CHAPTER V

CARRUTHERS’ DEFENCE OF THEORY OF MIND IN THE LIGHT OF CARTESIAN EPISTEMOLOGY

5.1. Two Models of Self Awareness: Theory-Theory Vs Simulationism

The present chapter reflects on the issues of mind-reading in common and the fiery debate between theory-theory and simulation in particular. The clash between simulationism and theory-theory is concentrated on the question of whether cognitive process concerned with mind-reading is ‘knowledge-driven’ or ‘process-driven’.

Simulationism discards functionalist version of theory of mind, and maintains that our mind-reading ability depends upon process of simulation rather than on the deployment of theoretical knowledge. The implication here is that we can pretend or imagine ourselves to be positioned and motivated in just the way that other people are and then go on to reason for ourselves within that perspective to see how we might then think, feel and react. In other words, simulationism is the view that, we put ourselves in other people's shoes. It is unnecessary to store general information about what makes people to behave in particular way, if the resources that brain uses to guide our own behaviour can be modified to work as representations of other people. Even though, the contemporary dispute regarding folk psychology is the debate between the proponents of the theory-theory of folk psychology and simulation theory; the basic theoretical choice is not restricted with between theory-theory and simulation and a hybrid view. We shall explain all these issues and Caruthers’ choice of a model of mind-reading which he claims to be the viable one.
According to Gordon, there are two types of methodology related to anticipation and prediction of one’s own and others’ action: cold methodology and hot methodology.

1. The former does not make use of capacities of emotion, motivation and practical reasoning; rather it merely formulates inferences. As this view suggests, our capacity to predicting others’ actions depend upon a capacity to recognize and categorize their mental states. Gordon treats Theory- Theory as cold methodology.

2. Hot methodology makes use of all the above mentioned capacities. In simulationism prediction is made on the bases of simulation or self-transportation or it makes use of a variety of mental states such as capacities of emotion, motivation and practical reasoning.

Simulationism may represent an innovative model in cognitive science. Through simulation we can situate ourselves in the position of others. Thinkers like Gordon, Goldman and psychologist like Harris defend simulationism. Simulationism may be radical and less radical.

1. Radical simulationism relies completely on simulation, it claims a capacity for simulation is necessary for the very capacity to perceive objects as mind-endowed (and thus for perceiving human beings as persons).

2. Less radical type of simulationism considers the subject’s use of general knowledge concerning mental states.

According to radical version of simulationism, maintained by Gordon (1995, 1996), our mind- reading exclusively depend upon the learning process and we learn to mind- read by learning to pretend to be other person. According to him, simulation is the foundation of our knowledge of our own mental state and their conceptualization, as well as of the states of mind of others. As this view suggests, only those who can simulate can understand an ascription of, e.g., ‘belief--that to S, it is the case that- p’.
Gordon argues that self-ascription relies on ascent routines. For example, the way in which adult normally determines ‘whether or not they believe that p’ is simply asking questions to themselves ‘whether or not p’. The former is question about a mental state about p, while later is the question directly about p. The later question is neither about oneself nor about mental states at all. Gordon calls it object-level question and he claims that in order to give a correct answer to the question ‘whether or not they believe that p’, children only need to understand the object-level question and answer to the object-level question does not generally requires recognizing something by qualitative feel. According to Gordon, by simulating others’ mental states, we are not making any adjustments for situation, circumstances or any other personal difference. But simulation is total projection. Gordon’s account of self-ascription is not Cartesian, because it is not grounded on introspective awareness of our own mental states. The problem here is that how could we ever acquire the capacity which we surely do have, to describe, with understanding, occurrent thoughts to ourselves immediately, not on the basis of any sort of self-interpretation of our own behaviour.

The less radical version of simulationism defends a sort of Cartesianism or some sort of Cartesian methodology. According to this view, one first recognizes one’s own mental states under actual or imagined conditions and then infers, on the basis of an assumed similarity or analogy that person simulated is in similar states. According to this, recognition of one’s own mental states is thought to be grounded on introspective access to others’ mental states. Harris and Goldman defend this view. According to Goldman, my knowledge of my own mental state is supposed to be given by direct access to their qualitative feels. On this view, capacity to self-ascription is to precede the capacity to other-ascription and simulation requires a capacity to ascribe mental states to oneself, particularly by recognition of their distinctive qualitative feel. Carruthers criticizes both Gordon and Goldman’s versions of simulationism and he claims that Gordon is a quasi-behaviourist and Goldman is a Cartesianist. He is of the view that
simulationism can not give us the core of our conception of our knowledge as minded agency.

The simulationist maintains that the ability to simulate other and our own mind is based on an innate capacity. The ability to simulate is cluster of abilities like; ability to imagine, ability to think counterfactually, ability to entertain suppositions or ability to take one’s own practical reasoning system off- line etc. In predicting people's behaviour, we take our own decision-making system ‘off -line’ and endow it with the ‘pretend' beliefs and desires of the targeted person. Then pretend inputs are the basis of decision. Whether or not a subject has information about the domain is irrelevant to the capacity to simulate. Instead of appealing to information about the domain, we appeal to a mechanism that is already present and the mechanism may be used to support another function. As a result, off-line simulation account presents a strikingly different picture of cognitive capacities. The essential proposal of the off-line simulation theory of behaviour prediction is that the practical reasoning constituent is taken off-line and used for predicting behaviour but makes possible that the same component or mechanism can support different types of simulation-based capacities. Secondly, off-line simulation isn't limited to processing components. We can represent off-line simulation theory of behaviour prediction boxologically as follows⁹.
Simulationist like Gordon and Goldman defend little scientist (child in alab coat view) view that children constructing their theories through a process of data collection, hypothesis formation and testing. Carruthers is critical of this because, this view is both overstated and confused. Carruthers' criticisms to simulation are expressed in terms of four-fold arguments of problems relating to explanation, self-knowledge, mutual cognition and cognitive penetrability. This may be presented as follows.

1. The theory- theory account is preferred to simulationism. Simulation is a feed-forward process. That means by feeding pretend inputs we get an output. From the point of view of prediction simulation is an amiable theory; that means we can predict what will people infer, or decide or how they will react. But it is far from clear how simulation can produce elucidation or explanation of ‘why some one has done something’. So it is claimed that in the case of explanation, simulation seems to be a difficult and vague process.

2. Then let us take the case of self-knowledge. Carruthers says that simulation is not adequate account of self-knowledge. He claims that
theory-theory maintains that self-knowledge is kind of theory-laden recognition. According to this view, our concept of propositional attitude states is a concept of a state occupying certain causal role. But we can recognize the occurrence of that sort of state in ourselves. We are recognizing that these states are occupying a particular sort of causal role. According to simulationism, recognition of mental state is possible through introspection. According to Goldman and Harris, ascriptions of mental states to other people are based on first-person relationship with our own mental states. They claim that, in order to predict other people's mental states in a particular situation, we situate ourselves to that situation and making adjustments in our own belief and desire which we are introspectively aware. We then allow our practical reasoning system run ‘off-line’ and attribute the equivalent action to others. The question before us is ‘when I am aware of these states in myself what am I aware of them as?’ The theory-theorist replies that ‘these states occupying a certain causal role’. Some simulationists like Goldman (1993) argue that we are aware our mental states as states with certain feel or introspectible phenomenology.

