

SEARCH FOR A NATURALISTIC THEORY OF CONSCIOUSNESS

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By
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Certificate

I certify that the thesis entitled “**SEARCH FOR A NATURALISTIC THEORY OF CONSCIOUSNESS**” is submitted by Bharathi P.K. to the University of Calicut, is a bonafide record of work carried out under my guidance during the period _____ of 2002-2008 and that no part of work has been previously published in any other University or Academic body.

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D E C L A R A T I O N

I, Bharathi P.K., hereby declare that the thesis entitled "**SEARCH FOR A NATURALISTIC THEORY OF CONSCIOUSNESS**" is submitted to the University of Calicut, is a bonafide work done by me under the guidance of Dr. A. Kanthamani (Formerly) Professor Department of Philosophy University of Calicut and has not been previously published for any Degree or Diploma.

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PREFACE

The thesis entitled "**SEARCH FOR A NATURALISTIC THEORY OF CONSCIOUSNESS**" has the objective to present a critical perspective on one of the most significant naturalistic account of phenomenal consciousness based on the entire corpus of works published by Carruthers in between 1986 and 2009, with a special emphasis on the latest development of scientific theory of other minds from 2000 upto 2008. As far as Peter Carruthers is concerned, the search for a naturalistic theory is contained in more than a dozen books and vast collection of articles . The greatest merit of Carruthers lies in the way he plots his position against almost all theories that are extant today. His responses to every other theory are tapped in the categorization of all leading theories and schematized in what is called as Route Map to the Tree of Consciousness. Carruthers cuts off unwanted branches of the tree and let other new branches to grow till date.

Carruthers' theory represents one of the most forceful responses to realism, anti-realism, naturalism, reductionism physicalism, eliminativism, mysterianism and of course to anti- reductionism as well. The search culminated in magnum opus of 2000, where Carruthers claims to develop a thoroughgoing naturalism about phenomenal 'feel' by displacing the so-called phenomenal qualia uphold by non-reductionists. His dispositionalist higher-order thought theory is considered as masterpiece because his theory provides systematic responses to both first-order (Dretske, Tye, Kirk) as well as higher-order theories (e.g. Rosenthal).

Unquestionably, Carruthers represents one of the major attempts to solve the 'harder' problem of consciousness by organizing the latest empirical researches in psychology and psychopathology (eg: autism). It is not developed as a singular response, but as multiple responses ranging from realism, naturalism physicalism and to what is called a 'minimal

rationalism'. It looks at back and forth, sideways and above all looks to the future for a new cognitive science model to emerge (e.g. dual system hypothesis and mirror neurons).

Carruthers is responsible for finessing almost all the necessary tools developed upto the time, especially by leading cognitive scientists, like Ned Block, Tye and Flanagan, which gave him ample opportunity to advance one of the most prospective accounts. Carruthers upholds a rationalistic tradition developed by Descartes, Chomsky, Fodor and others, in an endeavor to integrate a phenomenology of the self with neuroscience (which is called as neurophenomenology today).

The thesis begins with the most comprehensive account of Carruthers' entire corpus covering the last 30 years or so signaling the key stages it was passing through such as language, thought, consciousness, reflexive thinking theory, higher-order theory within the broad framework of philosophy of psychology. At one time, Carruthers claimed that his is the best philosophy of psychology. He breathed fresh air into the erstwhile schools within the philosophy of mind like dualism, identity theory, behaviourism, functionalism, physicalism and all executed within the wider framework of 'inferences to the best explanation'. The most important step is to choose an appropriate semantics and to uses teleo-semantics as the best. Carruthers theory certainly combines the semantics of propositional attitudes with the recognitional capacity for phenomenal 'feel' to establish an 'integrationist' picture of language, thought and consciousness drawing evidences from the latest research in brain sciences so as to gain support for the dual architecture of the brain. His later development of the theory uses dual system hypothesis that has almost become a 'paradigm' in cognitive neuroscience (supported by thinkers like Millner & Godale, Frankish etc). It is augmented by research on mirror neurons by Rizzolati, Ramachandarn etc. To obtain support for an account of theory- theory (theory of mind module) that has now been rechristend as mind –reading capacity that facilitates a radical understanding of introspectionism.

After presenting the tree and his case for Cartesian interactionism, with the added support for the 'proof of the soul' which subtends a theory of other minds, we move on to the Second Chapter to single out the four important challenges Carruthers face and the way he overcomes them, before passing on to centralize his naturalistic theory in the subsequent Chapter. Our efforts lie in is to critically evaluating his theory by looking at the very 'plausibility' of such a theory (Chapter III). Does it face any serious problem? Does it count as full – blooded one even if the evidences are lacking? We found that plausibility question can be answered optimistically. Carruthers advances with a great deal of ramification, moving almost out of orbit, by counterposing his moderately massive modularity with its attendant flexibility of succumbing to heuristics on the way and then pushing theory in the counterpoint to simulationism (Chapter IV & V). The whole work is tightly organized with every chapter examining the benchmark of a grand theory. We hasten to tell how dual system hypothesis sustain a trend that is carried beyond naturalism and finally countering the hybrid of simulationism with theory- theory. In the end we examine the credentials of mind- reading as a paradigm of introspectionism with all the latest research drawn from psychopathology.

We end up with a catalogue of findings of the research and scope for future research where we enumerate whatever Carruthers has missed and what ever lie in the store for the future research.

CHAPTER I

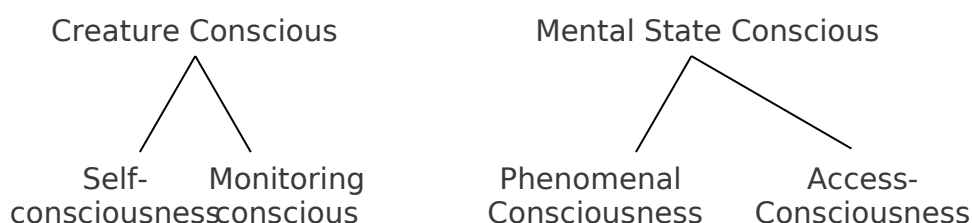
THE SIGNIFICANCE OF CARRUTHERS' PROJECT

1.1 Naturalization of Phenomenal Consciousness: Hard *Versus* Harder Problem

'Consciousness is a mystery'¹. At one extreme, it is claimed that we can close the supposed 'explanatory gap' (Levine) through *a priori* conceptual analysis (consciousness = pyramidal cell activity; water = the unique watery stuff; pain = phenomenal qualia). This is a genus of 'deflationist' approach and which is actually a form of philosophical reductionism in which consciousness is conceptually analyzed in non-philosophical terms. At other extreme is the claim that consciousness is nothing more than neural correlates of the brain (pain = cerebral cortex fibers firing; water = H₂O; cramp = 40 Hz oscillation). This must be contrasted from 'deflationist' view and known as 'inflationist' approach. This is nothing but *a posteriori* reductionism or simple phenomenal realism. Sometimes, it is also identified with physicalism. The former belabour the point of putative identity in order to keep the identity question on the shadow of suspicion. While the latter takes advantage of identity so much as to supply explanatory power to it. The apparent truth is that to make fresh start to attack the problem, we must go out of this orbit of identity syndrome. Block comments: 'identity does not have any explanation, though of course, there are explanations of how the two terms can denote the same entity'². In a sense, the term identity is separable from its equivalents namely, 'correlation' and 'heuristics'. For Carruthers, identity involves constitutive relation because numerical identity does not imply qualitative identity³. The latter may be non-identical (water = ice = lattice structure of molecules). Leibniz's Law is paradoxical when it says about two things having same

properties but it disappears when we say they are two, the one and the other. The criterion of identity is to be captured by X at time of t. This is the step ahead. In the wake of the challenges against the above mentioned distinction between the *a priori* and *a posteriori* categories, naturalism is looked upon as the second best. Between these two extremes lies large amount of conceptual tools for analyzing consciousness. Block gives a useful classification of consciousness, which is captured as follows:

Figure: 1.1. Block's Different Notions of Consciousness



Calling the concept of consciousness as a mongrel notion, Block carry on his clarification of physicalist position by distinguishing between two important notions namely, phenomenal and access consciousnesses. As Block argues, the phenomenal consciousness is experience (it is what Nagel calls as what-it-is-like-to-be aspect of experience). P-conscious states are experiential states, that is, a state is P-conscious if it has experiential properties (say sensations, feelings, perceptions, thoughts, wants and emotions). The mark of access-consciousness, by contrast, is availability for use in reasoning and rationally guiding speech and action⁴. Carruthers has no reason to accept both phenomenal consciousness as well as access consciousness but uses access-consciousness to develop two stages of his theory. He uses the 'phenomenal feel' and the availability of it (first) to develop a reflexive thinking theory and (then) again a higher-order theory. What is called 'phenomenal feel' is the way we turn our attention to read our inner form of speech and not qualia or the inner phenomenal experience. This may be an indirect support to private language argument of the sort defended by Wittgenstein which is not very far from nativism *plus*

speech. So as a qualia-irrealist, Carruthers wishes to find a sure passage from folk (commonsense conception of belief, desire etc.) psychology to scientific psychology. To what extent the fundamental notion of representation can be used here is not so much clear.

In a sense, Block provides a convenient point of departure. His review of the harder problem is a most important step beyond the hard problem of consciousness thus granting a significant background. Block refuses to accept almost all existing options except physicalism. Carruthers follows a similar line but differs from Block in certain other respects some of which will be discussed below.

Many contemporary philosophers of mind claim to put forward a satisfactory naturalistic theory of phenomenal consciousness. Naturalism claims that mind is located in the natural world. Biological Naturalism (Searle) and Naturalistic Logical Dualism (Chalmers) are the two foremost movements in this arena. The former takes advantage of supervenience without any strong commitment to dualism while the latter takes the quantum realism (to arrive at a proto-panpsychism) which implies logical dualism. Neither of this can be sure bet according to Carruthers .

The objective of the thesis is to examine the credentials of one of the best approaches to a naturalistic theory of consciousness and more narrowly to the naturalistic account of phenomenalistic consciousness developed by Peter Carruthers . The idea of phenomenal consciousness is more attractive to non-reductionist camp who wants to make use of what is called the 'left-over hypothesis' (there is something left over without being reducible). It is claimed that unless phenomenal consciousness is explainable as such by current science, no success is guaranteed. This is the reason why Carruthers joined the qualia irrealist camp through changing the phenomenal consciousness into one about 'phenomenal feel' without embracing the non-reductionism. Earlier, he prefers to characterise it as folk-psychological realism. Folk-psychological states are real states, but they are real in the

sense in which we have access to them through purely recognitional concepts for these properties of feels. Thus he transits through the three theses that are stated as:

1. Qualia irrealism implies folk-psychological realism;
2. Folk-psychological realism requires naturalism;
3. Naturalism implies minimal rationalism.

As we take it, the former maintains that phenomenal feel is real states which imply naturalism and the latter supports a minimal rationalism as an extended form of naturalism. The sharp contrast does not cause any difficulty to his thesis since the former supports what is to have inner feelings and the latter illustrates how to read one's own mind, in the light of minimalist program of grammar articulated by Chomsky. The former thesis is established quite independent of language while the latter transforms the very question about consciousness into one about what it is to have inner speech in one's own thinking. Both mutually support each other.

Carruthers was soon to make it as the centerpiece of his naturalistic theory which is supported by recently developed dual architecture of the brain. An important characteristic of his method has been to explore the cognitive function of language to evaluate the correct interface between language and consciousness. This is proposed as an after effect of the earlier approach which took mind as a sort of language dependent mechanism (mentalese) advanced by Jerry Fodor (who advanced the classical modular approach in philosophy of mind). Fodor's thesis depends on two key concepts of representation and computation whereas Carruthers will have less of them. One major difference between them is while for Fodor, the language of thought implies mentalese, for Carruthers, it is natural language out of natural necessity.

On the whole, Carruthers develops a Cartesian conception in his outlook and he unites the metaphysical viewpoint on a variant of token physicalism together with the epistemology of other minds. Rejuvenating the

Cartesian traditions coming through Chomsky and then revitalized by Fodor, Carruthers presented a variant of thesis of language, thought, and consciousness as the only philosophy of psychology. The Cartesian conception is extended into the Cartesian conception of the meanings of terms referring to mental states. This connects directly to the underlying semantics of such a conception. This semantics is to be connected with the inner speech. What is called theory-theory can be defended as a form of inner speech. There is a distinct way this inner speech contributes towards the understanding of other minds. Both are theoretical entities and this makes possible the move from the asymmetry of one's own and other minds towards an understanding of other minds both of which get explained in terms of an inference to the best explanation. There is more evidence than self-others parallelism suggested by Gopnik and Melzoff (1994). Carruthers reports that the hundreds of experiments performed on human subjects show that there is 'no over-all evidence of any self/other asymmetry'. What is called the folk (belief-desire) psychological realism was to be taken over by a stronger standpoint of naturalism presented as the dispositional higher-order thought theory of consciousness supported by argument from introspection. 'Disposition' here means 'disposition to behave'. It calls for a dual content theory, where the contents are viewed differently both from the experienced (experienced red) and the worldly (red) angles. The two contents are: content of concept *red* and the concept of *experience of red* (seeming red). Soon it was passed over into a dispositionalist theory of higher-order theory of awareness that marked the completion of a neurally-supported theory-of-mind module within the area of what he calls as Cartesian epistemology. Carruthers' own perspective is defended with the help of a lot of evidences collected from many streams of experiments such as from developmental psychology, evolutionary theory, autism, and experiments conducted on Schizophrenia patients.

As a 'consistent theory-theorist', Carruthers uses these evidences to provide credibility to the idea of theory-theory as the final court of appeal

where it is shown that the argument from introspection comes for a fresh appraisal and that self-transparency is demonstrated to be radically false. Introspection is divided and self-reading is said to be 'computationally expensive'. This is where he transforms the dual content into the dual architecture of the brain where innate structures are explainable in terms of the dual architecture of the brain.

The dual system hypothesis is originally derived from the understanding of visual awareness as divided into two neural paths (ventral path for object-recognition and the dorsal path for action- guiding) and this united account (of perception and motor actions) brings it into the way of embodied or enactive or dynamic cognitive model. The dual system is shown to undermine the self-transparency thesis. It appears as though Carruthers prefers to endorse this as weak dualism (mental states are non-physical states of a physical thing, where the physical thing is identifiable with the self) as opposed to strong dualism (mental states are non-physical states) but it is not genuine Cartesian. His arguments are so nuanced as to give support for a dualism in that it is balanced not to deny strong dualism and thus the issue is decided as swinging back and forth between strong and weak dualism. Both are not rejected leaving a stronger room for a variant of token physicalism. Physicalism remains a better option and but at the same time supports dualism. Strong dualism commits a fallacy. But it can be overcome in the final run.

In contrast to Block, token physicalism remains a live option for the very reason that it is capable of reconciling metaphysics with the epistemology of other minds. We have a scientific theory-theory that will explain the knowledge of other minds. The immediate consequence is that the identity question can be completely discarded in the pretension that it is resolved as it is in the case of Block. That is to say, it is acceptable as a metaphysical position. So it is clear that the subjects of mental states could not be non-physical states (person thesis: souls are persons). This is

supported by a strong physicalism which upholds that mental states are as much physical as the physical or brain states which of course rejects strong dualism. Since selves are physical, mental states are physical states (souls are persons with bodies). Does this represent a sort of weak dualism with a metaphysics that is reconcilable with an epistemology of other minds? The question is left open because weak dualism cannot support the argument from analogy. Neither it is possible to know other minds through perceptual knowledge alone nor by means of induction. Nor reliabilism (knowledge from reliable sources) will help here. The best way is develop this as an integrated theory of one's own and other minds. Such an integrated theory needs an inference to the best explanation. The structure of this theory will have a different shape from that of knowledge of one's own mind which is often regarded as immediate, infallible, and certain. This is also duly supported by strong dualism. A sketch of the argument which is ready to concede that 'dualism is a conceptual possibility, even if it is *actually* false'¹⁵ is formulated below:

1. Dualist premise : persons are souls or better selves;
2. Weak physicalist premise: selves are physical things;
3. Weak dualism: mental states are non-physical states of a self.
4. Strong dualism: mental states are non-physical states;
5. (4) is the denial of (3);
6. Mental states are physical or brain-like states;
7. (3) implies the rejection of (4);
8. So, the subjects of mental states could not be non-physical ones.

The first is sanctioned by a person concept: everyone has a self. (2) is an assumption. (3) again assumes the self. (4) is stronger than (3). The opposition between weak and strong dualism is that while the former entail no independence, between body and mind the latter entails strict independence. So, if (3) is denied, then (4) also must be denied. The denial comes in the light of a comprehensive claim about other persons. (6) is to be

read in terms of identity in which the identity speaks of identity between persons. Once it is granted that it is matter of necessity, and then we can reach the physicalist case for other minds. The solution is a partial one in tune with the revision of any scientific theory.

The Cartesian defence of theory-theory supports an ego (higher order) within the *cogito* which unfortunately Hume denies. Carruthers foresees that, Cartesian position (in which the phenomenological feel is defined) is to be a conception of the 'meaning of consciousness terms'. It is further supported by token -identity thesis as opposed to type- identity which is proved as false. The crucial role of language is sustained by a thorough discussion of narrow and wide content, neither of which Carruthers accepts completely. It refers to the subjective feel of the corresponding states. The whole project cannot be stereotyped as a category of any known theory. Carruthers' position comes to full circle starting from persons (1986) and ending up with persons once again (2002). Carruthers designs his position in relation to every other position that has been in the market. Though it is presented as a perspective, there is no inbuilt guarantee that it is immune to criticism. It is open to further development.

At final phase of his theory, Carruthers introduces 'flexibility' or 'malleability' of mind-reading that is to be integrated with modularity of the type Carruthers envisages. On Carruthers' view, this modularity is both 'massive' as well as 'moderate'. Here the role of language is one of 'integrative' function. Language is both an input and output module having two subsystems of 'production' and 'comprehension'. Carruthers claims that his account of massive modularity can meet heuristic method which is taken to subserve at least one form of eliminativism (Stich). The idea of module along with the hotness of HOT undergoes change almost to the point of rejection. At this juncture, Carruthers opens himself to other cognitive models such as emulator model, (emulates even while constructing a self

given by Grush), neural engineering model (Anderson and Eliasmith) along with the model that includes neural seat of emotions (Damasio).

Chalmers well-known distinction between the *easy* or *soft* and *hard* problems of consciousness tells us that the former is associated with explanation of various cognitive functions like discriminatory abilities, reportability of mental states, the focus of attention, the control of behaviour etc. This phenomenon can be explained scientifically and all of them can be explained through computational or neural mechanism⁶. The *hard* problem is the problem of bridging the explanatory gap between accounts of causal functional physical sort and the happenings of particular phenomenal features. Chalmers asks “even when we have explained the performance of all the behavioural functions in the vicinity of experience—perceptual discrimination, categorization internal access, verbal report—a *further unanswered question remains: why is the performance of these functions accompanied by experience?*”⁷ This further question is the key in the problem of consciousness. Put it in Nagelian terms, there is something *it is like to be* a conscious organism and have experiences implies that, subjective part of experience must get on with some scientific explanation.

Following Chalmers, Block identifies three important problems of consciousness; *easy*, *hard*, and *harder*.⁸ Hard and harder problems are diverse facet of a single problem which can be divided into two ingredients. For him, the ‘hard’ problem of consciousness cannot suggest an appropriate explanation to the epistemological worry or it involves an epistemic discomfort. The ‘harder’ problem is an epistemological addition (‘epistemic add-on’) to the hard problem and so the solution to harder problem entails hard problem. The phenomena which each one has must give way to phenomenality of each, which cannot be explained without what is shared by each of us. This is what is called as ‘shared’ phenomenality. As Block argues “The hard problem is one of explaining why the neural basis of a phenomenal quality is the neural basis of *that* phenomenal quality rather

than another phenomenal quality or no phenomenal quality at all"⁹ We have no idea about how it could be that one property could be identical both to phenomenal consciousness and cortico-thalamic oscillation. How could one property be both subjective and objective? We can get rid of confusion by explaining how an identity can be true, most clearly, how it is that the two concepts involved can pick out the same thing. The New mysterianist thinkers like, McGinn, Chalmers and Jackson reject the putative identity theory. Ned Block criticizes Jackson and says that Jackson conflates the concept/property distinction¹⁰. In relation to the hard problem of consciousness, Block says there is no problem about how a subjective property can be identical to an objective property. Subjectivity and objectivity are better seen as properties of *concepts* (Concept F = Concept G) rather than of *properties* (Property F = Property G). The claim that an objective property is identical to a subjective property would be more clearly expressed as the claim that an objective concept of a property picks out the same property as a subjective concept of that property. But Block argues that it is not a form of dualism. Granted that identity cannot be explained, the only option is to explain it in terms of correlations. For Carruthers, the picture is different and expressed in terms of the concept of purely recognitional capacity which picks out the property even under circumstances that it does not connect up to the concept, it lends credence to reductionist explanation. The token-identity can partially solve the problem.

Carruthers maintains that Nagel's distinctions between two types of concepts and facts (subjective and objective facts) are not separate. They are two modes of presentation and the 'myness' facts are having introspective awareness about the experience. It is argued that the duty of a naturalistic project is to seek how the way things seems from the first-person point of view fit with data from other impersonal sources like third-person phenomenology, evolutionary theory, cognitive psychology and neuroscience.¹¹Block treats the explanatory power of correlation between phenomenal states and physical states and considered it as inference to the

best explanation which Carruthers also shares. On Carruthers' view, this includes the following requirements such as accuracy, simplicity, consistency, coherence, fruitfulness and explanatory scope.

1.2. Situating Carruthers' Naturalization Project

Block discusses *three* diverse positions on consciousness like deflationism, phenomenal realism (inflationism) and naturalism almost to dismiss them:

1. Philosophical reductionism or Deflationism stand for a- priori or armchair conceptual analysis. They prefer to explain phenomenal consciousness, in non-phenomenal terms (like representation, thought or function).
2. Scientific Reductionism or Phenomenal realism defends that consciousness is metaphysically real. Phenomenal realism is based on one's first person grasp of consciousness and defend that there are two types of facts: first person and third person facts. First person facts are not available to us even though the related functional, cognitive and representational facts are accessible. Phenomenal realism rejects the philosophical reductive analyses of consciousness (phenomenal properties are real properties and we cannot reduce it through analytical functionalism) but have no brief against *scientific* reduction of consciousness.
3. Naturalism is the view that it is a default that consciousness has a scientific nature. Naturalism = default physicalism.

Besides Block demonstrates how physicalism becomes doubly problematic because it is the default and also inaccessible (physicalism) and meta-inaccessible (even the form of physicalism) ¹². This is the harder problem. So he opts for the fourth choice. Like Block, Carruthers cannot make any progress in the three fronts listed above, since all are forms of

'default' theories. Block also mentions the 'tensions' between these positions especially between (1) and (2).

Many non-reductionists believe that phenomenal realism will have positive implications for armchair analysis followed by philosophical reductionists. But then the denial of conceptual analysis thesis will have serious consequence for phenomenal realism. Phenomenal realism cannot have anything against scientific naturalism. But as 'closest dualists' (Dennett's term), they enter into tension with scientific naturalism. So Block has alternative to the following conditional:

Phenomenal Realism *and* Scientific Naturalism will *imply* the 'tension'.

Block overcomes the tension by rejecting phenomenal realism and derive the conclusion which hold that consciousness is both real (phenomenally real) and can be assumed to have scientific nature.¹³ The way to resolve the 'tension' between the phenomenal realism and scientific realism requires us to exercise one of the following two options: live with the 'tension' or else, seek to overcome it by including a theory of other minds. The way Block and Carruthers attacks this problem to choose the later horn and execute it at different levels within the physicalist option. While Block recommends an epistemic add-on of the problem of other minds and disposes of the zombie problem (a zombie is physical duplicate without consciousness) by using epistemic notions, Carruthers develops a scientific theory of other minds.

This warrants that he has to extend the naturalistic project in various ways collecting empirical evidence in support of a more extended form of naturalism. As a ramified model, it is presented as a self-model theory of mental activity rather than a self-model theory of mental representation. Naturalistic phenomenal realism has to confront an epistemic pressure or harder problem; because it has no suggestion about a rational ground for accepting that other creatures are conscious or not. Block starts with the epistemic possibility of multiple realizations and uses it to argue for the

epistemic possibility of multiple constitution of mentality and he further adds that the epistemic possibility of multiple constitutions of phenomenal properties makes the problem of consciousness harder. The two parts of this harder problem are stated as follows: Naturalism states that physicalism is the default, but also inaccessible and meta-inaccessible; together with, in the “subjective” sense mentioned earlier. It is the default that Commander Data is not conscious, but at the same time phenomenal realists regard his consciousness as an open issue. Block introduces science fiction case of Commander Data, who is superficially and functionally comparable to us, who shares same folk psychological notions with us, but different in its psychological and neuropsychological functions. It shows that Data is unlike us in the physical nature and organization of the control mechanisms of the folk-psychological functions¹⁴. We have good but defeasible grounds for believing that Data is conscious because he acts like us, and we act the way we do in part because we are conscious. The grounds are defeasible because we might find that Data’s physical constitution shares none of our neural correlates of consciousness¹⁵. If Commander Data is conscious, then we have a choice of Superficialism (supervenient properties), Disjunctivism (disjunctive properties) and Dualism. The naturalist will want to reject Dualism, but it is not desirable to say that the only alternatives are doctrines that are epistemically inaccessible. So this may lead us to want to say that Commander Data is not conscious. But we have no evidence that he is or is not conscious¹⁶.

This leaves a legacy to the problem of other minds without attempting to solve it. Furthermore, it is the subjective default that other creatures are not conscious, but the phenomenal realist must leave it an open question whether they are. This again leaves open a route to non-reductive physicalism which attracts thinkers like Block. Another option would be to reject or restrict the assumption of naturalism or of phenomenal realism. One way to slightly degrade naturalism would be to take the problem itself as a reason to believe the Disjunctivist or Superficialist variety of naturalism.

Disjunctivism is a form of physicalism that allows that consciousness is a physical state that is disjunctive by the standards of physics. Disjunctivism allows that if Commander Data is conscious, the shared phenomenality is constituted by the property of having Commander Data's electronic realization of our shared functional state or our electro-chemical realization. Kim advances a variant of this to locate mind in the physical world without implying dualism. Superficialism is the *phenomenal realist* claim that consciousness is identical to the superficial functional organization that we share with Commander Data. To some extent, Kim also uses the concept of supervenience to achieve his end. Neither one succeeds.

For example, as Block argues, the *Hard Problem* arises for someone who has no idea of another person, while the *Harder Problem* is tied closely to the problem of other minds. There is no clear-cut demarcating line between hard and harder problem as Carruthers argues, the question concerning the problem of other mind is inevitably related to the question of nature of mind¹⁷. Since Carruthers' attempt is to see what extent we can know other minds besides our own mind; his theory mainly deals with the so-called harder problem of consciousness and we must see whether he is able to solve the harder problem of consciousness with his integrative approach to the problem of one's own and other minds.

In what follows, we must now see how different Carruthers' project from other equally viable projects. For this, we can use the Tye's classification of all types of naturalistic theory¹⁸ as the backdrop. Tye classifies naturalistic theories into four types; they are: analytic naturalism (Fred Dretske 1988) conceptually-regulated scientific naturalism (Daniel Dennett 1969) and conceptually-indifferent scientific naturalism (William Lycan 1998) conceptually-based naturalism (Jerry Fodor 1999a, 1999b, 1999c). Tye,¹⁹ has rejected all of the above mentioned naturalism for him, the first three are forms of reductive naturalism and fourth is the theoretically motivated reductionism which is moderately reductive and still

believes that mind has place in the natural world. He chooses this as the fifth option namely that mental states enter into constitutive relation with the world. He observes whether psychological naturalism entails proper genus of lower level reduction or analysis is a dogma that need to be explained away. Four types namely, the Analytic Naturalism (a priori), Conceptually Regulated Scientific Naturalism (future science is likely to regulate), Conceptually Indifferent Scientific Naturalism (neural), and Conceptually Based Naturalism (Fodor). Might also be in tension with each other.

