Contemporary Issues in Philosophy of Mind and Cognition

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The Limits of Artificial Intelligence-I

Today I am going to explain, the Limits of Artificial Intelligence. The limits are nothing but, the criticism to artificial intelligence. There are many philosopher as well as scientist, they have raised view against artificial intelligence, it is because of the way artificial intelligence has explained the concept of mind is not acceptable to many philosopher as well as many scientist; because the way they have explained it is a kind of of explanations and it is a kind of mechanistic explanations, the AI scientist are limiting the concept of mind.

The critic of AI shows that the limits of artificial intelligence. The computer science working for artificial intelligence design in the appropriate hardware and programs, which simulate the human mind, for them the mind is the software and the brain is the hardware in which mind works; the thus, they explain a the human mind on the model of a computer, the artificial design computing machines, which constitutes the bulk of the field as cognitive science field called artificial intelligence.

These machines do not perform to replace human mind, but simulate it by various method of cognitive modeling. There are some general argument against a artificial intelligence, over the past decades as we have seen that, electronics computer and a computer technology has made a great stride in the spear of knowledge and has replaced as in our our dealing with the world. The computer of today, are much more developed and sophisticated than the mechanical calculator of yesterday.

Already, computers are able to perform numerous tasks that, had previously been exclusive providence of human beings with a speed and accuracy that for out shrifts, anything then human being can achieve. More the advent of computer technology has

given new directions to our understanding of intelligence, thought and other mental activities.

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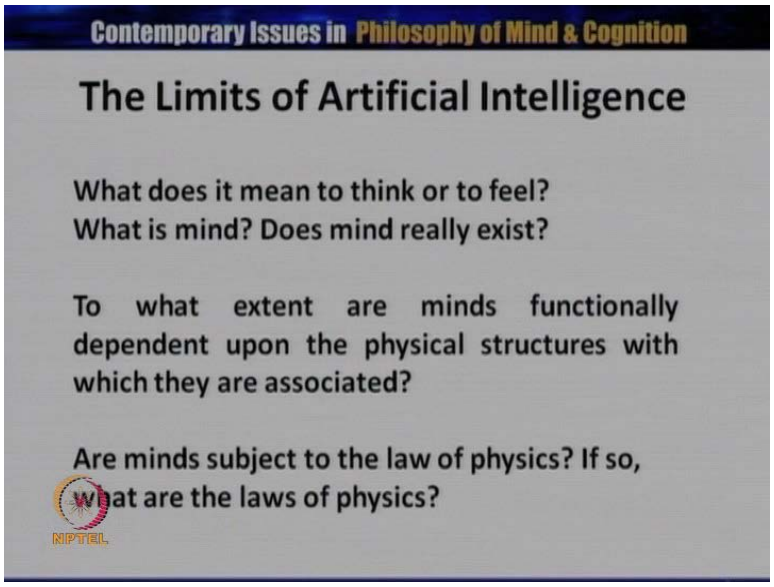

We are inclined to raise such questions like, what does it mean to think or feel or to do any other activities, because this questions are very important questions, besides we may raise some other questions like, to what extent are minds functionality dependence upon the physical structure with which they are associated and are mind subjects to the laws of physics? If so, what are the laws of physics? Of course, you ask for definite answer to such questions would be very difficult to reply.

These questions are eminently philosophical in nature, because in philosophy of mind we are interested in understanding the nature of mind. A thought, intelligent and etcetera as it enables us to appreciate the notions of machines remind and machine intelligence. And here the AI scientist, they are committing two kinds of error: one is the error of functioning and error of conclusion.

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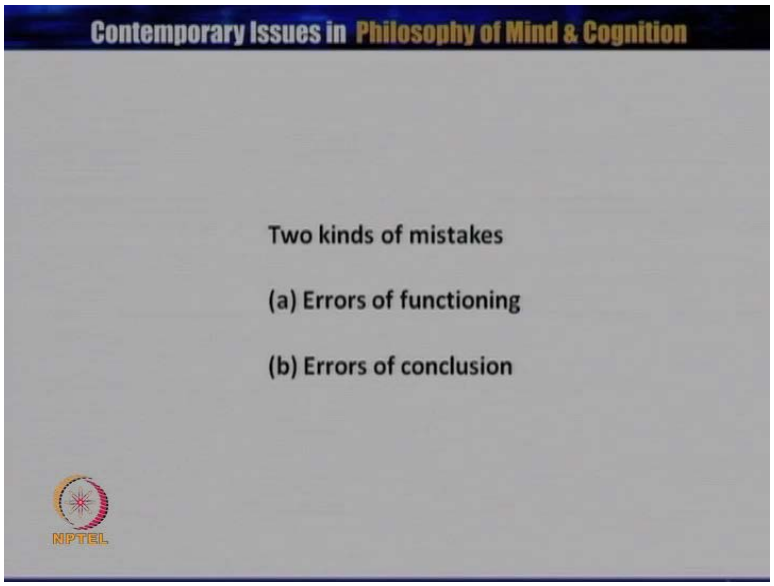

The error of functioning are due to some mechanical error or (()) parts, which cause the machines to behave otherwise then it is design to do. In philosophical discussions one likes to ignore the possibility of such errors, because we are discussing abstract machines, these abstraction machines are mathematical from rather than the physical observation. By definition they are capable of error in the function, this we can say that machines can make mistakes. However, the machines commits error of conclusion, because they can make mistakes moves in the functions and these mistakes are in the errors of arguments and however, when it is said that, it is impossible to for a machine to be conscious.

It is not always clear to what extend, that is intended to be a logical object and to what extent empirical, empirically machines are not conscious, but this can be proved logically. Robots are world known for duplicating human behavior, for a robot x hypothesis is capable of behaving like a human being. We have no doubt that, a human being is conscious, when he or she is doing work though machines might do the same work. We are not inclined all, the letter or the conclusions, thus it is taken for granted that humans are conscious, whereas of machines (()), whenever they are capable of consciousness or not.

We know the questions of consciousness are appropriate in the context of human beings, but not in the case of machines. A machine is an essentially distinct from a man is so far

as consciousness is concerned. The machines intelligence and a machine behavior are not inductive of consciousness at all. Here the questions arise, is it blind prejudice accept that machines are consciousness or what is they lack when they can do so many things? They do what humans do, yet they cannot be treated at pair with human beings.

The obvious answer to this is that the robots have no consciousness; they are only machines imitating human beings, therefore even if a computer does exactly, what a human being does? It can never be ascribed consciousness or mind it, it never does anything creative or new or which is something unpredictable the way human beings are doing. Its output is the result of its physical structure, its program and the input it is given, a human beings on the other hand initiates novel creative and unpredictable thing actions, that say human being stands on a different (()) from the computer. This argument can be lead against artificial intelligence, since there is a wide logical gap between human beings and computing machines. Computer not only lack creativity, but they lack basic capacitular learn.

Many people take unpredictable as an evidence for originality and pure, that if it is true, true that mentally bottoms out in, in straight forward mechanical processes. We eventual will be able to predict everything about people and are that point human life will lost its joy and mystery, hence we can argue that people are creativity have consciousness mind, machines have no consciousness and no creativity, therefore there is no mind at all. And to say that the machines have mind it is one kind of (()) way of explaining the mind, it is a kind of secondary sense not in the primary sense of mind.

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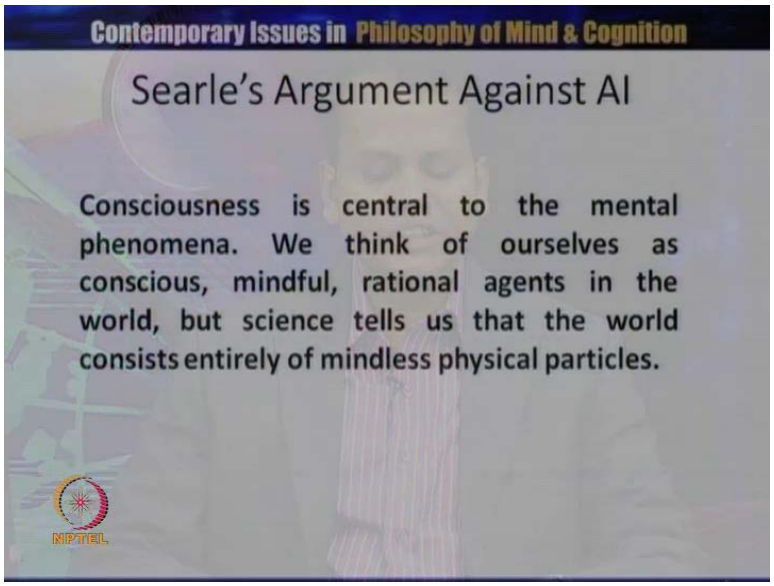

Let us see, some of the most philosophical arguments, which has been raised by John Searle and John Searle's arguments against AI is one of the classic argument against artificial intelligence. Searle's main intention is to criticize and overcome the dominate additions in the study of mind in both materialist and dualist.