Further Carruthers claims that, introspection of one’s own propositional attitudes can’t play the sort of foundational role in mind-reading that Goldman supposes, unless a substantive body of theoretical knowledge about the causes and interactions of those attitudes can primarily be achieved from one’s own case alone. With the help of split brain experiments [(see Gazzaniga (1995, 2000))], Carruthers argues that subjects are unable to discriminate between the states, as when they are introspecting and when they are interpreting or confabulating. So we have no subjectively available reason to believe in the existence of introspection. Carruthers gives importance to recognitional capacity of mental states and argues that Goldman’s view is counter to the progress made by twentieth century
philosophy of mind because it is proved that complete dependence on our first-person phenomenology is a mistaken idea. Carruthers relies on hetero-phenomenology rather than auto-phenomenology to develop an integrated view. Carruthers supports a dual system theory. Phenomenal representations are dual content representations, content of percepts get dual content when, it is (perceptual content) is available to the ToM faculty or with the availability of those contents to HOT system. The availability of first-order contents to mind-reading system generates recognitional concepts of that experience. At present the availability is modified into awareness, meaning thereby awareness of one’s own mind giving rise to a model of mental activity.

3. Carruthers argues that mind-reading of mutual cognition is handled by some sort of body of general knowledge in addition to simulation. Simulationists claim that, this knowledge is learned through simulation in the course of normal development and it implies that there is no innate knowledge of theory of mind. It is criticized that children acquire both a appropriately representational conceptions of the mind and a capacity to mutual pretence at least by the age of four and the real problem here for simulationism is to explain how both of these capacities can emerge so close together in the developmental process.

4. Cognitive penetrability argument is put forward by Stich and Nichols (1992, 1995; Nichols et al., 1996). Stich and Nichols suppose simulation to be “cognitively impenetrable” in that it operates independently of any general knowledge the simulator may have about human psychology. Yet they point to results suggesting that when subjects lack certain psychological information, they sometimes make incorrect predictions, and therefore must not be simulating (Stich & Nichols 1992). Because of problems of methodology and
interpretation, as noted by a number of philosophers and psychologists, the cogency of this line of criticism is unclear. This argument is more technical than other arguments and it fails to give any reasonable examples of common irrationality. So Carruthers believes that it is unsatisfactory argument in need of its premises.

According to some critics, both Carruthers and simulationist borrow support from mirror neurons. (Visuo-motor neuron activated both when a particular action is performed by the individual and when the same action, of another individual, is observed). The activity of mirror neurons and the fact that observers undergo motor facilitation in the same muscular groups as those employed by target agents, are findings that agree well with simulation theory but would not be predicted by theory-theory. With the help of evidences from somatosensory cortex damage, it is proved that what is going on in one's visceral severely impairs one's ability to identify the emotion expressed on another's face. Thus, recognition of facially expressed emotion appears to rely heavily on these exogenous, or other-induced, visceral responses. The simulationist maintains a common neural mechanism for understanding and anticipating other mental states and ours. That the mirror neurons do the double duty (of self and other ascription) is acceptable to Carruthers. But the difference is that, simulationism argues that our understanding of others responses significantly similar to those called on in our own “first person” responses to the world and for them metacognition underlies mind-reading, but Carruthers keeps a reverse position of this saying that mind-reading underlies metacognition.

The recent study conducted by Ramnani and Miall argues for two separate systems for self and other-ascription. For them, simulation is not the only actions involved in predicting others action and it involves ToM. This shows that differential activity in paracingulate cortex and superior temporal sulcus areas typically involved in mental state attribution. Ramnani and Miall show that, when subjects anticipate the activity of his partner rather
than PMd, two other neural systems are active: superior temporal sulcus (STS) ventral premotor- cortex (PMv) (areas related to ToM including paracingulate cortex and posterior superior temporal sulcus and motor areas including ventral premotor- cortex). Eventhough it is not a direct support of Carruthers’s defense of theory- of- mind module, the study enriches our knowledge relating to how other person’s task is represented (especially the area in brain). (Carruthers argues that there exists just a single (albeit multi-component) mind-reading system—there is no separate metacognitive faculty)\textsuperscript{17}.

**Figure 5.2: The Place of Mind-Reading and Mirror Neurons in the Mind**

Carruthers maintains with the help of evidences from neuroscience that images are produced in temporal cortex for purposes of object recognition. And it is motor cortex that makes images in absence of any appropriate visual stimuli and it converts images to temporal cortex. This transformation of images is possible through a common functional component of ventro-dorsal cortex (v-d), the so-called ventro-dorsal cortex.
area that is superior temporal sulcus and area FP that is in the rostral part of
the inferior parietal lobule. These are powerfully interconnected with each
other and area F5 in the pre-motor cortex. These areas form part of the
mirror neuron systems. Carruthers argues that mirror neurons are just as
well positioned to allow us to map our own anticipated movements into
visual representations. The brain has dual structure and they meet in mirror
neuron systems facilitated by global broadcasting system. That is consistent
with the global work place theory of Baars. According to Baars, Global
Workspace is a simple cognitive architecture that has been developed to
account qualitatively for a large set of matched pairs of conscious and
diverse brain functions are possible through a fleeting memory capacity. As
this theory claims, brain is a massive parallel distributed system of highly
specialized processors. In such a system, coordination and control may take
place by way of a central information exchange, allowing some specialized
processors -- such as sensory systems in the brain -- to distribute
information to the system as a whole. Baars, says “Conscious contents
provide the nervous system with coherent, global information”. Consciousness,
he said, is accomplished by a “distributed society of specialists that is equipped with a working memory, called a global workspace, whose contents can be broadcast to the system as a whole”. So there is serial as well as parallel process. This important development of dual system hypothesis helps Carruthers to close the explanatory gap by introducing mirror neurons which directs his earlier default theory into an extended form of naturalism.

5.2. ToM as Backbone of Dispositionalist HOT Theory

The philosophers’ curiosity about knowledge of one’s own and others’
mind goes back to Descartes and beyond. Cartesianism paves the way for
behaviourism and the behaviourism in turn gives light to the now hotly
discussed theory of the cognitive science, that is functionalism. The theory-
of -mind is one of the significant predicament is that is being hotly discussed by developmental psychologists in particular and philosophers of mind in general. The theory of mind, folk psychology and intentional stance are used interchangeably. The term ‘theory-theory’ was coined by David Lewis. The term theory of mind (ToM), sometimes referred to as mind-reading (Baron-Cohen, 1995) and mentalising (Corcoran, Cahill, & Frith, 1997), was first coined by Premack and Woodruff (1978) and it refers to the ability of individuals to correctly determine the intentions and behaviour of others. This is a necessary skill for successful complex social interactions. Let us clarify the notion of theory-theory first.

Theory-theory is a form of naturalistic functionalism that provides us with a philosophical explanation of conceptions of mental state types. It is a specific folk-psychological theory (of structuring and functioning of mind), which help us in mind-reading with the help of conception of mental state types. So TT holds that propositional state (such as belief, desire, hope, and fear etc.) can be understood in terms of their general causal interactions with other mental states, characteristic stimuli, intentions and subsequent behaviour. According to this view of mind-reading, the core theoretical principles provide the explanations of causal role which give us our conception of what different kinds of mental states are. The theory -like information also helps us to attribute mental states in order to explain behaviour and to analyze behaviour from what we know about others mental states. It argues that we need to know something about our friend’s psychological states and that knowledge will depend upon pieces of theory-laden recognition.