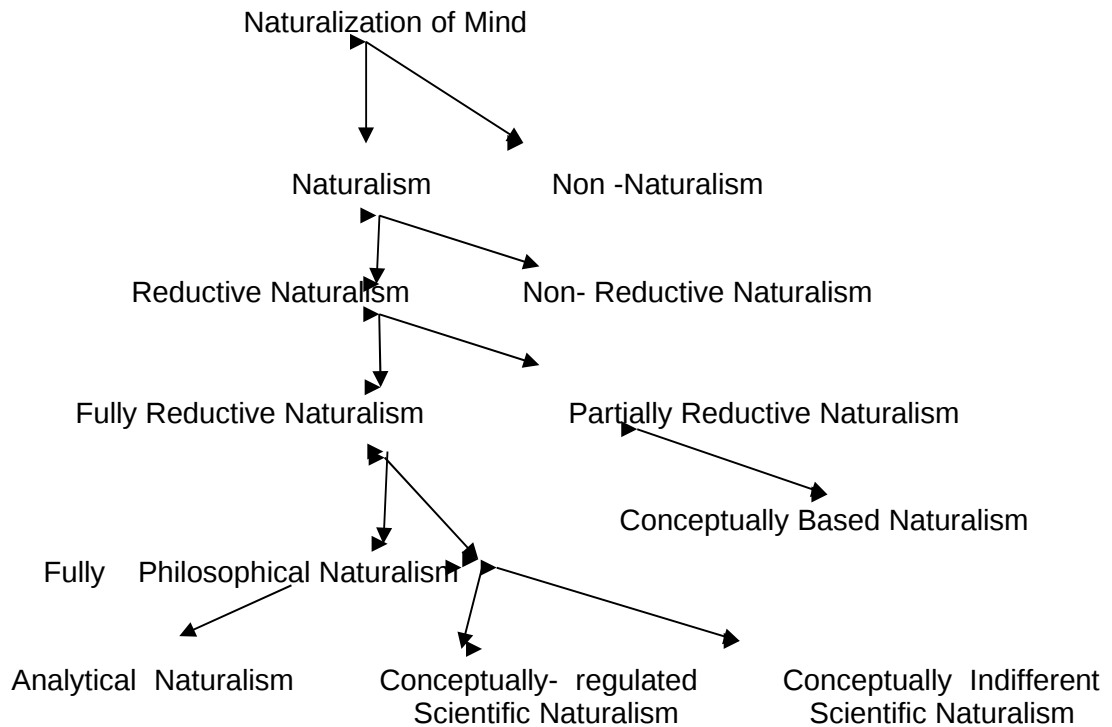
1. **Analytic Naturalism:** This naturalism proposes a philosophical reductive analysis of the essences of mental states through direct appraisal of mental concepts and the necessary and sufficient conditions that govern their application. As argued the aim of naturalism is to explain the features of both non-intentional (such as pain) intentional mental states (such as the state of believing that flower is red). In case of intentional mental states, naturalization is obliged to explicate both their species and their representational characteristics. Carnap (1932), Armstrong (1968) and Lewis (1972) hold this view for both intentional non-intentional aspect of mental. Thinkers like Dretske (1988) and Stalnaker (1984) suggest this type of naturalism for intentional aspect of mental states. This is roughly equivalent to conceptual analysis.
2. **Conceptually Regulated Scientific Naturalism:** In this type of naturalism, equal importance is given to conceptual and scientific analysis. In other words, this naturalism defends that the philosophical project of naturalizing the mental can be no longer depending upon the conceptual analysis alone. The naturalization project should seek what type of non-mental fundamentals, mental state type posses (it may be physical, functional, behavioural etc). Moreover naturalization should point out where the rest of the story lies (in cognitive science? neuropsychology?). It maintains that

scientific investigation of mental together with philosophical reflection regulated by our pre-theoretical conception of mental is required for a complete understanding of mental. As we have discussed above, one of the important problems facing this type of naturalism is that commonsense and scientific explanation is uncomfortable bed fellows. As Block says, naturalistic phenomenal realism is not a trouble-free position. We cannot entirely comfortably assume both that consciousness is real and that it has a scientific nature.²⁰

3. ***Conceptually Indifferent Scientific Naturalism:*** Psychological explanation is the playing card in this type of explanation and it holds, mental states possess certain concealed essences which are explicable in non-mental language and this position abstains from any conceptual or common sense conceptual regulation. This is reductionism but accepts intentionality. This view is defended by William Lycan²¹. For him, the real nature of common sense mental words like 'belief', 'desire' etc are explicated by psychology and there is not much for the philosophers to do.
4. ***Conceptually Based Naturalism:*** It is the position supported by later Fodor²². He claims in order to explain intentionality of mental states in naturalistic terms we need only a priori naturalistic sufficient conditions. Tye, rejects all these four types of naturalism and argues that intentionality is already naturalistic and capacity to think about things which do not exist is a natural phenomenon whose operation we cannot explain by conceptual reflection. Tye is the best target for projecting Carruthers' own standpoint but at the same time, he might be classified as a 'methodological naturalist' like Devitt and Chomsky. Devitt builds a narrow theory of mental representation while Chomsky advocates mental aspects of the world, a comparison no one has spotted before. Carruthers and Tye, however have to part ways since

both represent rival models. We can represent all naturalistic theories of consciousness explained by Tye, as branching tree structure.

Figure: 1.2 Tye's Classification of Naturalistic Theories



Carruthers' central strategy is to counterpose his higher-(second) order theory to the lower-(first) order theories. The two camps are occupied by first-order and second-order theorists respectively by Tye and Carruthers. Since Carruthers defends a higher-order thought theory which is the satisfactory explanation of phenomenal feel of our perceptual content, he shadows the lower-order branches making the rival explanations as sharp as possible. We shall counterpose the latter theory to the former after reviewing the numerous challenges Carruthers confront, in order to evaluate the plausibility of naturalistic theory of phenomenal consciousness before moving on to consider the extended forms such a theory takes. In a sense, we shall occupy ourselves with a certain unacknowledged change of guard in the later development of the theory which is not at all found in the earlier portrayal of the theory.

Two sets of desiderata²³ for a viable theory are presented at different stages before taking the dispositionalist variety of HOT in certain specific directions. Thus his overall project also aim to analyze issues such as, the nature and status of folk psychology; issues to do with evolutionary psychology, cognitive architecture, nativism and modularity, theories of intentional content, and defense of a notion of narrow content for psychological explanation. On the whole, it is suitable to have a scrutiny of these developments by dividing his overall project into the realistic or proto-naturalistic (upto 1998), naturalistic (upto 2000/2002), and post-naturalistic or minimalist stages (upto 2008). Thus he was led up to a naturalistic theory and then again was led away from it into a more plausible form of a self-model theory which is still a developed form of higher-order theory. The question before us is whether he follows a weakened form of dualism without anything similar to conceptual dualism as indicated by Block or followed by Papineau.

Carruthers continued to associate with the Hang Seng Centre through his attachment culminating in a large three-year interdisciplinary research project on '*Innateness and Structure of Mind*', and he was the co-editor of three volumes with Stephen Laurence and Stephen Stich²⁴. It is here he takes issue with other equally viable alternatives of theory-of-mind module like the one advanced by Stich and Nichols and also by others (e.g. Chomsky). He calls attention to the former theory of mental mechanism which hybridizes theory-theory and simulationism as the dual-component theory. On Carruthers' understanding, the basic assumption of such a theory entails the independence of these components. Once this independence assumption becomes questionable, we will be able to maintain the consistency of theory-of-mind module by suitably amending the dual system hypothesis. They are not independently dissociable and hence they are to be architecturally integrated by the above hypothesis. In between these two (nearly rival paradigms), there is another one which takes simulationism seriously and holds that mind-reading depends on metacognition that forms

the larger component. Carruthers on the other hand, takes a Model which upholds 'metacognition depends on mind-reading' and consequently denies that we have exclusive access to our own mind through introspection which is partly eliminable.

Starting from a person concept, he slowly descends into various positions before completing the circle in the form of dualism which is poised to offer a 'proof of the soul'. Carruthers passes from the earlier theory-theory claim where he considers the language-thought in various forms, and then moves onto consider the higher-order theory even while paying lip-service to the cognitive basis of science which attempts to establish out scientific knowledge is innately channeled, before arriving at a latter theory-of-mind module that is supported by dual system hypothesis. The central piece and the *first* stage in his naturalization project is Dispositionalist variant of HOT Theory that has been illustrated mainly in Carruthers (2000). With a swift move, in his (2002), Carruthers says that natural language is the medium for non-domain-specific thinking, serving to integrate the outputs of a variety of domain-specific conceptual faculties (or central-cognitive "quasi-modules").²⁵ Here he is focusing his attention on the cognitive function of language. Carruthers rejects the strong cognitive conception of language and subscribe to the thesis that natural language is the medium of intra-modular integration. It is natural language syntax which is crucially necessary for intra-modular integration. More specifically, the claim is that non-domain-specific thoughts implicate representations in what Chomsky (1995) calls "logical form". At the *second* stage of development it is an extended naturalized project or dual aspect theory. At this stage, Carruthers realizes that his "dispositional HOT theory" to be a form of HOP theory. He explains that it is because dual content theory "proposes a set of higher-order analog or 'experiential' states, which represent the existence and content of our first-order perceptual states, that the theory deserves the title of 'higher-order *perception*' theory, despite the absence of any postulated *organs* of higher-order perception"²⁶.He says reductive explanations are successful

when (a) all of the questions that puzzle us are answered, either directly or indirectly by showing why the facts should *seem* a certain puzzling way to us when they are not; and when (b) every thickly individuated fact described at the target level can be reductively explained. His view is not to defend the view that phenomenal consciousness can actually be reductively explained by micro-physics, but just that it is reductively explicable *in principle*²⁷. The *third* stage is the recent development of Carruthers' so-called “dispositional higher-order thought (HOT) theory of consciousness,” which he now prefers to call “dual-content theory and it is a strong defence of theory-theory supported by dual system hypothesis²⁸. There is a *fourth* stage in which he refuses to accept an explanatory gap and here he joins hand with Block. The explanatory gap is closable in principle *contra* Chalmers *via* third person phenomenology. Chalmers defends a strong form of a priori conceptual analysis and proceeds to show that even if everything is added to it, still something is left-out causing explanatory gap. Carruthers counters everything-clause by including the phenomenal feel of the first-person and the third-person-feel and hence the gap is closed in principle.

1.3. The Route-Map to the TREE of Consciousness

As one of the vital steps towards the naturalization project, Carruthers presents all the available theories of consciousnesses in a branching tree structure. The tree of consciousness is really a route map of the naturalistic theory proposed by him. Here he portrays all endeavors to offer a reductive explanation of phenomenal consciousness in a branching tree structure. It is useful to look at his summary of all theories in the form of tree structure which he calls as *tree of consciousness*. There are *three* versions that deposit the way he makes fresh departure. An *earlier* version of this tree of consciousness has been given in two of his books. *The Philosophy of Psychology* (1999) and *Phenomenal Consciousness: A Naturalistic Theory* (2000). Later he visualizes the branches in modified ways. Now he has slightly altered his tree of consciousness²⁹. The *first* choice point is the

deference between non-reductive explanation and reductive explanation. Carruthers explains away the arguments of various non-explanation theories of thinkers like Nagel (1974), McGinn (1991), Chalmers (1996) and Jackson (1986). (The next chapter will elaborately discuss Carruthers stand on the same). The failure of these theories to achieve allocated duty, that is to provide a satisfactory explanation of phenomenal consciousness makes Carruthers to move towards the second branch of the tree.

The *second* choice point is between neurological theories and cognitive/functional theories. Crick and Koch maintain a neurologically supported physicalistic theory. For them, the phenomenal consciousness is 35-to 75-hertz neural oscillations in the sensory areas of the brain. The *third* option is pure boxological theories vs representational boxological theory. Pure boxological theories are silent about the question: why the contents of a box at particular point in the system should have feel? Then the option before us is to accept a representational theory. So Carruthers continues to analyze the *next* choice. He asks 'For what brand of representational theory we should give the signal to go?' He says that our vote should be to higher-order representational theory rather than first-order representational theory because phenomenal consciousness is really experiential subjectivity or having an intentional content in addition to its worldly subjectivity. So the first-order representation theory is not adequate to elucidate experiential subjectivity. The next choice comes under the higher-order representational theories are HOE (HOP) and HOT. HOE theory is defended by thinkers like Armstrong, Lycan etc. For them, the capability to experience our own mental states is the basis of phenomenal consciousness; rather HOT theorists believe that it is capacity to have a thought about mental states makes our experience phenomenally conscious. Versions of this view are defended by thinkers like Rosenthal (1986, 1993), Dennett (1978, 1991) Carruthers (1996, 2000) etc. It is argued that HOT theory has evolutionary as well as explanatory potential. The two varieties of HOT theory are: the *actualist* HOT and *dispositionalistic* HOT theory. Rosenthal takes the former alternative.

Dennett and Carruthers support the second option. Then last choice in this tree of consciousness is *linguistic* or *non-linguistic* HOT theory. For example, Dennett maintained that higher-order thoughts are higher-order descriptions or for him, all higher-order thoughts are structured in natural language. In his 1978, Dennett endorses the view that phenomenal conscious states are those which are accessible for reporting in speech but the problem of Dennett's view is that he denies determinacy of consciousness. While Carruthers' theory accepts that consciousness in general have determinate content. Now in its extended form Carruthers argues that, his dispositionalist HOT version (which is also a form of HOT theory) when combined with consumer semantics, can count as a kind of HOP theory, emerges as the overall winner. HOP is not a parallelism but an integrated form. Only dispositionalist HOT version of HOP can give us a reductive account of phenomenal consciousness which is both successful in it and reasonable on other grounds.

Figure: 1.3. The Earlier Version of Tree of Consciousness³⁰

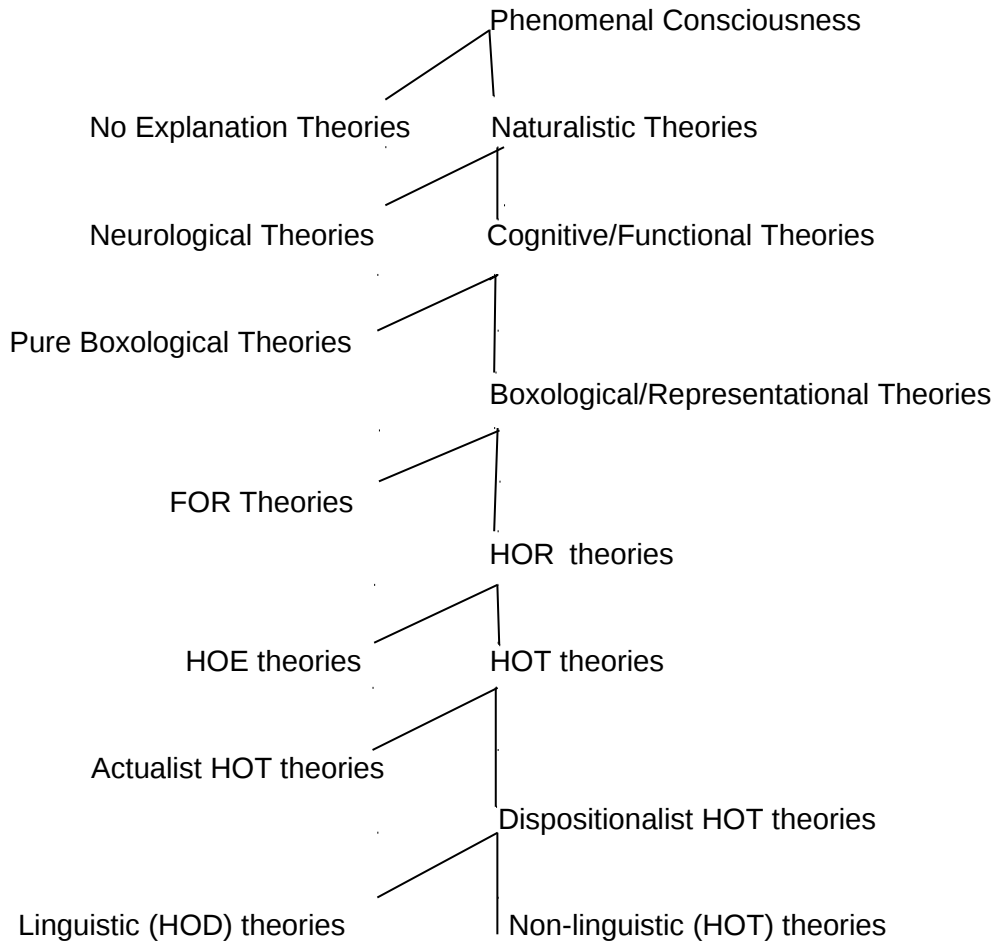
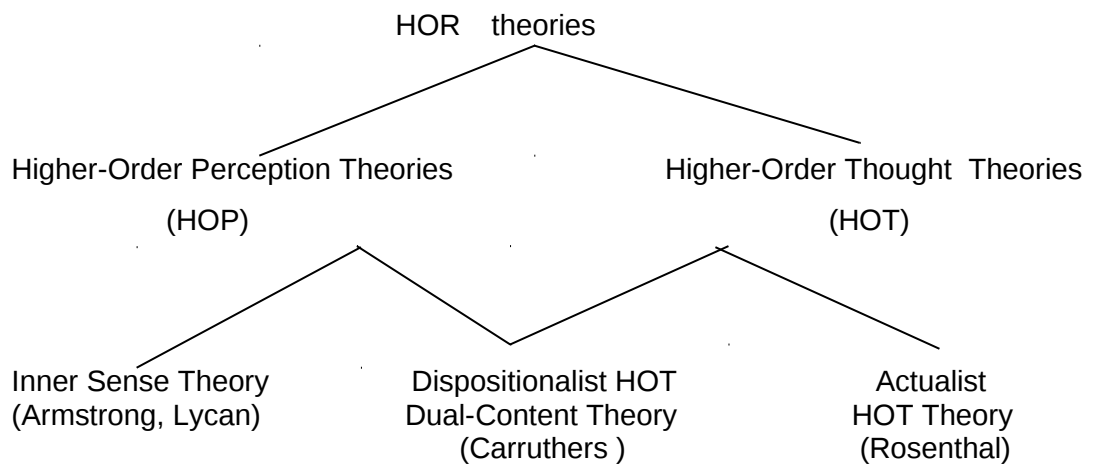


Figure: 1.4. The Latter Modification of Tree of Consciousness



A rather diverse classification of naturalism is due to Flanagan. For him, there are mainly four philosophical positions on the issue of naturalization of phenomenal consciousness. They are *Non-naturalism*, *Principled Agnosticism*, *Anti-constructivist Naturalism*, *Eliminative Naturalism*, *Constructive Naturalism* etc. *Non-naturalism*, does not accept natural status of consciousness, whereas *principled agnosticism* argues that naturalism is a position which we do not comprehend, because we do not understand that the relation between consciousness and brain can be made intelligible in naturalistic terms. The third is *anti-constructive naturalism or noumenal naturalism*, which accepts naturalistic position of consciousness but maintains that we cannot grasp the properties of the brain that related to consciousness and cannot explain how consciousness depends upon brain states. *Eliminativist naturalism* also accepts naturalism as viable position; according which the story of brain is identical with story of mind. According to this position, explanation will be best one, if we eliminate mentalistic concepts. *Constructive naturalism* is a position defended by Flanagan. For him, phenomenal qualitative aspect of consciousness is what needs to be explained³¹. Like Flanagan, Carruthers also believes that phenomenology (subjective feel: layer 1) meets neurology (layer 4) through intentional psychology (layer 2) and computational psychology (layer 3) through the linkage of realization relations. This is made possible at the higher or second-order level. This is briefly the brain's architecture.

Carruthers' theory is naturalistic in two senses; firstly, he borrows evidences from various disciplines to defend his theory. Secondly, he shares the two important views with the contemporary thinkers that, mental states are physical states of brain characterized in terms of their causal role and our common sense conception of mind can be intergraded to scientific view. The most crucial task is to work out a satisfactory semantic theory. For this, Carruthers appeals to naturalistic variants such as consumer or teleosemantics (Millikan) and their functional role or conceptual role theories (Block) over that of causal covariance theory or functional /inferential-role

semantics (Fodor).The former variety has to confront the possibility of misrepresentation whereas the latter is a species of consumer semantics.

The causal covariance theory explains the causal relationship between states of the mind (such as signs in *mentalese*) and the world in terms of causal laws which is not what is required. The second theory claims that mind and body are evolved systems and each of our mental states has 'proper' functions. Functional role semantics is related with inferential or functional role of mental states within cognition. These theories try to give a fully reductive explanation of intentional content. But Carruthers argues that naturalization requires neither reduction nor successful reduction. For him, in order to elucidate the natural reality of intentionality or phenomenal consciousness, it is sufficient to show that intentional properties or phenomenal conscious properties are presenting to some set of causal laws. Intentional properties are predicate terms of both folk psychology and scientific psychology. Carruthers argues that in order to accept biology as science we cannot demand successful reduction of biology into chemistry. Likewise in order to explain intentional content we needn't aim a successful reduction of it. Carruthers maintains that reality of causal-intentional psychology is sufficient to ensure the natural status of intentional content³². Consumer semantics fix contents in terms of availability to consumer systems.

In *Language Thought Consciousness*, Carruthers provides a language-involving paradigm. He argued that natural language sentences may be directly engaged in some type of human thinking especially, conscious propositional thinking. The topic of this book is whether thought is independent of language or whether our thinking on the contrary, necessarily requires or involves natural language. Carruthers' aim here is not to investigate the nature of thought in general but to investigate propositional thinking. He says that the evidences collected from science and developmental psychology are far away from conclusion and he puts forward

an introspection-based argument in order to support the claim that much of the propositional thinking takes place in natural language sentences. Carruthers considers the best way to understand consciousness is through a language-thought hypothesis.

Most of the core points of his theory are presented in his book, *The Philosophy of Psychology* (1999), in which his approach is depicted as the best the account of the philosophy of psychology. There are two extreme views about the role of language in thought; *cognitive conception of language* and *communicative conception of language*. According to communicative conception of language, the only duty of natural language is to make possible communication. Thus functions of language are limited to the public realm. And it has nothing to do with domain of individual cognition. This view maintains that processing and representation of language in individual cognitions only to support the exchange of information and interpersonal co-ordination of action. It has no direct executive role in cognition. (more specifically, thinking and practical reasoning). While cognitive conception of language supports the view that the structure and contents of minds are substantially innate and it implies a rationalistic approach towards mind and its content. The communicative conception of language has been associated with a radical empiricism about mind, according to which many human concepts and the constitution of human mind itself are acquired through experience. More accurately, it is simultaneously acquired with the process of language learning. Carruthers favours the cognitive as against the communicative and what he calls the 'supra-communicative' conceptions of language (we manipulate language and language is scaffold). But this picture gets slowly modified into one which the production and comprehension sub-systems were introduced.

But in his *Phenomenal Consciousness*, he dropped this natural language paradigm and claims that phenomenal conscious states consist of analog representations. Carruthers also argues for the independence of

phenomenal consciousness from language³³. In his first step towards naturalization of phenomenal consciousness; Carruthers argues that our capacity for mind-reading or folk psychology is really the capacity for the reflexive thinking. It works through a central module. For him, our mind-reading ability is based on a core theoretical knowledge and is a product of maturation rather than learning. Carruthers argues that mind-reading ability is innate in nature. Folk psychological notions are sufficient in order to answer the question how it is some perceptual content possess phenomenal consciousness while some others lack. Carruthers' position is that, phenomenal consciousness consists of certain sort of intentional content, held in particular sort of memory store, which makes the intentional content to available to the higher-order thoughts about the occurrence of and nature of those contents and as a result of such availability all those contents are at the same time higher-order ones, acquiring an aspect of seeming or subjectivity. He argues that in order to be phenomenal consciousness, a perceptual state should be available to conscious higher-order thought. The early version of his theory is known as Reflective Thinking Theory which defends the view that conscious state is one which is made available to higher-order thought and which in turn again made available to higher-order thinking reflexively. This reflexive availability is necessary for conscious phenomenal state. That is, the higher-order thought should be a conscious thought or a reflexive thought. In his earlier books³⁴, Carruthers has proposed that the real structure of human conscious mind may be characterized by reflexive thinking theory. He claims that this account is not enough to explain phenomenal part of mental states; the reasons given by him are as follows. There exist some creatures, which lack that type of cognitive structure, but possessing phenomenally conscious states. Structured thoughts can be entertained in the absence of language, the higher mammals like chimpanzees have structured HOTs and in relation to language they are incapable. ³⁵ Carruthers was forced to maintain that phenomenal consciousness is independent of and prior to natural language.

Later, he re-introduced language as having an important cognitive function, and opted for relative independence, finally to integrate them into a perspective. Thus he assigned the integrative function to language and gradually moved out of the modular view by allowing it 'flexibility' or 'context sensitivity' where he has also absorbed the higher-order theory into the perspective on minimal rationalism.

Carruthers says that the endeavor to explicate scientific cognition elevates fascinating and perplexing questions about the nature, development and operations of the human mind and its connections to culture.³⁶In his *Cognitive Basis of Science*, he tries to give the answers to the questions like: what make science possible? What characteristics of mind, human cognitive development and human social measures make easy conduct of science? In order to understand how science is possible, we must understand how our capacity for scientific reasoning fits into the structure of mind? And how it is related to the scientific practice? It is useful to compare this to Chomsky's own. For Chomsky the initial language, called I-Language together with the language faculty yields the facility for the development of 'science-forming faculty', where as Carruthers thinks that it would not be possible without assuming that science is 'innately (genetically) channeled'. Thus all the varieties of folk themes (Folk grammar, folk biology, folk physics) are innately channeled before they are developed into scientific varieties. This is precisely what underlies his integrationist picture of folk and scientific psychology.

Two crucial developments in his post-2000 writings assisted his protracted march towards naturalism and it is not easy to comprehend his standpoint without them. *One* is the realization of the role of language in cognition within the dispositional variety of higher-order thought theory of consciousness and the *second* is the introduction of dual system hypothesis that has come to be regarded as a 'paradigm' in current theorizing. The

broader question of theory of mind which is proposed as an extended form of naturalism ultimately led him towards minimal rationalism.

Carruthers' aim is to seek whether phenomenal consciousness can be explainable in terms of functional or representational terms. Carruthers distinguishes mental states and mental state concepts. Carruthers has two basic commitments; one is folk psychology and other is physicalism. His aim is to offer a justification of folk psychology within physicalist schema. Carruthers supports the view of token-physicalism; which maintains that all mental states are at the same time most probably neuro-physiological.

According to Carruthers, theory-of-mind has a causal structure. All mental events occur in accordance with causal laws, and we can explain the operations and properties of causal laws in lower (physical) level terms. The physicalist option may not be readily agreed as no such causal closure is available for mental world. However, Carruthers like any other scientist is optimistic about the discovery of these laws in the future. He admits that there may be drawbacks to functionalism; even though he prefers it due to its metaphysical neutrality and its solutions to the problem of other minds. 'Metaphysically neutral' means it allows interactive dualism as a possibility. One of the objections against dualism is the problem of causal connection. Even though, according to Carruthers, in principle there is no problem in understanding the causal connection between mental and physical. In contrast to causal overdeterminist like Lowe who is ready to concede that overdeterminism (an action is causally over-determined if it includes both mental as well as physical causes, and granting that they are identical that will convey that causation is both necessary and sufficient), Carruthers thinks that overdeterminism is acceptable if it sufficient even while it is not necessary. Lowe is a non-Cartesian in contrast to Carruthers who is Cartesian³⁷. The real problem for Carruthers is how such causation arises. Let us analyse arguments for and against different theories of mind like dualism (both strong and weak version), physicalism, functionalism etc.

1.4. The Empirical Evidence for the Soul

Carruthers' outlook does not get completed without integrating a sort of causal interaction between mind and body which is best achieved by holding that theory-theory has an underlying causal structure. So the argument goes by the following motions:

1. Our bodily movements are caused by brain-events.
2. Each event in the brain has a sufficient physical cause.
3. Our decisions are sometimes necessary conditions for some of our movements.
4. Our decisions sometimes form part of the true causal explanation of some of our movements.
5. So, decisions are brain-events.

Thus (1) and (2) are upward and downward causations while others take the premises in the direction of 'bottom-up' approach. They support interactionist dualism while (3) rejects causal over-determination and (4) rules out epiphenomenalism. Thus the set leaves physicalism as the remaining possibility. This requires that mental events and physical events are integrated by an interactionist view according to which there is necessary identity between these events that will support strong dualism. It appears that he goes back and forth between strong and weak varieties of dualism. Such identity is apparent in the following domains: knowledge of other minds which supports no asymmetry, or infallibility, privacy, value, colour experience, felt quality, explanatory gap, complete knowledge, intentionality, freewill, spatial positions etc. Thus wherever the non-identity is proved, this may become questionable from Carruthers' point of view. This is supported by the empirical proof of the soul which makes its appearance from his stand on dualism.

In the philosophy of mind, dualism holds that mind and body are, in some sense, radically different kinds of things. Even though Descartes was limited in his knowledge about the brain his view is a combination of the

neurological and cognitive. Dualism embraces the view that, in a sense mental phenomena are metaphysical in nature. Generally two forms of dualism are distinguished, namely *Substance dualism* and *Property dualism*.

The theory of *substance dualism* (Cartesian dualism or psycho-physical dualism, or strong dualism) claims that humans are divided into two distinct types of substances: "physical substances" which are directly observable and obey the well-known laws of physics, and "mental substances" that are not directly observable using any known measurement technique. Mind, Descartes claimed, is not mere collections of mental states, but is essentially unified. So we cannot even conceive of a mind's being divided into parts. A satisfactory characterization of the mental, therefore, implies that minds are non-physical. There are three doctrines stand as pillars of Cartesian dualism³⁸ first two of them are interrelated. They are stated as follows:

1. ***Epistemological doctrine***: This argues for the primacy of the mental, and maintains that we can know our own mind other than physical world and other minds.
2. ***Metaphysical doctrine***: This argues for mind's independence; mind has an autonomous existence independently of bodies. The relationship between mind and body is external and contingent.
3. ***Semantic doctrine***: This involves the meaning of mental terms.

The point of the above enumeration is to see that the last-mentioned can be maintained relatively independent. This is exactly where Carruthers has much to offer. Thus while he was passing through the relative independence, he has contributed to the development of a perspective. Cartesianist is an internalist about the content of mental states, because the existence of mental substance is constituted by its continuous self-scrutiny. Functionalists are also internalists, even though they are not supporting the self-scrutiny. Descartes maintains that our mental states possess content

irrespective of how the world is, then it assumes that mental states are narrow as opposed to broad in terms of what determines their content. Carruthers is Cartesian in the sense that he accepts narrow content of mental states; that is the Cartesian view influences Carruthers' way of understanding of the nature of mind. Descartes maintains that core characteristic of our mind is its subjectivity. It is particular subjective perspective of person who possesses mental states. For Descartes, the content of mental states is not determined by external world. More accurately, there is no physical cause behind intentional states. According to dualism, the fundamental nature of soul is consciousness. Then the criticism raised is; what about the soul while we are sleeping. During sleep how self exists in a state of complete unconsciousness?³⁹ .

A dualist may respond in following way;

- a) The Soul (person) is always in fact thinking or experiencing. According to this view, sleep or unconsciousness is in fact periods of consciousness in which nothing can later be remembered.
- b) According to another response, during the periods of unconsciousness no soul exists that is soul has a discontinuous existence (contrary to the Indian view which holds that only in deep or dreamless sleep consciousness appears in pure form).

What type of relation exists between body and soul? The dualist reply is that it is causal relationship rather than spatial. Then the further difficulties arise; how the causal relation between soul and body is possible? Thinkers who are rejecting dualism argue that soul-body interaction is impossible. So according to dualist, the causal connection between soul and body is inexplicable just like the casual connection which has been treated as basic in developing science. But the critics refuted that there is no general laws in case of mind-body interaction, while gravitational force has such general laws. The dualist has a reply to this criticism also. For them, at present there is no general law is to be the reason to refute dualism and reasonableness

of our belief in the causal connection between mind and body. It is our ignorance which prevents us from such universal laws. The main uncertainty of dualism is how two things as different as thought and extension could interact at all. In order to trace the development of Carruthers' views on Cartesianism, let us analyze Carruthers' argument for and against strong dualism⁴⁰.