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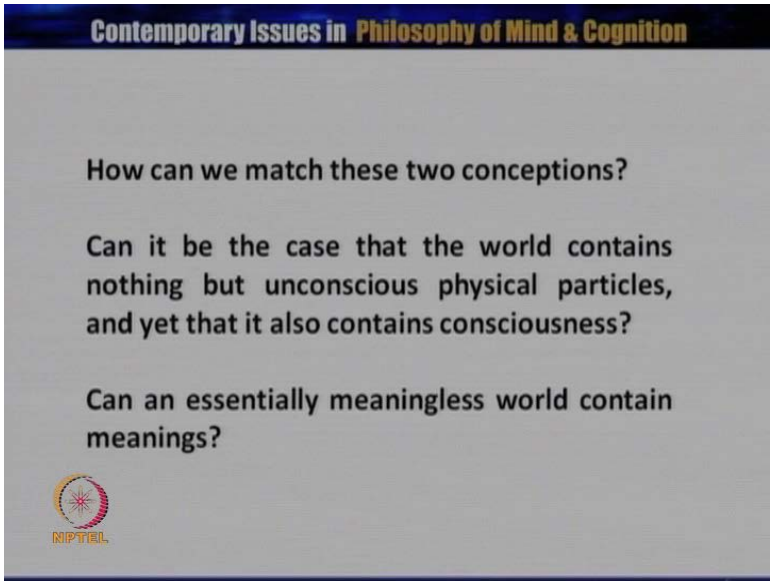

For him consciousness is the central to the mental phenomena, we think ourselves as conscious mindful rational agents in the world and science tell us the world consists entirely of mindless physical particles, but the question is how can we match this two

conceptions according to Searle, can it be the case that the world contains nothing but, unconscious physical properties, yet that it is also contains consciousness can an essential meaningless world contains meaning. And these questions are very important according to Searle, but Searle says that he believe that mind body problem has a simple solution, one that is consist about ton with what we know always no physiology and with our commonsense conception of nature of mental state, like pain, pains, beliefs, desires and so on.

But, before presenting that solution, he is asking a questions why the mind body problem seems to intractable, what do we still have in philosophy and psychology after this senses a mind body problems. In a way that, we do not have to say a digestion stomach problem, why does mind seen more mysterious then other biological phenomena, more ever, if we see Searle's thesis that his problem over into contemporary materialistic interpretation of issues of mind.

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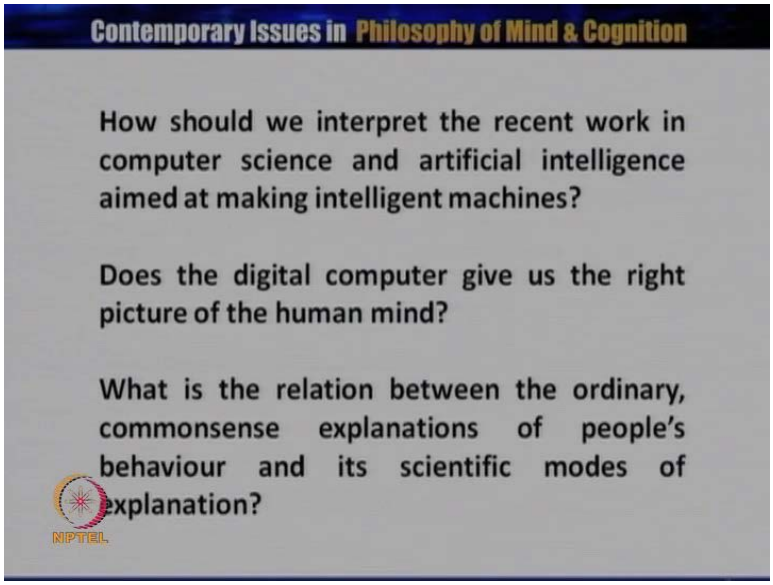

Materialism asks question like, how soon do we intermit digestion to work in computer science and artificial intelligence aimed at making intelligence machines. More particularly does the digital computer give us the right picture of the human mind, thus the central is that, what is the relationship between the ordinary commonsense explanations of people's behavior and its scientific mode of explanations.

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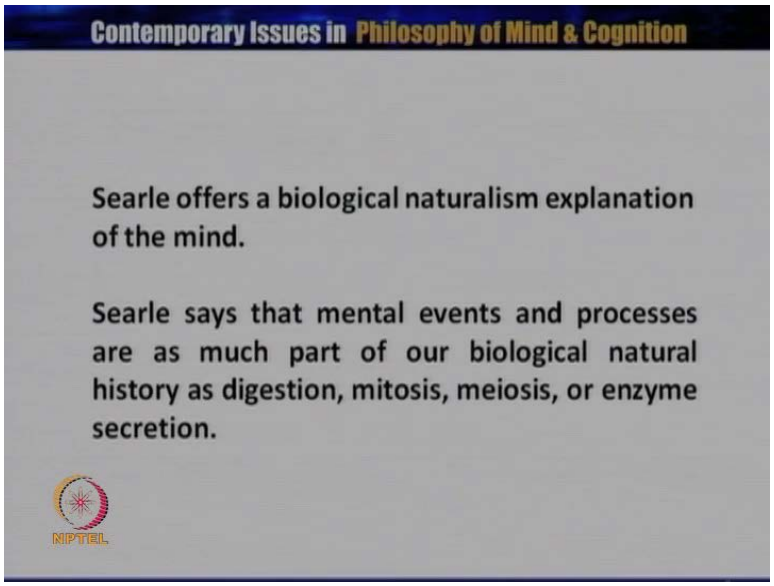

So, all six a to answer this questions in his attack on materialism in his philosophy of mind. Searle's offer a biological explanation of mind according to which mind is a biological of its of the brain. Inner two distinguish this view from other in the field, Searle calls it biological naturalism. A mental events and processes are as much as part of our biological natural history as digestions, mitosis, meiosis, or enzyme secretion, all these things.

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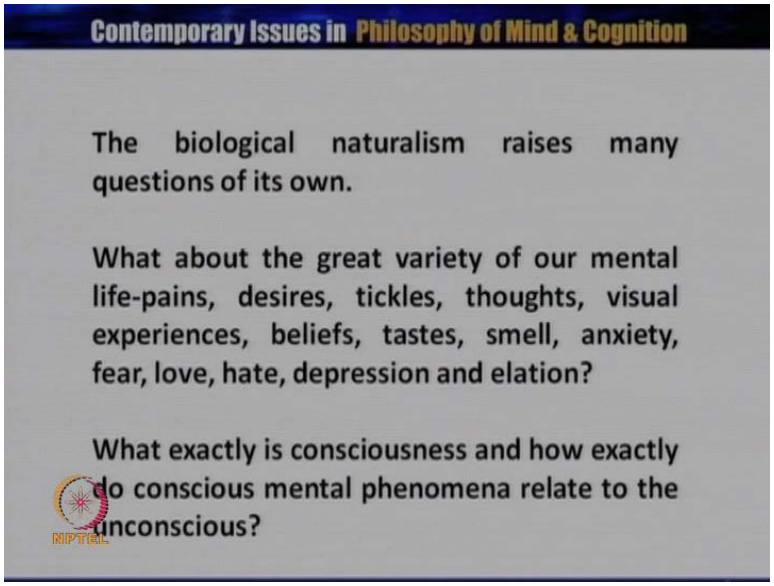

The biological naturalism raises, many questions of its own, but one of the fundamental question is, what about the great variety of our mental life-pains, desires, tickles, thoughts, visual experiences, beliefs, tastes, smell, anxiety, fear, love, hate, depressions and elation? Again some of the philosophical questions, which were raised by sear are like what exact is consciousness and how exactly do conscious mental phenomena relate to the unconsciousness.

