divide of reference therefore, there are no such state as propositional attitudes to which semantic properties according to eliminative materialism.

And as you know P F Churchland is one of the famous eliminative one of the we can say that, one of the founder of this thesis, the non-factual person of a intentional realism is claimed that, predicates that are used to refer the semantic properties of an individual's propositional attitudes simply do not stand for any genuine properties at all.

And this version of intentional irrealism has been advocated by (()) and according to him, such predicates typically do not express properties at all, what this suggest is that, there is no such thing as the property of believing that, p predicate is a really that, p does not expressed or correspond to a property.

If this is right, then we have yet another reason for not thinking of folk psychological belief or state token. Since, a state of token is is the instantiation of a property by an individual during a a time interval and if there is no property then, there can be no state token.

It is important to realize that, the non-instance of believe property and believe state tokens do not until that predicates of the form is belief that, p are meaningless or never applied to anything else. And if you see the ever non factualist interpretation of intentional irrealism, it is the influential view of Dennett, who has introduce the concept of intentional stands and which intentional stands; the intentional stand says that, the attribute propositional attitudes to a physical system is not to attribute semantic properties to the system, rather it consisting adopting a certain a heuristic stands towards it, which in terms of pragmatic goals, according to Dennett, the division to adopt the strategy is pragmatic and it is not intrinsically right or wrong.

Therefore, the intentional stands you says that, semantic properties of an individual's properties attitudes arrives from the stands taken towards by the individual by an observer or an interpreter, then the intentional realism is different from both error theorems and non-factualist irrealism, because intentional realistic is committed to the give that the semantic properties of an individual's proportionality attitudes are genuine properties of the individuals brain.

Then, they says that we can ascribe three thesis to intentional realism and this three thesis actually advocated by Berjack. And firstly, the semantic properties are find individuals propositional attitudes are genuine of the individuals and secondly, the semantic properties of an individual (()) at derivative from the semantic properties of his or her propositional attitudes thirdly, the semantic properties of an individuals propositional attitudes must contribute to the production of the individual's intentional behavior and if the semantic properties are genuine properties, then having a mind must make a causal differences.

And we have twisted at minded systems must be able to do things, which systems lagging, mind must be unable to do and if having a mind a having a mind did not make it causal differences, now the question is, what would it do to have a mind therefore, state of mind must be causes, but the fact that minds can occupyes states with semantic properties can explain, why systems having a mind can be do things, which things, which systems without a mind cannot do and this is the problem of mental causation.

And the problems are raised by Jerry Fodor shows that intentional realistic a dilemma, on the other hand, the intentional realistic is a physicality, the mind must be a complex physical systems, in the other hand he will say a realistic about the minds, it is the view of the (()) until that mind passes semantic properties which must make a causal differences and this and issues is closely related to the issues of reducibility of a systems semantic properties to its non-semantic properties. According to Jacob, there are two ways; one can think about a reduction for example, water turned to be identical to H 2 O molecules and the genes turns out to be nothing but, D N A molecules such identities are (()) in the sense that what is claimed is that, nothing would be water unless it where composed of H 2 O molecules.

On the other hand, semantic properties are reduced to non-semantic properties on the ground that, the later provide a necessary and sufficient non-semantic condition for the semantic properties therefore, a intentional realistic like Fodor tries to reach the gap between semantic properties and non-semantic properties and this is the main dilemma of the intentional realistic.

And in order to eradicate this dilemma, we have to see some of the important aspects of especially non realistic thesis of mind, which will give the exact explanation of mind, as

well as the exact explanation of body and exact explanation of syntax and exact explanation of semantics, although they goes together bridge between a semantic and non-semantic is very difficult, but they goes together they have close relationship that does not mean that, we can breeze the gap, that gap is there that gap is itself is making mind as different from the body. Now, I will stop this here on representationalism and some of the things, I will be discussing in next lectures and my college professor panda will be explaining in his lectures on related to this topics, thank you very much.