The argument for strong dualism:

1. It is logically possible that thinking (or experiencing) should take place while no physical thinker exists.
2. It isn't logically possible that thinking (or experiencing) while no thinking thing exists.

(C 1) therefore it is logically possible that thinking things aren't physical things.

3. All physical things are such that their physicality is a logically necessary attribute of them.

(C2) So (from C1 and 3) thinking things aren't physical things.

4. Every kind of thing must possess some essential (logically necessary attributes)

(C3) So (from (C2) and (4)) thinking things are essentially thinking or conscious, non- physical entities.

That is to say: souls exist, and persons are souls.

The argument against strong dualism:

1. The dualist believes that selves (persons) are non- physical souls.
2. Selves are distinct individual entities

(C 1) So the dualist must believe that souls are distinct individual entities.

3. There must be a criterion of individuation in connection with every kind of individual thinking.

(C 2) So from (C 1) and (3), if dualism is true, then there must be a criterion of individuation for souls.

4. Any conceivable criterion of soul-individuation will entail that it is logically impossible for two distinct souls to possess qualitatively identical mental states, either in general or for some restricted range of such states.
5. It is, on the other hand, logically possible for two reasons people to possess qualitatively identical mental states, either in general or for some restricted range of such states.

(C 3) So from (C 2), (4) and (5) either no such things as souls exist, or soul aren't selves.

(C 4) So either way, strong dualism is false.

Strong dualism argues that, thought require a thinker and so, soul exists. Carruthers argues that, there exists a fallacy in the argument of existence of soul made by dualist. The fallacy is located in the premise (4) which can be understood in a different way so as to sustain dualism. If we have criteria for self-identification, then (C2) may be true and this should be supported by a distinct idea of identity of souls across the board. (5) is enough to counter, then we could neutralize (4) by rejecting it. Together with individuation and identity conditions, the argument's counter-example can be supposed to be overcome. If we suppose that we need some form of identity theory as well as a distinct form of behaviourism to reach a form of functionalism which is rich enough to sustain the integrated theory, then we are on the right way to achieve this. There is no absolute necessity to deny

interactionism and similarly behaviourism can be read as explaining how we move from one self to others. This is the reason why he argues that neither empiricism nor rationalism support the independent existence of soul.⁴¹ Rationalists do not have any reason to deny experience and evolutionary empiricists have no reason to deny evolutionary versions of nativism. Says he: 'Empiricists in the twentieth and twenty-first centuries have no principled reason for denying the existence of innate knowledge'⁴². Carruthers advocates an architectural view according to which mind-reading capacity can be understood at the neuro-computational level. Cartesian philosophy of mind stands on the distinction drawn between our knowledge of the world in general and (our knowledge of others, physical world etc) our knowledge of ourselves. Carruthers defends that that our knowledge of our own attitudes results from turning our mind-reading capacities upon ourselves. So the first person and the third person aspects are unified in theory of mind⁴³.

Property dualism (weak dualism) upholds that we are physical substances but have mental properties those do not possess physical characteristics. It is more scientifically accepted theory and count as judicious theory between dualism and materialism which is actually creating a 'best of both worlds' scenario. One of the main attractions for property dualism is that it allows for the first-person perspective. Being materialist, property dualism also allows for the scientific exploration and public third-party access to the causes of mental states. Property dualism may give rise to the following schools:

1. Non-reductive Physicalism: Although property dualism recognizes the supremacy of the physical over the mental and it also want to defend the claim that the mental properties are ontologically different from physical properties. In other words, the idea that mental states are non-reducible properties of brain states is the basic idea behind property dualism. Since it turns down an ontological reduction of mental properties, it is associated with non-reductive physicalism.

2. Epi-phenomenalism: Property dualists argue that consciousness is an emergent phenomenon of the physical processes of the brain and thus it is significant to note that, this leads to an idea in unbalanced causation. Property dualism support token-identity theory, while rejects type-identity theory and maintains that the qualitative nature of consciousness or phenomenal consciousness is not simply another type of understanding of states of the brain, but it is definitely an evolving phenomenon. So the ontology of physics (or neuroscience) is inadequate to take account of what is there.
3. Biological Naturalism: Property dualism allows that the matter or body to cause mental states, which in turn rejects two independent substances or stuffs. The objects' physical properties can cause a change in its physical properties, but its mental properties cannot cause a change in physical properties.
4. Cartesian Materialism: Property dualism also allows for the dominance of the physical over the mental. If the reality of property dualism is not to be denied, but the problem of how the immaterial is to affect the material is to be avoided, or causation from mental to physical is denied, then epiphenomenalism may seem to be the answer; according to which mental events are non-physical and are caused by bodily events, but are themselves causally inert. An even more extreme variant of dualism, known as parallelism, also avoids causal difficulty, and denying that any causal interaction between mental and bodily events occurs at all.

The problems of property dualism are highlighted as follows:

1. One of the strong attacks against property dualism is that mental properties supervene physical properties does not explain where they are. Furthermore, if mental states are properties of physical matter in the same way that physical states are, then how is it so that we can scientifically measure physical properties, but not the mental states

that they give rise to? It seems highly problematic that property dualism is claim that there are facts that cannot be considered scientifically.

2. Another attack is from the evolutionary viewpoint. Paradoxically, property dualism support the view that mind is evolved from matter as an emergent property. However, by proposing an asymmetrical psycho-physical causal relationship whereby mental states cannot cause physical states, then question arises; why did mental states evolve at all? Frank Jackson⁴⁴ replies that brain states evolved to react to external stimuli and that mental states were simply a derivative of emergent property and that as such there was no evolutionary demands for them to evolve. However, Jackson's response seems rather unnatural and counter-intuitive; it would appear simpler and well-matched with existing knowledge to say that consciousness does have an evolutionary advantage and thus developed as an outcome.

Property dualism is not a reliable theory of mind because it fails to explain how emergent non-reducible properties really form consciousness, or why these properties might be facts that cannot be empirically reputable. This creates a mass of practical problems concerning the evolutionary development of consciousness and which systems can be said to be conscious.

Carruthers suggests three different arguments for weak dualism.⁴⁵

- 1 *Argument from phenomenal quality:* It is argued that physical states and conscious mental states are dissimilar in their property. Our conscious experience possesses a unique phenomenal or qualitative feel completely different from brain function related to that particular experience.

- 2 *Argument from intentionality*: Most of the mental states are intentional. If they are physical states; it can represent something without doing so via intentionality of some other state.
- 3 *Arguments from spatial position*: Mental states (say belief) lack spatial positions. So it is non-physical thing.

Carruthers explains away all the above three arguments, by having an alternative to arguing that such a non-identity can never be proved. Neither there is a brute identity. This leaves the unique dimension of identity which brings identity of other minds. The felt quality is not identical with brain states. But we can see that it is true if there is brute identity and since there is no such identity the way to see it either in the first person way or third person way. This lends certain latitude to see that non-identity can never be proved. That means the premise that shows the non-identity is false. Similarly, for intentionality, we can show that there is no convincing reason to believe that the premise which holds that 'no brain state can be intentional' is true. Similarly for spatial position: We cannot prove the premise that it is meaningless to attribute spatial position to mental state. In his recent book, ⁴⁶Carruthers proposes a deductive argument for dualism, based on Cartesian argument for non-physical nature of the soul. Carruthers argues that we can imagine ourselves as incorporeal. The reason proposed by him is that we can imagine our thought and experiences in separation from our body. There exists a logical possibility of occurrence of thinking without a physical body. This is a non-philosophical argument that can be experimentally supported by out-of-the-body or near-death experiences. But it serves a philosophical argument for other cognitive scientist. There is robust empirical evidence today for this. But it does not imply that thinking could occur without a physical body. Carruthers' handling of the person concept cannot totally exclude dynamic models of cognition. Carruthers is in no position to reject strong dualism even if it is false and so, weak dualism too remains an option. (Those mental states are non physical states of

physical thing)⁴⁷.The dependence of weak dualism on physical causes implies determinism of mental states by physical states. The physical world is causally closed but it can be kept open for the future to discover causal laws operating in the realm of the mental.

According to identity theory the essential characteristics of mental states turn out to be physical ones or mental states are brain states. In other words, our mental states are states of a complex physical system. It is argued that mental properties must be identical to or supervene upon physical properties. Mental states are product of physical nature and/or physical relations that bear to external physical phenomena .Identity theory is some sort of reductionism. It maintains that there seem to exist two entities, properties, or explanations it turns out that there is only one. Mainly there are two kinds of identity theory.

1. Type -type identity theory
2. Token-token identity theory

Since the 1960s to give a philosophical account of mind has concentrated on some combination of physicalist identity theory with functionalism. *type identity theory*, which identifies mental states with internal states of person (usually brain states) has been prominent in philosophy of mind in the 1950's and much of 1960's is still regarded by many as the only way of ensuring genuine causal role for the mental in a way compatible with ontological and explanatory physicalism. Thinkers like U.T Place (1956), Smart (1959) and Armstrong (1968) support this view. According to type identity theory, each type of mental state is identical with some type of brain state. For example, pain is the firing of C-fibers. It is a hypothesis about correlations between sensations and brain process which was discovered by neuroscience and it is like other scientific discoveries of, Heat=molecular motion, Lightening=electrical discharge, Water= H₂O, etc. It proposes that identity relations are contingent and so can be discovered only by means of

empirical investigations. The main motivations for type-identity theory are causal considerations and its scientific orientation.

Churchland's identity theory depends upon connectionism, according to which there are sub-networks of the brain, operating in an essentially connectionist fashion, which corresponds to states of sensory consciousness. The problem for Churchland is that he identifies the source of the conscious experience with conscious experience itself⁴⁸. Vector coding identity theory reveals something about structural properties of visual colour qualia. One problem of this identity theory is that it cannot explain conscious/non-conscious distinction, or same vector coding are present both in conscious and non-conscious experience⁴⁹. Kim who rejects the type-identity theory says that pain is C-fiber firing, and that unless an organism has C-fibers or brain of an appropriate biological structure, it can't have pain. But aren't these pain capable organism like reptiles and mollusks with brain different from the human brain. Moreover the neural substance of certain mental function can differ from person to person and may change over time even in single individual through maturation, learning and injuries to the brain.⁵⁰ This is a restricted version of identity theory, so it can't consider the generality of the concept pain. It restricts us to capturing the characteristics of other mind including animals and our fellow beings.

Type-identity theory is criticized by Putnam.⁵¹ For him, this theory seems to deny mentality to animals. Putnam argues that many animals have distinctive brain structure but possess pain contrary to the view; pain is C-fiber firing. It faces then so-called generation problem, which is the problem of explaining a certain kind of functional description or functioning of system at this level is appropriately identified with consciousness.⁵² If we identify consciousness(C) with brain state (B) then C=B. But there are certain creatures operated by Non-B and the physical system B can be duplicated by some physical system which is Non-B. So Putnam says that mental properties are multiply realized and that pave the way for functionalism. The

multiple realizability argument argues that type identity theory is an unsatisfactory claim about mental because it stands for the claim that correlation between mental states types and physical state types is only one-to-one correlation. It is argued any single kind of psychological state can (for example pain) be realized differently in different creatures, different people or even in the same person at different times.

Many thinkers like Carruthers tried to satisfy their materialist intuition by implementing token-identity theory and rejects type-identity theory, because token-identity theory accepts multiple realizability of mental states and argues that any single kind of psychological state can have multiple correlates (not only one as type identity theory assumes) in different peoples, different organisms or even in the same person at different times. The concept of token-identity theory is introduced by Donald Davidson⁵³, and when defending a token/token-identity theory he was faced with a question of how mental states and physical characteristics of these token events are related to each other. His answer was that mental character supervenes on physical. Davidson attaches to his interpretationism to a claim of token-identity between intentional states and physical states. So token-identity theory maintains that every token of given mental will be identical to a token physical state. (For example a token brain state). According to token-identity theory, each mental state have dual characteristics; mental and physical. The problem persisting here is that there is no systematic link between physical states which in different occasions are identified with one mental kind or state. It is criticized that since token identity theory cannot explain the relation between mental and physical properties, it seems that a dualism of substance has been substituted by dualism of properties and in turn token identity facing the dilemma of causal explanation. The question before us is how the psychological and physical casual properties relate to each other without our behaviour being over-determined. Failure to answer this question leads thinkers like Churchland to defend an eliminativist view of mental⁵⁴.

Carruthers thinks neurological data which claims identity is not enough to prove the identity between phenomenal consciousness and brain activities. There is however a putative identity between or one to one correlation between brain activities and phenomenal consciousness. Brain scanning data shows that certain sorts of brain activities are a necessary condition for phenomenal experience and these activities are sufficient in normal surroundings for phenomenal consciousness. Carruthers argues that in the case of phenomenal consciousness, higher-order thoughts are tokened in 'the theory of mind brain centers' in frontal cortex area are also has a part to play in the drama of phenomenally conscious experience but they are involved in subtraction tasks; since, the brain scanning considers only differential brain activity. Double dissociation data is also argued for neural identity. Blindsight shows that neural activity in the particular area v_1 is a necessary condition of phenomenally conscious visual experience. The putative identity between phenomenal conscious experience and corresponding brain activity in area v_1 has no capacity to provide a correct explanation to phenomenal consciousness. Since identities are tautologies it needn't any further explanation. But for Carruthers, the postulated identity does not have the credentials to provide answers to the questions like: why should certain events possess subjective feel why they should seem to possess properties which are intrinsic ineffable and private. McGinn says that phenomenal consciousness is inherently inexplicable and he rejects neural identity thesis. Carruthers accepts somewhat similar position and argues that the real problem here is to consider the problem of phenomenal consciousness as mind-brain problem.

Carruthers concedes that neural identities which embedded in some sort of story about functional role of phenomenal consciousness. Crick and Koch suggest phenomenal consciousness is resulted at the stage of perceptual re-integration or synchronized neural oscillation. But Carruthers argues that there are integrated experiences that lack phenomenal consciousness. For example, take the case of absent-minded perception of

a driver. While driving, driver may think about some problem at work or enjoying music, even though he gives side to overtaking vehicles. But latter driver is asked questions like: how many vehicles were passed his vehicle or what is the colour of third vehicle passed? etc. Sometimes he may not be conscious of seeing them, either at the time or later in memory. So he has an integrated experience without phenomenally conscious of it. The second criticism to this theory is that why the neural events which constitute perceptual integration should possess the properties of distinctive phenomenal consciousness? Let us move to functionalism.

1.5. Carruthers' Response to Functionalism and Behaviourism

Functionalism in philosophy has antecedents both in modern and ancient philosophy. Functionalism tries to characterize mental states in terms of their causal roles or relational properties. For example, Aristotle argued⁵⁵ that the (human) soul is the form of a natural, organized human body. Functionalism is introduced in modern philosophy mind by Putnam⁵⁶. The critics demand an analysis which considers the feelings involved in experience say for example, feelings involved in pain. Functionalists often put it; pain can be realized by different types of physical states in different kinds of creatures, or multiply realized. So functionalism is compatible with the sort of dualism that takes mental states to cause, and be caused by, physical states. Functional states are causal states and the mental property is functional property which individuated by means of functional role. In other words, mental states are some internal states with particular kinds of functional role. According to functionalism, we can classify physical states in terms of their relational properties and their over all functional roles within the organization of the systems they are part of, then it will be possible to reduce psychological states to them.

Functionalism gives a satisfactory explanation of multiple realizations of mental states and has advantage over type–identity theory. Functionalism says that internal structure of mental state is nothing to do with what makes

mental state of a particular type and maintain that, what makes something a thought or propositional thought is not related to its internal constitution, but exclusively to its functional role. It stands as a materialistic alternative to the 'Psycho-Physical Identity Thesis'; the thesis that each type of mental state is identical with a particular type of neural state. Identity theory entails that no creatures with brains unlike ours can share our sensations, beliefs, and desires, no matter how similar their behaviour and internal organization may be to our own although functionalism is officially neutral between materialism and dualism, it has been particularly attractive to materialists. The functionalist theory permits creatures with very different physical constitutions to have very same mental states as well. The functionalist views that, mental states can be multiply realized, is commonly considered as providing a more comprehensive, more credible theory that is attuned with materialism.

There are mainly two different types of functionalism: Machine State Functionalism, Psycho-Functionalism and Analytic Functionalism. Putman compared mental states to the functional or logical states of computer: In many respects, mental states as characterized by functionalism are rather like soft ware states of computers. Computational model provided an important source of inspiration for functionalism. Just as the computer program can be realized or instantiated by any of number of physically diverse hardware configurations, so can be a psychological 'program' be realized by different organisms of various physiochemical composition, and that is why different physiological states of organisms of different species can realize one and the same mental state type. This view is known as machine functionalism. Machine functionalism supposed that human brain may be described three distinct levels of description; namely

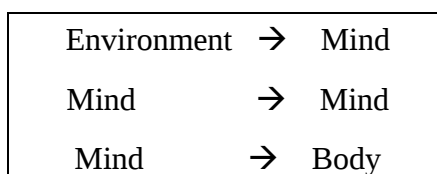
1. Neurophysiological description
2. Functional description
3. Common sense or folk psychological description

The first is the biological description; it gives explanation of a physical state in some one's brain at a particular time. The second tries to explain the machine program that brain happens to realize. The common sense description is everyday explanation. Unlike behaviourism and identity theory, functionalism does not strictly entail that minds are physical.

Behaviourism tries to solve the problem of other minds through analyzing the behaviour. As it is claimed there is nothing more and above the behaviour and dispositions to behave. Some of the attractive features of behaviorism are it situate mind in natural world rather than mere ghost in the machine, it abstain from ontological dualism of mind-body and it gives satisfactory picture of our knowledge of others as knowledge of behavioural dispositions. Carruthers concedes that some of our mental states are dispositional rather than episodic. But he further adds that, mental states cannot in general be identified with behavioural states (actual/dispositional) because they are rather causes of behaviour⁵⁷. The development of two important brands of Functionalism *psycho functionalism* and *analytical functionalism* can both be advantageously viewed as endeavor to unravel the problems of empirical and logical behaviourism, while retaining certain important approach of those theories. Functionalism claims that it is not possible to identify types of mental states with types of behavioural dispositions and characterize mental states by referring it to behaviours indirectly. That is by characterizing them through their causal roles. There are three types of causal relationship behind a mental state.

1. The subject's environment may cause mental state
2. Other mental state can cause mental state
3. Mental state can contribute causally to bodily behaviour of subject

Figure: 1.5. Causal Relationships behind a Mental State



Functionalism claims that mental concepts are concepts of states or process with a certain function (Putnam 1960, 1967; Lewis 1966). It is an answer to the problem of multiple realizability and it allows mental states to interact and influence each other rather than being directly tied to behavioural disposition. So we can conceptualize mental states in terms of their casual roles. It can be a conditional matter what actually engages those causal roles and it was conceptual possibility that the role occupiers might have turned out to be composed of some sort of mind stuff or dualism will be a conceptual possibility. This form of functionalism is known as analytic functionalism. There are two main problems to this form of functionalism. It is committed to analytic-synthetic distinction, but philosophers like Quine (1951) rejects it as unviable. It is hard to decide which axiom related to the causal role of the mental state should count as analytic and synthetic. Another criticism is that functionalism stumped block in front of felt nature of consciousness (it is the view shared by Block and Fodor (1972) Nagel (1974)

In response to such criticisms, there arises another variant of functionalism is known as psycho-functionalism. Theory-theory is an extreme form of psycho-functionalism. It defends that mental state concepts get their life and sense from their position in a substantive theory of causal structure and functioning of the mind. To know what a belief (or grasp the concept of belief) is to know the theory of mind within which that concept is embedded. Our mind-reading faculty functions like a central module and it is a product of maturation. Theory- of- mind module is an innate module and

nativist version of modularism is the correct version according to Carruthers and he considers Theory-theory as an outcome of functionalism.

This type of functionalism discards the analytic-synthetic distinction. Theory-theory is naturalistic theory which considers philosophical and scientific enquires are continuous with one another. From this viewpoint, both philosophy and cognitive psychology are occupied with basically the same venture. Carruthers accepts a sort of psycho-functionalism. Although functionalism is formally neutral between materialism and dualism, it can stand as a materialistic alternative to the psycho-physical identity thesis, the thesis that each type of mental state is identical with a particular type of neural state. It is criticized that functionalism is not capable of give a better explanation to qualia, because it explains mental states, exclusively in relational terms. The “inverted qualia” objection to functionalism maintains that there could be an individual who (for example) satisfies the functional definition of our experience of red, but is experiencing green instead .That is what the tokens of any distinct mental types have in common in virtue of which they belong to that type is the functional or causal role that play. In functionalism our concern is intentional states rather than phenomenal states. Functionalism coheres with the view of minds that motivate the cognitive revolution in psychology. Functional descriptions are available to us simply by reflection on our every day explanatory practices. Here functional descriptions are thought as ontologically derivable from our every day psychological ones. These functional definitions are not reducible, however do not identify properties at the psychological level with properties described non-mentalistically .The causal role of our psychological kind will be articulated utilizing psychological vocabulary. Related to the content of psychology there are two extreme views;they are :

1. Narrow content
2. Broad content.

Narrow content: It is the content individuated in abstraction from relation to the world. Theorist should agree that each token thought will have truth conditions which involve worldly states and affairs. According to them, very same thought in different circumstances, could have different truth-conditions. Some thinkers suggest that that even though there are broad contents, narrow content is important to psychology.

Since consciousness and intentionality are two important phenomena discussed in his theory, Carruthers maintains that conscious mental state is a combination of intentional states and causal role; man's mental state is both intentional and phenomenal in character. That is, its nature is representational and phenomenal at the same time. According to Carruthers⁵⁸, the content of our intentional states (propositional states) are narrow which allow the same intentional state to individuals in different environment. The narrow intentional content is independent of the external environment. According to this view, inputs and outputs may be better characterized as activity in specific sensory receptors and motor neurons. But it denies consciousness to creatures with different neural structures than ours. Carruthers argues that comparatively strong view is narrow content. For him, if we say contents of folk psychology and scientific psychology is different there arises confusion.

According to McDowell⁵⁹, narrow content theorists presuppose an intermediary between mind and the world. For Carruthers⁶⁰ the debate is about the individuation conditions of content and not about the referential relations or about the phenomenology. According to some internalists, the relevant facts about the individual may also include facts about the internal states of our body such as state of the central nervous system. According to Frege,⁶¹ sense is determined by reference. It means reference on the other hand does not determine sense. For him, sense is supposed to determine the reference., that is mode of presentation or manner of thinking determine thought content (reference) which is constituted by the status of affairs and

objects in the world which our thoughts concern. For example 'Indira Gandhi is India's first women prime minister' and Rajeev Gandhi's mother is India's first women prime minister' share the same truth-conditions and they have same thought content Accordingly, the criticism to Frege's view is that that indexical term 'I' seems to same sense to each one of us; but picks out a different person in each case, because they refer to different person in each case. So there are two possible views. The first view is that sense does not determine reference and second is that the actual reference is also one of the conditions of individuation of a sense.

The first view is defended by narrow content theorist. While narrow content theorists reject the Frege's theory of content and claim that sense does not determine reference. For Carruthers, the thought 'I am cold' has same mode of presentation or sense (meaning) but those senses are about different things. In other words, according to them, different tokens of the very same (narrow) thought can have different worldly truth- conditions? According to wide content theorist, in the case of expression 'I am cold' we are engaging different content and they believe that actual reference belongs amongst the individuation of a sense. On the issue of the content of psychology, Carruthers keeps intermediate position.

The two important objections to functionalism are; *absent-qualia* argument and *inverted-qualia* argument; which considered as the direct criticisms to functionalism. Conscious experience have distinctive phenomenal feel or there is something like to the subject of that experience. But Carruthers rejects that there exist some subjectively available intrinsic non-representational non–relationally individuated, properties or qualia. Carruthers accepts that there are distinctive ways of representing the world. Qualia are non-representational means it does not represent any other than itself. It is ineffable and private. If our experience have qualia in its strong sense functionalism will be a failure. If there are qualia then the problem of phenomenal consciousness will be hard, because this qualitative aspect of

consciousness cannot be explainable in terms of functional or representational terms.⁶²

According to externalist, thoughts are individuated in terms of the objects and properties in the world that they are about. In other words the existence and identity of the objects and properties thought about that determine the existence and identity of the thought. *Twin Earth Argument* put forward by Hilary Putnam⁶³ is a famous argument for externalism. It maintains that content of thought is not determined by or does not supervene on the intrinsic properties of the brain of subjects or according to Putnam content of thought is not 'in the head', because they are partially constituted by the objects and properties they are about. According to Putnam's *Twin Earth Argument*; two identical twins that are physical duplicates dwelling in *earth* and *twin earth* respectively. Their environments are different in some significant respect, for example in *twin earth* water is some other chemical substance, formula of which is XYZ while in *earth* the chemical formula is H₂O. Suppose that the twins utter the word 'water' they are thinking different thoughts, because they are talking about different things, even though they utter the same word 'water'. But there is no difference in their internal (physical or psychological) structure. So they possess dissimilar thoughts even though their heads are identical. In effect the externalists conclude that thoughts cannot be in the head. The argument of *twin earth* as follows:

- 1 The content of thought decides what the thought is about? Or what it refers to? (Or the indexical content);
- 2 The twins are referring to or the index of their thought is different when they using the word water.

Therefore, the twins are thinking different thoughts. Since thoughts are individuate by their contents. Since the twins are physical duplicates, but differ in their thoughts, their thoughts are not determined by the physical

nature of their bodies and heads. Therefore their thoughts are not 'in their heads' internalist could deny premise (2) and premise (1).

The current functionalist materialist paradigm in philosophy of mind resulted from adopting a Cartesian account of the causal relations between mind and actions, while dropping mental substance. In the above case, it is shown that subjective aspect of our experience must be non-representational and not functionally defined. Carruthers argues that the absent and inverted feelings are conceptually possible. But they are both naturally and logically impossible. On theory-theory account, Carruthers argues that there are recognitional concepts of experience and these concepts themselves are not relationally or causally defined; and maintains that the properties which those concepts accept are relational or intentional properties. On a HOT account it is possible; our mental states acquire phenomenal properties by virtue of having HOT about the perceptual states by deploying recognitional concepts of experience. So in response to inverted qualia, Carruthers argues that any creature which can perceive red can make all the visual discrimination and can recognize it's own perceptual representations of red and will definitely be subject of just the same phenomenal feelings as me and he conclude that there are no qualia. The recent forms of functionalism argue that both the inverted and absent qualia objections can be explained away without harming functionalism and commonsense view. As this view maintains, both X's and Y's mental states are standardly caused by red tomato and whatever their qualitative character these two states standardly cause to the two persons to believe that tomato is red. But according to Churchland⁶⁴, this form of functionalism admits the reality of qualia. Churchland suggests eliminative materialism as viable position comparing to functionalism. According to eliminative materialism, our common sense psychological framework will not enjoy the inter-theoretic reduction because our commonsense psychological framework is a false and radically misleading conception of the causes of human behaviour and the nature of cognitive activity. Eliminativism argues that ontology of older

theory should be eliminated in favor of the ontology of new theory. There is no inter-theoretic reduction in this case.

To be conclude that we have given a very comprehensive view of the several stages through which Carruthers has developed a perspective of his own. We have used Block's reflections as a counterfoil to clarify the several turns Carruthers makes in his naturalistic theory of phenomenal consciousness. We have claimed that he is undoubtedly passing from realism, naturalism and then passing towards a more possible physicalistic theory. We have recounted how Carruthers designs his position in the light of a deep scrutiny and criticism of different traditional theories of mind and modern theories of consciousness. It is also shown that Carruthers has a certain ambivalent relation to strong and weak dualism. In all these, Carruthers remained a faithful theory-theorist from a physicalist point of view having his focus of interest on the problem of other minds. The HOT is a noticeable defence of the above even if this gets plunged in to the copious development of his later theory through a series of ramification. After seeing more of the challenges in the subsequent Chapter and the way of meeting them we shall move further to query whether it is plausible to develop the naturalistic account in the way Carruthers attempts. As a consequence, his modular view shall be criticized in the light of his later version of theory. His theory mainly deals with the so-called harder problems of consciousness with the help of inference to best explanation. With a firm grasp of background assumption, we are now in a place to revolve our attention straightly to the major challenges before Carruthers' theory that will be discussed in next chapter.

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CHAPTER II

MAIN CHALLENGES BEFORE CARRUTHERS' PROJECT

2.1. The State of Art in Cognitive Science

Carruthers claims that his theory will meet many of the challenges put forward by a variety of theories of consciousness. An important feature of his work is thus a considered response to the host of the theories of mind, self consciousness and phenomenal consciousness. In the first chapter, we have already given a thorough appraisal of naturalistic theories of consciousness. The present chapter is devoted to an account of the many major challenges that are before Carruthers naturalistic theory of consciousness; challenges varying from mysterianist to connectionist and evaluate Carruthers' responses to these challenges. In other words, what are the challenges? Or what are the obstacles in the way to develop a naturalistic theory? How best Carruthers overall outlooks can meet all them? are the questions which are addressed in this chapter.

In recent cognitive science research, there is an upsurge of interest in consciousness studies and the world witnessed publication of some scholarly articles and books in cognitive sciences, which is the result of researches on mind, brain and consciousness based on complex representations and computational procedures. Works that are great significance to Cognitive Science came to light much earlier. But it is only in the mid-1950's cognitive science as the "disciplinary clusters" of cognitive psychology, artificial intelligence, and cognitive neuroscience originated. As Blackwell dictionary of cognitive psychology defines "cognitive science is the interdisciplinary study of acquisition and use of knowledge and it included as contributing disciplines, artificial intelligence, psychology linguistics, philosophy anthropology neuroscience and education"¹. This particularly interdisciplinary

character is benefit of cognitive science. But the different disciplines approach the problems of cognitive science from diverse perspectives with their specific tools and it may often turn out to be incommensurable with other disciplines. In such a situation, unless the researchers show significant broadmindedness towards other disciplines and researchers; it is not possible to integrate them into the state of art. Cognitive science tries to unravel problem related to consciousness through psychological statistical studies and case studies of consciousness states and the deficits caused by lesions, stroke, injury or surgery that prevent the normal functioning of human senses and cognition. These studies proved that the mind is a complex structure derived from various localized functions that are bound together with a unitary awareness.