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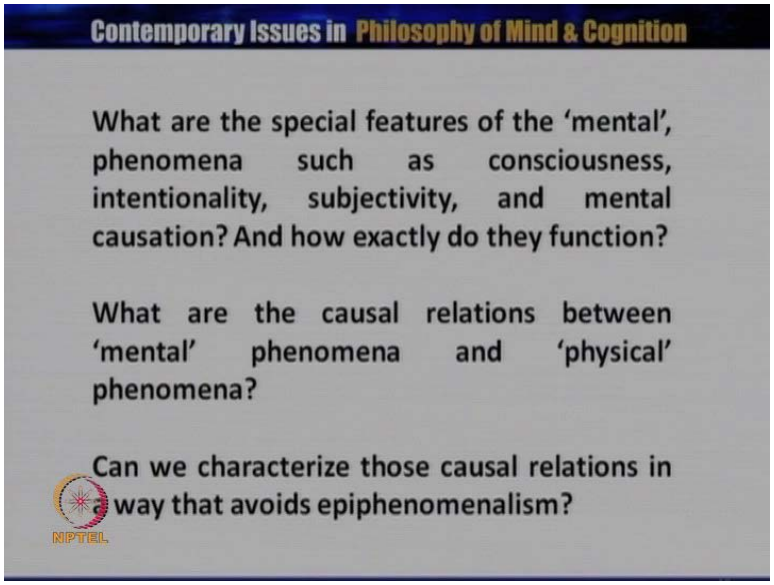

What are the features of the mental phenomena such as consciousness, intentionality, subjectivity and mental causation? And how exactly do they function? What are the causal relation between mental phenomena and physical phenomena? And can we characterize these causal relations in a way that avoids epiphenomenalism?

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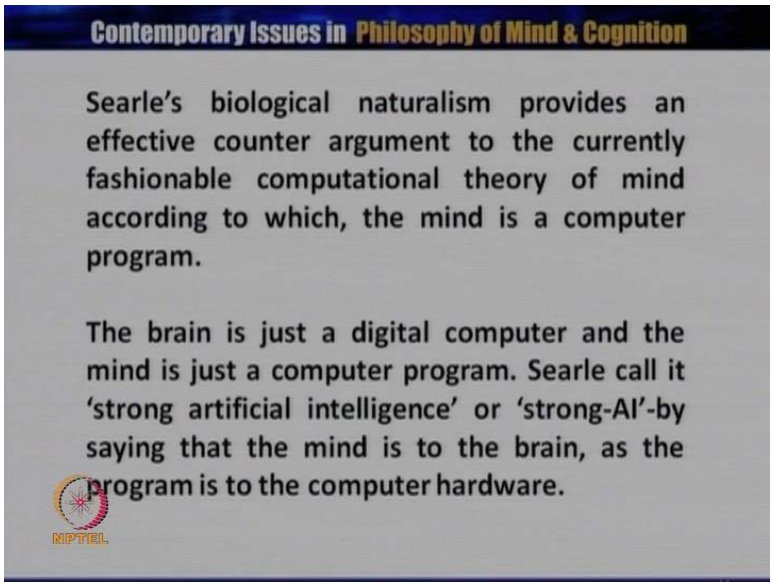

Searle's biological naturalism provides an effective counter argument to the currently fashionable computational theory of mind according to which, the mind is a computer program. According to this theory the mind is the brain and the program is the hardware, in such minds are computer program implemented in brains. In Searle's world, if you see the brain is just a digital computer and the mind is just a computer program, one could summarize this view and he calls it as a strong artificial intelligence or strong AI saying that the mind is the brain, as the programming is to the computer hardware.

The motion of strong artificial intelligence is called by a Dennett as we have seen already this view that, Dennett says that this strong AI is a kind of computational functionalism, both the discipline of artificial intelligence and philosophical theory of functionalism converse on the idea, that the mind is just a computer program. For both the theory the human mind is a computational system that realizes programs that is it is a formal device that produce functions of various kinds called the mental functions. It is a system which functions with digital right inputs and outputs, so that the resulting activity is treated as mental activities. And the strong AI is the string artificial intelligence has been complaining that, there will be artificial brains and minds which in every way equivalent to human brains and mind.

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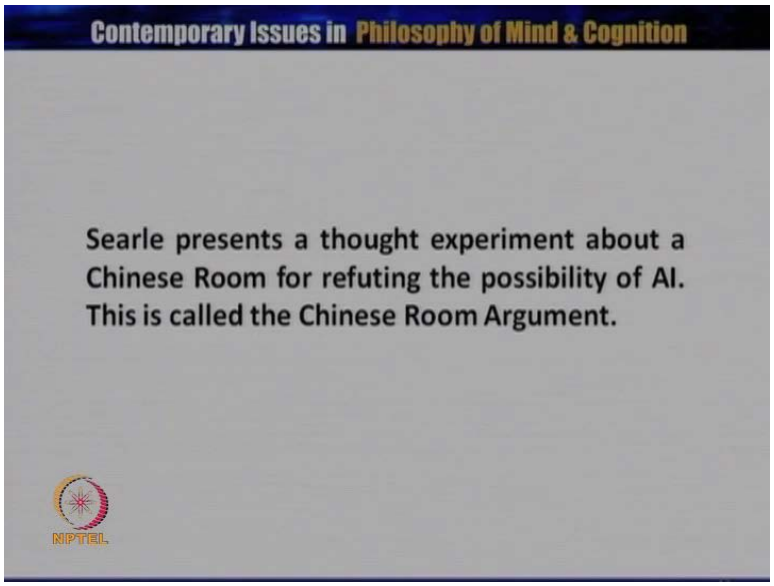

Here, John Searle has taken how about Simon's view that machine, that can literal think there is no questions of waiting for some feature machines because existing digital computer already have the same sense that you and I do, that is the idea of thinking machine in no more a dream, but a reality. Hence, the legitimacy of strong artificial intelligence, Searle reputes the very idea of strong AI and his argument against has nothing to do it, any particular stage of computer technology.

It is important to emphasize this point, because this temptation is is always to think that a solution to our problems you must wait on some as, as yet uncreated technological wonder. This reputation has to do with digital computers and idea of artificial intelligence and the idea of artificial intelligence, which is underlying in it. As you know, the concept of digital computer is its operations can be specified purely formal structures and it functions in the formal structures, it functions in the sequence of symbols. Symbols as 0 and 1 printed on the ((tef)) but the symbols have no meaning, because they have no semantics or they are not about the world, they have to be specified purely in terms of their formal syntactical structure.

By definitions, our internal mental stress has certain set of contents. Searle says in other words, the mind is more than syntax and it has semantics, the reason that no computer programming can ever be a mind in simply that, a computer program is only syntactically and minds have more than syntactically; minds are segmenting in the sense

that, they have more than a formal structure they have no content, the content you will find in the case of human mind.

Searle presents a thought experiments about a Chinese room for recruiting the possibility of at strong artificial intelligence and the possibility of turing machines and this is called Chinese room argument and its arguments are against artificial intelligence and against turing test.