TT argues that the same cognitive mechanism involves in self-awareness and attributing mental states to others. TT claims that mental states embedding in commonsense causal theory of the mind and its operations are enough to establish their existence and meaning. TT is so-called because it is the theory that commonsense concepts are embedded in
a theory. Theory-theorists say that our ability to give explanations, predictions and interpretations of intentional behaviour is subserved by tacit knowledge of an internally-represented theory of commonsense psychology. Mental state concepts get their life and sense from their position in a substantive theory of the causal structure and functioning of the mind. As this view suggests know what belief is or to know concept of belief is to know sufficiently much of the theory-of-mind within which that concept is embedded. Our understanding of mind is theoretical at bottom and our concepts of mind get their life from this theory. There are two versions of theory-theory (TT) called a strict and a loose version.

The strict version considers folk-psychological theory as a significant set of laws or generalizations. Our commonsense understanding of mental states gets their life from its place in this theory. These laws consist of laws concerning relation of different mental states with other mental states, with external circumstances, and with overt behaviours etc. This version is proposed by thinkers like by David Lewis (1972) and Paul Churchland. Churchland says "Persons tend to feel pain at points of recent bodily damage," Persons denied fluids for some time tend to feel thirst," "Persons in pain tend to want to relieve that pain," and "Persons who want that P, and believe that Q would be sufficient to bring about P, and have no conflicting wants or preferred strategies, will try to bring it about that Q".

An unfastened or loose version of TT suggested by thinkers like Stich and Nichols in the form of theory of Mental Mechanism, claim that "just about any internally stored body of information about a domain [is] an internally represented theory of that domain". They reject any necessity of laws or generalizations. It implies that any stand attributing to subject any information about mental states is an example of TT.

According to Carruthers, the theory of mind is one of the consumer systems, that is responsible for the production of HOT in respect of any of the contents of short term memory store(C).
mind (which is one of the consumer systems playing an important role in occurrence of phenomenally conscious experience) is to generate recognitional concepts of experience of some particular object, say, red tomato. Carruthers says that availability of first-order content to (contents of C) to a mind-reading, HOT manipulating system is enough to translate these contents to phenomenally conscious 'feels'. As Carruthers maintains, mind-reading capacity has a vital responsibility to convert or transform first-order content to higher-order content. So we can see that ToM has crucial role in Carruthers’ dispositionalist HOT theory. The question before Carruthers is: how this mere availability to ToM (which is capable of generating HOT) could add an additional experiential property on a perceptual state? It is the problem of so-called consumer semantics.

Carruthers' view is that, what makes a perceptual state phenomenally conscious is some sort of meta-cognition, about it, that transforms contents of perceptual experience into phenomenally conscious ones. Mind-reading faculty helps us to understand is/seems distinction and/or contains recognitional concepts of experience that all first-order contents are at the same time higher-order ones. Difference of distinct types of phenomenally conscious experience resides in the difference in the higher-order analog contents, which experience possesses. Evidences suggest that children do not acquire theory of mind at birth, but they acquire it some time between the ages of three and five years. Perner\textsuperscript{27} shows that mind-reading grows through three subsequent stages. The following are the \textit{three} important stages.

\begin{figure}[h]
\centering
\caption{The Three Stages Development of Theory of Mind.}
\begin{tabular}{|c|c|c|}
\hline
First stage & During the first 18 months of life & Simple desire psychology \\
\hline
Second stage & Between 18 months and 3½-4 years & Desire perception psychology \\
\hline
Third stage & Between 3½-4½ years & Develops mature theory of mind \\
\hline
\end{tabular}
\end{figure}
The early stage of development of theory of mind is really the
development of perceptual discrimination and the early concept formation. It
is proved that between birth and about 18 months, a child develops
perceptual discrimination. The conceptual structure of agency, intentionality,
and mind most likely grow out of this perceptual discrimination. There are
reliable evidence of children’s perceptual sensitivity to self-propelled
movements and to goal directed action by about 9 months. By 1½ years,
children acquires ability to infer intentions even from unsuccessful surface
behaviour and by age of two the conceptual understanding of desire and at
the age of three they acquire belief. Age of four is the turning point of theory-
of- mind growth which culminates in an understanding of false belief. The
innateness of mind-reading is supported by general evolutionary
considerations, by data from autistic individuals and other unusual cases
by the seemingly very early acquisition of key aspects of mind-reading, and
by the good explanations that exist for why children below the age of about
four should generally fail to display false-belief understanding in explicit
tasks.

The developmental study of theory-of-mind in children makes use of
false belief tasks to test the theory of mind capability. Even though the study
of theory of mind has a long history, it is the false belief task that defends
theory of mind on the basis of experimental paradigm. According to false-
belief test, the method of testing the presence of theory- of- mind ability in
children goes like this: children undergoing false-belief task are told that, a
character called Maxi (that is why this test is also known as Maxi test) places
some chocolate in particular place and he moves outside and that time his
mother replaced chocolate to another location then children undergoing false
belief task are asked: where will Maxi look for the chocolate on his return? It
is established that in order to pass the false- belief task, the child must
comprehend that Maxi has a false belief that the chocolate is still at the
same location, where he kept before he was going outside. The child who
passes the test must be able to contrast his own perception of the real
situation with the real belief of Maxi or target agent. Bloom and German (2000), who generally support a theory-theory approach, cite various aspects of primary inter-subjectivity as already providing such capabilities prior to age four. They conclude, rightly, that the false-belief test is an ingenious, but very difficult task that taps one aspect of people’s understanding of the minds of others. Stich and Nicholas argued that theory-theory is either obviously implausible or it is patently insufficient to capture the general capacity to read one’s own mind. There are two alternatives that on the question of how our theory of mind or theory-theory develops in childhood.

1. The first option is that it develops through a process of theorizing similar to scientific theorizing.

2. The second is that it develops through a process of biological maturation and the theory of mind is largely innate.

The most important point of disagreement between theory-theory and simulation theory is on the issue of ‘how the mind-reading capacity functions’ rather than ‘how it is attained’. Theory-theorist establishes divergent position on the question of acquisition of theory. For example, Gopnik and Wellman argue that the process of theorizing through which our theory of mind is developed is akin to development of scientific theory. Carruthers says that social instruction or enculturation surely does help shape the more refined features of fully developed folk psychology or theory of mind but it contributes little to the construction of the core theory which is already employed in four year old children. In relation to the core theory he adopts a nativist version but he says that our environment has a very definite role to play in the further development of theory of mind capacity.

For him, we human beings are innately predisposed to develop a theory-of mind-module. It is evident from the fact that all children acquires the same ability at more less same age even though there is disparities in their intelligence and social environment. More accurately, the
developmental rigidity of our mind-reading capacity is the evidence of existence an innate theory- of- mind module. The theorizing theory version of theory- theory referred in the above is criticized by Carruthers. The main complicatedness of theorizing theory version may be that they do not give much consideration to the external resources that support scientific movement.

As Carruthers argues, biological maturation or innateness is the viable position on the development of theory of mind. By ‘innateness’ here it means that theory- of- mind is genetically channeled or genetically determined. Carruthers views that, experience has a substantial role in the development of theory of mind; the richness of social environment including linguistic environment may influence different stages of theory of mind development. Carruthers argues that, there would have been forceful selection pressures in social world of our ancestors and that necessitate reasoning about the mental states of other inhabitants. Other important evidences for innateness of theory of mind are from autism.