Our sense organs make available us concrete, limited and confused information, but knowledge of world is extremely structured; how it is possible? There is an unbridgeable gap between these two realms. The rationalist approach says that the most significant things we know were there to begin with planted innately in our minds. The empiricist approach says that although it looks as if our knowledge is far indifferent from our experience, it isn't actually. These two perspectives are complementary and opposing at the same time and philosophy and psychology often appear to exchange between one view and the other. Rationalists can explain the abstract, complex, nature of our knowledge quite well, but they can't explain, and so deny, the fact that we learn. Empiricists can explain the fact that we learn, but they can't explain, and so deny, the fact that our knowledge is so far removed from our experience.

The credit of this foundational idea of cognitive science goes to Chomsky. Chomsky's view is a species of "cognitive naturalism"; the suggestion is that knowledge of the mind can be comprehended by scientific research. The crucial idea now at the heart of cognitive science is that scientific explanations engage representations and rules that characterize

the cognitive capacities of human minds; they are the theoretical entities of cognitive psychology. The greatest successes in cognitive science have been in domains that Chomsky didn't himself investigate, particularly vision using methods, psychological experimentation, comprehensive computational modeling, and, most recently, neuroscience, that he has eschewed. There were other previous sources for this idea, too, including Piaget and the Gestalt psychologists.

Flanagan has proposed that there is a "natural method" to go about understanding consciousness that involves creating a science of mind. *Three* key elements of this developing science are: 1) paying attention to subjective reports on conscious experiences, 2) incorporating the results from psychology and cognitive science, and 3) including the results from neuroscience that will reveal how neural systems produce consciousness². One of such alternative is to study consciousness is neuro-phenomenology which is an interdisciplinary scientific methodology that unites neuroscience with phenomenological philosophy. Since phenomenology deals with the subjective aspects of first-person experience, neuroscience certainly is the study of the brain, and deals with the objective and third-person aspects of consciousness, suggesting that invariant patterns and structures discovered in first-person explorations of consciousness may find their explanation in the physiology and functioning of the brain. It seems Carruthers also subscribes to such a method. The most promising direction in re-approaching consciousness involve rethinking epistemology and conceptual schemes to yield a cross-fertilization of the first- person and third-person perspectives, which would permit theorizing about the causal efficacy of how consciousness feels and the phenomenal quality of what consciousness does³. Patricia Churchland says "... that it would be wisest to conduct research on many levels simultaneously, from the molecular, through to networks, systems, brain areas, and of course behaviour. Here, as elsewhere in science, hypotheses at various levels can co-evolve as they correct and inform one another"⁴. So

it is clear that cognitive science as disciplinary cluster of mind and consciousness imply that complete understanding of the mind/brain cannot be attained by studying any one level. By studying a particular phenomenon from multiple levels, we are better able to understand the processes that occur in the brain to give rise to a particular behaviour.

Over the past few decades almost the complete conceptual vocabularies of common sense psychology have been resurrected. Nowadays, it is associated with empirical findings and the theoretical models resulted from scientific research. Cognitive science is a vast region that comprises of plethora of issues on different aspect and features of cognition. Recently, the topics like social and cultural factors, emotion, consciousness, animal cognition, comparative and evolutionary approaches have acquired much consideration in cognitive sciences. Some cognitive scientist, however, consider these to be crucial topics, and sympathize with them. In any way, the fundamental questions of cognitive sciences include: What is intelligence? and How is possible to model it computationally? etc. So cognitive sciences include following key topics such as; artificial intelligence, attention, language processing, learning and development, memory, perception, action etc. As this field is highly interdisciplinary research, it often cuts across multiple areas of study, drawing on research methods from psychology neuroscience, computer science and system theory .behavioural experiments (reaction time, psychophysical responses, eye tracking) brain imaging techniques (like SPECT, PET, EEG, fMRI, MEG optical imaging), computational modeling, and neurobiological methods are certain methods of study in cognitive science ⁵.

There are several method to the study of cognitive science. These approaches may be classified broadly as symbolic, connectionist, and dynamic systems.

Symbolic: - holds that cognition can be explained using operations on symbols, by means of explicit computational theories and models of mental (but not brain) processes analogous to the workings of a digital computer.

Connectionist (sub symbolic) - holds that cognition can only be modeled and explained by using artificial neural networks on the level of physical brain properties.

Dynamic Systems - holds that cognition can be explained by means of a continuous dynamical systems in which all the elements are interrelated, like the waltz governor.

Emulator Systems (Neural Engineering Models) universally help us to construct self-models with an engineering design.

Critics argued that human minds work by representation and computation is an empirical hypothesis and might not be correct. Searle argues that cognitive science's computational representational approach is fundamentally mistaken⁶. Critics of cognitive science have offered such challenges as cognitive science does not pay attention to the significant role of emotions, consciousness and physical environments in human thinking. There is no evidence to say that the inherent nature of thought is constructed by society is neglected by cognitive science. The mind is a dynamical system with a body mind world and even language integrated together in a circle but yet acts very much like a computational system⁷. The computational-representational approach cannot be deserted and all these challenges can be explained by this method⁸.

Recent research in this area considers philosophy as continuous with psychology. So much so that the celebrated naturalistic perspective argues philosophy of mind is connected with theoretical and experimental work in cognitive science. *A-priori* speculation is not the only method to reach metaphysical conclusions about the nature of mind; but the scientific developments in fields such as computer science and neuroscience give

their share in this regard. It is argued that epistemology depends on the research related to mental structures and learning procedure rather than mere conceptual exercises. Carruthers also shares this view, but modifies them into a greater extent.

A major question in the study of cognitive development is the extent to which certain abilities are innate or learned. This is commonly framed in terms of the nature *versus* nurture debate. From the nativist or rationalist point of view, certain features are innate to an organism and are endowed by its genes. It has been suggested by the empiricists, that certain abilities are learned from the environment. Without confusion, we can argue for the claim, that intelligent behaviour has components that are both innate and learned, but the extent to which particular behaviours are frontier area of research. In the area of language acquisition, for example, many questions remain unanswered like; whether or not a special language acquisition mechanism is essential to smooth the way for the learning of language, or if humans can learn language through more general learning processes that take advantage of the information available in the environment etc. Much discussed philosophical problems now form the crux of cognitive science are stated as follows;

To what extent is knowledge innate or it is completely acquired by experience? Is human behaviour is inborn or shaped by its environment? Does human brain operate with a computational or with connectionist framework? Is there any relation between these two? What are the vehicles of thought? Is it mere visual or other kinds of images? Or is language counted as the only vehicle? Whether commonsense psychology identical with having a theory of mind or of merely simulation? Are mental states brain states? Or can they be multiply-realised in other material states? What is the relation between psychology and neuroscience? etc.

“Consciousness is what makes the mind-body really intractable. Without consciousness, the mind-body problem would be much less

interesting with consciousness, it seems hopeless”⁹. Searle defines consciousness as follows “by consciousness I simply means the subjective states of awareness”¹⁰. According to Block consciousness even non-reductionism needs scientific backing. He says consciousness is a mongrel concept¹¹ and there are different notions of consciousness such as access consciousness and phenomenal consciousness. Conscious experience is the greatly confusing within the controversial crux of psychological sciences like psychology and neuro-psychology. Current research on consciousness has given rise to fruitful discussion in the philosophy of mind and it seems research relating to the nature of consciousness often cross cutting disciplinary restrictions. Philosophy of psychology attempts to explore issues, such as which are the theoretical foundations of modern psychology, what is cognitive module? What is innateness? Whether human beings are actually rational or not?

Phenomenal consciousness or subjective aspect of consciousness represents one of the more intractable problems in the crossroads of the philosophy of mind and cognitive psychology. This is the concept of consciousness that leads us to speak of an explanatory gap. It is believed that phenomenal constitution of experience entered in philosophical thought through Kant, who commenced it in the background of refusing the sensational theory of experience related with traditional empiricism. There is an array of metaphors of the mind. The mind has been metaphorically described as an aviary, a telephone switchboard, a ghost in a machine, and a computer—to name but a few. Bernard Baars,¹² adds his own metaphor to this admired list, and considered mind as working theater. Baars argues for the aptness of his theater metaphor by showing how it can be used to tell “a unified story” of all the currently available scientific data on consciousness. It is argued that Baars’ *Theater Metaphor* is not entirely apt, that once it is unpacked, it suggests a certain relation between consciousness and attention that does not appear to be supported by the currently available data.¹³ There are so many theories try to explain phenomenal consciousness.

A famous neurological theory defended that coordinated 35-to 75-hertz neural oscillation in the sensory areas of the cortex is responsible for the phenomenally conscious mental state and it is believed that this information have the capacity to explain away the so-called binding problem¹⁴ (how neurons are binding together to form a unity of consciousness).

Critics argued that the various versions of functionalism appear incapable to take hold of full spirited consciousness. As a brand of functionalism or theory-theory Carruthers' model faces this challenge. It is criticized that recognized models of mind emerging from artificial intelligence studies are generally silent on phenomenological qualia; characteristic of perhaps necessary to, human and possibly all natural intelligence. Theorists like Rorty¹⁵ mentioned about the 'raw feeling' of consciousness imparted to us by our erroneous Cartesian forerunners and which indicate a dualistic psychology of mind and body; and now best discarded by the growing scientific theory of thought. Thinkers like Dennett,¹⁶ try to renovate consciousness and provide it with a significant place in a multiple draft vie of consciousness (our consciousness is just like multiply drafted neutrons). He says that the notion of qualia 'fosters nothing but confusion and refers in the end to no properties or features at all.'¹⁷The ontological status of phenomenal consciousness can be approached from different view points such as substance dualism, reductionism, eliminativism etc.

Even though there are so many pacesetters in the area of cognitive sciences, Carruthers' theory may be the most recent in the series of approach to the hard problem (or harder) of phenomenal consciousness, and we propose it as one of the most promising alternatives. Carruthers' theory is known as Dispositionalist Higher-Order Thought Theory of phenomenal consciousness. On this view, in order to enjoy a phenomenally conscious experience, we have to engage an analog representational state that is available to a higher-order thought ability. He argues that dispositionalist higher-order theory can bridge the notorious explanatory gap,

launched by Levine (1983), who maintains that our functional or physical nature is not adequate to elucidate our subjective part of experience. Carruthers depicts remarkable group of arguments and opposite positions throughout the development of his naturalistic account. He meets head on the mysterian arguments, which argues that phenomenal consciousness is an irreducible notion of consciousness, which poles apart from the physicalist world outlook. The mysterianist claim that no materialist theory is adequate to provide an explanation of phenomenal consciousness, neither the first-order representation theory nor the higher-order representation theory is part to silence in a characteristic way by the naturalistic approach.

In order to bring about a comprehensive account of a naturalistic theory, Carruthers has to confront many challenges. The most important challenges before his theory are as follows;

1. The mysterianist challenges
2. The eliminativist challenges
3. The anti-realist challenges
4. The connectionst challenges

2.2. Nagel on Perspectival or First-Personal Facts

Of the many challenges Carruthers has to meet the most important one is from the sectarian argument of Mysterianist. The hypothesis of mysterianism is that the subjective feel of consciousness can neither have room within the physicalist world view; nor could it have a reductive explanation in physicalistic vocabulary. Owen Flanagan classifies different philosophical positions on consciousness as non-naturalism, principled agnosticism, anti-constructive naturalism, eliminative naturalism and constructive naturalism etc¹⁸. Mysterianist are non-naturalist and non-reductionist in nature. They defend the view that consciousness is irreducible phenomenon. The mysterianist argues that phenomenal consciousness generates a particular trouble to materialism or functionalism. In other words, it is argued that the felt nature of conscious experience is

inexplicable from the standpoint of functionalism and materialism. It is argued that some mental state seems to be conceptualized in terms of feel and the belief about causal role has only a secondary importance. There is something that it feels like to be subject of conscious perception. On this at least there is common conformity. But there is significant divergence regarding the ontological and epistemological status of such phenomenal feelings. Notable defenders of the cognitive closure thesis are Thomas Nagel, Frank Jackson and Colin McGinn. They stand for the claim that phenomenal aspect of experience has no place in physicalist ontology. Nagel mentions the possibility of cognitive closure of the subjective aspect of experience and the implications that it has for materialist reductionist science. Peter Carruthers¹⁹ argues against mysterianists' claim that our phenomenal consciousness is non-physical and/or epiphenomenal or that its physical nature is intrinsically closed to us. He rejects any attempt to give a neurological explanation of phenomenal consciousness. For him, such an attempt would be a jump over too many explanatory levels at once.

Carruthers classifies these mysterian arguments into two groups; metaphysical arguments and epistemic arguments. The first group of thinkers argued that consciousness is intrinsically mysterianist while the second group stands for the view that consciousness is hard problem and it is one of the final frontiers of science. Thinkers like Churchland and Daniel Dennett argue that; explanatory gap can be closed and other faction of thinkers like, Nagel, Searle, Jackson, McGinn and Chalmers claim that the explanatory gap cannot be closed. Nagel's claim is that explanatory adequacy of physics is not an apparent truth. For him, the present day psychology and neuroscience provides us with "no general explanatory theory" that is no "real understanding" of the relation between the mind and brain can be gained from them. For McGinn, the real problem of phenomenal consciousness exists there in the explanatory gap between objective or felt properties, and he presupposes that answer to this problem is *cognitively closed* to us. Chalmers maintains that there exist an

unbridgeable gap between phenomenal consciousness and the rest of the world. Carruthers' aim is to close the so-called explanatory gap. Let us analyse these arguments one by one.

Thomas Nagel is the man who is responsible for putting the problem of phenomenal consciousness in the right track. Thomas Nagel argues for the individuation of facts. He writes "we have at present no idea of how a particular event or things have both physical and phenomenological aspect or how if it did they might be related"²⁰. As Daniel Dennett (1991) claims, Nagel's argument is regarded as '[t]he most widely cited and influential thought experiment about consciousness'²¹. Nagel argues along the same line as Levin that there is an explanatory gap between physical and phenomenological aspect of a particular mental event. Nothing in the non-mental reality seems suited to explain what it is for a mental state to be conscious and the gap between mental and physical seems unbridgeable primarily in respect of consciousness²². Nagel argues that in order to know the subjective nature of a bat's phenomenal experience we would need to share a bat's 'point of view'. However, he contends, a bat's sensory machinery is so fundamentally diverse from ours that it appears impossible for us to have that point of view. Therefore, he concludes, we seem unable to know 'what it is like to be a bat'. Thomas Nagel shows a general obscurity relating to the description of phenomenal consciousness. Nagel argued that consciousness may be explainable by appeal to as yet un-discovered fundamental, non mental, non-physical properties that which labeled as 'proto-mental' properties. Reductionism proposes to analyze mental phenomenon and mental concepts designed to explain the possibility of some variety of materialism, psychological identification or reduction. For Nagel, the common examples which are proposed by reductionism to support reduction of mental do not help us to understand the mind- body problem. He points out that they are unrelated examples. Carruthers shares with Nagel the phenomenal realism. But for him, this phenomenological

subjective point of view can be explained through third- personal terms or cognitive terms.

If we try to imagine, what it is like for a bat to be bat, we are restricted to inadequate recourses of our own mind. Subjective character of other organism is beyond our ability to conceive. Nagel's realism about subjective domain in all, its forms implies a belief in the existence of facts beyond the reach of human concepts. These are metaphysical concepts. Reflection on 'what it is like to be a bat' aspect leads us to the conclusion that there are facts that do not consist in the truth of propositions expressible in the human language. There are three stages in which Thomas Nagel's argument is advanced against the naturalistic reductive explanations of phenomenal consciousness they are as follows

- a) What it is like to be a bat?
- b) The scientific view is view from nowhere
- c) Irreducibility of 'myself facts'.

a) What it is like to be a Bat?

Nagel's notion of what it is like to be a bat has been so influential role in arena of consciousness studies and it seems a wild card of consciousness studies .Nagel's argument for intractability of consciousness runs as follows "no matter how the form may vary, the fact that an organism has conscious experience at all means basically that there is something it is like to be that organism"²³.As Nagel argues, mental state being conscious means that there is something it is like to be in that state.Nagel uses it as an intuition pump argument for stating subjectivity rather than as a tool to talk about qualia. He point out that we could know the physiology of a bat's sonar sense and still do not know 'What it like to be a bat'. We could not know what the bat's sonar experience feels like for it. For him, there must be some thing which it is like to a bat and only someone who has had echolocation experience (experiences relevantly similar to those involved in echolocation) can know what it is like to be a bat, i.e. only those who have a particular kind of

subjective constitution or who occupies a certain sort of subjective perspective on the world can know what it is like to a bat. Nagel argues that in order to know the subjective nature of a bat's phenomenal experience, we would need to share a bat's 'point of view'. However, he contends, a bat's sensory apparatus is so fundamentally different from ours that it appears impossible for us to have bat's point of view. Therefore, he concludes, we seem to be unable to know 'what it is like to be a bat'. So Nagel seems to claim that there are certain facts which can only be known by those who possess a subjective perspective, implying that there exist two different kinds of facts subjective and objective facts. As Nagel argues there is something it is like to have sensation of a particular type is different from what it is like to have a sensation of any other type. What makes a pain really a pain is its subjectivity or qualitative nature. Put it in other way, sensations and feelings are individuated in terms of their qualia. "If physicalism to be defended the phenomenological features must be given a physical account"²⁴. "But when we examine their subjective character, it seems that such a result is impossible. The reason is that every subjective phenomenon is essentially connected with a single point of view. And it seems inevitable that an objective physical theory will abandon that point of view"²⁵.

b) The View From Nowhere

Nagel says that "it would be a mistake to conclude that physicalism is false, it would be truer to say physicalism is a position we cannot understand because we do not at present have any conception of how it might be true"²⁶. He adds that "we have at present no conception of how a single event or thing could be both physical and phenomenological aspects or how if it did they might be related"²⁷. The subjective character of experience is fully comprehensible from only one point of view. "Therefore any shift to greater objectivity ---that is less attachment to specific viewpoint ---does not take us nearer to the real nature of phenomena: it takes us further away from it"²⁸.

The subjective character of experience is not captured by any of the familiar; recently devised reductive analyses of the mental, for all of them are logically compatible with its absence. It is not analyzable in terms of any explanatory system of functional states or intentional states, since these could be ascribed to robots or automata that behaved like people, though they experienced nothing²⁹.

Nagel points out that the so-called scientific view represents the world from no particular point of view. He criticized the standards on which the objectivity of science based and says that objective explanations do not depend upon particular perspective. The scientific view is a objective view and this is an impartial third-personal view of world. The subjective view of world is a first- personal aspect of the experience and views world as it appears to one self. For, Nagel, the objective explanation and subjective explanation are only two ways of viewing the world. For Nagel, the scientific view of world is 'view from nowhere'. Science may able to give a complete objective picture of brain events, but it cannot provide a correct picture of subjective feel or phenomenal consciousness of an experience. Subjective facts are both invisible and inexplicable by science. Nagel's view is that consciousness may be explainable only by appeal to as yet undiscovered fundamental non- mental, non- physical properties; Which is labeled by him as 'proto- mental properties'. Since the scientific explanation of the world tries to provide an objective description of the world and the process which take place within it, is called the view from nowhere. For Nagel, one of the important features of our experience is it possess a particular perspective. As Nagel has claimed, regarding scientific explanation, the subjective perspective and subjective facts form a set of inexplicable facts. Science cannot account for the subjective aspect or phenomenology of experience. Nagel's argument is based on a prevalent worry among contemporary physicalists that the phenomenal feature of the world might necessarily remain physically or objectively uncharacterized. Nagel claims, 'If physicalism is to be defended, the phenomenological features must

themselves be given a physical account. But when we examine their subjective character, it seems that such a result is impossible since 'every subjective phenomenon is essentially connected with a single point of view'.

Here are two types of concepts. *Firstly* there are concepts which are using for explanatory purposes. The aim of this explanation is to how the world is causally interacting with one another. *Secondly*, there are concepts which are constructed out of our daily sensory interaction with the world. The difference between these two concepts is that the former concepts can be grasped from a third- person perspective; while the latter cannot be. Nagel argues that these are the facts invisible to science. Science can provide an explanation of the process of perception from *outside*, and silent about what these processes are like for the subject from *inside*. Reductive analysis of these subjective experiences is logically compatible with its absence. Any reductive programme has to be based on an analysis of what is to be reduced. If the analysis leaves something out, the problem will be falsely posed. Every subjective phenomenon is basically related with a single point of view; if physicalist explanation is the best explanation then it should give us a physical account of phenomenological feature of experience. At present, we have no conception of what an explanation of the physical nature of mental phenomena would be. Nagel is optimistic about solution of this mind- body problem in future developments.

c) Irreducibility of 'Myness' Facts

Myness-facts are peculiar to the experiencing subject. In other words, these are the facts related to my mental states or my unique mental perspective. Nagel claims that "I thoughts" and experiences (those thoughts and experiences belongs to the individual him self) are irreducible to any types of representations and these types of facts ('myness' facts) could not be captured by any scientific objective description. He considered this 'myness' facts as incommunicable and ineffable. But it looks like to be real. According to Nagel, someone who has possessed the particular type of

experiences (echo- location or experiences) or experiences relevantly similar to these experiences can know what it is like to be bat. According to him, this fact about the 'what it is like to be' aspect of experience can only be known from a certain subjective perspective. So it is argued that, if I am not you, I cannot grasp 'what it is like to be you'. So this peculiar type of fact cannot be captured by concepts of physical science since these are only objective concepts. Nagel claim that the features of experiences are something that need to be accounted for in terms of the concepts we have of them; which he calls subjective concepts. Nagel seeks to undermine the motivation for insisting that experiences are items to which subjective and objective concepts might both apply. Carruthers counter to that the problem arises due to non- attention of explaining how something that falls under such and such objective concepts must also falls under so and so subjective ones.

According to Carruthers, conflation of two different levels (the level of reference with the level of sense) is the problem before mysterianist. Against Nagel, Carruthers argues that one and only one fact is variously explicated as subjective and objective facts. Subjective aspect of experience is not same thing as occupying a point of view. Nagel conflates with these two views. Carruthers' argument for rejecting two kinds of fact is similar to Frege's analysis of sense and reference. Like Frege, he argues that the objective and subjective facts are or objective description of brain events and subjective feel refer to same thing, that is the brain events. But its 'mode of presentation' is different. Carruthers' intention is to argue that these two facts are two species of same fact or two sides of same coin. Carruthers' argument goes like this: irreducibility of "I thoughts" shows nothing about a special category of fact. The so-called subjective facts are not additional facts but these are another way of representing some of the very same objective facts, from a particular perspective. Any seeming difference between excited C-fibers and pain experiences, (according to dual-access theory), is one of perspective and this does not imply a dualistic ontology³⁰. The subjective or phenomenal feel of an experience (say tooth ache) is

another mode of presentation of activities in subject's brain (C fiber firing). The subjective feel and brain events need not be two facts and they are one and same fact but variously represented. This mode of presentation (representation) may again divided into (1) facts about the world (represented differently by different ways; objectively subjectively etc.) (2) Facts about our representation of the world. (How I represent the facts about the world from my particular perspective).What follows from this is that some version of dual-access theory will be critical to any plausible naturalistic account of conscious experience.

According to Carruthers, to know 'what it is like to be' aspect or phenomenal aspect is possible when we construct an imagistic representation of experience which helps us to recognize that experience without inference. In other words, knowing the phenomenal aspect of experience is equal to possessing or constructing the relevant recognitional capacities. More accurately, knowing what it is like to be a bat is naturally interpreted as having the special skill or capacity to construct the right sort of *recognitional concepts*.

According to Carruthers, all facts are more or less subjective in nature. Any type of concept involves human interest and so will be subjective concept. So Nagel's distinction between subjective and objective facts is not consistent. But as Carruthers maintains, Nagel really wants to draw a distinction between two types of concepts. Carruthers says that myness is not a separate fact about the experience. The scientific view knows in abstract, that particular experience is taking place, while myness facts are having introspective awareness about the experience. Thinkers like Dennett and Flanagan accept that there is something that experience is like but they deny the claim that phenomenal consciousness is mysterious in nature. Flanagan claims that Nagel's hypothesis is misguided one because Nagel considers phenomenological feature is the real aspect of consciousness. But it is meaningless to count the phenomenal nature as the

only and complete character of consciousness. Nagel argues that no naturalistic analysis is competent enough to make room for the fact of first-person phenomenology or the correct nature of experience³¹. So it is argued that the duty of a naturalistic project is to seek how the way things seems from the first -person point of view fit with data from other impersonal sources like third- person phenomenology, evolutionary theory, cognitive psychology and neuroscience³².Nagel worries that such an account may discard the subjective view point and it will take away from the real nature of the phenomena. Flanagan considers that Nagel' argument is an over- stated one³³,since there is nothing in the natural approach that requires abandoning the subjective point of view. Nagel's argument that the real nature of the phenomenon cannot be explained away by the objective position is vague one, because he conflates two senses of 'the real nature' and it is argued that the natural integrity of individuals and the structure and function of individual nervous systems justifies each individual's unique relation to how things seem. For him,³⁴there is no motivation to think that naturalists fail to give explanation of existence of subjectivity and its role in the overall project of understanding human nature.As Flanagan considers good phenomenology is group phenomenology and getting clear on the phenomenology is not an essentially private enterprise. Flanagan criticizes Nagel's approach to naturalism and says that a good naturalism is not reductive naturalism and naturalistic explanation involves deeper understanding of phenomenal facts in terms of 'phenomenal feel'. More accurately, it does not imply that all naturalisms are eliminative in nature³⁵. The 'phenomenal feel' of experience consists in properties for which it is possible to form introspective concepts and to know what it is like is to acquire these concepts. So even if the subjective aspect of experience is mysterious and we never acquire knowledge about it is to say that we shall never be able to construct recognitional capacities for the subjective aspect of the bat's experience. But it does not imply that these very same properties

cannot be represented by other ways such as objective stand point of science.

2.3 Carruthers' stand on Knowledge, Conceivability and Cognitive Closure Arguments

Jackson put forward an extra edition of Nagel's argument. Jackson's argument is famously known as s Mary argument³⁶. '*Mary Argument*' is expected to be an evidence for the claim that conscious properties are irreducible and they are therefore 'epiphenomenal'. It may be one of the most hotly discussed anti- physicalist argument. The hypothesis of which is; there is some knowledge about experience that can be obtained only by submitting yourself to the relevant experience .So it implies that only one who have a particular experience (say having a red experience) can come to know what the character of phenomenal experience (here it is experience of red). Jackson phrases the thought- experiment as follows:

Mary is a brilliant scientist who is, for whatever reason, forced to investigate the world from a black and white room *via* a black and white television monitor. She specializes in the neurophysiology of vision and acquires, let us suppose, all the physical information there is to obtain about what goes on when we see ripe tomatoes, or the sky, and use terms like 'red', 'blue', and so on. She discovers, for example, just which wavelength combinations from the sky stimulate the retina, and exactly how this produces *via* the central nervous system the contraction of the vocal chords and expulsion of air from the lungs that results in the uttering of the sentence 'The sky is blue'. (...) What will happen when Mary is released from her black and white room or is given a color television monitor? Will she learn anything or not? It seems just obvious that she will learn something about the world and our visual experience of it. But then is it inescapable that her previous knowledge was incomplete. But she had all the physical information. Ergo there is more to have than that, and Physicalism is false ³⁷.

Nagel demonstrates that different point of views on the world adopted by different subjects miss something from objective account or scientific description. So he purports to establish that physicalism is a fake position, on the ground that there exist facts that cannot be known exclusively in virtue of knowing all the physical facts. Jackson argues that the subjective feature is a genuine fact and we cannot capture it in either physicalist or functionalist terms. As he maintains, phenomenal fact is an authentic fact about the experience. One might know all the objective, physical facts about human conscious experiences, and yet fail to know certain facts about what human conscious experiences are like subjectively; therefore, there are facts about human conscious experiences that are *left out* of the physicalist's story, and so physicalism is false. Let us analyze how Jackson's thought experiment can be met.

Mary is the super color scientist who has spent her whole life within the strictly black and white rooms. She knows every physical fact about the human beings and our environment. Although she knows all the minutiae of physical system underlying color perception, she is incompetent to know what an experience is like. In other words, she learns all chemical, neuro-physiological facts related to man's experience of red which will include causal and relational facts and functional facts. Jackson argues that there is more to know than a physical fact. So complete physical knowledge cannot be count as complete knowledge. It seems that even though Mary knows all the physical facts she does not know all there is to know about color experience of red. For him, the functionalist and physicalist theories are not perfect theories to give explanation to the subjective feature of experience of red. So we can summarize the knowledge argument as follows:

- 1) If physicalism is true, then by knowing the entire physical facts we can know all the facts there are;

- 2) The fact concerning the subjective aspect or what it is like to have a particular experience (for examples experience of a red tomato) is a fact one cannot know just in virtue of knowing all the physical facts.
- 3) Therefore, physicalism is false.

Put it in other way the Mary argument may be like this³⁸.

Premise 1: Mary knows everything physical there is to know about seeing red.

Premise 2: Mary does not know everything there is to know about seeing red because she learns something about it when she was released from the room.

Conclusion: Therefore there are some truths about experience that escape from physicalist explanation and this implies that physicalism is false and phenomenal properties are not physical properties.