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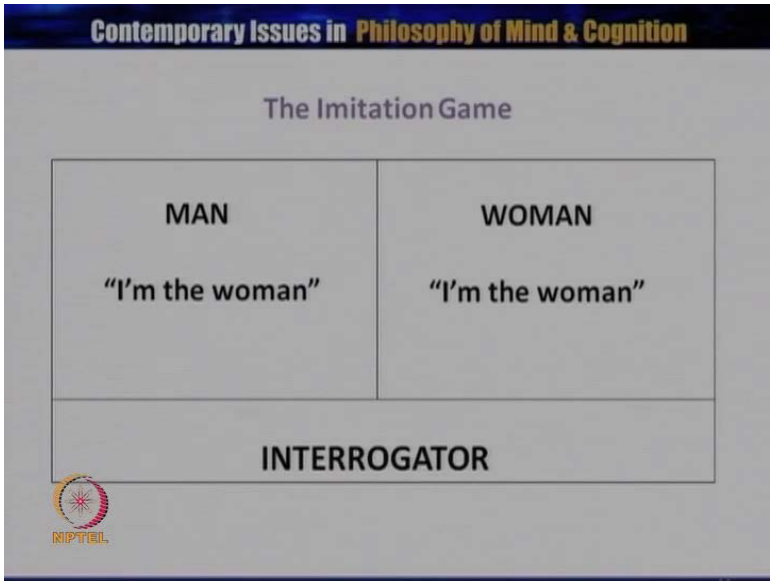

Let us see, what turing test is explaining imitation game, if you see the imitation game in the turing test includes a video signal so that, the interrogator can test the subject perceptual ability. You know (()) total during test computer will need computer region to perceive object and robotic move to them. Again the issue of acting like human is the primary concern of the turing test, because turing test was that machines can interact with human beings, the way human beings interacts among themselves, that is machines can behave the way to human beings and does.

Turing I said that and this kind of things is possible with the help of imitation game and the turing test proposed, there are computer should be interrogated in the place of human beings, turing test deliberately avoided directly physical intention between interrogator and the computer, because physical imitations of a person necessary for intelligence, because in the case of turing test if you see that, turing as explained this imitation game. And this imitation game is played by a man and women and an interrogator and who can

may be of either sex, the interrogator stays in apart from on the other room. And the object of the game of the interrogator is to determine, which of the other two is the man and which is the women and he or she will ask the questions that, the interrogator is allowed to put questions to a and b a man or a women.

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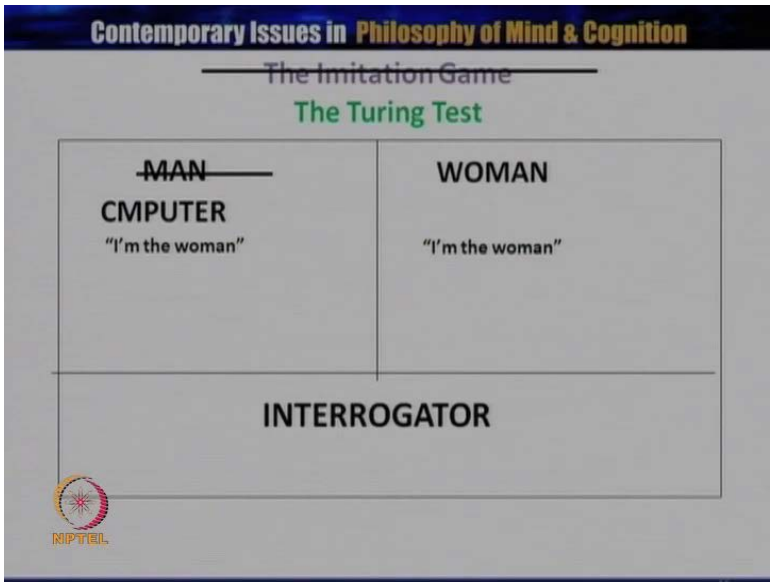

It is the object in the game is try to cause see to make the wrong identifications and the this are answer, therefore might be given any kind of wrong information's, because the tones of voice may not help the interrogator, the answer should be written or better will be type written. The ideal arrangement is to have a teleprompter for perfect communications, alternate even an intermediately can be repeat the questions and answers, the object of the game for the second player b is to have the interrogator.

The best stat age for our is probability to give truthful answers, c can add to or answer such things like, I am the women and do not listen to him, but it is of no (()) as the man can make similar now we may ask the questions, what will happen machines will take the part of the AI in the game.

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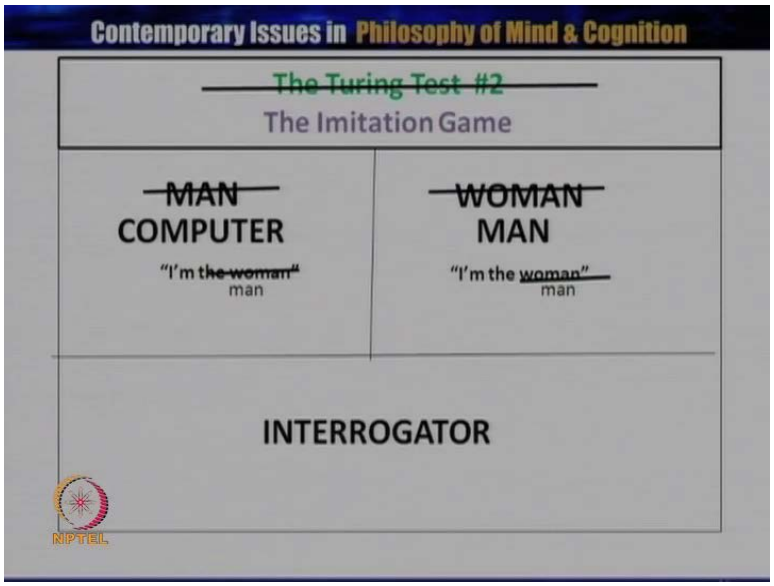

Will the interrogator decide wrongly as often, when game is played like as he does when the game is played between man and women? This turing thesis plays a vital role, from this limitation to turing test and turing test to limitations, this is one kind of an important thesis and Turing has been the arguing that the possibility of man machines.

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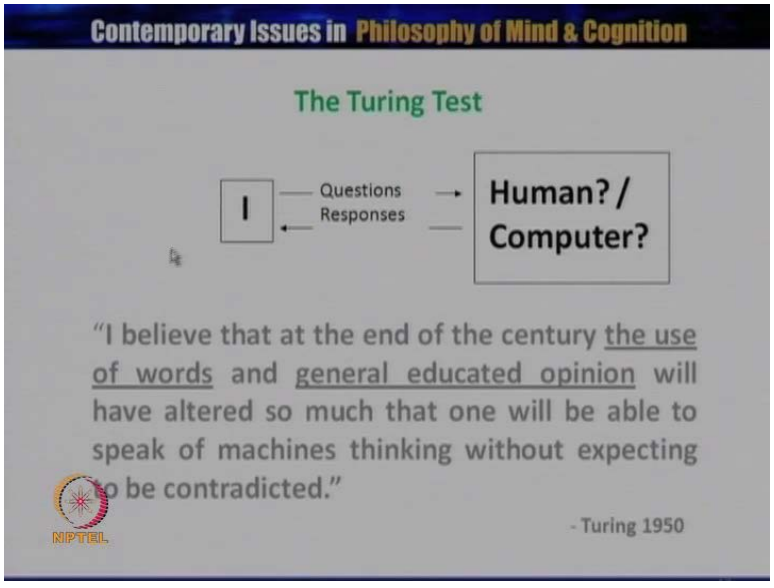

And here turing thesis says that, the interrogator and the questions and response of human and computers and he says that, I believe that are the end of the century the use of

words and general educated opinion will have altered so much, that one will be able to speak of machines thinking that expecting to be contradictor.

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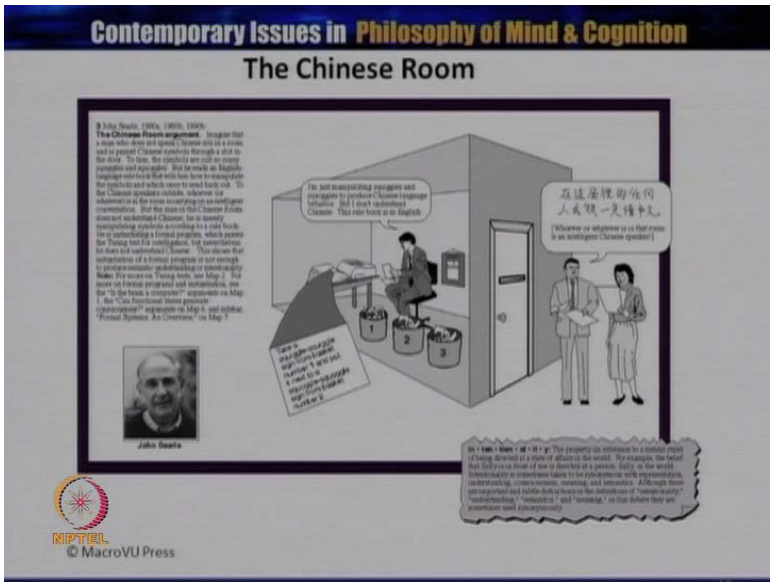

And to the this thesis John Searle has used his Chinese room argument and he says that, it is very difficult to imitate or simulate the human mind the way during predicting, but his denying and he has been criticizing that during thesis is impossible and that impossibility he has shown in in his the Chinese room arguments, he asks questions to imagine that, the computer programmers have written a program, that will enable to simulate to understanding of Chinese.