The evidences from autistic children shows that in them social intelligence or theory of mind ability is blind or damaged genetically even though they possess normal intelligence in other senses. They cannot understand that other people think differently than themselves. That is, they may not be able to anticipate what others will say or do in various situations. So many autistic individuals may have problems relating to social relations and communications. Because of lack of theory of mind capacity, autistic individuals do not understand that other people have their own plans, thoughts, and points of view. So autism is a sort of mind-blindness due to genetic damage of theory of mind ability and it proves that theory of mind is a genetically endowed capacity.³³

The other evidence is from Down- syndrome patients; whose theory of mind faculty is undamaged but their intelligence is not normal. These patients are highly social and communicative and tested along side autistic
patients on theory of mind tests and they showed almost similar performance to that of normal children.

According to Stich, there is no evidence that autistic children or adults have any trouble recognizing their thoughts and actions as their own. People with autism and Asperger's Syndrome have access to their inner lives. They are aware of, report and remember their own beliefs and desires as well as their occurrent thoughts and emotions\textsuperscript{34}.

As Stich argues the evidences from autism indicate that the capacity for self-awareness does not depend on the Theory of Mind, rather it functions through a Monitoring Mechanism that is independent of the Theory of Mind. The deficit in theory of Mind abilities, does not suggest that autism involves a deficit in the Monitoring Mechanism. He claims this account is supported both by developmental evidences and by evidence acquired from psychopathologies\textsuperscript{35}. The following figure represents Stch's and Nichols's model of 2003\textsuperscript{36}.
Figure 5.4: Stch's and Nicholas's model.
There are a range of proposed mechanisms for detecting the perceptual states, desires and beliefs of other people. Representation of the world from the point of view of other is constructed with what is called the help of *Possible Worlds Box*. Then with the help of subject’s own inferential mechanisms and planning mechanisms they figure out what else others believe and do. On Stich – Nicholas view the “mind-reading coordinator system” coordinates whole processes and controls and directs interactions of the various different parts of the system. Stich represents theory-theory as the model of mind -reading (self and others) as:
Carruthers questions Stich’s claim that introspection is intact in autistic patients and there is no mind-reading ability. Carruthers warns Nichols and Stich (2003) for misinterpreting the data. And he further argues that autistic patients could pass second-level or first-level false belief tasks
suggests that autistic children are not entirely deprived of self-attribution but they are disadvantaged in their third-person mind-reading\textsuperscript{37}.

The normal distribution of intentional ability in adult human beings is a problematic issue. There are two types of mind-reading: sequential mind-reading and recursive mind-reading. An example of former is ‘Anne thinks that Biju thinks that Sindhu thinks that Ramu thinks that …………..example to latter is ‘Anne thinks that Biju thinks that Anne thinks that Biju thinks……..but the works on intentionality does not give a correct explanation of this distinction. Carruthers does not give any clarification about the levels of intentionality or whether it is sequential or recursive. It is generally accepted that, ToM is a second-order intentionality. In Carruthers’ terms it is symptomatic of HOT. So it is the recursive succession of mind states involving propositional attitudes like beliefs desires etc. Almost all the study conducted on ToM offers the evidence for second-order intentionality. When children attain the ToM they categorically obtain the ability to perceive the world from others viewpoint. It is proved that second-order intentionality is the instrument behind our behaviour of lying and pretend play. Autistic patients lack the second-order intentionality and in effect they do not possess capacity to lying and pretend. In other words, autistic persons do not have the capacity to perceive the world from another’s point of view. The second order-intentionality is also essential for language and religion.

There exists a disagreement about how many levels of intentionality are there in conventional theory of mind tasks. For example, ‘I believe that you believe that I believe something to be the case’ is a third-order intentionality. Dennett argues that this recursiveness of levels of intentionality are infinite in principle\textsuperscript{38}. Thinkers like Origgi and Sperber\textsuperscript{39} argue that in order to pass conventional false belief tasks, a child need fourth – order intentionality like: the child believes that the experimenter wants it to think that Sally supposes that his ball is in the basket. A study by Kinderman et al\textsuperscript{40} about the advanced ToM in normal human adults proves
that fifth-order intentionality is difficult to do. Since, subjects performed well on the memory tasks related to mind-reading tasks the failure of mind-reading is not the result of memory loss. These findings have great implications in the study of details about higher-order intentionality. Commonsense provides evidence for the fact that we have higher- orders of intentionality. But Dennett says that there is no scientific evidence for the higher-order intentionality. The following figure shows how Carruthers’ theories consider different levels (orders of thought) of intentionality.
The Dispositionalist HOT theory and Reflexive thinking theory support recursive mind-reading. But they disagree with each other on the question of how many orders of thoughts are needed in order to be mental state to become phenomenally conscious. Carruthers argues that a second-order thought is enough to a mental state to acquire phenomenal consciousness.

5.3. **ToM: Distinctively Human?**

Language and theory of mind have fueled each other’s evolution. What is the exact relation between language and theory of mind, in evolution, development, and social behaviour? Carruthers, in his early stage of development of his theory, claims that only conscious thoughts require natural language and he supports a parallelism of language and mind-reading. Animal other than human beings have no public language, even though they can enjoy simple thoughts about their own environment. These thoughts confined to perceptible aspects of the creatures immediate spatial and temporal environment. Language is necessary for thoughts about remote times or places about abstract objects or imperceptible objects. Children who grow up without any exposure to natural language are slow or deficit in their cognitive capacities and that implies that some kinds of human thought involve natural language. In other words, these examples show that for its proper function, human cognition needs language. Theory of mind is the innate or inborn capacity of human being and it is not acquired through the process of learning. These strategies form the base line of Carruthers’ evolutionary explanation of consciousness.
If HOD theory is superior to dispositionalistic HOT theory, it should be case that all structured HOT is formulated in natural language. He suggests so much evidence that to defend the claim that mind-reading faculty, (which possess the capacity to generate structure HOTs) is evolved prior to natural language. So he argues that at least structured HOTs are evolved prior to natural language and dispositionalist HOT theory is preferable.

The question before us is to how propositional thoughts are carried in our cognition? One answer to this is provided by sententialist. Sententialist diverges on the type of language in which thoughts are carried; there are two options before them: natural language and mentalese. There are three problems related to propositional attitude which should be explained. The first: do those propositional attitudes possess contents systematically? The second: is there is no finishing line to fresh thought which we can enjoy? This is the so-called problem of productivity of propositional attitude. The third problem is problem of causal powers.

Propositional attitude are systematic means that, it is normal that if we have a thought or belief that ‘Sita loves Ram’ we can also be capable of thought that ‘Ram loves Sita’. Why it is so? The second problem is, if we can think that Ram has a mother we can also think that Ram’s mother has a mother and Ram’ mother’s mother has a mother, and so on. Accordingly, belief and desires interact to cause intentions and work together with other beliefs to produce a new belief. For example, the belief that there is snake in the road causes me to carry torch in my hand whenever I go outside.