The main question related to *knowledge argument* is: Does Mary learns any thing or gains any knowledge when she first experiences red? Different thinkers reply to this question differently. For example, Churchland replies that it is possibly not and in effect he endorses a type of physicalism. Thinkers who gave positive replies include David Lewis, Michael Tye, T.Horgan, W.Lycan, B.Loar, R.Van Gulick. Etc. Thinkers like B. Loar says that Mary get a novel concept. A concept that enters her cognitive range in part on the basis of her newly acquired discriminative abilities. Thus using this new concept, she is able to apprehend the truth of new propositions. Loar does not reject the physicalist's position because the property is same there is only a conceptual difference. That both of these concepts refer to same property. Carruthers also shares similar view with Loar and he says "To know what seeing red feels like requires deploying a phenomenal concept. It is just such a concept that she learns upon leaving her room. And why couldn't she learn that concept before? Wasn't her extensive knowledge of color vision enough to enable her to learn that phenomenal concept?"³⁹ In

what follows Carruthers attacks the knowledge argument through a set of replies which are called the opacity-of-knowledge reply, ability hypothesis and argument from *a posteriori physicalism*.

1) ***The opacity-of-knowledge reply***

This argument is the most popularized by thinkers like Horgan ⁴⁰, van Gulick ⁴¹, Churchland ⁴² etc. This view asserts that Mary only comes to know the new way facts or propositions she already know. It is clear that the knowledge argument depends on the incomprehensible notion of a fact, so, it is matter of dispute that, Mary learns something new in the sense of coming to know a new fact. For this argument explains why Mary learns what it is like to experience red without having to suppose that Mary learns new facts. Mary came to know a fact she already knew under a different mode of presentation. Carruthers way of meeting the argument is similar to this argument. So any criticism to the opacity-of-knowledge reply will also affect Carruthers also. That is, it may be that the sentences 'It is like such-and-such to experience red' and 'To experience red is to be in such-and-such a neural state' are made true by the same facts, but express different propositions; or it may be that while the two sentences express the same proposition, these propositions themselves can be believed/known under distinct modes of presentation. It is argued that failure of substitution cannot be explained away with the help of the claim that believer knows only some of a thing's properties. Because if physicalism is true Mary by hypothesis knows all the properties of things, so if physicalism is true, she knows everything. Loar⁴³ draws the support of the notion of a 'phenomenal concept' to solve this problem and he says that such concepts pick out phenomenal properties directly, not *via* some distinct mode of presentation.

2) ***The ability hypothesis***

Thinkers like David Lewis says that Mary gain strictly 'know-how' and she does not acquire new knowledge of facts and propositions but acquires only new abilities and propositions to recognize and imagine. Defenders of the ability hypothesis deny that knowing what it is like is factual knowledge at all. Instead, it is mere know-how, the possession of ability. Drawing support from the argument of Lewis (1998), Carruthers also claims that Mary lack an

ability to recognize, remember and imagine experience of red. But it points to yet another conclusion that diverges from that of Jackson. The criticism to Lewis is that he considers that all that Mary lacks are certain abilities. But Carruthers argues that Mary lack both ability to recognize, imagine and remember certain facts and lacks certain concepts namely phenomenal concepts of experience. So Carruthers combines ability hypotheses and the opacity-of-knowledge reply. Still the problem is prevailing there because the reply entails that Mary can know about the qualitative properties of experiences in two different ways. This is can be solved by the *posteriority* of identifications of qualia with physical properties. Therefore, the supporter of the opacity-of-knowledge reply must in some way deny the inference from conceivability to possibility, and it is not apparent that this inference can be believably denied in a way that refutes the knowledge argument. There are mainly three important criticisms to ability hypothesis. They are as follows:

a) *The embedding problem*⁴⁴: This is a problem for explaining how knowledge of what it is like can be embedded in conditional reasoning. It is argued that if the intuition that we can draw inferences from our knowledge of what it is like is correct, then because we can't draw inferences from know-how, knowing what it is like can't be a mere ability.

b) *The argument from meaning and syntax*: The best general analysis of 'knows how' - locutions entails that 'knowing what- it- is- like' is factual knowledge⁴⁵.

c) *Third-person objection*: When we know what it is like, we not only possess 'know how'--which is knowledge of ourselves--but also know something about other people.

It is replied that In fact, however, the embedding problem isn't really a problem at all. The reason is that phrases of the form 'what it is like to F' are noun phrases, and so can't be embedded in conditionals alone. Of course, sentences of the form 'X knows that what it is like to F is G' may be embedded in conditionals, but defenders of the ability hypothesis would

agree that such sentences express factual knowledge without denying that knowing what it is like is an ability (No one denies that that what it is like to taste chocolate is delightful is a proposition; what defenders of the ability hypothesis deny is that knowing what it is like to taste chocolate is knowing a proposition). Those who think the embedding problem is a problem, in fact, cannot describe what is known in knowing what it is like merely by using the phrase "what it is like", but must instead use 'that' clauses such as "that pains feel like such and such". Unfortunately, defenders of the ability hypothesis would not accept that knowing what an experience is like should be understood in terms of knowing that the experience is like such and such⁴⁶.

3) *The a posteriori physicalism reply*

According to *a posteriori* physicalists, then, not everything necessitated by the physical need be *a priori* necessitated by the physical. Therefore, it is plausible to think that facts about what it is like to experience red are necessitated by the physical, but not *a priori* necessitated; and this suggests that Mary need not be expected to know what it is like to experience red just in virtue of knowing all the facts expressible in physical language. It seems that this argument is a version of the opacity-of-knowledge reply.

Jackson defends a modest version of epiphenomenalism, the view that certain mental states are non-physical and, although caused to come into existence by physical events, do not then cause any changes in the physical world. Jackson (1994) offers an interesting argument against *a posteriori* physicalism. He argues that the water/H₂O example does not support *a posteriori* physicalism, but instead helps him argue for *a priori* physicalism. If Jackson's argument is correct, then the physicalist cannot refute the knowledge argument merely by appealing to the *a posteriori* of psychophysical identifications. For Lewis, there are two different kinds of knowledge; propositional knowledge and practical knowledge. As Lewis

maintains, knowing what it is like to be a red is only a practical knowledge rather than a propositional knowledge. *Mary argument* is not competent enough to challenge the physicalist or functionalist theories because the thickly individuated facts are identical with physical, functional or intentional fact of which Mary already know. We can apply Leibniz's law related to knowledge-properties. If the experience is red = a certain type of physical and/or functional and/or representational state of the brain and Mary knows all truth of the form F (the physical and/or functional and/or representational state), then Mary also knows all truths of the form F(the experience of red).But there is particular F--- namely what it is like---such that Mary does not know it as a property of experience of red, despite knowing everything about the physical and/or functional and/or representational facts involved in seeing red. So in the experience of red any kind of physical and/or functional and/or representational state is involved⁴⁷.

According to Carruthers, if we apply Leibniz' law to thick properties of experience, it will be counter to physicalism and functionalism because, if Mary knows all of the physical, functional and intentional properties of color experience what it is like to be an experience is one of these properties., then she does know the truth of some thought representing the fact that colour experience is like that⁴⁸. It is merely that thought in question (worldly individuated thickly individuated or concept—-independent) will represent that fact by means of physical – functional concepts. After released from the black and white room she learns a new way of conceptualizing one of the properties of colour vision which she already knew about. Carruthers argues that there are many what it is like concepts which she does not know can be applied to colour experiences. This is because she does not even possess the relevant concepts. And she can possess these concepts after her release from the black and white room i.e. she learns to recognize colour experience for herself. David Lewis hold the view that Mary gains knowledge of know- how only; and she gains no new knowledge of facts and propositions. She gains only new practical abilities to recognize and imagine

the relevant phenomenal properties. So Mary learns new abilities. So the conclusion of Mary argument fails. And it is argued that there need be no truths or information left out of the physicalist story or out of Mary's *prior* knowledge. But its possibility depends upon the plausibility of the claim that Mary gains no new knowledge of facts or propositions. But it is argued that Mary apprehends the fact about how phenomenal red appears only after her release from the black and white room.

According to Carruthers, all mysterian arguments commit the fallacy of equivocation. Because the term 'know' is used to express propositional knowledge in one premise and in the second premise, it is used to denote knowledge-how or ability knowledge⁴⁹ by equivocating notions of fact and property. They cannot escape from non- reductionism. Carruthers argument is that the real problem of the knowledge argument is we read the 'complete knowledge' component of the argument in the thick sense (that related to the thickly individuated worldly facts about the color vision). Mary knows the truth of a thought representing it. If we take the claim about Mary's incomplete knowledge of colour experience in thin sense, *knowledge argument* is not a threat to physicalism. Jackson used the knowledge argument, as well as other arguments, to establish a sort of dualism, according to which certain mental states, especially qualitative ones, are non-physical. In what follows, we will discuss another mysterian argument due to McGinn.

The idea of 'cognitive closure' launched by McGinn and supported by many thinkers' conveys that the functions of the human mind are incompetent in principle to taking us to a suitable appreciation of what consciousness is and how it works. McGinn points out that there are really only two ways of getting at consciousness: by directly taking into account one's own consciousness through introspection, or through exploring the brain as a physical object. On either side, we can construct new ideas, but what we need are ideas that *bridge* these two realms. Generally, there are

two problems related to a naturalistic explanation of consciousness; they are: (1) problem of explaining consciousness in purely physicalist terms and (2) problem of explaining representational content or intentionality in broadly physicalist terms. He says that any naturalistic theory of the kind existing now looks to be inaccurate as an account of what makes a mental state have a particular conscious content, or a specific phenomenology, yet phenomenology seems configured by content.⁵⁰ McGinn's position is a nominal naturalism or the new mysterianism. He accepts that naturalism is true and there are in fact properties of the brain that account naturalistically for consciousness. But we cannot grasp these properties or explain how consciousness depends upon them. Consciousness is terminologically mysterious because understanding of its nature is cognitively closed to us. So really the problem of consciousness is a case where we know how to ask the question but lack the mental powers to find the answer. McGinn says that there exists a cognitive closure in the domain of phenomenal consciousness. The subjective aspect is one of the important challenges to physicalism or materialism. The explanatory gap between subjective feel and corresponding brain events can be closed by neither introspection nor the scientific explanation of brain events.

McGinn's argument is epistemic in nature. The same line of argument is defended by Fodor also that central modules are informationally unencapsulated. Carruthers argues that there is no field of enquiry which is in principle closed to us. McGinn suggests that the problem of phenomenal consciousness lies in an explanatory gap between the subjective or felt properties of experience on the one hand and the underlying neural events in our brains, on the other. According to him, there are two different ways in front of us to close that gap. They are the method of introspection and purely scientific method. But both of these methods are unfair because in the first case further introspective investigation of our experience never lead us to see how these experiences could be constituted by neurological events in the brain. The scientific investigation never leads us to postulate that brain

events possess phenomenal characteristics. McGinn argues that it is hard to see how any scientific explanation starting from the observed properties of brain states could be realized in the felt properties of our experience.

It is quite evident that there is an explanatory failure on the issue of how that brain causes, sustains or constitutes states of consciousness. But the explanatory gap argument proves that causation of states of consciousness is not adequate to explain consciousness. McGinn's position is that all entities are physical or comprehensively determined by physical entities but he denies that phenomenal consciousness has any explanation in physicalist terms. McGinn shares Nagel's view that we must believe that physicalism is true, but there is a sense in which we cannot understand how it can be true. It is contrary to Levine's view (which support the view physicalism is unsuccessful until it has explained phenomenal consciousness).

McGinn does not consider the latest advancements in cognitive sciences. Carruthers maintains that intentional or computational psychology has the credentials to explain away the so-called explanatory gap and his intention is to close the explanatory gap through a 'default argument' which works in this absence of a better argument. McGinn considers only the inference to the best explanation on brain states only. But as Carruthers argues, it is the inference to the best explanation of phenomenal consciousness itself; it is neither on brain states nor on phenomenal states. Inference to the best explanation is the handy tool for achieving a naturalistic theory. This seeks to explain phenomenal consciousness in terms of underlying cognitive mechanisms or architectures. So the higher-level phenomenal consciousness can be explained through the lower-level phenomena of cognitive mechanisms and architecture. Carruthers suggests a top- down explanatory strategy.

Now discuss similar argument due to Chalmers to reject physicalism. Chalmers's argument is stated as follows:

1. Only natural properties those supervene logically on physical properties can admit of any kind of reductive explanation.
2. Phenomenal consciousnesses does not supervene on physical world

Conclusion: reductive explanation of phenomenal consciousness into neurological or cognitive vocabulary is destined to be a failure.

For Chalmers, in Zombie world (which is micro physically identical with the real world) there is nothing which it feels like to be. His claim is that this makes the problem of phenomenal consciousness so tough. Conceptualization of conscious states in terms of function is not possible. Carruthers argues that Chalmers' position is mistaken. Because according to Chalmers, in order to be phenomenal consciousness, a mental state or property should have immediate cognitive satisfaction. For Carruthers, both the feelings in the Zombie world and inverted qualia world are conceptually possible i.e., we can allow that those are not relationally or causally defined even while insisting that the properties which these concepts pick out are relational ones. Conceptual possibility does not imply logical possibility.

2.4. Carruthers Response to Eliminativists' and anti-Realists' Arguments

Mysterianism endorses a view that, phenomenal consciousness is outside the explanatory reach of neuroscience. While eliminative materialist suppose that the framework for understanding the mind will be developed by neuroscience or successful theory of mind will be purely neuroscientific. They discard all the views which cannot be expressed by means of neuroscientific concepts. Eliminativism stand on the claim that naturalism is true. It based on the optimism that complete story of brain will stipulate a complete story of our mental life .Eliminative materialism treats folk psychology as similar to folk physics because it gives us only misconception and confusions and it is devoid of legitimate explanatory command. The commonsense everyday nature of propositional attitude vocabularies like

belief, desire, and intention are unsuitable to scientifically sufficient explanation of psychological states. They argue that concepts like consciousness, qualia, and subjectivity are unhelpful in solving the problems related to naturalization project of mind and consciousness. Eliminativism is a theory which denies or at least seriously doubts those beliefs, desires intentions and the rest exists. They regard propositional attitude vocabulary as pre-scientific. They maintain that folk psychological terms are primitive in nature⁵¹. Some thinkers argue for practical utility of folk psychological attitude but reject the claim that they are real entities⁵². The difference between reductive physicalism and eliminative materialism is that former does not deny the very existence of commonsense mental state rather identify these states with types of brain states. Rather eliminativists reject existence of these states themselves and hence such states are not identical with physical states of any sort. Eliminativists maintain that even though FP is supposed to explain and predict behaviour, it has no potential to do so. Eliminativism is different from reductive physicalism because reductive physicalism receives type-type identity theory as suitable theory. Eliminativists reject any type of identity between brain states and propositional attitudes and they flatly reject it. Generally eliminativism believes that common sense psychological theory is subject to potential scientific falsification.

Eliminativism rejects realism of facts. Fodor defends realism of facts. He counts two arguments in support of FP. According to Fodor, success of FP is to depend upon its explanatory and predictive success. As Carruthers maintains, knowledge of FP is innate, that means FP, is resulted from maturation rather than any learning process. It is the basis of Carruthers evolutionary perspective of consciousness. The essential argument in support of FP's innateness is parallel to Chomsky's argument.

The problem of qualia is considered as an important problem in cognitive science. It is the only aspect of mentality that escaped from the net

of functional explanation. But Dennett, argues there is no qualia at all. So his position is eliminativist in this sense. According to Churchland, the capacities of human mind are in fact capacities of human brain. So she supports identity theory. She says that there is sufficient reason to defend this hypothesis. The right strategy to explain the mental phenomena is a reductionist strategy; that she tries to explain the macro- level in terms of micro levels. Two forms of eliminativism are distinguished: they are called as

- a) Elimination now (Churchland 1979,1981)
- b) Elimination in prospect (Stich, Ramsey P)

a) Elimination now

Eliminativism now is really eliminativist naturalism. Eliminativism concedes that naturalism is true. The complete story of brain will tell us the complete story of mind. Concepts like consciousness, qualia and subjectivity are unhelpful in setting out the explanatory agenda for a naturalistic theory of mind. This form of eliminative materialism is suggested expertly by Paul and Patricia Churchland .Paul Churchland's eliminative materialism, stand for the claim that commonsense mental concepts such as beliefs, feelings, and desires are theoretical ideas without clear and reasonable definition.For Churchland, these theoretical concepts have no necessary role in the scientific understanding of the brain and we need to deal with only the objective phenomena, like neurons and their interactions to explain the brain .He considered commomnsence conception of mind is misleading conception of the causes of human behaviour and they will be overthrown when a more accurate framework emerges from the neurosciences.

The fatal flaw of folk psychological frame work is that because of its incapability of inter -theoretic – reduction. FP is ill-equipped to deal with the problems it may come across because the reduction between folk psychology and theoretical neuroscience is an improbable dream. So it is

argued that FP is an outright misrepresentation of our internal states and activities. Churchland argues that FP can already be seen as inadequate theory. For Churchland, folk psychological concepts should be eliminated rather than replaced by a new developed neuroscience. There are three reasons put forward by Churchland to support the eliminative claim or the claim that FP is a *faulty* theory.

- 1) Moderately utter failure of FP
- 2) Evidence of stagnation of FP
- 3) FP's separation from and irreducibility to the emerging corpus of scientific knowledge (like psychology and neuroscience.)

1) Carruthers criticizes the first horn of above argument and says that FP is absolute disappointment and says that while doing folk psychological explanation, we are dealing with a commonsense psychology. "Broadbent filtering effect", a famous study on splitting of auditory attention proved that in order to elucidate the difference between acoustics process and semantic process the neuroscientist should take into consideration both the phenomenological and functional account seriously⁵³. In FP, there is no serious endeavor to explicate mental concepts does not imply that FP is a theory that faces an explanatory failure. Carruthers argues we should accept that, like all other commonsense theories, FP has its own limitations. But the problem here is that, Churchland conflates two different views: 'failure to explain' and 'explanatory failure: (Failure to explain ≠ explanatory failure)⁵⁴.

2) While taking the second horn of eliminativist argument Carruthers, says, Churchland fails to distinguish between folk theory and scientific theory. The objective or aim of these two theories is different; the focus of latter theory is more general than the former. FP has worked well for its own purpose and it is re-applied to each new generation

and so there is no so-called stagnation and sterility. Carruthers accepts that basic procedures for explaining and anticipating through FP is stagnant for centuries. But it cannot be count as the indication of decay or collapse of FP. Rather it suggests that it is not a learned theory of behaviour and it is an innately acquired theory. The nature and degree of the innate element in folk psychology is still very much an open question⁵⁵.

- 3) Carruthers accepts Churchland's claim that FP is isolated from the scientific explanation. But he says that it won't count against the status of FP. It is notable that there is no correct explanation of intrinsic content, but he believed that it is not a reason to abandon it as insoluble. In the case of irreducibility, Carruthers argues that there is no neat kind of reduction and reduction can be applied only to a specific variety of cases. So the collapse of inter-theoretic reduction of FP is not a high-quality rationale to eliminate it. Eliminative materialism suggests an analogy between phlogiston and folk psychological notions of mind⁵⁶. But the replacement of phlogiston by oxygen is a kind of *intralevel* replacement. While in the case of folk psychology and neuroscience replacement is not possible because they have only *interlevel* relation. "The history of science offers no precedent for theory elimination in interlevel contexts"⁵⁷ and hence it is refutable.

Research shows that conscious *versus* unconscious behaviours can be connected to particular brain regions and structure of neurons. However, neuroscience only centers on the neural correlates. The hard problem of consciousness is to explain how all these flows and electrochemical processes in the brain give rise to the inner experience of subjective awareness. The very notion of truth is inextricably bound up with notions of belief and other propositional attitudes. Primary bearers of truth are beliefs rather than sentences. So we abandon folk psychological notions that in

effect abandon the the very enterprise of science itself⁵⁸. So the folk-psychological notion of phenomenal consciousness is not captured by various functional-relational definitions. Cognitive science and neuroscience unquestionably improve upon the folk understanding of consciousness, awareness, and mental states normally. But the folk-psychological constructs should not be discarded; they have a role to play in cognitive theorizing⁵⁹.

b) Elimination in Prospect or Deconstruction of Mind

Stich's brand of eliminativism is less dogmatic than Churchland's. However elimination in prospect is equally a strong version of argument. Stich says "Among the many cognitive capacities that people manifest, there is one cluster that holds a particular fascination for philosophers. Included in this cluster is the ability to describe people and their behaviour (including their linguistic behaviour) in intentional terms -- or to 'interpret' them, as philosophers sometimes say. We exercise this ability when we describe John as believing that the mail has come, or when we say that Anna wants to go to the library. By exploiting these intentional descriptions, people are able to offer explanations of each other's behaviour and to predict each other's behaviour, often with impressive accuracy. The term 'folk psychology' has been widely used as a label for the largely tacit psychological theory that underlies these abilities"⁶⁰.

Eliminativism in prospect argues that underlying cognitive process will be shown that commonsense category of mind (like belief, desire etc) cannot be empirically defended. Stich has an optimism that the future developments in cognitive and/or neuroscience will lead to the falsification of common sense psychology.

Premise 1: Intentional states are postulates of a proto-scientific theory, folk psychology.

Premise 2: Folk psychology is largely false.

Conclusion: Intentional states do not exist

For Ramsey, connectionist network is not consistent with folk psychology, but there exist separability between them.

Both Carruthers and Fodor believe that the predictive power of FP is a good reason for taking it to be correct. Predictive success depends upon the quantity and quality of information available. So the difficulty in assessments of predictive power of FP does not reveal the defect of it. The major limitation of FP is related to the informational demands it imposes. But it has its own practical utility. There are two meanings to folk psychology. Stich has failed to distinguish between two diverse notions of 'folk psychology'

1. According to its first meaning, folk psychology means "the general theory of mind that is implicit in our intentional descriptions". According to this theory, our behaviour is the outcome of the causal relations between propositional states such as beliefs and desires. So this theory implies the real existence of mental states such as belief, desire etc.
2. 'Folk psychology' denotes a common theory of the mind, or the mental mechanism that make possible our performance of folk psychology, might mean something like "the internally represented, but largely unconscious, knowledge structure that is accessed by the mental mechanism that is causally responsible for our ability to construct intentional judgments. So in effect, Stich conflates the theory of mind that is implicit in our folk psychology and the mental mechanism that is responsible for our capacity to make folk psychological judgments. At the most, this Theory-Theory (in Stich's view) *plus* Theory of Mental Mechanism is a notational variant of Carruthers own theory.

The heated discussion between realist and anti- realist is on the question of what scientific psychology should obtain from folk psychology. Realism of intention maintains that there is more to take from folk psychology and argues that we are explaining and predicting others action and reactions on the basis of their intentional state such as belief, desire, hopes etc,which in effect implies the very existence of these intentional states and these states having a causal effect. But realism of fact argues that the folk psychological commitment is the correct explanation. Realism of fact entails realism of intention.

Anti- realism rejects the view that we can explain and predict people's action and reaction on the basis of their intentionality and in effect it rejects the claim that FP has an ability to explain the existence of causally effective mental state types. Carruthers considers only two of them; due to Davidson and Dennett as they confront his own project of naturalization of phenomenal consciousness.

a) Davidson's Interpretationism

Davidson's view is known as "*anomolism of mental*", which is a monistic theory of the relationship between mental and physical events and properties. It holds that every causally interacting mental event is identical to some physical event — particular mental events (tokens) are the very same events as particular physical events (token-identity, or monism) .It is argued by Davidson that there is no prospect of reduction of intentional mental predicates and concepts to physical. Davidson's endeavor is to preserve materialism and to stay away from reductionism. The principle of rationality presides over intentional mental predicates, while physical predicates are not so. He added that there can be no actually law -like generalization framed in our common sense view. Davidson's argument may be summarized as follows.

1. A good theory of interpretation must have a maximum agreement between interpreter and interpretee.

2. FP is not much as theory of as an interpretative schema.
3. So scientific explanation is reducible to interpretationism.

Both mental and physical phenomena have distinct sets of features characteristic of their own domains, but these features are incompatible with each other. Bridging laws, linking properties from two distinct theoretical discourses (in this case mental and physical) would transmit properties from one discourse to another, which in case of mental and physical phenomena would lead into incoherence. Therefore, there could be no psychophysical laws linking mental and physical phenomena and it claims that there can be no strict laws on the basis of which any mental event-type can predict, explain, be predicted or explained – therefore, mental properties cannot be reduced to physical properties (mental anomalism).

Carruthers criticizes that Davidson's uplifts interpretation over prediction and argues that FP provides us with many principles for attributing mental states to others; which is independent of observations of behaviour. Another mistake committed by Davidson is that he gave pivotal role to informational part of folk psychology. the only attraction of his view is, simulation has a role in his treatment of FP, particularly in relation to inference.

b) Carruthers' Critique of Dennett's Instrumentalism

Dennett is famous for his attempt to demystify consciousness. His theory of intentionality based on folk concepts of belief, desire intention and explanation. The dissimilarity between Davidson and Dennett is that of the former considers that duty of FP is interpretation and explanation after act, while the latter's view is that it is the expectation and prediction of occurrent behaviour. Dennett launched three forms of stances to explain and predict the behaviour of a system one can make use of three strategies:

1. Physical Stance: The physical stance approach is the most fundamental and scientifically satisfactory approach that utilizes

knowledge of laws of physics and physical states to predict behavioural outcomes

2. Design Stance: The design strategy predicts that something will behave as it was designed to behave. In other words, it assumes the behaviour from the function for which it was intended (we know when a clock alarm will go on even if we don't know the internal structure of the clock);
3. Intentional Stance: The "intentional stance" is the set of beliefs and desires of an organism that sanction an observer to predict its actions. Intentional stance is a handy tool used to predict the behaviour. Belief and desires are not internal states of the mind which cause behaviour. For Dennett, people have intentional states because intentional strategy works as predictor of their behaviour. Carruthers considers intentional strategy as a way for predicting subject's behaviour. The intentional stance is a stance from which we can explain action in terms of the beliefs, desires and other representational states of actor, where the explanation consists in attributing representational states that make the action or least. When explaining a particular human activity we make statements such as the following

Sheena took her book because she wanted to study.

Ram run away from the school because he believed that teachers are going to beat him.

The special feature of these types of statements is they are predictions or explanation of human action by using folk psychology; through which we can attribute attitudes (believing, desiring, wanting etc). These attitudes engaged in such folk psychological descriptions are called the intentional notions. Daniel Dennett maintains that intentional system's behaviour can be predicted by the process of attributing belief, desires and

rational acumen⁶¹. For Dennett, to say that X wants that Y and believes that Z is necessary for Y just in case it can be predictively attributed these beliefs and desires. He says that we can attribute beliefs and desires to animals and machines. For example, consider a computer running a chess-playing program, We might consider this machine from a number of different points of view. We might adopt the 'design stance': this will be our point of view if what we are interested in is primarily the construction of the program, how it is implemented in the hardware, and so on. Then there is the 'physical stance': this will be our perspective, if we are interested in the chemical or electronic properties of the semiconductor devices in the machine's circuit board, and so on. But apart from these perspectives, there is what Dennett calls the 'intentional stance'. This is the point of view you would adopt if you were actually playing chess with the machine: in this case you would consider its goals, strategies, the beliefs that it might have about your strategy, and so on. When we adopt the intentional stance, we are treating the machine as if it had desires, beliefs, purposes, representations, etc., that is, intentional states.

No system is really intentional. From a biological standpoint, the intentional stance defines the relationship between an organism and its environment. The organism continuously reflects its environment, as the organization of its system implicitly contains a representation of the environment. According to intentional stance, behaviour is regulated by intentional states which are sensitive to the environment in which the intentional system is embodied. In this strategy, intentional states are treated as representations.

The intentional stance is a coordinating device, essential for successful life with others. Those who fail to learn it are deemed autistic and children are incited almost from birth to use it to interpret others and themselves. Applied to self, the intentional stance not only provides one with a sense of oneself as a continuing being with a coherent history and unified

opening to the future. The narrative sense of self is distinctive to human consciousness. Dennett identifies different 'grades' of intentional system. A first-order intentional system has beliefs and desires (etc.) but no beliefs and desires about beliefs and desires. A second-order intentional system is more sophisticated; it has beliefs and desires (and no doubt other intentional states) about beliefs and desires (and other intentional states) - both those of others and its own⁶².

Dennett considers beliefs and desires as logical constructs rather than theoretical posits, which are assumed to have a physical existence. According to intentional stance, beliefs and desires are not reducible to brain states. Any system whose behaviour can be predicted by the intentional stance is considered an intentional system. The attribution of intentionality to the chess-playing machine is merely the product of the adoption of a certain sort of stance to the machine, a stance which is appropriate because of its predictive and explanatory value, and therefore to that extent objectively justified, but which need have no deeper metaphysical basis. In this, he declines to identify beliefs or desires with specific natural kinds. Thus, our folk-psychological talk about beliefs and desires is essential and frequently true, but does not concern entities in the brain⁶³. We can replace folk psychology by other measure science. Intentional notions have an indispensable heuristic role to play. So nothing will be lost by supposing that there is no such thing in scientific or metaphysical fact as real intentionality, whether in machines or in humans. We often attribute feelings or intentions metaphorically to non-human things. Our attitude to other human beings is just a version - a much more sophisticated version - of the same strategy.

Even though Carruthers labeled Dennett's view as instrumentalism, he concedes that Dennett's view of folk psychological notion is difficult to grasp. In order to predict the behaviour of others, FP is adopting certain intentional stances. Dennett declares: "what it is to be a true believer is to be an intentional system, a system whose behaviour is reliably and

voluminously predicted *via* the intentional strategy”⁶⁴. For Carruthers, true believers are one who actually has beliefs. So Carruthers maintains that his view has more prospects to succeed than Dennett's. The main criticism against Dennett is as follows;

1. The *Blockhead argument* : It Proposes that Jones, has a twin who is in fact not a person but a very sophisticated robot whose acts and appearance is similar to Jones ,but the twin's behaviour is controlled by a a chip and does not have any thoughts or feelings at all. As intentional system theory argues, both Jones and twin(Blockhead) share same beliefs and desires. But the present argument proves that it is a false claim. Because in fact (Blockhead) has not a thought in his head. It is criticised that intentional strategy uses intentional terms in a purely technical way to predict behaviour. It keeps silence on the question 'what beliefs and desires really are in human beings?'
2. The intentional strategy treats people as rational creatures who make predictions about human action. Stephen Stich points out that people often have beliefs or desires which are irrational or bizarre and intentional strategy leaves these possibilities unexplained.. Indeed this is what we often do when someone is behaving unpredictably - we look for the reasons why. This development takes away from the simplicity of the theory but is not explicitly an argument against it.
3. The other criticism is from the reverse case to the Blockhead argument. Consider a person who is completely paralysed. He has no behaviour and so intentional stance theory should reason that therefore they has no intentional states. The solution to this is problematic: the intentional stance theory expert looks to their circumstances and says: they probably have the belief that they are paralysed, and the desire that they weren't, and I predict from these that their behaviour will be nil, hence, intentional stance theory works. But could anything, then, be an intentional system? What about a

lectern? Why not say that a lectern mourns the fact that it used to be a tree, and desires to be one again, but due to its circumstances it just stays where it is? This presents a strong challenge to the claim that intentional stance theory can adequately account for beliefs and desires, for we surely do not want to say that a lectern is an intentional system.