For example, if the computer is given a Chinese, it will match the question with its memory or data base and produce appropriate answer to the questions in Chinese. Suppose, that the computers answers are as good as those of quicker than the question is those the computer literally understand the Chinese in the way, the Chinese people understand the Chinese.

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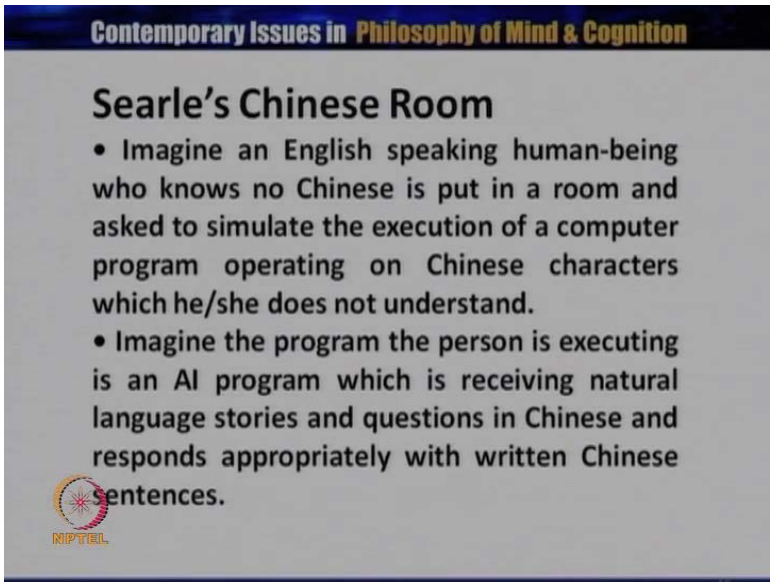

Again let us imagine that, someone is locked in a room with several baskets full of Chinese symbols however, let us image that he or she does not understand a word of Chinese and he or she is given a rule book in English for manipulating these Chinese symbols, the rules specified the manipulation of symbols purely formally.

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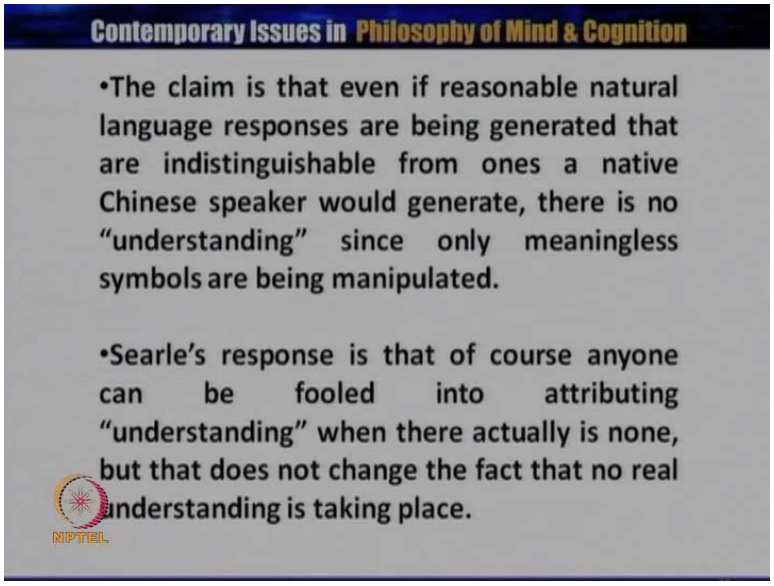

That is, in terms of their syntax, but not their semantics, so the rules might say take a squiggle, squiggle sign out of basket a number one and put it next to as squiggle, squiggle signed from a basket number two.

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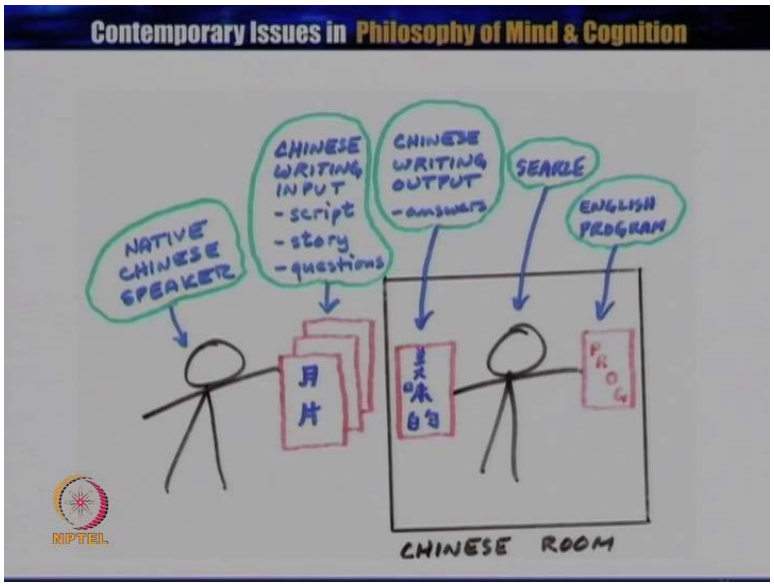

Suppose, that some other Chinese symbols are passed into room and he is given for the rules for passing that Chinese symbols out of the room, suppose that unknown to him. The symbols passed into those rooms are called the questions by the people outside the room, and the symbols be passes back out of the room are called answer to the questions, further the questions are so good at designing the program in the Chinese room can easily manipulate symbol.

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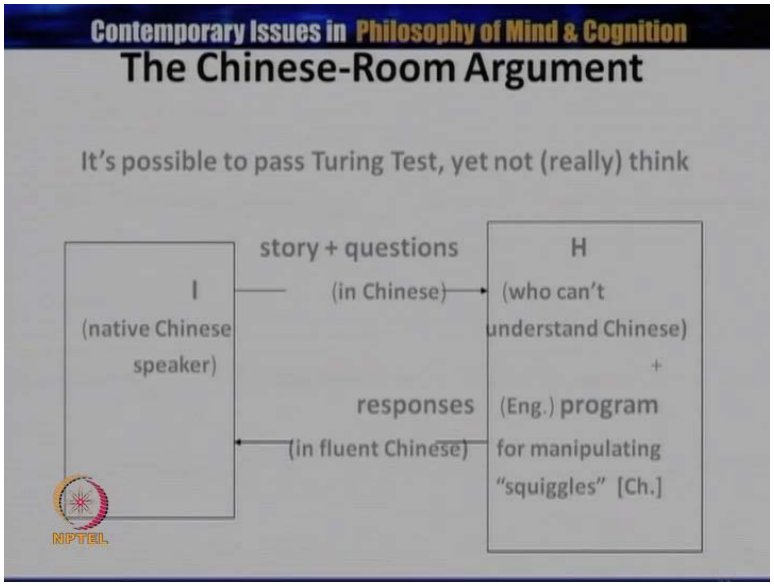

So, that very soon the answers are in distinguishable from those of native change speaker. In this case, man the Chinese room manipulates Chinese symbols mechanical without understanding, what they mean yet is the answer in distiller from those of native Chinese people. The above situations shows that, a computers has syntax, but no semantic indeed understanding a language having mental states at all the involves, more than just having a bunch of formal symbols.

It involves have been meaning utters to those symbols, add a digital computer a defined above cannot have more than just formal symbol, because it operates as Searle says in terms of its ability to implement programs as this programs are purely formal, they cannot have semantic content.