According to Fodor, endorsing the hypothesis that beliefs are relations to internal sentences or mentalease can solve these problems related to propositional attitude. According to this hypothesis, propositional attitudes are systematic and productive because there is a language of thought or mental language. Earlier Carruthers’ defends a hybrid variety of theory- theory and simulation. This also made him to open the charge of parallelism.
But now Carruthers has distanced himself from simulationism to the extent that he wants to target it for criticism as much as a reigning paradigm. Thus the function of our mind-reading capacity is to represent process and generate structured representation of mental states of others and ourselves. It is argued that mind-reading evolved prior to language and so that mind-reading functions independent of language in modern human also. It is argued that communicative intentions are only possible for being with highly developed and sophisticated mind-reading faculty and communication presupposes higher-order thought. For example, thinkers in Gricean tradition believe that language began with early hominids using arbitrary one-off signals to communicate with one another, requiring them to go for elaborate higher-order reasoning concerning each other's beliefs and intentions.

Gomez, for example argues that limited mind-reading existed prior to evolution of language and the language and capacity for structured HOTs are co-evolved. Carruthers argues that this view does not affect his thesis that structured thoughts are present in the modern man in the absence of language. He suggests that the argument from deaf people who grow isolated from deaf communities but engage in complex pantomimes to exchange their meaning show that they possess higher-order thought in the absence of natural language. But thinkers like Peterson and Siegel, suggest this evidence from late signers is strong support for involvement of natural language in mind reading. Carruthers replied that these thinkers failed to prove the problem that late signers may have difficulty with mentalistic vocabulary and so might have difficulty in understanding in the text questions. Mind-reading is a distinct language independent module and one of main functions of which is to the interpretation of speech. Evidence from capacity of aphasics who have lost their linguistics capacity due to brain damage proves that their mind-reading faculty continues to undamaged.
Now Carruthers emphasized the important constitutive role played by imagery especially inner speech in the operations of System 2\textsuperscript{48}. He put forward a diverse route through which a mentally rehearsed sentence can give rise to a new belief. On this account, the rehearsed sentence, “Capital punishment is permissible” is scrutinized in the similar way or process, when we scrutinize statements of other person, before storing the content of that person’s utterance as a new belief. So here, too, the rehearsed utterance isn’t itself the formation of a new belief; and a new belief only gets acquired via further processes of thinking and reasoning. They are introspectable events that sometimes give rise to judgments and decisions (items of inner speech, or other forms of imagery); but these aren’t, themselves, the judgments and decisions\textsuperscript{49}.

Then another problem related to theory-of-mind is that whether creature other than human beings possesses theory-of-mind. For example, the question whether chimpanzees possess a theory-of-mind is one of the hot issues in developmental psychology. The question is: what it are (both animals and human beings) needed in order to possess a theory-of-mind. Theory-of-mind is a phrase that generally limited to animals and person’s ability to represent themselves or others as having intentional, content-ful representational states. (e.g., believing that p or knowing that q etc). So it implies that child or a chimpanzee has a theory of mind when we want to say that the child or the chimpanzee knows that others have beliefs and desires, which play a causal role in behaviour\textsuperscript{50}.

The point is just that for a higher-order thought theorist, the capacity for phenomenal consciousness is conditional on a capacity for higher-order thinking; and the latter capacity is unlikely to be widespread amongst non-human animals\textsuperscript{51}.In fact, the addition of a HOT faculty to the basic mammalian cognitive architecture might be the only relevant difference between us and other animals.
One of the main criticisms to Carruthers’ view of animal consciousness is coming from FOR theory and actualist HOT theory. According to first-order theory, in order to acquire a phenomenally conscious experience, we need cognitive sophistication to have some beliefs and desires and representational states with the right sort of content poised to the right sort of way that are available to conceptual thought for control of action. While HOR theory argues, in order to be phenomenal conscious, we need a kind of theory of mind to underline and make possible higher-order thoughts and only human beings possess representations and that. Carruthers says that our commonsense belief that many non-human animals besides us are conscious is a groundless belief and he claimed that arguments that support this claim are very weak. He says “many non-human animals are phenomenally conscious is worth very little….. and that it can easily be explained away as mere byproduct of imaginative identification with their states”\textsuperscript{53}. Carruthers rejects all evidences that support animal consciousness ranging from scientific to commonsense. Carruthers’ argument runs as follows;

P1 According to higher-order thought theory, the so-called higher-order thought requires the possession of theory of mind, within which its concepts of experience and thought will be embedded.

P2 Hardly any animal possess theory-of-mind (even if a chimpanzee’s possession of theory of mind is a debate among the cognitive scientists; that is whether the chimpanzee possess theory-of-mind, which contain a concept of experience as a subjective state of the perceiver). Then it will follows that;

C Hardly any animals possess experiences which are phenomenally consciousness.

One of the criticism to HOR theory is centered on its moral consequence. Carruthers agrees that animals posses experience of the world and their own bodies and although the world may be subjectively
presented somewhat differently to different species of animal. The animal experience will lack the kind of subjectivity or experiential state; subjectivity necessary for possession of phenomenal consciousness. Carruthers argues that it is possible only if we have a theory-of-mind capacity.

HOR theorist like Gennaro, (1996) and Lycan (1996) argue that there may be simple higher-order representation for animals. As Gennaro argues in order to be phenomenal consciousness, we need no such extreme conceptualization as HOT theorist like the one Carruthers argues. Gennaro says that we can make a distinction between conscious mental states from non-conscious mental states or entertain the form of HOT like ‘this is distinct from that colour’. Carruthers criticizes that this is not a form of HOT but only a first-order thought about distinctness of two perceptually presented colours. To move out of this criticism, there are two choices before us; HOT and HOE. Carruthers argues that Lycan’s attribution of HOEs to animals is far from clear because in order to possess HOEs, the internal monitors need more computational complexity but animal’s lack this computational complexity or theory-of-mind modules.

The second criticism is from scientific discoveries related to animal consciousness; for example, Cowie and Stoeirg argue that evidences from blind-sighted monkeys show that monkey’s visual experiences are phenomenally conscious. Carruthers rejects it as mistaken view and says that there exist two functionally—distinct visual pathways in monkeys and human beings. Because, in human beings the perceptual states are available to the mind-reading faculty which is charged with constructing higher-order representation of them, which are also available to a variety of first-order conceptual belief-forming and practical reasoning systems. Carruthers denies that monkeys posses enough ‘theory-of-mind to have the concept of experience as a subjective state of perceiver. (But he allowed worldly subjectivity to animals or first-order representation can give an
account of the same)\textsuperscript{57}. The following figures show the difference of structure of animals and human mind.\textsuperscript{58}

**Figure 5.7: The Structure of Animal Mind**

![Diagram of Animal Mind Structure]

**Figure: 5.8: Human Cognitive Architecture**

![Diagram of Human Cognitive Architecture]

3. The third argument is from commonsense intuition, that says we have intuitive belief that there is something which it is like for animals (for example a bat). When we attribute an experience to the cat, we quite
naturally attempt to form a first-person representation of it's content, trying to imagine what that experience might be like “from the inside”. According to Carruthers, we are subject to a kind of cognitive illusion here; an illusion which arises because we cannot consciously imagine a mental state which is conscious and lacking any phenomenology. Carruthers says that commonsense intuition is groundless and we can explain away this intuition easily. We can concede that cat has perception of smell, sight etc and human imagination has no capacity to explain conscious nature of animal experiences and hence there are no explanatory attributes to conscious beliefs and desires or perceptions to animals.