4. The assumption of intentional stance theory is that humans are evolutionarily adapted to be rational agents. The ability to make quick predictions of a system's behaviour based on what we think it might be thinking was an evolutionary adaptive advantage. That is, we cannot maintain that humans are rational agents just because it would have been evolutionarily convenient for them to have evolved as such.

So Intentional Stance theory can be viewed as a middle ground, as it concedes some aspects of eliminativism (arguing that folk psychological entities cannot be reduced to natural kinds in the brain) whilst still seeing the value of folk psychological concepts as both essential to our understandings of and dealings with other people, and as grounded in real regularities in human behaviour⁶⁵.it rather hybridizes folk with scientific psychology.

2.5. Carruthers reply to Challenges from Connectionism

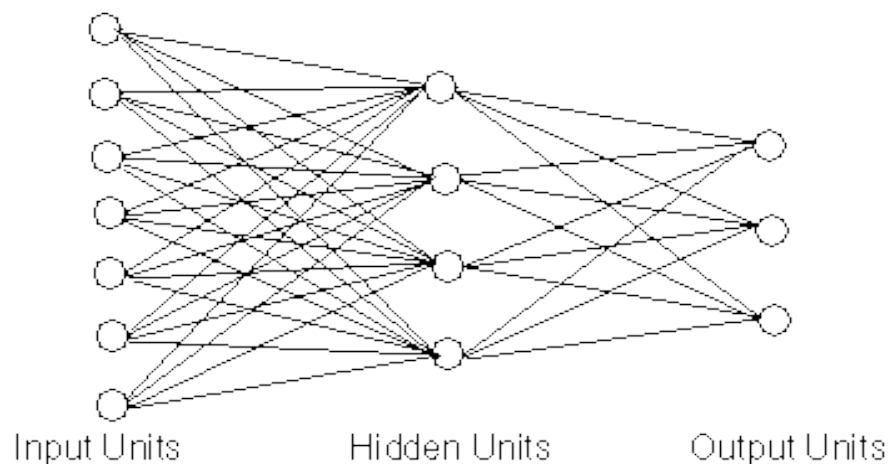
What will be the structural design of mind? There are different models of mind which try to give answers to this fundamental question; such as connectionism, computationism etc. It is suggested that connectionist models as the best way to model human cognition and connectionism deserves considerations from the philosophy of mind. According to this model, high-level mental properties are emergent properties that depend on lower-level phenomena in some systematic way”⁶⁶. Connectionism tries to explain human cognitive activities with the help of artificial neural networks. Connectionist models seem especially connected to what we know about neurology. The brain is like neural net, moulded by large amounts of units

(neurons) and their connections (synapses). This model is different from computationalism which holds that the mind is something similar to a digital computer processing a symbolic language. A neural network consists of a large number of units joined together in a pattern of connections. Units in a net are usually segregated into three classes: input units, which receive information to be processed, output units where the results of the processing are found, and units in between called hidden units. Connectionist models can be classified by representational commitments in two categories;

Distributed: Distributed representations are vectors in a representational state space, and are processed simultaneously by many nodes in a connectionist network

Localist: Localist models use individual nodes to represent one entire concept (such as 'dog'). In general, distributed representations are more neurologically realistic than localist representations. However, distributed models are often far more complex and difficult to analyze than localist models.

Figure:2.1. Simple Three Layer Feed Forward Network



Connectionists neither make an endeavour to explicitly model the variety of brain neurons, nor the effects of neurotransmitters and hormones. Classicists criticized that neural networks are not particularly good at the

kind of rule based processing that is thought to undergird language, reasoning, and higher forms of thought. Connectionism is often defended on grounds of neurological plausibility. According to this there are feed-forward and feed-back connections. It suggests that representations are likely to be distributed across such neural networks. But Carruthers argues that there is no relationship between the one idea and other and he further argues even though the visual system consists of a number of different streams of processing, there are particular cells or small group of cells responding differently to particular features.

In particular, dynamic systems theorists claim that connectionist models are unrealistically wedded to ideas of representation and computation. Connectionist networks cannot have claims about neurological realism attached to them. These networks often have too little recursion, far too much inhibition, unrealistic learning algorithms, simplistic transfer functions, and no analog to the large number of neurotransmitters and hormones which affect human cognition. Symbolists have taken a number of lines of argument. Fodor and Pylyshyn (1988) have criticized connectionism as not being able to support the systematic and productive natures of human thought. As well, it is thought that the only role for connectionist work is to provide a method for implementing a symbolist system in a manner similar to the brain. Thus, the best level of description of human cognition remains at the symbolic level. In recent years, however, a number of connectionist models have been produced which shows these criticisms to be questionable. As connectionism argues, the brain consists of a network of simple electrical processing units which motivated and subdued each other. The main limitations of early net working models are that they have only two layers of processing units. In connectionism representation is distributed across the network; in a manner in which the whole system can represent a particular content. As Carruthers argues, representation within actual neural system is local rather than distributed. For example, in the case of blind sight the connectionist argued that process of brain is parallel in many domains.

Carruthers says that it is also possible to symbolize systems by devolving the processing to a variety of modules or sub-modules where each of the modules operates independently. Carruthers rejects connectionist views of pattern recognition and their view of degradation of memory system with correct explanation. Computationalism has been supported by the speed of human learning. But connectionist system requires a large degree of structure, imposed upon succeeding each of its outputs. So Carruthers, connectionism fails as a model of human cognition in the domain in question. The differences between the two approaches (symbolicist and imagist/connectionist) that are usually cited are the following:

Computationalists posit symbolic models that do not resemble underlying brain structure at all, whereas connectionists engage in "low level" modeling, trying to ensure that their models resemble neurological structures. Computationalists generally focus on the structure of explicit symbols ([mental models](#)) and syntactical rules for their internal manipulation, whereas connectionists focus on learning from environmental stimuli and storing this information in a form of connections between neurons. Computationalists believe that internal mental activity consists of manipulation of explicit symbols, whereas connectionists believe that the manipulation of explicit symbols is a poor model of mental activity. Computationalists often posit domain specific symbolic sub-systems designed to support learning in specific areas of cognition (e.g. language, intentionality, number), while connectionists posit one or a small set of very general learning mechanisms. Classical computational picture of mind brain has been challenged by so-called 'distributed connectionist' models of cognition. As this view defends, there is no internal symbol or mentalese. For this model, representations are distributed in a vast inter-connected network of nodes in the brain. Carruthers argues against connectionism and says that connectionist should either to support eliminativism or interpretationism, both of which are criticised by Carruthers. Moreover recent researches provide the evidences for local cognition. For example, many animals like

chimpanzees can do on-off learning. So it is possible only chimpanzees brain contains a structured state of some sort of language which is different from natural language.

The whole packaging of Carruthers' naturalistic theory forces us to believe that he is a friend of phenomenal consciousness who wants to keep a middle position between phenomenal consciousness and qualia skepticism. He supports a hybrid position in each and every explanation related to consciousness. As he argues that by using connectionism as a claim about the mere lower-level performance of cognitive process, it is no threat to the classical account of cognition. For him, it is possible that a symbol crunching program run in a connectionist machine. But he says that if we extend the connectionist model to cognitive algorithmic domain, it will become problematic.⁶⁷ If we accept identity thesis that our beliefs are identical with representational states of brain then it will be a challenge to the existence of FP. Then it is wise to suggest a hybrid model of mind which will satisfy both parts of explanation. Connectionism is best in its endeavor to explain pattern recognition tasks, some of our sensory and perceptual capacities etc; while traditional computational model is best to explain powers of logical inference⁶⁸. So connectionism can be hybridized with symbolist models after all.

To conclude: we have singled out the four major challenges to Carruthers's naturalistic theory. Carruthers' challenges to these arguments are not entirely negative including the challenges from non-reductionism.

- 1) Mysterianists are silenced by holding that we are not closed to our own mind.
- 2) Eliminativists cannot eliminate because there is a way of understanding folk psychological concepts which is equally scientific/naturalistic.

- 3) Anti- realist has to come term with folk psychology even while they leave their interpretationist stance or intentional stance.
- 4) The connectionist challenges cannot touch on many features of symbolicist and hence hybridization is in order.

Since Carruthers' attempt is to accommodate phenomenal aspect of experience to physicalist ontology. It demands that qualitative concepts belong to a category of concepts called (higher-order) "recognitional concepts." He argues that this is to embrace that there is no actual content to phenomenal experience and that phenomenal concepts are just a bare dispositional capacity for recognizing various physical states of the brain. He is a friend of phenomenal consciousness who keeps a middle position between phenomenal consciousness and qualia skepticism poised for reductionism or anti- reductionism. Thus Carruthers builds up a new way of looking at reductionism and anti- reductionism on the one hand and introducing language on the other. Carruthers main ideas are: an argument from introspection, nativism, a higher-order theory, a defence of folk psychological realism, a natural language account of thinking (his earlier classification) together with an account of semantic content much of which gets almost lost in his later writings. The point I wish to underscore in my thesis is that there is no apparent claim about naturalism in his post-naturalistic approaches. Hence the question whether an exclusivist naturalistic theory of phenomenal consciousness looks plausible is as sanguine as ever. This question is posed in the title of the subsequent Chapter.

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CHAPTER III

THE PLAUSIBILITY OF NATURALISTIC ACCOUNT OF PHENOMENAL CONSCIOUSNESS

3.1 The Phenomenalistic Turn

In this chapter, we are seeking to critically evaluate the plausibility of scientifically satisfactory naturalistic theory of phenomenal consciousness proposed by Carruthers in his middle career. Carruthers defends his naturalistic theory of phenomenal consciousness as a variety of dispositionalist theory of HOT as opposed to actualist form advanced by Rosenthal. He characterizes the naturalistic theory as one in which phenomenal consciousness has a

- (a) Certain kind of intentional content.(he labels it as analog or fine-grained content).
- (b) It is held in a short- term memory store and
- (c) It is available to higher- order thoughts.
- (d) Such content is realized in some down- stream consumer semantics.

As an outcome of (a)-(d) we get an aspect of seeming or subjectivity. (a) proposes naturalistic semantics in terms of 'narrow' content rather than 'wide' content;(b) explains its analog nature;(c) stipulates that such content is available for either reflexive thinking for further reflection or to higher- order thought which is later modified to read as available to awareness(introspective mind-reading).(d) is supported by evolutionary theory. Since, this theory is waiting to be modified in subtle ways; we have to explain the plausibility of the theory before moving towards an extended discussion of naturalistic theory of consciousness. The plausibility is

suspected on account of the way he moved from one 'unified' theory to yet another 'unified' theory in later years. A number of distinct notions of consciousness can be distinguished. It is useful to compare and contrast Carruthers' and Block's definition of different notions of consciousness to know how he finesses the tools in novel ways. The difference between epistemic consciousness and experiential consciousness has an elongated tradition. Block's (1995) distinction between access consciousness and phenomenal consciousness, and Chalmers' (1996) distinction between psychological and phenomenal consciousness are current variants of this conventional distinction.

As Block argues, consciousness is a mongrel notion. He proposes different notions of consciousness such as phenomenal consciousness, access consciousness, self-consciousness and monitoring consciousness¹. Here is how Block originally commenced the idea of phenomenal consciousness², P-consciousness [phenomenal consciousness] is experience. P-conscious properties are experiential properties. The sum of the experiential properties of a state is "what it is like" to have it. More accurately, we have P-conscious states when we see, hear, smell, taste and have pains. It is criticized that since there are experiences which are non-conscious; we can not identify phenomenal consciousness with experience.

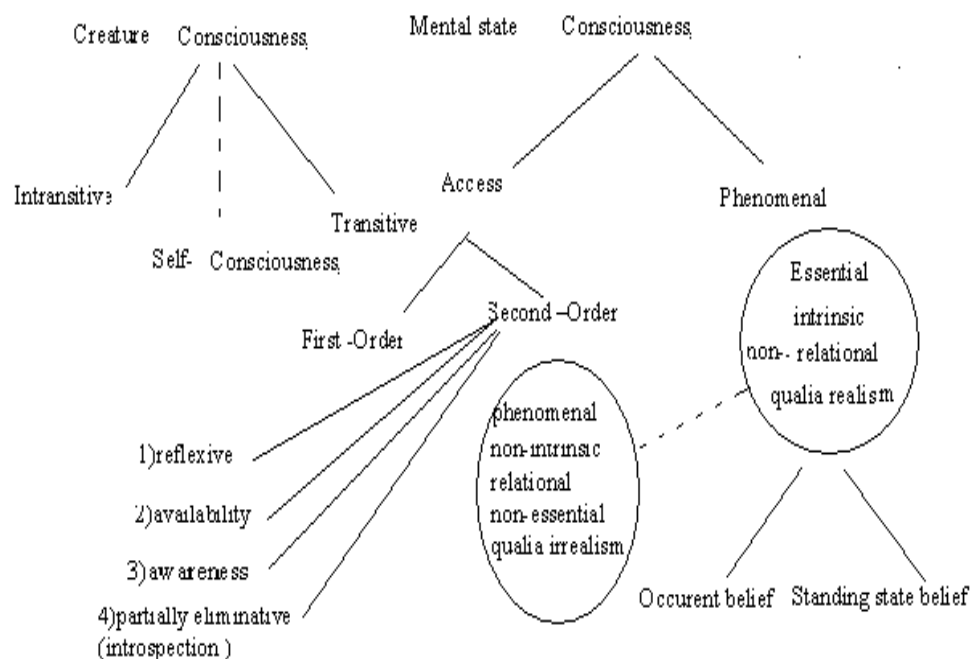
The basic feature of access-consciousness, by contrast, is accessibility for use in reasoning and rationally guiding speech and action. The important conditions for a mental content to be access conscious are: 1) content is poised to be used freely as a premise in reasoning 2) content is poised to be used freely for control of action. In the case of human beings, major symptom of access consciousness is reportability; but it is not a necessary feature³. Self-consciousness is the ability to think about oneself. Block claims that chimpanzees possess minimal notion of self-consciousness and that is proved through mark test that they show signs of recognizing that see themselves in mirrors. They show interest in

correspondences between their own actions and the movements of their mirror images. He further argues that, theory of mind is not required for this sort of minimal self-consciousness. Monitoring consciousness is a sort of consciousness according to which there are internal monitoring (metacognition) which takes many forms of inner perception, internal scanning and higher-order thought. Since Block criticizes any attempts to identify P-consciousness with any of these cognitive notions and for him, Carruthers' is a theory of monitoring consciousness rather than phenomenal consciousness. Block thinks that to identify P-consciousness with internal scanning, is really tilting towards eliminativism about P-consciousness. In the case of self-consciousness and reflective consciousness, however, creature consciousness is basic but in the case of phenomenal conscious and access consciousness, state conscious is important. The distinction between phenomenal consciousness and access are as follows;

1. The P-conscious content is phenomenal, while A-conscious content is representational. Phenomenal content provides a state phenomenal aspect in virtue of which state is P-conscious, while it is in virtue of purely representational content, or the representational feature of its content that a state is A-conscious. The fundamental nature of A-conscious content is to play a role in reasoning, and only representational content can figure in reasoning. Block allows representational content to phenomenal consciousness also. For him, the content of an experience can be both P-conscious and A-conscious; the former in virtue of its phenomenal feel and the latter in virtue of its representational properties. A-conscious states are essentially transitive. It is necessary that A-conscious states are states of consciousness [of]. In case of P-conscious states; it is not a necessary feature. P-consciousness, as such, is not consciousness of.

2. Since A-consciousness is a functional concept, its content is system-relative. In other words; function of representational content in system makes a state conscious. P-consciousness is not a functional notion.
3. The paradigm P-conscious states are sensations, whereas the paradigm A-conscious states are "propositional attitude" states like thoughts, beliefs and desires, states with representational content expressed by "that" clauses. (E.g. the thought that grass is green). Carruthers finesses the distinction in what would be schematized with the help of following figure.

Figure:3.1 Carruthers' Different Notions of Consciousness



Intransitive creature consciousness is treated as a simple property of person or subject. Here the term consciousness denotes the intransitive, non-relational property of a creature. It is argued that in order to conscious at a particular time, the creature should be awake at that particular time. Transitive consciousness on the other hand, is consciousness of such and such. For example, a creature is conscious (perceiving) of such and such. It is noted, perceptual content may be either conceptual or non-conceptual.

For example, some percepts of young children and animals possess non-conceptual contents, which mean even though they have perception with complex contents and filled space, they have no concept about what they perceive. Carruthers argues that perceptual contents are analog contents. Transitive creature consciousness does not imply that perceptual state in virtue of which a creature is conscious is conscious itself. FOR theorists like Dretske and Tye explain phenomenal consciousness through transitive creature consciousness. According to Dretske, notion of state consciousness is already contained in the transitive consciousness. Self-consciousness has two forms; in its weak sense, it implies that creature's awareness of itself as an object different from others. It is the capacity for transitive creature consciousness with the self qua body as object of consciousness. According to stronger sense self-consciousness is higher-order awareness of oneself as continuing mental life. It must be distinguished from higher-order forms of access consciousness, because it involves more than a capacity for higher-order thought about one's own mental state. Access consciousness is awareness of mental state, while self-consciousness is awareness of oneself (having mental state). There are two forms of access consciousness; first-order and higher-order forms. In its first-order sense, mental content can figure in the subject's practical and theoretical reasoning ...etc. In its higher-order sense, occurrence of conscious mental state is accessible to the subject. This is again distinguished from standing state beliefs. With the above tools in hand, Carruthers claims to advance on many fronts before putting a naturalistic theory for a further review. This essentially because naturalism is based upon a 'default' assumption of the causal laws whereas physicalism advocates a causal closure of the physical world. The physicalist option is not thus kept in abeyance but realized in the end after extending the naturalistic theory itself.

Phenomenal conscious property, according to Carruthers, "is the property which mental states possess when it is like something to have them".⁴ To make obvious, imagine that you are looking at a red tomato and a

green lime under good lighting conditions. There is something that it is like for you to see the red tomato and what it is like is different from what it is like for you to see the green lime. There is a subjective difference between seeing of the tomato and seeing of the lime and this difference is a difference in phenomenal consciousness. For Carruthers, there is no difficulty in the case of access consciousness, but in relating to phenomenal consciousness, there is problem. Phenomenal conscious states are states that are like something to undergo; they are states with a distinctive subjective 'feel' or phenomenology. Take the experiences of looking at a red rose, smelling it, feeling the thorns on its branch; these experiences all 'feel' a definite way as well. These specific types of feels are known as phenomenal 'feels' and anyone who has such phenomenal 'feels' is phenomenally conscious. According to Carruthers, what makes experience phenomenally conscious is the capacity to higher-order thought. For him, only human beings possess this peculiar capacity. So only human beings possess phenomenal consciousness. But, how can we know that animals are not possessing higher-order thought or phenomenal consciousness. Carruthers' argument is that animal's cognitive architecture is different from us. The argument that non-human animals lack phenomenal consciousness refutes commonsense view about consciousness. But according to Carruthers, folk psychological argument resulted from a cognitive illusion. He further adds that, there is no ground for this common sense belief. It is argued that even though animals are entertaining perceptual states, when we ask, what those mental states of animals are like, and the cognitive illusion persuades us and we naturally represent animals to ourselves in imagination 'from the inside'. Carruthers adds: "I claim that I have, in fact, successfully explained phenomenal consciousness in terms of mental state consciousness"⁵. He concludes that "this makes me a qualia-irrealist—I claim that there are no non-relational properties of experience *qua* experience"⁶. Qualia irrealism is to subserve his critique against non-reductionist like, Nagel(what- it -is -like- to- be in that state is what -it -is –

like- to- know the view from no where scientific), Jackson(equivocate *thick* with *thin* properties) and Chalmers (impossibility of reduction, reducing it to a metaphysical explanation). Carruthers argues that it is a matter of actually possessing or being able to construct the relevant recognitional capacity. The seeds of a self model is own here.

As Carruthers argues, phenomenal consciousness is adult consciousness and it is the particular capability of mature human beings. William James argues that adult consciousness has definite universal phenomenological configuration. Daniel Dennett argues⁷ that in order to explicate consciousness phenomenology is irrelevant. The motivations behind his view are; 1).There is no necessary correlation between how things seen and how they are? In other words, there is no necessary connection between the phenomenological structure and actual neurological structure.2).We often mistake about the self- reporting about how things seem or feel to us. Flanagan says that, we can explain both of these problems without rejecting the phenomenological feature of consciousness⁸. He says ".....unless we accept a certain amount of first- person phenomenology, the complete story of the brain will stand independent of and aloof from, any link with the story of conscious mental life which we initially sought deeper understanding of".⁹ It is interesting that both higher-order theories and first-order theories try to give explanation of phenomenal consciousness through representation and it is against Block's view that phenomenal consciousness is not a functional notion. According to Carruthers analog representational content in higher-order thought makes a state phenomenally conscious. *Contra* Block Carruthers explains phenomenal consciousness through functionalism and according to him; a better variant is to introduce *the theoretical concept of recognitional capacity* so as to sustain a form of theory- theory. As Block maintains, access consciousness is system- relative. But for Carruthers, phenomenal consciousness is also system relative and he argues that the function of representational content in system 2 makes a state phenomenal

consciousness. Here Carruthers appears to conflate different notions of consciousness or he tries to explain one notion of consciousness in terms of other (phenomenal consciousness in terms of reflexive or monitoring consciousness). So, if the distinction between different notions of consciousness by Block is accepted as true that will leave Carruthers theory in trouble¹⁰.

Both Carruthers and Block maintain that phenomenal consciousness is 'what it is like' to be aspect of consciousness, but both of them use the term differently. Carruthers cannot accept phenomenal consciousness as *sui- generis* as explained by Nagel and Chalmers. Against these thinkers, Carruthers accepts what he calls a phenomenal concept strategy. Carruthers' account of phenomenal concept strategy must be distinguished from other phenomenal concept strategies like phenomenal concepts as indexical concepts [Perry (2001)'Dea (2002)] and phenomenal concepts as quotational concepts [Papineau (2002)]¹¹. According to Carruthers, phenomenal concept is recognitional concepts of experience. A *recognitinal* concept is different from *theoretical* concept and can be applied directly on the basis of perceptual or quasi-perceptual relationship with its instances. Phenomenal concepts are not merely recognitional, but purely recognitional with the following features. A concept is purely recognitional if it is both applied directly to instances and if it is conceptually isolated from other concepts. A concept is *purely* recognitional when its possession-conditions (in the sense of Peacocke, 1992) make no appeal to anything other than such acquaintance. A concept is purely recognitional when nothing in the grasp of that concept, as such, requires its user to apply or demand to any other concept or belief. A *purely* recognitional concept of experience is then a higher-order recognitional concept, which applies to another mental state (*viz.* an experience), and whose possession-conditions don't presuppose any other mental-state concepts (not even the concept *experience*). So through this characterization, however, there still may only be the two different *concepts* referring to one and the same *property*. On the one side,

we are dealing with scientific third-person concepts and, on the other, we are employing phenomenal concepts. We are, perhaps, simply not in a position to understand completely the connection between the two. Carruthers argues that having subjective feel (in our case, at least) is just for it to be present to a faculty of higher-order thought with the power to recognition. Both Tye and Carruthers claim that phenomenally conscious states are states that each of us can immediately recognize in ourselves, directly, without having to engage in any kind of inference.

Tye says “..... the concept of a thought that *p* is, in its first-person present-tense application, a *recognitional* concept. Phenomenal concepts—the concepts that enable us to form a conception of phenomenal character *via* introspection—are, in my view, recognitional concepts of a special sort”.¹² Tye presents his rival theory with the features of theory of phenomenally conscious mental state as PANIC theory¹³.The structure is briefly schematized as below:

Figure: 3.2 Features of PANIC Theory

1 Poised	2 Abstract	3 Non-conceptual	4 Intentional content
Phenomenal individuated in terms of functional/causal roles(first-order) available for guiding action	Confuses between particular/general and abstract and concrete	Not expressed in terms of that clause (e.g. proposition)	Individuated in terms of representational content

Carruthers criticizes each one of the above features of Tye’s theory. (That will discuss more elaborately in coming section). According to Tye’s (1995) supposition, the phenomenal character is one and the same as representational content that meets certain further conditions. Tye considers experience as transparent and advocates that visual phenomenal character is representational content of a definite kind, content into which certain external qualities enter. This explains why visual phenomenal character is

not a quality of an experience to which we have direct access (representational content \neq quality of the thing that has representational content) and why visual phenomenal character necessarily changes with a change in the qualities of which one is directly aware (changing the qualities changes the content). Awareness of a 'feel' is not direct awareness of a quality of the experience. It is awareness that is based upon direct awareness of external qualities without any inference or reasoning being involved. Tye says "the phenomenal concepts I apply and the features to which I apply them are the same in both the perceptual and the introspective cases" ¹⁴, that is, *red* or *experience of red*, involves same concepts. But this won't do as Carruthers argues because for him, the recognitional judgment of colour is one thing, recognitional judgments of experiences of colour is quite another thing. The distinction between wordly and experiential subjectivity is too important to be ignored.

Tye rejects the traditional anti-reductionist view of qualia as qualities of the experiences. Phenomenal quality is only a directly available quality of an experience. So it is important to note that, Tye does not reject that there are qualities of which the subjects of visual experiences (or bodily sensation) are directly aware *via* introspection. They are qualities of external surfaces (and volumes and films), not the qualities of the experience. More accurately, the qualities of which we are directly aware *via* introspection—*whatever* they turn out to be—are not qualities of the experiences of hearing, smelling, and tasting, rather they are qualities of public surfaces, sounds, odors, tastes, etc. If they are qualities of anything at all, we can call these qualities of external surface in the case of visual perceptual experience as 'phenomenal qualities' in a less limiting sense of the term. Tye argues further that, these qualities of external surfaces, by entering into the suitable representational contents of visual experiences, supply phenomenal character of the experiences. Tye defines phenomenal consciousness as the occurrence of a distinctive kind of intentional content, figuring within cognition. The structure of cognition is functional according to him. In this

sense, he considers the nature of cognition as functional. Tye defines, that M acquires a phenomenal character when it is poised to make the “right sort” of impact on beliefs and desires. Tye (2000) maintains that, this condition [i.e., that M be poised] is essentially a functional role one. The basic idea of Tye is that experiences and feelings, *qua* bearers of phenomenal character, play a certain unique functional role. Experiences are poised to make a straight impact on beliefs and/or desires¹⁵. Carruthers argues that, phenomenally conscious events are ones for whose properties we can possess introspective recognitional capabilities. As Carruthers argues, there is no private, ineffable property of our experience. We have only recognitional concepts which all individual share.

An important step here is naturalistic account of semantics. Carruthers analyses three important forms of naturalistic semantics in this connection¹⁶. They are:

1. Informational or causal co-variance semantics
2. Teleosemantics
3. Functional- role semantics

According to the first theory, meaning is carried by the causal relationship between states of the mind (such as signs in mentalese) and the world. Whenever there are causal covariances in the world, one state of information causes information about another. The second theory claims that mind and body are evolved systems and each of our mental states has proper functions. Functional- role semantics is related with inferential or functional- role of mental states within cognition. it reduces the representational role to the functional or inferential role in which a mental state normally has within cognition. Three of these theories try to give a fully reductive explanation of intentional content. But Carruthers argues that naturalization requires neither reduction nor successful reduction. For him, in order to elucidate the natural reality of intentionality or phenomenal

consciousness, it is sufficient to show that intentional properties or phenomenal conscious properties are presenting to some set of causal laws. Intentional properties are predicate terms of both folk psychology and scientific psychology. Carruthers argues that in order to accept biology as science we cannot demand successful reduction of biology into chemistry. Likewise in order to explain intentional content, we needn't aim any successful reduction of it. Carruthers maintains that reality of causal-intentional psychology is sufficient to ensure the natural status of intentional content¹⁷. The basic traits of phenomenal consciousness such as a) subjective aspect(phenomenal feel) (b) intrinsic (non- relational essential quality) (c) ineffable(indescribable and incommunicable)(d)private(accessible only to mind)(e)infallible(and not just *privileged*)¹⁸ are thus quarantined in his approach. Thus (a) - (e) marks the qualia realist approach. The explanatory power of our theory should explain them in the appropriate way. This is Carruthers aim.

3.2 Counterpoising Higher- Order to First -Order Theories

Against the above claims, Carruthers adopts the qualia irrealist stance with the following features before counterpoising higher – order with first- order theories. The qualia realist argues that phenomenal properties are intrinsic and non relational properties. As qualia irrealist ,Carruthers argues, that phenomenal properties are recognitional concept of experience. Our temptation to believe in qualia as intrinsic non-relational, private ineffable property of experience is result of confusion between 'property' and 'concept'. Carruthers says that conscious states are available to higher-order representation or thought is enough to explain away the qualitative feature of consciousness. His argument runs like this: if qualia exist, then it is very difficult to see how any lower- level physical facts could ever reductively explain them. It seems problematic that how representational content, patterns of causation etc explain the existence of qualia .So he rejects the existence of intrinsic and non-relational properties of subjective experience.

According to Carruthers, the defining feature of an experience is its distinctive feel; not its distinctive relational properties or causal role. HOT model of consciousness provide all impetus to explicate phenomenal consciousness as non- inferential immediate, recognitional capacity. As HOT theory suggests, the system will be capable of recognizing the fact that it has an experience as of *red a*, same direct non- inferential way it can recognize *red*. Carruthers argues that, much of our self-knowledge should be thought of as analogous to the theory – laden perception of theoretical entities in science¹⁹.