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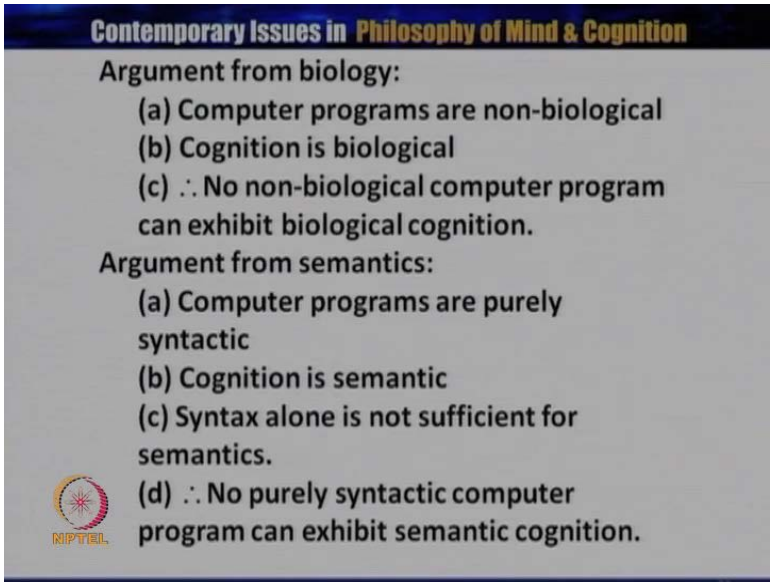

The supporter of AI argues that we can feed the understanding of Chinese into a robot, if there robot operate Chinese symbol property would not that be enough to (()) to that understand Chinese Sealer replies that, robot lacks consciousness understanding, even though it might be behave exactly as if he try to understand Chinese. It would still have no way of getting from syntax to semantic Chinese and thus there is no way that, the supporter of strong AI can argue that the mind consist of pure formal and are syntactical syntactical operation and the mind is nothing but a computing machines.

So, Chinese room argument is concerned with this issue of understanding and the question, question either an appropriate view of sophisticated computer actions can be

said to have mental properties. It is concerned with some programs that perform to simulate human understanding may providing replies to questions in Chinese by following, a purely formal rule. However, they expect the appearance of understanding that is involved in the computational output going it far from the computations.

Computation understanding is actually explains by the computer programming manipulations, that enact this computational Searle's argue that mental quality of understanding cannot be just computational matter, it is because computer is unable to duplicating human intelligence, though it has the ability to simulate the ladder. Here, the key distinction is between the duplications and simulation and no simulation by itself, ever constitutes duplication.

At the end of the argument he says that it is difficult to make the distinctions, because computer programs are non biological, cognition is biological, no non-biological computer program can exhibit biological cognition, arguments from semantic computer programs are purely syntactic, cognition is semantic, syntax alone is not sufficient for semantics, no purely syntactic for computer program can exhibit semantic cognitions. But during in its paper computing machinery and intelligence suggested, that the machine intelligence in the form of limitation game and that as we have seen.

Accordingly, if a computing machine can give you the response to questions, that make it impossible for us to distinguish this computer from human beings, then we can test whether a machine can think or not. Searle's abject to turing test on the ground that normal criteria, we apply in ascribing intelligence to persons are based on behavioral, biological and phenomenal evidence. According to him, the normal human beings have intentionality consciousness and (()), which computers lacks in effect to this, he says that the way turing machines, we have been explaining its not acceptable to explain the concept of mind, because the computer program is not sufficient for the position of our kind of mentality; mere exhibition of a formal accurate operation does not suffices to make the operation intelligent in the human sense.

The fact that human beings have intelligent operations of the mind is biological concerns and cannot be transformed to non-human machines and this are the some of the arguments of John Searle's and this arguments are going against the possibility of strong artificial intelligence and turing machines. Although some more discussions on John

Searle's thesis on biological naturalism, which my colleague professor Nirvana Panda will be explaining.

Now, will see the second argument against AI, which has been raised by a Hillary Putnam and Hillary Putnam argument against artificial intelligence, plays a vital role to argue against artificial intelligence. In this sections, we shall discuss the reasons that lead bottom to propose the functionalism as a theory of mind, supporting artificial intelligence and reason a subsequently led him to abandon it in the first place, Putnam was arguing for the existence of the functionalistic theory of mind; and after some times is arguing against the artificial intelligence and the possibility of functionalistic model of mind. Although, he has proposed true model of mind isomorphic model of mind, which is like which is one kind of functionalistic theory of mind and multiple realizably model of mind, which also another model of mind, because of the way he is going for and going against the functionalistic model of mind or artificial intelligent model of mind, in this way we have divided the Putnam's view into two categories.

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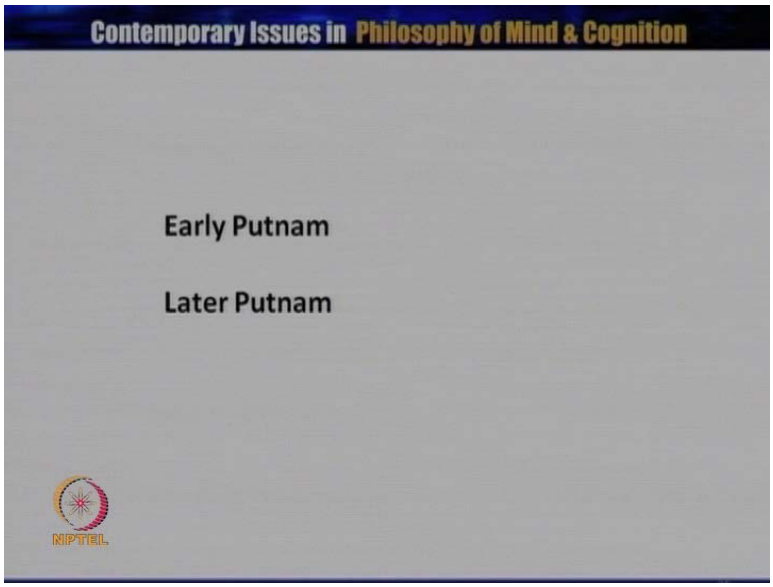

Firstly, one is early Putnam and secondly, is later Putnam. In the case of the early Putnam's shows that human being is an auto machines, mind is a computing machines, the later Putnam has found that is earlier thesis was wrong as mind can never will reduce to a machines. But, he says that functionalism is the view that mental states are defined by their causes and the defects to the host that what next and inner state is not an

intelligent property of the state, but rather it is relation to (()) stimulation inputs to the other state and to behavior output. And according to the functionalistic all these functional states are multiple realizable in different kind of machines.

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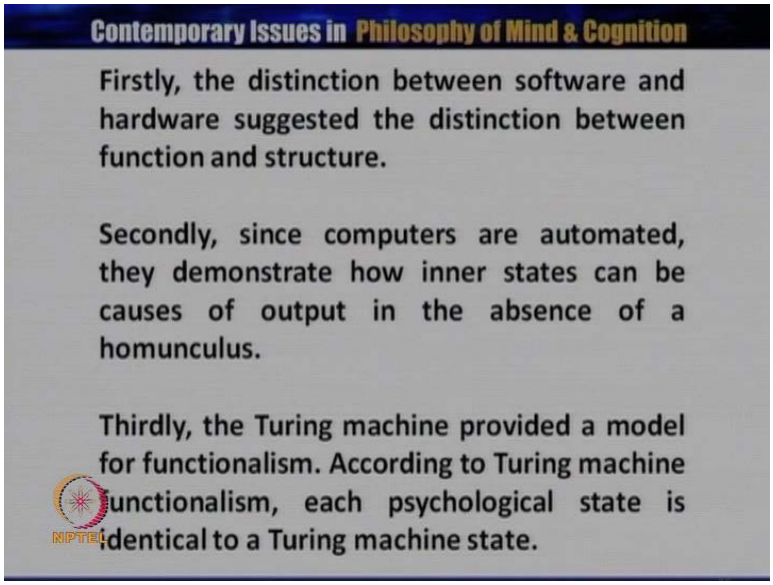

And development of in computer science has given inputs to functionalism. First the distinction software and the hardware suggested that the distinction between functions and structures. Secondly, since computers are automated, they are demonstrate, how inner states can be causes of output in the absence of a homunculus. Thirdly, the turing machines provided a model of functionalism. According to turing machine functionalism each psychological state is identical to a turing machine state. This turing functionalism is largely developed by early Putnam, thus insert functionalism may be defined as a theory that explains mental phenomena in terms of external input and observable output.