Carruthers' version of HOR theory denies phenomenal consciousness to animals and infants. He argues that evidences from autistic patients and infants prove that they have no sophisticated theory of mind (which has an unavoidable role to play in phenomenal consciousness). As a reply to the objection from FOR theorist, Carruthers argues that first-order content of younger children and elders will be generally similar. That the worldly subjectivity of two sets of children will be same but their experiential subjectivity varies. Moral concern and sympathy are related to first-order perceptual state.

Although the matured theory is acquired only after the age of four, there exists a theory-of-mind in much younger children. For example, the study has proved that children are using mental state terms soon after they learn to speak their native language. It is argued that two-year-old children have the capacity to understand propositional attitude of pretence. Understanding the intentions of the speaker is the key component in word-learning. So we can conclude that children below four must possess a simple theory-of-mind, including communicative gesturing, gaze following, or social referencing.
Recent research suggests that chimpanzees can reason about seeing. Povinelli and Vonk argue that successful performance in any research paradigm that asks a chimpanzee to make predictions of behaviour in familiar situations will fail to serve as evidence for mentalistic reasoning. And for them, the recent paradigms that chimpanzees can reason about seeing does not show that there is a distinction between mentalistic and behaviouristic psychological systems in chimpanzees. K. Andrews assumes that the arguments presented by Povinelli and Jennifer Vonk are misplaced. Part of the problem is that their novel paradigm is subject to the same criticisms they present against the old paradigm. They think that chimpanzees as well as humans make predictions by appealing to behavioural abstractions rather than using mentalistic reasoning regarding the beliefs and desires of the target (though they think that humans use mentalistic reasoning to make some novel predictions.).

Tomasello et al claim that chimpanzees seem to comprehend some things about what others do and do not see, as well as some things about others’ goal-directed activities. Their most important evidence, however, takes the form of a food competition study in which a subordinate and dominant chimpanzee is both given admission to a room which has been baited with food. The general finding is that subordinates stay away from the food that the dominant can see and subordinates seek out the food that the dominant cannot see. This capability to differentiate between identical items of food based on its property of visibility is taken to point out that the apes have a concept of seeing. This is a predictive paradigm, in that the subordinate is given the task of predicting where the dominant will go to seek food, and given that information, the subordinate regulates her own behaviour in view of that.

Thinkers like Call highlights the predictive nature of the task and claims 'one important talent in both cooperative and competitive situations is the ability to predict and foresee the behaviour of conspecies' Povinelli and
Vonk claim that the food competition study offers no evidence that chimpanzees use mentalistic concepts when reasoning about behaviour because behaviour could have been predicted using behavioural abstractions and inductive reasoning. If we reject the food competition study as the evidence for theory of mind in chimpanzees, then to be consistent they also ought to reject Wimmer and Perner’s (1983) false-belief task as evidence for children’s theory of mind. Children who pass the test say that the Maxy will look for the object where he left it. It has been thought that passing the false-belief task offers solid evidence that a child has a theory-of-mind. So we can conclude that developing a theory of animal mentality seems to be a test case of the interdisciplinary research program in cognitive science. There is no single empirical science that covers all ingredients of a theory of (animal) minds and we need behavioural concepts as well as neuro-physiological evidence. We need evolutionary considerations as well as simulation. It is undeniable fact that animals (like ape) can able to “know how to do things”. But our question here is: Whether animals can attribute mental state to others? Attributing mental state means representing a representation that is in the mind of another person.

5.4. Theory-Theory: Problem of other Minds and Self Transparency

A folk psychological theory should have responses to the epistemological questions like:

1. How do common people understand, or represent to themselves, the various mental states? That is, what are the contents of their concepts of the mental states?

2. How do they go about attributing these states to others and themselves? or ‘How we foresee of ours’ and others’ mental states?

3. How do people acquire their concepts of mental states and their capacity at applying these concepts?
The argument giving rise to the problem of other minds are as follows\textsuperscript{66}

There are three basics of reasons for belief: (a) immediate awareness, (b) perception (c) inferences from either (a) or (b)

It is impossible to have immediate awareness of mental states of other persons.

I can only acquire perceptual knowledge of the mental states of another, if I already know of common correlation between mental and physical states. But it gains through observation or theory-laden perception. So according to Carruthers it is possible to perceive the mental states of others, if we have some background knowledge. For example, if we can know the general truth that screaming is commonly associated with pain, we perceive mental states of others suffering from pain. But these general truths are not acquired through perception.

C1 So if I have knowledge of mental state of others, it must be based upon inference from observable physical states.

Such an inference must be either deductive or inductive.

Deductive reasoning cannot be valid because there is a chance of pretence and conceivability of Zombies

Inductive inference also cannot be a valid because it is based upon one and only case (my own)

C2 So observed states of others are unsuccessful to provide me any reason to believe in their mental states.

C3 So I cannot have good reasons for belief in mental states of any other human being besides myself\textsuperscript{67}.

During the last 15 years, the processes fundamental to mind-reading have been a major focus of attention in cognitive and developmental
psychology. The subject matter of self-awareness has a remarkable philosophical ancestry, and continued debate of the topic goes back at least to Descartes. More recently, self-awareness is placed as a dynamic topic in the cognitive sciences. Carruthers argues that a Cartesian belief in the self-transparency of minds might actually be an innate aspect of our mind-reading faculty. In what follows; we will analyze Carruthers’ view on self-transparency of mind.

According to Carruthers, (as we have seen in the first chapter) there is no ontological or metaphysical support to Cartesian dualism. But he supports the innateness of the epistemological strand in Descartes’ philosophy of mind. Bloom says every person possesses an innate mind-reading system and innate physics system and belief in Cartesian dualism is outcome of that. He advocates these states and events that appear to have incommensurable properties, making it hard for children (and adults) to incorporate them into a single framework (hence the ‘mind/body problem’). According to this view, mental events and physical events have specific seats of their own. Carruthers defends a different position and argues that innateness is a significant aspect of Cartesian epistemology and it is an adaptation. His argument, like Bloom’s, will take for granted the innateness of at least some core aspects of our mind-reading abilities. Descartes’ defends an epistemological rationalism and says that that our knowledge of our own mental events is more certain and clear than any other knowledge. He says that all mental events are directly available to subject. Therefore, the transparency thesis is a combination of two divergent claims:

1) **Incorrigibility** (‘If I believe that I am experiencing specified mental event, then so I am’)

2) **Self intimation** (‘If I am undergoing a given mental event, then I can immediately know that I am.’)

The mind-reading system would appear to operate with a model of its own access to the rest of the mind that is essentially Cartesian. It assumes
that subjects know, immediately and without self-interpretation, what they are experiencing, judging, and intending. Carruthers claims that there is good rationale for thinking that a belief in the self-transparency of mind is innate—either forming an explicit component of our mind-reading ability, or else being fixed implicitly in the structure of that faculty. But it is true according to him that the transparency thesis is, actually, deeply and radically false. Carruthers, defends an account of the location and connectivity of the mind-reading system within the overall architecture of the human mind which implies that the self-transparency thesis is radically erroneous. Carruthers says the very same perceptual states represent the world to us can at the same time represent the fact that these aspects of the world are being perceived. But it is permitted as an account of introspection and Carruthers observes that it is an introspection without cost and latter he views that, Introspection is divided.