The second criticism comes from privacy and ineffability of subjective feelings. On the issue of privacy of phenomenal experiences, it is argued that recognitional instances of feeling concepts cannot be revealed to another person and the effort to explore it in relational terms will miss the fundamental nature of phenomenal consciousness. Carruthers argues that the temptation to believe that phenomenal feelings are private is mistaken and the similar causal roles behind the perceptual experiences and the common physical realization of perceptual states indicates that the detailed functional organization each individual member will be same. For example, 'A' and 'B' sharing same subjective experiences of red when they are looking to a ripe tomato because they will be in a same state with same narrow content. While explaining the putative ineffable nature of phenomenal consciousness, Carruthers claims that successful communication needs only that hearer should grasp same truth condition of the speaker possess and it is not necessary that there exist same mode of presentation. Communication is about properties and states of affairs rather than concepts and mode of presentation. The relational descriptions provided by HOT theory have evidences from physical properties of brain which happen to occupy particular representational and causal roles²⁰. Carruthers is a naturalistic realist about phenomenal consciousness but a qualia irrealist or he does not accept qualia in its strong sense (*intrinsic, ineffable, private infallible qualia*).

Carruthers concedes that there may be concepts of experience which are purely recognitional, and so these are definable in relational terms. He concedes that there are some concepts of the mental which cannot be analysed in terms of functional representational role, but is purely recognitional. But the business of HOT theory is substantive theory development rather than conceptual analysis and it provide the nature of phenomenal concepts and the properties of the phenomenal experience.

According to HOT theory, the properties of phenomenal consciousness are experiential property and it in effect possesses a narrow content. On the contrary, the worldly properties which are picked out by purely recognitional concepts of experience are not themselves, similarly simple and non-relational. Carruthers claims that there are no non- relational properties of experience qua experience. They are relational properties. In other words, we can explain it through its availability to higher-order representation. Carruthers' qualia irrealism is not altogether rejection of qualia. But he says that in higher-order representational terms, there are no qualia or qualitative aspect of consciousness. Carruthers argues that the story of phenomenal consciousness is the story of HOT system generated by ToM(theory- of –mind). HOT theory denies qualia, because subjective properties of experiences are constituted by the operations of an appropriate HOT system.

Further, Carruthers makes a distinction between 'thickly' and 'thinly' individuated facts, which he later uses for advancing specific arguments for the closure of explanatory gap. It is noted that, the term phenomenal consciousness can be used in two ways related its individuation conditions. In the 'thick sense', the fact that I am holding up five fingers, and the fact that the number of fingers I am holding up is the smallest prime number larger than three, are the *same* fact. But in 'thin sense', whenever we use distinct concepts in characterizing a fact, we have thus described a *distinct fact*. phenomenally-conscious". Thus mean either just *phenomenal*, i.e., having a

qualitative character, or more strongly, having *conscious* qualitative character in that the subject is aware of that phenomenal property²¹. Carruthers says it is one thing to say that the world takes on a subjective aspect by being presented to subjects with differing conceptual and discriminatory powers, and it is quite another thing to say that the subject's experience of the world also has such a subjective aspect, or that there is something which the experience is like. Carruthers says that felt nature or experiential subjectivity of phenomenally conscious experiences is really hard problem.

In relation to these strong and weak forms of phenomenal consciousness, there is a pair of distinctions that mark important differences between accounts of phenomenal consciousness. The first distinction is between intentionalism (or representationalism), and phenomenalism. We can use phenomenal consciousness in two senses; in the first sense, it means just possessing a qualitative character or just phenomenal. This view of phenomenal consciousness is known as *phenomenalism*. In the second sense it means, having conscious qualitative character in that the subject is aware of that phenomenal property. This view implies the existence of qualia or phenomenal property. This view is known as *intentionalism*. According to intentionalism, phenomenal consciousness is entirely intentional or representational. Less imprecisely, and restricting attention to perceptual experiences, intentionalism implies that facts about the representational content of an experience together with facts about the representational content of the subject's other mental events or states that fix or determine the facts about its phenomenal character. In other words, intentionalism implies that phenomenal character supervenes on representational content. Phenomenalism rejects the supervenience thesis that phenomenal character supervenes on representational content. One standard argument against intentionalism is based on an inverted spectrum thought experiment which is claimed to be a case of same representational content, yet different phenomenal character (Shoemaker 1981, Block 1990). Phenomenalism is

the weak view and intentionalism is the strong view. Carruthers concedes that we have concepts of experience which do not conceptualize those experiences as analog intentional contents made available to HOT faculty. But the duty of dispositionalist HOT theory is not conceptual analysis but naturalistic explanation of the properties of experiences (felt properties)²².

With all these considerations, Carruthers counterposes his theory to the first-order theory. For this, we should understand that naturalistic explanation in both first-order and higher-order representational terms. There is a fiery debate over which theory is very appropriate for the explanation of mental state consciousness including phenomenal consciousness. Since both HOR and FOR theories taking part in this debate, it is very interesting that both theories attempt to explain the nature of mental state in terms of representational terms. But HOR theory also considers the mental states causal functional relation to higher-order cognitive states (such as ToM). The contents of these higher-order cognitive states deal with or about the mental state in question.

Carruthers counterposes first-order theories of Tye (1995, 2000), Dretske (1995) and Kirk (1994) with his second-order theory. Both Tye and Dretske argued that phenomenal conscious experiences are the output of the perceptual system and that in turn balanced to have an impact on subject's belief and practical reasoning process, such a manner to direct the behaviour. Kirk for example argues, not all representational states are phenomenally conscious ones. But only the representational states that are present to right sorts of decision making systems or process acquire phenomenal character and hence become conscious. More accurately, a representational state M to acquire a phenomenal character, (hence become conscious), M must be present to the "right sorts" of decision making processes. Whether a representational state is conscious or non-conscious is determined by the functional process behind it. Being available *to certain decision making processes* and being *poised to make an impact* are both

functional role properties. So in both cases, what distinguishes M from a non-conscious state otherwise similar to it, is an aspect of M's functional role. According to Tye, our pains and bodily sensations are representational in nature. In case of pain experience, it represents to us a particular perceptible property of our own body.

Carruthers rejects all the following three arguments in support FOR theory.²³

- a) A powerful consideration in support of FOR theory and against HOR theory is the transparency of perceptual experience.
- b) Another argument support of FOR theory is that great many animals besides human beings have capacity of phenomenal conscious experience, while HOR rejects phenomenal consciousness to animals.
- c) FOR can provide evolutionary explanation of the phenomenal consciousness.

Carruthers distinguishes worldly subjectivity from experiential subjectivity. The former is the property of the world whereas the latter is the property of the organism's experience of the world. Higher-order theories should differentiate two views of subjectivity namely; worldly subjectivity (phenomenal properties of the world) and mental-state-subjectivity (phenomenal properties of the subject's experience of the world). Carruthers uses the word subjectivity of phenomenal consciousness (that should be explained) really in the sense of experiential subjectivity²⁴. He says FOR theories "can almost certainly provide a successful explanation of *worldly* subjectivity...it is very difficult to see how the further, additional, subjectivity of (some) *experience* can be explained without introducing higher-order representations (HORs) into the account".²⁵ That is, the FOR theorist can provide a naturalistic account of, say, colour vision—*worldly* subjectivity. But it cannot provide a naturalistic account of *experiential* subjectivity—*what it's*

like for an organism with colour vision. The so-called hard problem of consciousness tied with this experiential subjectivity and Carruthers argues that no correct solution is proposed to this by first-order theory.

Since FOR theory cannot differentiate worldly and experiential subjectivity it cannot explain subjective and or what it is like to be aspect. He argues that, FOR theory fails, because it cannot really explain the feel or what it is like to be aspect of phenomenally conscious experience. They cannot discriminate between what the world is like for a creature and what the organism's experience of the world is like for the creature. For example, they are confusing between what colour is like for an organism with colour-vision, and wrongly argues that, colour vision has the capacity to explain the former, that is, 'what it is like to be' aspect of organism's experience. So Carruthers' criticism to FOR is centered on its first-order ness. Carruthers argues that, the fact that a mental state of mine is poised to do such and-such, or is present to so-and-so processes and mechanisms, does not explain why there should be anything it is like for me to have that state. A type of phenomenal character could be entirely tied with a type of functional role. But here we should note that FOR theory explain what it is like to aspect in its worldly subjectivity version (Carruthers also supports this view). FOR theory fails because it explains phenomenal consciousness through first-order representational terms. According to FOR account, the difference between a red and white is the difference between the first-order properties represented.

Another problem of FOR theory that interconnected with the above discussed problem of distinction between worldly subjectivity and experiential subjectivity, is that there is a distinction between conscious and non-conscious mental states. Any adequate theory of consciousness must account for this distinction. This constraint applies to FOR theories also. Specifically, the first-order theorist must provide an account that specifies what it is about a representational state that makes it conscious rather than

non-conscious. But FOR theory does not have the resources to do so satisfactorily. Although FOR theorists distinguish among the phenomenal characters of different conscious states in terms of what in the world these states represent, they distinguish conscious from altogether non-conscious states in terms of what functional role these states play. For Carruthers, it is the FOR theorist's appeal to functional role to explain phenomenal experiences that is problematic. He asks: how can the mere facts that a [representational state] is now in a position to have an impact upon the decision-making process [or beliefs and desires] bestow it with the subjective properties of feel and "what-it-is-likeness" distinctive of phenomenal consciousness? ²⁶.The answer is that it cannot. It seems the actual problem facing theories of phenomenal consciousness is 'what is the distinctive feature of phenomenal consciousness'. Both FOR and HOR agree that phenomenal feel (subjectivity) makes a mental state conscious. But they disagree on the issue of real nature of 'subjectivity'. Carruthers concludes that, phenomenally consciousness states possess experiential subjectivity and it cannot be explained through first -order terms. HOR theory maintains that for explaining experiential subjectivity we need some thing more than first- order representation and maintain that state which meta-represent subjects states (higher –order representation) are compulsory for possessing the subjectivity²⁷.

A powerful commonsense and scientific case can be made for the existence of non- conscious states. Carruthers put forward evidences from common sense, scientific psychology, and neuropsychology to defend his hypothesis that there exist a two- layered mind consisting conscious and non- conscious experience. Cases from common sense include absent-minded perception, experience during sleep, sleepwalking etc²⁸ .The scientific evidence for the existence of non -conscious states includes cases from blind-sight, action -guiding visual subsystems, and the like²⁹. For example, while I am typing this piece of paper I am not paying conscious attention to the sound of keyboard. In this case I display sensitivity of my

environment which I do not consciously hear or perceive. Carruthers says commonsense intuition of two layers of mind of conscious non-conscious mental states is a hurdle against FOR theories because they cannot explain why one experience is conscious and other is not conscious.(even though they share same first order representational content).

For example, Dretske³⁰ denies that there is no such two-layered cognition of conscious and non-conscious. He argues that blind sight persons have beliefs about his environment without having any sensory awareness of the environment. Carruthers claims that it supports the view that there are two analog representational systems, one responsible for tracking the movements and positions of objects to guide action and the other is for conceptual recognition. Dretske argues that blind-sighted chimpanzee was able to pick up quite small objects from the floor she could not tell whether it is stone insect or something without putting it in mouth. Carruthers argues that she lacks a conceptual recognition. In the case of absent-minded driver, Tye argues that absent-minded driver lacks access to conscious while phenomenally conscious experiences are concealed from him. For Carruthers, it seems that Tye is endorsing the view that there is a non-conscious phenomenality. Tye wants to claim that there exists only worldly subjectivity. Thinkers like Dennett (1991) and Kirk (1992) argue that these types of phenomena can be explained in terms of instantaneous memory loss. (Rather than as an instance of non-conscious perception).As this explanation suggests, we are concentrating so intensely upon other things, no space is devoted to these perceptions, in memory even in the short term. There are two hypotheses related to absent-minded perception. The first is that, absent-minded activities involve percepts which are only briefly remembered. The second hypothesis is that absent-minded activities are not held in memory at all.

Dennett supports the first one, while Carruthers argues for the second one and maintains that former explanation will suit for some cases. For him,

there are cases where we can recall nothing even when we are probed at the time. So the opponents of non-conscious experience bit the bullet and should claim that there exist perceptions, which are conscious at an instant without any memory at all. According to HOR theory, there is two different routes through cognition a non-conscious route (in which perceptual information are made available to a variety of action schemas and for online guidance of movement.) and conscious route (in which different sets of perceptual sets are made available to higher-order representation). Carruthers endows superior position to HOR theory and for him, all the varieties of HOR theory can provide a plausible account of the distinction between conscious and non-conscious experience. FOR theories are rejected because of their externalist, reductionist causal co-variant semantics,(which is not acceptable to Carruthers and also he is not favored to naturalization of semantics)³¹. Carruthers accepts partly reductive position of narrow content elucidated in terms of some form of consumer semantics and claims that functional and evolutionary explanation supports the dispositionalist HOT theory³².

According to first-order representationalism (FOR), the phenomenal nature of a conscious mental state M is accounted for in terms of M's representational content According to transparency of perceptual experience, when we try to concentrate on the quality of experience about some particular object, we are really concentrating on the quality of object itself. It is a criticism to higher-order theory, since transparency of conscious experience is to count as dominant support for FOR. There are two versions of this thesis: one is the representational transparency thesis and other is first-order transparency thesis. According to the first, there are no introspectible, non-representational features of sensory experiences: when we introspect a sensory experience, we are not aware of any feature of our experience over and above, those features which our experience represents³³. The second is stronger than first, according to which, when we introspect a sensory experience, we are aware of first-order features which

our experience represents. There are no features beyond these first-order features. The first-order transparency thesis is stronger than the representational transparency thesis in that it entails, but is not entailed by; the latter³⁴. Carruthers can tackle the problem put forward by first-order representationalist. The part of his project in phenomenal consciousness is to explain away those putative introspectable, non-representational features of experiences.³⁵

The superiority of higher-order theory over first-order theory is thus established and let us now move to the dispute between different forms of HOR theory. First is the well-known form of higher-order perception theory is so-called 'inner sense' theory (HOE) is commonly credited to John Locke (1690). It was reintroduced in modern world by Armstrong (1968), and has been defended in recent times by Lycan (1987). HOE theories are inner sense model of phenomenal consciousness. As HOE theory suggests, there exist a set of inner scanners directed at our first-order mental states. That means our inner sense has the capacity to construct the representations of some of our mental states, not merely the representation of the world. For Armstrong; consciousness is not a mere awareness. According to HOE theorist there is no phenomenology distinctive of introspection. For Armstrong, introspective consciousness is a perception-like awareness of current states and activities in our mind. The current activities will include sense perception, which latter is the awareness of our environment and our body. And introspection itself becomes the object of introspective awareness.³⁶ Introspection happens when these particular HOTs are themselves targeted by another HOT. There is phenomenology unique to introspection. For Lycan, consciousness is the function of internal mechanism, the duty of which is to relaying and/or coordinating information about on going psychological events and process. Lycan argues that, being voluntarily controlled introspective attention we can shift attention between different regions of our visual or bodily field. Carruthers criticized that this process is merely first-order in nature. That means we are shifting our first

-order attention and it does not give any support to HOE theory. According to HOE theorist, there exist some sort of inner scanners, duty of which is to construct analog representations of the origin and properties of our first-order mental states. HOE theorist argues that, they have some definite purpose of which is scanning and constructing representation of the world and representation of the states of our own bodies. More accurately, there exist certain systems whose function is to scan and construct representation of our own mental states.³⁷

One of the important criticisms to HOE theory comes from one ancestral HOT theory (Rosenthal (1993)³⁸ that all phenomenal conscious states are not introspected states. For example, when I am watching the football, I can be paying close attention to the movements of the players and as a result I enjoy phenomenally conscious experience. In this case, all my attention can be directed upon the game rather than on our experience of game. Rosenthal argues that I need not be paying attention to the color of jersey of players, or the height of players etc and he is distinguishing periphery awareness from phenomenal consciousness. It is criticized that HOE theory take too lightly of the fact that internal monitors necessitates the computational complexity in order to generate HOEs .That means the mechanism must generate a set of internal representations with a content representing content of that experience. Lycan argues that we have good reason to believe that we ourselves (human beings) exhibit that degree of complexity and he offers argument from introspection that our introspective attention is under voluntary control .We can shift our attention with a notable degree of skill and accuracy. This voluntary control of action is like scanning and monitoring rather than just thinking. And surely something cognitive, and presumably something neurophysiological, subserves it ³⁹. According to Carruthers the third-order sensing would not produce any further phenomenology. For him, phenomenal consciousness has been already produced after the second- order sensing. In order to go through this

difficulty a HOE theorist should deny that we have third-order sensing that in effect make him a HOT theorist.⁴⁰

3.3 The Structure of Reflexive Thinking Theory: It's Empirical Inadequacy

Carruthers journey towards an advanced theory of consciousness (RT theory) contains two distinct steps; *first* steps and *second* (-order) steps. This may be counted as cornerstone of his theory. The first step for a viable theory of consciousness contains following desiderata: ⁴¹.

- (i) Distinction between conscious and non-conscious perception
- (ii) Distinction between conscious and non-conscious propositional attitudes.
- (iii) Cartesian consciousness that could integrate ontological epistemological and semantic claims.
- (iv) Critique of Kirk's minimalist theory that equivocates conscious states with its phenomenology.

The essential feature of the best theory of consciousness is the satisfactory explanation of the distinction between conscious and non-conscious mental states. As Carruthers assumes, this distinction is equally applicable both perceptions and propositional attitudes. Examples to non-conscious perception includes routine absent-minded activities (like washing, driving walking etc), blind-sight and sleep walking. Then let us look at some examples of non-conscious propositional attitudes. For example, chess player's belief about rules are non-consciously activated while he is playing but when explaining them to a beginner they are consciously activated.

Descartes and Kirk treat the distinction between conscious and non-conscious mental states as we have seen overly simple. The Cartesian account of consciousness can be analyzed in to three essential claims such

as ontological, epistemological, and semantics⁴². The *first* claim endorses that conscious mental states are independent from physical states. The *second* claim is about the transparency of mind, that we can introspect our own mental states. So according to Cartesian epistemology introspection gives us infallible knowledge. Carruthers says, we can immediately recognize certain imaged sentences in virtue of the way they feel to us. The *third* claim stand for the view that conscious mental states are simple, non-relational, recognitional concepts acquires through introspection. The semantic thesis implies that the distinction between conscious and non-conscious mental states is based on whether they have a feel (phenomenology) or not. Carruthers claims that, the Cartesian notion of conscious non-conscious distinction is not acceptable because of several reasons. For example, we can have concepts of mental states which we never enjoyed of the sort of; *belief that P belief that P&Q belief that P&Q&R* and so on. Eventhough Carruthers rejects Cartesian semantics thesis, the weaker thesis is an option before him that the distinction between conscious and non- conscious mental states is simply a distinction between mental states which possess phenomenal feel and which does not possess phenomenal feel .Carruthers argues that we possess recognitional concepts for at least our conscious experiences. But these concepts are embedded in within the network of relational beliefs about the causal structure of mind⁴³.

Carruthers criticizes Kirk's minimalist theory (which argues that in order to be conscious a mental state must be available to creature's central decision making system) and claims that it is not necessary that central systems is a decision- making and Kirk failed to consider the view that the subjective feel of experience presupposes a capacity for higher- order awareness. A capacity to discriminate between experiences presupposes a capacity to think about one's own thought. So the capacity for higher- order thought is pre-requisite for a perceptual state with phenomenal feel. The case for higher- order theory according to Carruthers is as follows⁴⁴:

1. Subjective qualitative feel is the peculiar feature of conscious experiences
2. It is conceptually necessary condition for there to be subjective feel to experience, that the subject should be capable of discriminating between its experiences, as such.
3. It is naturally necessary condition for discrimination between experiences, that the subject should be capable of thinking about its own experiences.
4. It is naturally necessary condition for thinking about its own experiences that the subject should be capable of distinguishing between appearance and reality.
5. It is naturally necessary condition for distinguishing between appearance and reality that the subject should be capable of thinking about its own thought.

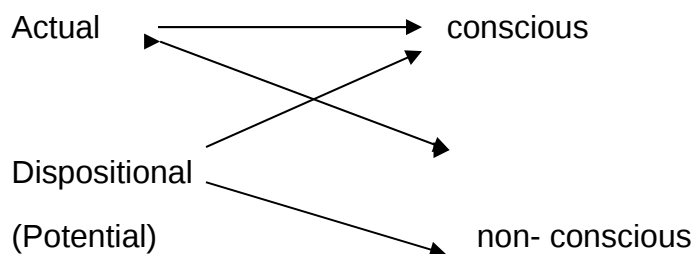
From the above, Carruthers proceeds to remark that it is naturally necessary that language is involved in our conscious thinking. A more exact formulation of the above is that the architecture of human cognition is such that human conscious thinking involves natural language, out of *natural necessity* (emphasis added). There are four types of natural necessity thesis:

1. NNw: language is a vehicle for conscious thought (language and thought are co evolved. But psychological evidences go against this.
2. NNs: language is *lingua franca* of the mental (mentalese): Syntax is first- order predicate logic; semantics is truth evaluation, uses representation and computation (sentence like).
3. The Joycean machine: language is serial process (mind is centre of system 2).it is narrative grativity.

4. The Vygoskian: Machine-like language is both serial and parallel process (system in its inner speech)

This leads him to review the variety of higher-order theories in the second (- order) step. As a second (-order) step towards a theory of conscious or to set a way for a correct theory of consciousness (RT theory) Carruthers analyses four different HOT theories.⁴⁵ According to him, in general we can classify higher-order thought theory into as follows;

Figure: 3.3. Classification of Higher - Order Thought Theory



Actual higher-order beliefs (thoughts) are activated occurrent events which are actually represented in the brain. The Dispositional or potential belief means that they are merely apt to be caused or activated by the conscious mental states if circumstances demand.

Theory: 1: Actual and Conscious

This theory supposed to work as follows;

Any mental state M, of mine is conscious =M(level 1)causes the belief (level 2) that I have M, which in turn causes the belief(level 3)that I believe that I have M, and so on *(every state in this series of level n causes a higher-order belief that level n+2)*

As this theory maintains, conscious states are those which cause or apt to cause a belief in their own existence. More elaborately the present theory defends that conscious experiences (level 1) are those which cause (or apt to cause) a belief (level 2) that there is such an experience taking

place; that conscious beliefs are (level 3) those which cause (or apt to cause) a belief (level 4) that one has a belief. This theory is considered as higher – order because conscious status of a mental state is determined by whether mental states are explained in terms of mental states which are about it. Carruthers states his objection to this theory as follows

a) The *Infinite regress*: As this theory argues, a conscious mental state would require me to have at the same time, infinitely many other distinct beliefs. It is plainly impossible that each level in this infinite series must be explicitly encoded in the brain.

b) The *Phenomenological objection*: A more devastating objection could be: If I have P, it is necessary that I also entertain the conscious thought that I am having that P. This is plainly wrong to defend that conscious mental state requires actual conscious thinking about targeted mental states. There is no conscious thought that I am having a conscious thought.

Theory: 2: Actual and Non- Conscious

The present theory avoids the above mentioned difficulties of infinite regress and phenomenological overload. Theory can be stated as follows;

Any mental state M, of mine is conscious = M is actually causing an activated belief (possibly non- conscious) that I have M.

The main criticism to this theory is that it is liable to what Carruthers calls the ‘cognitive overload problem’ because according to this account, in order to be phenomenal conscious we require a separate activated higher-order belief for each of distinct feature of our experience (For example, distribution of trees, road, and paddy field and so on). If actualist HOT theory is right, our HOT would have to re-represent an enormous amount of information. The huge amount of our cognitive resources can not be supported by the evolutionary standpoint. Carruthers argues that, this is not a phenomenological overload but a cognitive overload problem and he criticizes that actualist theorists like Rosenthal who mistakenly considered

this as phenomenological overload problem. The real problem is the improbability of supposing that so much of our cognition should be engaged with creating and processing the immense collection of higher-order thoughts required rendering our experience conscious at each moment of our waking lives. Carruthers upholds that the existence of the special-purpose short-term memory store is necessary to stay away from the problem of "cognitive overload," which outbreaks actualist HOT theories. This suggestion avoids the problem by providing an actual place for the presence of the rich detail of conscious experience, while avoiding the need for that experience to be fully conceptualized by HOT.

Theory: 3: Potential ad Non-Conscious

This theory is stated as:

Any mental state M of mine is conscious =M is disposed to cause an activated belief (possibly non-conscious) that I have M.

Even though this theory provides explanation of richness of experience the major difficulties remain. Carruthers objections to this theory are as follows;

It can't provide sufficient condition for conscious belief and cannot able to solve the difficulties raised by utilitarian examples. For example, I do not consciously believe that actions should be judged in terms of greatest happiness to greatest number. Any belief which I am consciously believe cannot be subject to self discovery. In this case, dispositions to have an activated higher-order belief that I have a given belief cannot be sufficient for conscious believing. Another related problem is that, it does not require that mental states are available to conscious higher-order belief.

Theory: 4: Potential and Conscious

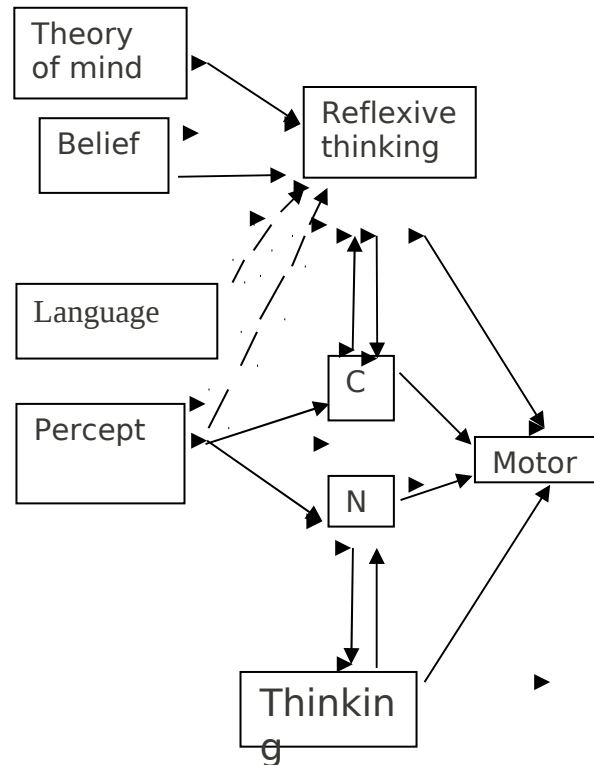
Any mental state M, of mine is conscious =M is disposed to cause an activated conscious belief that I have M

This theory is supposed to work as follows;

Any mental state M, of mine is conscious=M(level 1) is disposed to cause the activated belief(level2)that I have M, which in turn disposed to cause the belief(level3)that I believe that I have M, and so on (*every state in this series of level n disposed to cause a higher-order belief that level n+2*)

This theory is poised to overcome the entire problem faced by above mentioned three theories. Like the theory 3 the present theory is also dispositional. So it avoids the cognitive overload problem. It also avoids infinite regress problem because it is dispositional account. In order for my belief *that P* to be conscious, it is necessary on this account, that I should be disposed to believe consciously *that I believe P* which in turn requires that I should be disposed to believe consciously *that I believe that I believe that P* and so on. The resultant theory comes to close to reflexive thinking theory of consciousness, which Carruthers has in mind. The Reflexive thinking theory enjoins that, we can entertain a thought, think about what I have just thought, think about that thought in turn and so on indefinitely in principle. Carruthers represents his reflexive thinking as follows:

Figure: 3.4: The Structure of Reflexive Thinking Theory



The arrows up and down between C and reflexive thinking illustrates that each occurrent thought about the contents of C will itself presented to additional thought. The arrow from belief to reflexive thinking represents that standing- state beliefs are conscious by virtue of their aptness to be tokened in occurring acts of thinking with same content, where those thinking are themselves conscious. The arrow from theory of mind to reflexive thinking shows the particular occurrent thoughts can draw on the resources of the theory of mind. In RT theory; consciousness is defined in terms of availability (accessibility) to conscious thinking. The reflexive feed-back loop down to C (explains how consciousness is defined in terms of availability to conscious thinking) is considered as the one of the advantage of RT theory. According RT theory standing state (beliefs and desires) becomes conscious when they apt to emerge in conscious occurrent judgement with same content. According to Carruthers, conscious thinking has a executive role to play in life and cognition. The model of human cognitive architecture proposed by

Carruthers possesses five distinct features: 1) Introspective datum 2) RT theory of consciousness 3) Innate theory of mind that is presupposed by the activity of reflexive thinking 4) imagination 5) language⁴⁶. So for him, following features should be highlighted in a good theory:

1. The thought is available to consciousness;
2. The availability is due to the short term memory store (this avoids regress);
3. The thought and thought about content must have same content;
4. The thought enables us a self- ascriptive content to us;
5. This is done by a theory of mind which tells that we have self knowledge;
6. The thought so understood must be determinate⁴⁷.

Here Carruthers raises the question as to 'what is the role natural language in human cognition?' Language faculties have to play a double role in cognition; role of a peripheral module of the mind and executive role in central cognition (considerably engaged in different central cognitive roles, including conscious propositional thinking and reasoning.). So Carruthers prefers a cognitive conception of language rather than communicative. Following Fodor he accepts a modularist version of language. Carruthers uses the term 'module' in a different sense that of Fodor and Fodor's thesis of modularity of peripheral system is replaced with 'moderately massive' modularity (Fodor's module: input output machine like structures based upon a central (informationally unencapsulated) peripheral (informationally encapsulated) central module is non-modular (consciousness) and peripheral modules form a set. Fodor enumerates a number of features, which are *not* looked upon with favour by Carruthers. Language has a cognitive role as well as communicative role. For him, not all thoughts are

constitutively involve language; but only (some) our conscious thinking take place in the medium of natural language sentences.