It explains mind as complicated machines as you have seen in the section of on functionalism, in this connection Putnam points out that the traditional mind is problems only in linguistic and logical in character. All these relating to mind body problem as concerning the systems capability of answering questions about its own structure and have nothing to do with a unique nature of subjective experiences. One kind of puzzle that is, discussed some times in connections with the mind body problem with the puzzle of the privacy; in the functionality theory of mind have been privacy as a category. As a category disappears all together as the there are no (()) any more link to human mind and

another questions does the computing machines have been intelligence consciousness so on in the way human being do.

According to Putnam since, mind is a a turing machines the whole human body is a physical a systems obeying the laws of physic the inverts as a whole as a machines true, thus Putnam's argument shows that the whole human body is at least metabolic a machines. A Putnam has taken the robot to be a psychological isomer (()) to be a human being. Have it it can be seen that this not actual possible, because that the epistemological, meta physical and more all arguments, so that there is no isomorphic relationship between the mind and machines machines and mind and this isomorphic relations will find in the case of program and its hardware, but not in the case of mind and a machines, therefore there is no isomorphous to relationship between mind and machines and he says that, we cannot simulate the human mind and we cannot duplicate the human mind, because there is a distinction between life and consciousness.

This view he has taken from (()) and a robot is not living being a living entity, so cannot be conscious and this semantic connections shows that a robot is not alive, thus from (()) arguments it is clear that Putnam is wrong in holding that, there is no isomorphic relation between mind and robots. The theory that he proposes provide a complete description of our psychological state as a turing machine is a utopianism project, because Putnam says that while arguing against AI, artificial intelligence the later Putnam points out that pessimism about the success of AI. In simulating human intelligence is an amount a pessimism about possibility of functions of the brain.

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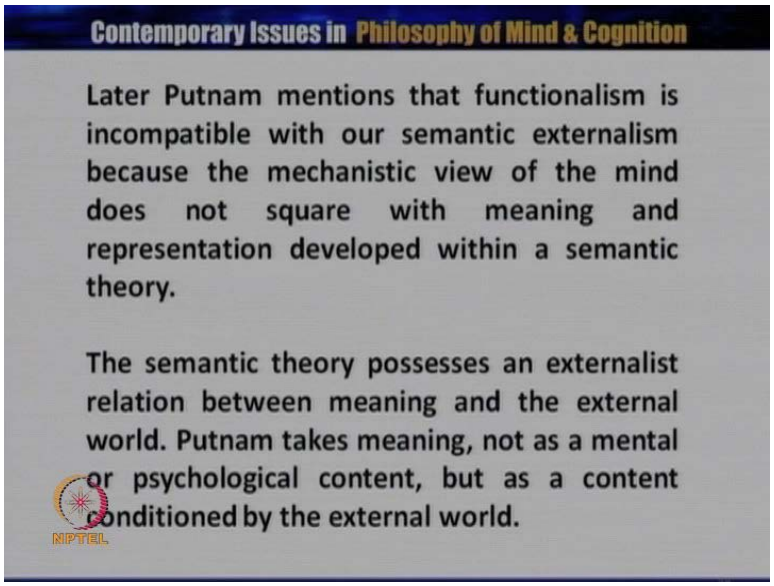

The later Putnam mentions that functionalism is incompatible with our semantic externalism, because the mechanistic view of the mind does not square with meaning and representation developed with a semantic theory. The semantic theory possesses an externalist relation between meaning and external world. Putnam takes meaning not as a mental or a psychological content, but as a content conditioned by the external world. Putnam has rejected the computational view of the mind on the ground that, (()) machines would not give a representation of the psychology of human beings and animals.

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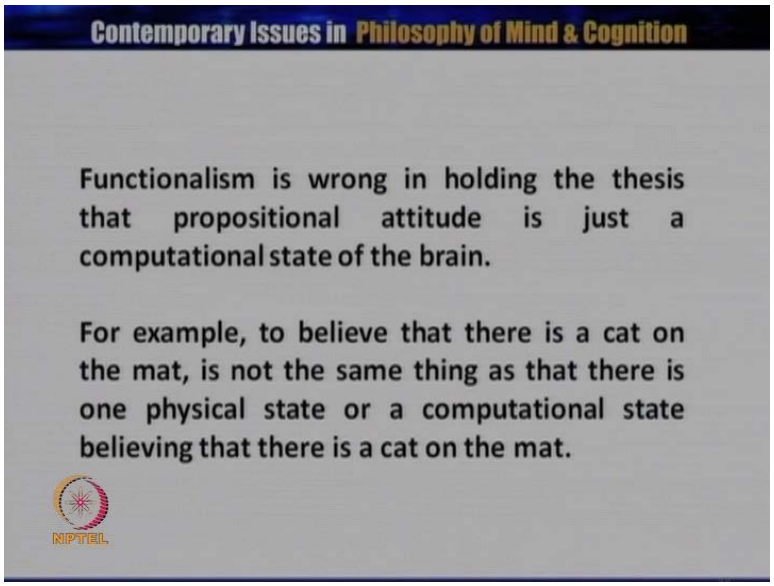

For him functionalism is wrong in holding that this thesis, that proportional attitude is just a computational state of brain for example, to believe that there is a cat on the mat is not something that, there is no physical state or a computational state believing that there is a cat on the mat, therefore it is not right to hold that proportional attitudes are semantically or conceptually reducible to computational predicates. According to Putnam, this is impossible because prepositional attitudes express to the intentional state, that is to say that they refer to the various states of the world.

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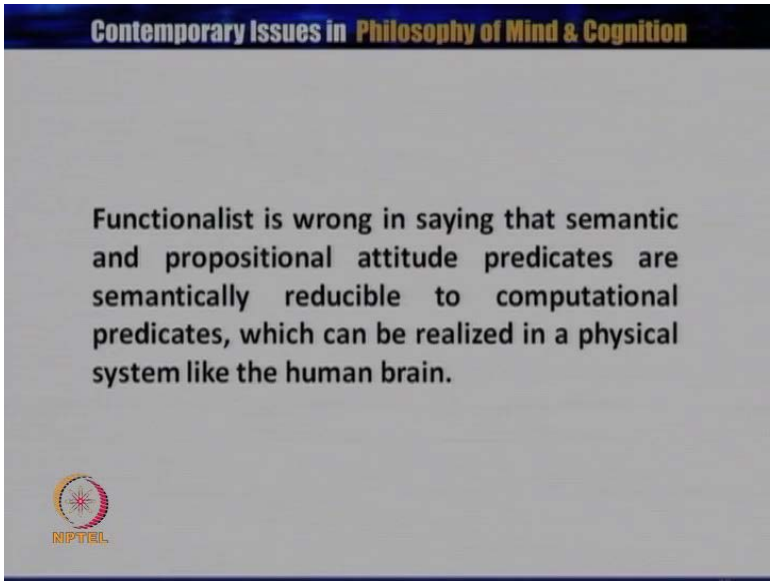

Therefore, according to Putnam functionalist is wrong saying that, semantic and propositional attitudes predicates are semantically reducible to computational predicates, which which can be realized in a physical systems like the human brain. There is no origin why the study of human cognition require, that we try to reduce cognitions either to computation or to brain processes. The reductionism approach of functionalism gives one kind of inadequate picture of the human mind and it it gives one kind of insufficient explanation on the mind and this inadequate and not sufficient explanation on the mind is not acceptable to Putnam.

And Putnam says that, neither any kind of isomer or any kind of multiple reliability in model of mind existing and the thesis which have a proper completely wrong. And this thesis may give one kind of picture to understand the scientific explanation on mind, but it is not explaining the theory of mind, which we have shown will see some of the refuse

argument against artificial intelligence and Herbert Dreyfus is one of the computer science and one of the most important philosopher, Dreyfus's argument against AI.