Carruthers argues that there is no such thing as introspective access to judgments and decisions, while he allows introspective access to perceptual and imagistic states, and to emotional feelings and bodily sensations. For him, introspection is a higher-order procedure, issuing in awareness or knowledge of (or at least beliefs about) the happening of token mental states. For example, when we introspect a feeling of sorrow, we happen to aware of that feeling, and come to possess the knowledge about our sorrow. But according to him, Introspection is not an interpretative process. We think that introspective access to our own mental states is epistemically quite different (in kind, and not just in degree) from the access that we have to the thoughts and perceptions of other people.

Carruthers argues that, when we introspect we don't need to notice and interpret our own behaviour and circumstances in order to know of our own mental states. Access to other mind occurs via interpretation of people's behaviour and circumstances, whether through deployment of theoretical knowledge, or via simulation, or (more plausibly)
Carruthers argues that neither judgments nor decisions are introspectable, but are known only via a process of self-interpretation. Judgments are a kind of active, occurrent, mental event, which when stored give rise to dormant, standing-state, beliefs; and likewise decisions are the mental events that give rise to both standing-state intentions and actions. From the standpoint of "dual systems theories" of belief formation and decision-making, Carruthers upholds a controlled variety of eliminativism about introspection. This called partial eliminativism.

The above figure shows that we should have introspective access to our own perceptual and quasi-perceptual states. There aren't any causal pathways from the outputs of the judgment-generating systems and the decision-making system to mind-reading, which would be required to allocate introspective access to our own judgments and decisions. The figure shows that, the mind-reading system only has access to perceptual input and thus that it can only self-attribute judgments and decisions through processes of interpreting that input, in much the sort of way that it attributes...
judgments and decisions to other people. As a result, there is no such thing as introspection of judgments and decisions. Gazzaniga argues that the left brain houses the main elements of the mind-reading system (which he dubs “The Interpreter”), with access to perceptual, somatosensory, and proprioceptive input, but with no access to the judgments, reasoning processes, or intentions of the subject.  

Children who acquired a fully developed ToM understand that their and other people’s representations of the world. The concepts of theory-of-mind framework are closely interrelated, with the intentionality concept being an organizing node and children show increasing versatility in their reasoning with these concepts. The emergence of this conceptual and processing framework can be seen as an attempt to strike a balance between two counteracting forces: increasing self-other differentiation on the one hand and increasing self-other coordination on the other. With little sensitivity to others’ mental life, one’s own mental life may remain mysterious; and with little self-insight, mental interpretations of others’ behaviours may be impossible. Among the functions of a theory of mind, the achievement of social coordination (of both behaviour and mind) seems critical. In the course of development, the coordination of minds may become more important, precisely when the coordination of behaviours becomes difficult, that is, when behavioural responses between self and other begin to diverge. Such divergence may come about, for example, because of differential motives and affect, multiple opportunities to act, and multiple interaction partners.

It has become somewhat clear that Theory–theory simulation hybrid view is supported by recent findings. For example, X is running after Y to catch him. We can predict Y’s next action as she/he will hide herself/himself behind the storeroom. The question before us is does our prediction involves a simulation of Y’s cognitive process or we use a deductive inferential process based on theory of mind or both. There are three varieties of TT.
These theories are distinct on the issue of how we explain and predict the actions of ourselves and others?

1. The process of acquisition of theory-of-mind is outcome of biological growth and FP is an innate genetically endowed theory-of-mind module. According to this view, culture and experience or learning can be their own role in the development of theory of mind, but the core theory of mind is innate.

2. The second version admits that theory of mind is learned on the basis of experience. According to this view, the child is constructing and revising theories on the basis of incoming data. As this view claims, learning can be through theorizing.

3. The third is a mixture of theory-theory and simulation. According to which, this learning can be through teaching and enculturation.

5.5. Double Duty System: Mind Reading Underlies Metacognition

Carruthers’ defense of theory of mind in the light of Cartesian epistemology represents the culmination of his post naturalistic strategy of defending theory–theory which is assumed to reject simulationism. In sharp contrast to his earlier hybrid view now he strongly supports theory-theory. There are three accounts of the relationship between third-person (mind-reading) and first-person (metacognition).


Carruthers treats first two positions as foil and criticized them, finally defending his position that metacognition depends on mind-reading. In what follows, let us analyze Nichols and Stich’s position that there exist independent mechanism for mind-reading and metacognition.

Nichols and Stich\textsuperscript{77}, argues that ToM is centrally involved in (i) detecting other people’s mental states (ii) reasoning about mental states in other people, and (iii) reasoning about one’s own mental states. MM is the special mechanism that underlies (iv) detecting one’s own mental states. On the TT account, by contrast, ToM is centrally involved in all four of these capacities. Nichols and Stich\textsuperscript{78}, now endorse a model, abandoning the core TT answer to question how do they attribute such states to themselves? They call their theory the "Monitoring Mechanism Theory", and distinguish it from TT.

According to them, mind-reading skills, in both the first person and the third person cases, can be divided into two categories: 'attributing' and 'reasoning'. The former is the ability to attribute mental states to someone. The latter is the capability to use information about a person's mental states to make predictions about the person's further mental states (past, present & future), her behaviour, and her environment. So we might detect that X wants a pen and X thinks he get pen from the corner shop. Then based on this information we can predict or make the reasoning that X will go to the shop to buy a pen. Some versions of theory- theory propose integrated accounts on which attributing and predictions are explained by the same cognitive mechanism. Stephen Stich- Nichols maintain that in the first person case, these two aspects of mind-reading are subserved by different mechanisms.\textsuperscript{79} However, they don't seem to appreciate the full implications of this approach. They adopt the standard boxological story of the attitudes, according to which beliefs are depicted as states "residing" in certain boxes. The standard lore on boxes (which they follow) is that 'box-talk' is merely short-hand for talk about functional roles. If this is correct, the properties that
qualify a state as a belief, a desire, or an intention are not categorical or non-relational. So the Nichols-Stich story does not escape from the computational complexity objection.

Theory-theory argues that over and above any actual thinking, there are also general psychological principles; knowledge of which explains the movements of thought that occurs during a period of thinking. Simulation theorist labeled this view as ‘un-warranted and unparismonious’ assumption. This implies two layers of thought. The first layer consists of actual episodes of thinking and the second layer is a meta-thinking about the actual thinking. Simulationist rejects this meta-cognition view and argues that thinking takes place in accordance with the canons of rational cognition. Stephen Stich argues that in case of first person aspect we need no theory of mind. He gives priority to simulation. Self-awareness derives from a Monitoring Mechanism that is independent of the Theory of Mind.

Carruthers on the other hand claims that metacognitive(first person) intrusions have no straight contact on cognitive processes that aren’t made accessible through the global broadcast of perceptual and quasi-perceptual events (and hence which aren’t accessible to mind-reading). System 2 reasoning processes are shot through with metacognitive (in the sense of “meta-representational”) states. Sequences of inner speech and other forms of imagery are often guided by our metacognitive beliefs about how one should reason, and are directly influenced by metacognitive reflection on the truth or plausibility of the thoughts thereby entertained (Frankish, 2004; Carruthers, 2006). But no separate faculty of introspection is required to make all this possible, beyond the availability of globally broadcast perceptual and imagistic events to the mind-reading system.

On the other hand we have Gopnik inspired view of parallelism. According to this, we are typically have much more information about our own minds than we do about other minds, so even on this version of the theory, theory we may well have a better grasp of our own mind than we do.
of other minds (see e.g., Gopnik 1993, 1994). However, the mechanisms underlying self-awareness are supposed to be the same mechanisms that underlie awareness of the mental states of others. Even though we seem to perceive our own mental states directly, this direct perception is an illusion. In fact, our knowledge of ourselves, like our knowledge of others, is the result of a theory, and it depends as much on our experience of others as on our experience of ourselves\textsuperscript{82}.

According to Carruthers, Cartesian belief in the self-transparency of minds might actually be an innate aspect of our mind-reading faculty but there are no crucial evidences to support the claim that self-transparency of mind is universal to the human species\textsuperscript{83}. This is at odds with the view that an individual has some kind of special or privileged access to his own mental states. According to as said monitoring mechanism theory (MM theory), put forwarded by Stich, a special mechanism is responsible for self-awareness. The following two figures represents Carruthers’ and Stich’s model of mental state attribution. Carruthers argues that either it is self awareness or reading of other minds by which all the conscious beliefs are available to theory of mind capacity. If a standing state belief is not available to higher-order thought generated by mind-reading, that won’t be conscious. The distinction between two models of mind-reading can be understood from the following figures.
Figure 5.10: The Role of Theory of Mind in Carruthers' Dispositionalist HOT Theory

Beliefs and desires

Figure 5.11: Stich's MM theory

Thinkers like Botterill, Carruthers and Perner\textsuperscript{84} stands firmly for theory-theory and added that the intrusion of something like simulation will
be needed and Perner calls this as “content simulation”. Carruthers’ preference is to theory- theory and for him; it is an undeniable fact that simulation has a definite role in the process of inferential enrichment. It is definite that the core theoretical knowledge is innately provided but it is some way complemented by intentionalistic predictions and explanation. Initial folk psychological theory is supplemented by simulation using inferential connections amongst one’s own content- ful states to derive predictions for explanation of other. Carruthers has no objection to limited role of simulation in theory of mind. But from the way he defends theory-theory account of self awareness in the last batch of writings (including review of Goldman). It is shown that he is building up as strong resistance to simulation as a paradigm. So the supreme place is given to theory – theory. Carruthers says “introspection of one’s own propositional attitudes can’t play the sort of foundational role in mindreading unless a substantive body of theoretical knowledge about the causes and interactions of those attitudes can initially be gained from one’s own case alone”85. This is a defense of theory- theory.

Carruthers critique develops through following lines of argument. Carruthers argues that it is only my ability to predict and explain the actions and mental states of myself and other people that are to be provided by simulation86. Simulationism is not possible to explain how we come to understand and attribute experiences as opposed to thoughts. Carruthers says” I can come to know what some one believes by simulating their reasoning process; but how would simulation play role in enabling me to know what another is experiencing in a given set of circumstances?”87 Carruthers’ view is that simulation is mere image construction because in simulation we are imaging what others are experiencing. Carruthers argues that background theoretical knowledge seems necessary to guide the process of image construction or he defends a theory driven simulation88. But on the other hand the simulationist account of mind-reading gives more importance to the learning process. So the problem is to abstract an
extremely rich causal role on the basis of some thing which is a-causal. But Carruthers admits a weak version of simulationism and says that the limited simulation enhances the process of an innate theory. So Carruthers argues that knowledge of causal and functional role is needed to make the primary discriminations of different psychological states on which simulation might subsequently go to work. Stich says that Carruthers version of theory – theory considers only the other mind issue and it has no answer to the issue of self knowledge. Carruthers counters this by that there exists just a single (albeit multi-component) mind-reading system - there is no separate meta-cognitive system. He advances his theory as 'inference to the best explanation' of the available data and says “there is just a single mind-reading, faculty for attributing mental states, purposes of which has introspective access to perceptual and quasi-perceptual events, but which lacks such access to propositional attitude events”. That makes him to accept Cartesian epistemology as a part of theory of mind which is supported by with dual system theory that assumes a form of minimal rationalism.

Carruthers’ defense of theory-theory shows post-naturalistic implications of a variety of Cartesian dualism. He realized that it is necessary to travel beyond realism naturalism, physicalism and reductionism and in its extended form he supports a form of dualism which is more epistemic than ontological. We can see that here he is biased more towards the theory of mind which is strongly supported by the so-called dual system theory. We can hypothesize that question of phenomenal consciousnesses is submerged in the broader question of theory of mind which is proposed as extended form of naturalism. According to this view, our concept of propositional attitude state is a concept of a state occupying certain causal role. We can recognize the occurrence of that sort of state in ourselves. We are recognizing these states occupying a particular sort of causal role. But simulation can’t give a satisfying answer to this. Carruthers says that belief in self-transparency of mind is innate or part of our theory-of-mind story.
Carruthers supports something in between reduction and non-reduction with his defense of a Cartesian epistemology with a minimal rationalism.

1. One important sense of minimalism, as we gather is inspired by Chomsky's minimalist program, which posits two sub system of language acquisition.

2. The second important sense of minimalism is that we can take mind-reading in a form of introspectionism, but then we qualify it by holding that introspection is computationally costly.

He encounters the controversy between theory-theory and taking folk psychology in the direction of minimal rationalism via naturalism (Chomsky) and modularity (Fodor). So over all findings of the entire research can be assembled as concluding remark.
REFERENCES


3. Ibid. p. 80.


8. Ibid.


12. Ibid.


16. Ibid.


35. Ibid.


53. Ibid. p. 183.
60. Tomasello, M., Call, J. & Hare, B. (2003a). Chimpanzees Understand


Tomasello, M., Call, J. & Hare, B. (2003a).op.cit.


Ibid. pp.12-16.


75. Ibid.

76. Ibid.


79. Ibid.

80. Ibid.

81. Ibid.


86. Carruthers, Peter (forthcoming) How We Know Our Own Minds: The Relationship Between Mindreading And Metacognition ttp://www.philosophy.umd.edu/faculty/pcarruthers/


89. Ibid.


3 Ibid. pp 80.


11 Carruthers, Peter (forthcoming) How we know our own minds: the relationship between mindreading and metacognition

http://www.philosophy.umd.edu/faculity/pCarruthers

12 Ibid.


17 Carruthers, Peter (forthcoming) How we know our own minds: the relationship between mindreading and metacognition
http://www.philosophy.umd.edu/faculity/pCarruthers


33 Carruthers, Peter. (2004). *NM*, pp 259


37 Carruthers, Peter (forthcoming) How we know our own minds: the relationship between mindreading and metacognition

http://www.philosophy.umd.edu/faculty/pCarruthers


http://www.philosophy.umd.edu/faculty/pCarruthers/Divided introspection.


51 Carruthers, P. (2005), Why the Question of Animal Consciousness Might Not Matter Very Much Philosophical Psychology


54 Gennaro (1996) Consciusness and Self- Consciousness Benjamin Publishing

58 Carruthers, P. (2005), Why the Question of Animal Consciousness Might Not Matter Very Much Philosophical Psychology
Vol. 18, No. 1, , pp. 83–102


Gomez, Juan Carolos(1996)) Non- Human Primate In *Theories of Theory of Mind* Carruthers et al (Eds) pp 333


Carruthers, Peter (forthcoming) How we know our own minds: the relationship between mindreading and metacognition
http://www.philosophy.umd.edu/faculity/pCarruthers/

Carruthers, Peter. (1996)*Language Thought and Consciousness*.. Cambridge University. pp 126-127
Ibid pp 253