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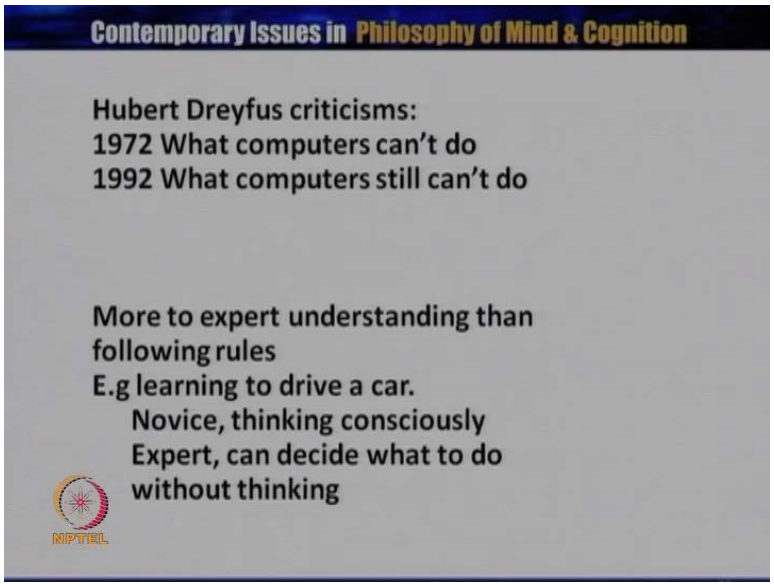

Dreyfus shows that and what computer states cannot do, two books are classic books, which are against the imitations of artificial intelligence them, in this two books he argue that the research in artificial intelligence that was best of the mistake in assumptions, which includes psychological, epistemological, biological, ontological about the nature of human knowledge understanding.

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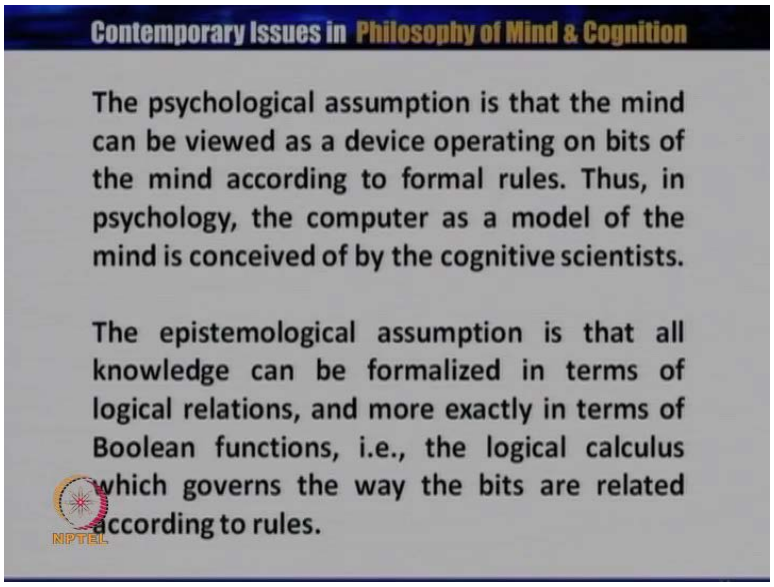

And we will see now all these assumptions and all these assumptions are based on different ways, psychological assumptions is that the mind can be a viewed as a device operating on its bits of the mind according to a formal rule. Thus in psychological, the computer as a model of mind is conceived of by the cognitive scientist. The epistemological assumption is that all knowledge can be formalized in a turn of logical relations, and more exactly in terms of Boolean functions, the logical calculus which governs the way the bits are related according rules.

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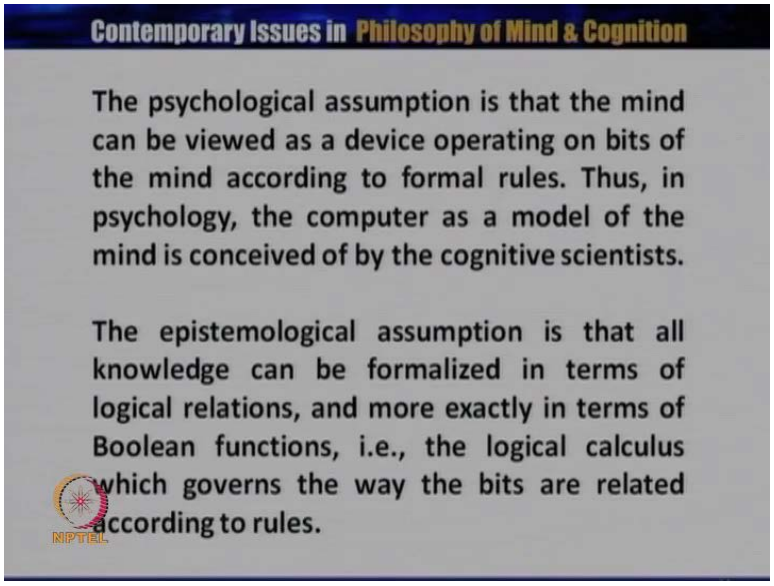

A biological assumption is that, brain has neurons, which operates so as to process information in the brain according to neural network. The ontological assumption is that the computer model of mind presupposes that all element information about the world, everything essential to the production of intelligent behavior, must in principle be analyzable as a set of situation-free determinate elements. The psychological, epistemological, biological and ontological assumptions have assumptions have this income.

They assumes that man must be a device, which calculates according to rules of data which takes the form of automatic facts, defuse argues that all these assumptions can be criticize on philosophical grounds, each assumption leads a conceptual difficulties. He says that, philosophy of science one finds that an assumption that machines can do everything that people can do followed by an attempt to interpret, what this body (()) for

the philosophy of mind, while among moralist and (()) one find a last digit retrenchment to such highly sophisticated behavior acts more (()) laws and creative discovery, claim to be behind the scope of the any machines. The assumption that machines can do everything, that human beings can do is definitely cause as a human capacity exists that of machines, all these above mentioned assumption, because they are more than they can prove.

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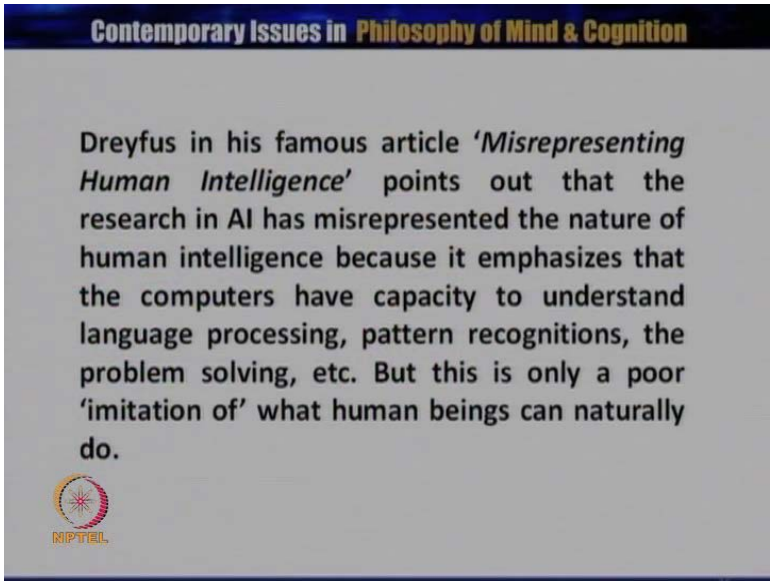

The idea of that human mind functional like a digital computer, according to defuse may in adequate and misleading Dreyfus in his article on Misrepresenting Human Intelligence, points out that the research in AI or artificial intelligence has misrepresented the nature of human intelligence, because it emphasizes that the computers have capacity to understand language processing, pattern recognitions, the problem solving etcetera. But this is only a poor imitation of what human beings can naturally do. And Dreyfus point out that AI field of research dedicate to using digital computer, to simulate intelligent behavior soon came to be known as artificial intelligence.

Once would not to mislead by the name an artificial intelligence nerves system sufficiently, link to the human one and with the other feature such as sense organs and a body would be intelligent, but the term artificial does not mean that occurs in artificial

intelligence are trying to build an artificial man. Some of the lectures, I will be explaining in the next lectures.