Carruthers partially agreed with Fodor that the propositional attitudes (beliefs desires and so on) are best understood as relations to sentences and he defends the view that much of our thinking takes place in natural language sentences. Carruthers proposes an intuitive introspection based argument for the claim that human conscious thinking involves sentences of natural language. He says that evidences from scientific psychology such as evidences from normal language development of children, evidences from abnormal developments (wolf children) evidences from aphasia are inconclusive or equivocal. First, he analyses the evidences from normal development such as, linguistic and cognitive abilities of young children usually build up together. That means when language is advanced cognition will be also advanced, when language is delayed then will be cognitive capacities. For example, it argued that children's language abilities and capacities to pass false belief task is correlated. But Carruthers says that this does not support a constitutive connection between language and cognition. It only shows that language is a necessary condition for certain kinds of thought. So Carruthers finds it difficult to maintain a *parallel* development of cognitive and linguistic capacities because it does not imply a constitutive connection. It is argued that, sometimes language development *lags behind* the conceptual and cognitive development. Sometimes child's capacity for thought goes beyond what it is capable of expressing language. It does not show that thought is independent of language. For example, a two year old child uses 'bus' sometimes mean "that is bus" and sometimes mean "I want to get in bus". This example shows that the child is poor in its language production not in language ability itself. The production and comprehension are concerned with different sub systems. Further, Carruthers argues that it does not show that language is not directly implicated in our thinking because it does not follow that child can entertain those thought independently of the use that sentence.

Carruthers concludes that that the evidences from abnormal development do not provide genuine evidences to *for* or *against* the constitutive connection between language and cognition. For example, the cases of wolf children or pre-signing deaf children can be taken as a support to both communicative and cognitive conception of language. More elaborately, from the standpoint of cognitive conception of language, impairment of cognitive capacity is resulted from deficiency of language because; more complex forms of human thinking actually involve use of language. But communicative conception of language views it as evidence of independence of language from thought and argues that reason for cognitive impairment in particular individuals is that they lack many normal human concepts and beliefs that are attained through enculturation and linguistic communication. So Carruthers argues that evidences from abnormal development are also inconclusive or ambiguous.

He suggests empirical arguments to support this claim .So his argument is inference to the best explanation of an array of phenomena that means, they are susceptible to counterattack from those who can offer additional intractable data, and may logically be abandoned by anybody who can supply a better elucidation of the phenomenon in question. Carruthers analyses some intuitive objections to the four possibilities stated above and explains away all of them⁴⁸. They are as follows;

1. There may be flash like thoughts in us; which are apparently determinate but in this type of thought there is no time to any sentence expressing that thought to be created and without such sentence being introspectively accessible
2. We often aware of a thought or entraining conscious thought without any sentence figuring amongst the data available to introspection
3. The tip of tongue phenomena, which propose that there is a thought which is both conscious and determinate prior to any expression in natural language sentence.

4. The choice between alternative words in expressing a thought.
5. The ambiguity of natural language sentences proves that thoughts cannot be identified with natural language sentences.
6. Creative thinking does not require language
7. The difference between thought and literal expression.

Now 1-7 enables Carruthers to look seriously at the reflective theory of thinking and language with suspicion. In the preface of his book *Language Thought Consciousness* (1996), Carruthers mentions that he is forced to abandon such a unified account in the face of the above evidences. Thus he wants to develop the hypothesis which states that, the perceptual state has available to conscious higher- order thought in order to be phenomenally conscious, which leads him to further to propose an *alternative standpoint* about the independence of phenomenal consciousness from language.

Carruthers claims that there exists natural necessity to the fact that conscious thinking in human being involves natural language. This natural necessity thesis may be stronger or weaker⁴⁹ and he accepts natural necessity in its weak form that some of our conscious thinking takes place in natural language. Such a defense invites a comparison with RT theory and Dennett's multiple draft theory.

- 1) RT theory considers conscious state as an event or state determined by its availability to thinking, but for Dennett, it is determined by accessibility to linguistic report.
- 2) According to RT theory, reflexive thinking have some executive roles in the life and cognition of an organism. While Dennett argues that thinking in question is mere disposition to make reports. RT theory argues that human cognition are so structured that their experiences and thoughts are regularly made available to acts of thinking which are in turn made available to further thinking .RT theory defends that

in order to attain a phenomenal feel. a perceptual state must be present to a faculty of reflexive thinking. In addition to a theory of mind faculty, we need a capacity to think about and have immediate access to one's own occurrent thoughts on regular basis. Thus Carruthers is forced to reconsider the role of language in conscious thinking which ultimately led him to abandon any form of parallelism within his naturalistic approach.

3.4. Structure of Dispositionalist HOT Theory, Its Explanatory Power

What he calls a reductive explanation phenomenal consciousness , according to Carruthers must explain.⁵⁰

1. The subjective aspect of phenomenally conscious experience;
2. The *intrinsic* properties of phenomenally conscious states which are non-relationally individuated on the basis of commonsense intuition;
3. The *ineffability* (indescribable and incommunicable);
4. The *privacy* of experience;
5. The *infallibility* (and not just *privilege*) of knowledge of the properties of their phenomenally conscious experiences; and
6. The explanatory gap

Most of the first- order theories maintain brute identity between phenomenal states and brain states. This is to give up the goal of seeking reductive explanation of phenomenal consciousness. Carruthers says that if we can explain the first feature satisfactorily we are natural realist about phenomenal consciousness. Other features must be explained by making rise of an alternative theory which has more explanatory power. We have seen in the initial section that how Carruthers respond to the each of these features. For him, the explanatory power is due to dual analog intentional content is available to higher- order thought. He claims that his version of

dispositionalist theory can explain (explain away) all of the above mentioned six features. And there is no such explanatory gap. It is closed in principle.

The dispositional account of belief is not new. Ryle (1949) is considered as the forefather dispositional account of belief. It is regarded that Ryle is supporter of behavioural dispositionalist view. But we can see an element of phenomenal dispositions in Ryle's writings. For example, he writes "certainly to believe that the ice is dangerously thin is to be unhesitant in telling oneself and others that it is thin, in acquiescing in other people's assertions to that effect, in objecting to the statements to the contrary, in drawing consequences from the original proposition and so forth. But it is also to be prone to skate warily to shudder, to dwell in imagination on possible disasters and to warn other skaters. It is propensity not only to make certain theoretical moves but also to make certain executive and imaginative moves as well as to have certain feelings". The passage shows that Ryle defends behavioural, phenomenal and cognitive dispositions.⁵¹ There may be dispositional stereotypes which are hybrid of these dispositional stereotypes. These dispositions are irreducible to a single disposition. For example, disposition to search something anxiously. I think Carruthers support a hybrid of phenomenal dispositional stereotype and cognitive stereotype. While according to Carruthers, there a number of different kinds of disposition. He thinks it is an open question which kind is involved here.⁵²

Dispositional means being disposed to do and experience certain kinds of things. it can be characterized by means of condition statements of the form: if condition C holds, then object O will (or likely to) enter in state S. O's entering (or remain in) in state S. may call the *manifestation* of the disposition C is the *condition* of manifestation of the disposition and the event of C's obtaining is the *trigger*. A dispositional stereotype is a stereotype whose elements are dispositional properties. We can classify the dispositional properties belonging to belief stereotype into three types.⁵³

1. *Behavioural dispositions*: this includes both verbal non- verbal behaviour.
2. *Phenomenal dispositions*: phenomenal disposition is the disposition to undergo certain kinds of subjective phenomenal experience such as the disposition to feel surprise etc.For example the dispositions to say silently to oneself that there is “dog in the outside”.
3. *Cognitive dispositions*: these are not characterized wholly through phenomenal. These are dispositions to draw conclusions entailed by the belief in question or acquire new desires or habits consonant with the belief

The anti-behaviourist objection to disposition does not affect phenomenal dispositional account. Thinkers support these objections argue that there exists only a loose connection between mental states behaviour and argued that Putnam's Super Spartans and Strawson's weather watchers though they lack behavioural dispositions they have phenomenal and cognitive dispositions. According to Putnam, in the 'Society of Super Spartans', the creatures feel pain but do not possess behaviours which are typically associated with pain.As Strawson argues, weather watchers who have belief and desire about but are constitutively not able to act on the beliefs and desires.

Carruthers' alternative theory is proposed along the following lines. Carruthers says his aim is to provide a reductive explanation of phenomenal consciousness⁵⁴, by which he means that it "describes a way of linking together cognitive structures and contents (in terms which do not themselves presuppose phenomenal consciousness), any instantiation of which is supposed to be metaphysically sufficient for phenomenal consciousness to occur".⁵⁵ Phenomenal dispositional account of consciousness does not endorse reductionism while functionalist account tries to give a reductive explanation. One of the disapprovals to representational theory is that since they are disconnected entities they can't give an explanation of belief which

is a continuous phenomenon. Phenomenal dispositional account of belief is in agreement with this continuous nature of belief. This account has the capacity to explain both peripheral and central cases of believing. It is argued that this account is (both philosophically and scientifically) a handy tool .It is phenomenal, since a vital position is given to first- person subjective experience or phenomenology. Since Carruthers accepts the subjective aspect of phenomenal consciousness and trying to give a reductive explanation through representational theory, we can count his theory as a mixture of dispositional and functional account.

In his 2000, Carruthers argued that the availability of intentional content to HOT transform that into a phenomenally conscious one. Carruthers claims that capacity for HOT can be retained in the absence of language and phenomenal representations are analog representations held in short term memory store, the duty of which is to make this representations available to higher-order thought. He now abandons the claim that in order to conscious higher- order thought themselves be conscious. The main difference between his new theory and old theory is shown in following table.

Figure: 3.5. The Difference between Dispositionalist HOT Theory and Reflexive Thinking Theory

Dispositionalist HOT Theory	Reflexive Thinking Theory
Focus is mainly on reductive explanation of phenomenal consciousness; closes the explanatory gap in principle	Focus is mainly on the structure of human consciousness
Consciousness experiences are available to HOT which are not necessarily conscious one.	Conscious experiences are available to conscious HOTs reflexively.

The difference between dispositionalist HOT theory and reflexive thinking theory is that in reflexive thinking theory, language and imagination has a role to play in conscious thinking. In reflexive thinking theory,

conceptual thinking (reflexive thinking) operates drawing upon the resources of language and perception. So our conscious thoughts will take the form of *imaged* natural language sentences. But Carruthers argues that explanation of phenomenal consciousness, we need not go beyond mind-reading capacity. He differentiates the actual structure and explanatory structure and says that reflexive thinking theory explains the actual structure of human consciousness. Seager views that Carruthers retreat is just 'strategic'. It is just that the full featured reflexive explanation is not required for the "restricted purpose" of explaining consciousness⁵⁶. Carruthers denies that reflexive thinking theory as a theory of phenomenal consciousness, because of two reasons.⁵⁷

1. There may be phenomenally conscious creature which lacks that cognitive architecture. Carruthers argues there is good reason to suppose structured HOTs are independent of language. More accurately, there is good reason to think that mind-reading ability capable of structured HOTs would have evolved prior to the appearance –and/or mind-reading remains absent – of natural language.⁵⁸
2. On the issue of explanation of phenomenal consciousness, reflexive thinking theory becomes explanatorily outmoded. Carruthers argues that the fact that analog experiential content is available to a concept wielding system containing recognitional concepts of experience is enough to explain phenomenal subjective aspect of experiences. That means experiential content is available to HOTs is enough to explain phenomenal consciousness, not to conscious HOTs as reflexive thinking theory argues. For him, the better option of reductive explanation of phenomenal consciousness is dispositionalist HOT theory.

In what follows, we shall explain the core points of Carruthers' new theory of consciousness. Carruthers' account of consciousness is

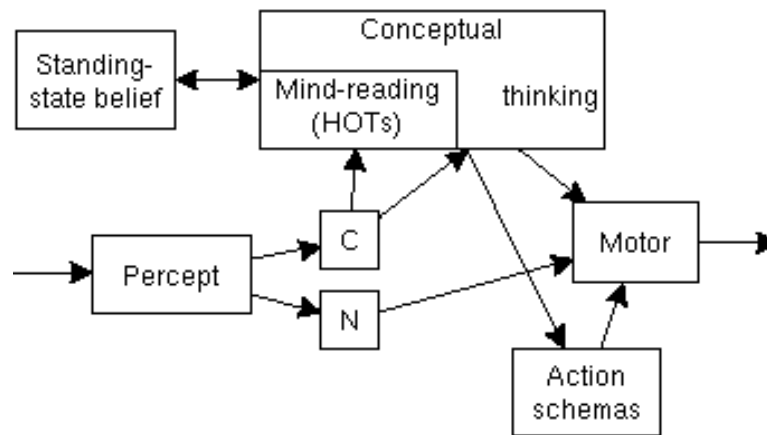
dispositional higher- order thought theory. It is dispositional because it treats conscious states as nothing more or less than being disposed to do and experience certain kinds of things. His theory defends a type of phenomenal realism because it gives central place to subjectivity or phenomenal aspect of consciousness. According to Carruthers, the capacity for HOTs is independent of language and hence phenomenal consciousness is independent of natural language. The function of our mind- reading capacity is to represent, process and generate structured representation of mental states of ourselves and others. 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 beings with highly developed and sophisticated mind reading faculty⁵⁹ 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 others' beliefs and intentions. Gomez argues that limited mind- reading existed prior to evolution of language and the language and capacity for structured HOTs are co- evolved⁶⁰. Carruthers argues that this view does not affect his thesis that structured thought are present in the modern man in the absence of language.⁶¹ He claims that 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, suggests this evidence from late signers as thee strong support for the involvement of natural language in mind- reading. Carruthers replies that thinkers do not succeed to control for the fact that late signers may have difficulty with mentalistic vocabulary and so may 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 interpretation of speech⁶².Evidence from competence of aphasics who have lost their

linguistics capacity owing to brain damage proves that their mind-reading faculty continues to be undamaged.

All that is required of HOTs, according to Carruthers, is that they are available to do the meta-cognitive job of distinguishing between and conceptualizing our experiences when called upon. HOT need not be actively engaged in this process at each moment of conscious experience; we simply require the *disposition* to token the HOTs in order to be conscious. Bermudez⁶³ says that a dispositionalist version of the HOT theory might seem to offer that a state might become conscious *not* in virtue of actually feeding into higher-order planning, but rather in virtue of its potential for supplying into such planning and this view does not give us the explanation for how qualia emerge? Why or what should might or might not happen to sensory information further down stream influence whether it is conscious or not?

In order to explain phenomenal consciousness we should explain what phenomenal consciousness is or what constitutes it. Phenomenal consciousness is constituted by availability of analog contents to HOTs. This availability to HOTs is condition which is naturally or metaphysically adequate to occurrence of phenomenal consciousness. So in all possible worlds in which there are organisms with analog intentional state available to HOTs in the correct kind of way; organism is also phenomenally conscious⁶⁴. The structure of his theory can be represented as follows.

Figure: 3.6. Dispositionalist HOT Theory



Carruthers claims, perceptual contents are available to short-term memory stores N and C and conscious experience occurs when contents in C are available to cause HOTS about themselves by virtue of events in C acquire dual contents. Theory of mind is one of the most important downstream consumer systems, the duty of which is to understand 'is-seem' distinction and experience as subjective representational state of perceiver. These consumer systems are capable of generating recognitional concepts of experience based on the first-order analog contents of experience. For Carruthers, the very same perceptual states which represent world to us can at the same time represent the fact that those aspects of world are being perceived⁶⁵ (so it is dispositional). Attachment of first-order content to HOTS consumer module (ToM) bestows it dual content. (*seems red a* and *experience of red a*) For example, the presence of HOTS consumer system including theory of mind capable of us to generate recognitional concepts of experiences like *seems red* or *experience of red*. The distinction between conscious and non-conscious experiences are ;conscious experiences (percepts) are made conscious in virtue of their being made available to the subject's higher-order thought (HOT) forming module *via* a special short-term memory store C. Non-conscious experiences -- such as those of the absent-minded driver and blindsighted subject -- are not made available to the subject's HOT forming module by way of being held in C; rather, they are

held in a different short-term memory store N, from which they are made available to the subject's motor-output system, either directly or by way of the subject's action-schemas module. Carruthers argues that Cartesian concept (pure recognitional concept) have no independent existence (so no substance dualism) or it is a parasitical concept depending upon theoretical understanding of idea of subjectivity. (ToM), Carruthers argues that since his mission is to provide a reductive explanation, we needn't go beyond dispositionalist HOT theory because he believes that original dispositionalist HOT theory can explain away both conceivability of inverted and absent phenomenal properties and our temptation to believe in qualia. It also explains why conscious experiences possess a subjective seeming aspect (feeling aspect). In order to explain these problematic features we need only simple HOT neither conscious HOT nor linguistically vehicled HOT is needed. Carruthers almost underplays the role of language with a quick-fix solution to the sort of a parallelism which enjoins whatever way we understand the phenomenal qualia runs parallel to the way we device the higher- order theory about our thoughts .

3.5. A Unified theory in the Making?

At the beginning of the chapter the plausibility question has raised with a view to critically access naturalistic theory of phenomenal consciousness. It was argued that Carruthers considered the relative independence of language which forced him to move in the direction of phenomealist theory of consciousness with the support of naturalism. This picture was gradually modified with the integrationist portrait in which perceptual experience with propositional attitude states is unified. Thus the movement was from a large scale distinction between linguistic and non-linguistic variety of the tree of consciousness (in its first two versions), and still is ready to go beyond. Thus the question whether a purely naturalistic theory of phenomenal consciousness is plausible is kept open. Our *first* observation is that Carruthers deviates from the orbit of naturalism to

embrace a scientifically – oriented minimalist program offered by Chomsky (Carruthers agrees with it through personal correspondence). Still physicalism is an option, but the combination of brain research and language provides an advance that reached its completion in minimal rationalism. Our *second* observation is that this was assisted by detailed introduction of dual system theory which has not been fully unpacked till recently.

The *third* observation is that his views on the question of flexibility, malleability and plasticity of human thinking must be lauded. Consequently the very idea of modularity goes through tremendous changes. The *fourth* observation is that with the introduction of mirror- neurons, which is till in the frontiers of research. Carruthers gets the real integration of language and thinking and use it as launching pad to explain consciousness in the light of theory-of- mind- module which is proposed as a scientific model with a causal structure of its own. The question ‘unified in the making’ is justifiable only in this background and answered in the affirmative, but then since it is premature to arbitrate the full extent without more input from research on cognitive science. The *fifth* observation is that the distinction between first-order and second- order may become submerged in much the similar manner as the distinction between conscious and non- conscious which is now subsumed by dual path of the architecture of the brain. The *sixth* observation is that the movement of a higher- order thought availability is now metamorphosed into availability for awareness, which still seen to keep a distance from the first- order theory but ultimately a thin line of demarcation may yet remain. The *seventh* observation similarly is that it looks plausible that a convergence between the symbolism (Fodorian modularism) and minimalism (Carruthers modularism) is still open.

Thus, we find that in the later stages of development of Carruthers’ theory the question about consciousness is gradually transformed into one about language and thinking. So his earlier thesis of language is replaced with more naturalistic consideration of language as integral. In his 2002,

Carruthers defends the idea that natural language is the medium for non-domain specific thinking, serving to integrate the outputs of a variety of human domain-specific conceptual faculties (or central cognitive, domain quasi-modules). Earlier, Carruthers merely distinguished between the communicative and cognitive conception of language and supported the latter. It is argued that natural language syntax is crucially necessary for intra-modular integration. The central cognition functions accessing, controlling and influencing the representations of language capacity.

Carruthers, in this connection, analyses *weak* and *strong* claims regarding the thesis of involvement of natural language in thinking and discards various strong claims (such as conceptual necessary thesis), and weak claims (such as language is necessary for acquiring concepts, and language scaffolds thought process). The weak view of language as the medium of thought does not show that language is actually involved in thoughts. The evidences suggested by thinkers to defend this view only shows that parallelism of linguistic and cognitive development. Another weak claim is extracted from Vygotsky and claims that language and speech help to scaffold the cognition. Clark's (1998) supra-communicative account also shares this view of Vygotsky and treated language as cognitive tool enhancing the range and complexity of cognitive tool. Some extremely strong view defended by thinkers like Dummett (1981) Davidson (1975, 1982) and Wittgenstein. Another strong view is Dennett's Joycean machine model. According to this view, language is the medium of all conceptual thinking and arrival of language is responsible for serial and compositionally structured cognitive architecture (Joycean machine). For Dennett, conceptual thinking runs on a stream of linguistic representation. Somewhat similar account is defended by Bickerton (1990, 1995). For him, before the evolution of language, the capacity of human cognition is limited. Our off-line thinking is conferred by language. Carruthers rejects these strong views of Dennett and Bickerton because of two reasons. The first one is that they underestimate the cognitive capacity of pre-linguistic children

and animals. The second criticism is from modularity of central system, which exists prior to modular language faculty. Carruthers says that all of our hominid ancestors possessed sophisticated social intelligence. Modularity of central cognition gives support to early ancestors' intelligence. Carruthers', central modularity is different from Fodor's notion of modularity. Because as he envisages, central modules have no proprietary transducers, no neural hardwires and they might not be fully encapsulated, but they are innately channeled computational system (which shares with Fodor). Systems responsible for naive physics, mind-reading, folk biology, intuitive number and geometrical system (for re-organizing and navigating in unusual environments), etc. are example to such conceptual modules. So theory-of-mind is a developed form of a pre-existing social cognitive modules and folk biology is a developed form of a pre-existing foraging system. Carruthers argues that cognitive conception of language is well suited with nativist, modularist view of language and mind. Carruthers assumes that mind contains conceptual in addition to various input and output modules (conceptual modules take conceptual input and deliver conceptual output). The thesis he proposes is that central process crucially implicates natural language. Not only has our conscious propositional thought involved language, but all non-domain specific reasoning of a practical sort (whether conscious or non-conscious) is conducted in language.

According to Chomsky's minimalist programme, at the level of linguistic representations (logical form or LF) language faculty interfaces with central cognitive system. Following Chomsky, Carruthers argues that all cross-modular thinking consists in the formation and manipulation of LF representations. Language faculty has access to the outputs of various central process modules out of which it can build LF representations which combines information across domains. Language consists of two different sub-systems of production and comprehension. LF representation by production sub-system are used to generate phonological representation in "inner speech" that will be sent to comprehension sub-system which in turn

made available to central system. Carruthers(2000) argues that, if the perceptual and imagistic states are available to higher- order thought generated by ToM, they become phenomenal conscious .So thoughts become conscious and non-conscious depending upon whether they are available to HOT system or not. Carruthers does not want to endorse the thesis that language is the only medium for intra-modular communication, but it is one of the main medium for such communication. Carruthers puts forward a set of experimental evidences to defend his thesis of language as vehicle of intra-modular integration. It is proved through different experiments that pre- linguistic children and rats fails to integrate geometric and other information because they lack language. So Carruthers argues that language helps human beings to integrate geometric with non-geometric information into a single thought⁶⁶ .

In his (2004), Carruthers argues that his is a dispositionalist HOT version of HOP theory, which is a form of HOT theory that, when combined with consumer semantics, can also count as a kind of HOP theory and it will emerge as the overall winner. Only dispositionalist HOT version of HOP can give us a reductive account of phenomenal consciousness which is both successful in it and reasonable on other grounds. So his theory provides a reductive explanation of phenomenal consciousness in terms of some combination of *intentional* (or representational) *content* and *causal* (or functional) *role* ⁶⁷. It proposes a set of higher-order analog – or ‘experiential’ – states, which represent the existence and content of our first-order perceptual states, that the theory deserves the title of ‘higher-order *perception*’ theory, despite the absence of any postulated *organs* of the higher-order perception. Carruthers says purely recognitional concepts of experience need to be based on higher-order experiences of our (first-order) perceptual states; and he says that the most credible account of higher-order experience theory is not the ‘inner sense’ theory, but rather one that can be derived from dispositional higher-order thought theory, of the variety defended by him. Higher-order experiences with higher-order analog

contents can come to exist by virtue of the availability of first-order analog contents to a ability of higher-order thought, without embracing 'inner scanners' or any organ of inner sense. And it can be by virtue of the existence of such higher-order experiences,we come to form purely-recognitional concepts of experience, based on those higher-order analog contents⁶⁸. It seems Carruthers himself not satisfied with a naturalistic theory, which is still to be claimed to default theory. (It is a theory that works in the absence of a better theory).

In what follows, let us analyze Carruthers latest minimalist position on the role natural language in cognition. There is general agreement that conceptual modules will have limited connectivity with each other. Two or more modules regularly pass their outputs to a third ("downstream", module) function of which is to unite those outputs into a single thought. The role of language according to classical or systematic modularity is to receive output from all conceptual modules. In other words, the evolutionary function of language is receiving, conjoining, and reporting information received from any conceptual module. This function of language makes human cognition as distinctive and by which human cognition enjoys flexibility and *conjoinability* of content.Natural language sentences play a distinctive constitutive role in cognition. Carruthers views that the role of language in cognition isn't to unify the outputs of some otherwise unconnected modules, rather, language has a quasi-executive task of helping to control the subject's attention and on-line goals. Carruthers argues, representations of natural language sentences have an important role to play in certain aspects of distinctively human thinking and reasoning and he maintain that, the role of language is to unifying and combining the outputs of different central / conceptual "modules" (Carruthers, 2002). So for him, language is not only a vehicle but also a content combiner.⁶⁹Carruthers here plays Chomsky against Fodor. Chomsky's (1995) logical form" (LF) is a stage of linguistic representation, where the language ability interfaces with central cognitive systems. The new natural language hypothesis is that all such cross-

modular thinking operates by accessing and manipulating the representations of the language faculty. Carruthers argues that, the language faculty can construct LF representations which bring together information across domains and right to use the outputs of the various central-process modules. When LF representations built by the production sub-system are used to generate a phonological representation, in “inner speech,” that representation will be consumed by the comprehension sub-system and made available to central systems (One of these systems is ToM module). Carruthers maintains that language is the vehicle of non-modular, non-domain-specific, conceptual thinking which integrates the results of modular thinking. So according to Carruthers, the perspective of natural language is, not just that our conscious propositional thinking involves language but that *all* non-domain-specific reasoning of a non-practical sort (whether conscious or non-conscious) is carried out in language⁷⁰.

In its latest development dispositionalist HOT theory takes hold of the form of dual content theory duly supported by generally recognized dual system theory. Dual system theory, defends that there are two systems in human brain responsible for reasoning process. System 1 (systems responsible for occurrence of First-order representations. dorsal / parietal-lobe system is concerned with the on-line guidance of movement) contains a group of parallel working fast non-conscious systems. Most of the mechanisms of System 1 are also present in other animals. Carruthers argues that this system consists of a collection of semi-independent modules (in his sense). Since it is semi-independent modules, Carruthers notion of modularity is a disguised criticism to Fodor’s minimal peripheral modularity. System 2 (systems responsible for occurrence of higher-order representations or neurologically speak ventral / temporal-lobe system makes its outputs available for belief-formation and planning,) is unique to human beings and a single system can nevertheless function in diverse

'manner' corresponding to belief, desire, and decision-making.(central conceptual systems are also modular in this sense).

System 2 principles are malleable and can be influenced by verbal instruction, and they often involve normative beliefs. Carruthers claims that System 2 is realized in cycles of operations of System 1. It is argued that in response to perceptual or linguistic input, the central modules generate a variety of representations of natural language sentences (inner speech), which have an important role to play in certain aspects of distinctively human thinking and reasoning. Domain-specific outputs are made available to the language faculty, which combines some of them into a sentence which is displayed in imagination, processed by the comprehension sub-system and made available to the central modules once again. The latter process the resulting input, generating new domain-specific output, which is again made available to the production sub-system of the language faculty which formulates some of it into a new sentence; and so on. We can hypothesize that in its extended naturalistic form; Carruthers' theory signifies that for him, a better theory must integrate every element into a whole including language.

Carruthers almost minimizes the role of language in theory of consciousness and stands for a parallelism which defends that the phenomenal qualia and higher- order thoughts can run parallel. The satisfactory naturalistic theory of consciousness should consider both the so-called worldly subjectivity and experiential subjectivity. He takes phenomenal consciousness as strong sense or tries to explain the experiential subjectivity. The basic idea is that the conscious status of an experience is due to its *availability* to higher-order thought. Now consumer semantics can explain why a state has the content it has, but that is not quite the same as explaining why the state is conscious in the first place. So Carruthers theory is moving in the direction of primarily a theory of content rather than theory of phenomenal consciousness because he depended on consumer

semantics to defend his theory. The plausibility of new theory of consciousness is marred by ambivalence of Carruthers has shown to language. This is the singular reason why the plausibility becomes suspect. A full-blooded theory incorporating Carruthers higher-order-thought theory is still waiting for him, but in all probability it is plausible that it cannot sponsor challenges to first-order theories, that came to culmination with 2002⁷¹, where he makes a fresh departure incorporating dual system theory. It is at this stage, Carruthers endorses middle position between central-peripheral and massive modularity that leads to him to the direction of moderately massive modularity. The earlier argument from introspection with its infallibility or inevitability is brought down without sympathy. The passage from central-peripheral to massively modular and then to the middle path of moderation is still no guarantee for a full-blooded naturalistic theory. Though noticeable to earlier developments, it is a major step that occupies us in the next Chapter.

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CHAPTER IV

MODERATELY MASSIVE MODULARITY OVER CENTRAL- PERIPHERAL MODULARITY

4.1. Folk Psychological Realism Implies Minimal Rationalism

While looking at the plausibility question, we have collected some evidences to prove that it is a mistake to club Carruthers phenomenal consciousness, with qualitative phenomenology that is generally safeguarded by non- reductionists. In other words, Carruthers continues to defend the physicalist option in the exact sense in which he wants to accomplish for folk psychological realism what is usually reserved for scientific theory. That is the intention of his so-called 'integrationist view', which appeals to qualia irrealism. In the present chapter we shall see how folk psychological realism appropriated in the above sense(qualia irrealism) leads him further on towards to an extended form of naturalism and then forward to a consequent minimal rationalism.

This is sought to be achieved through the naturalization of semantics, even while approaching an integrationist line of thinking about science and phenomenal consciousness. The switch over of naturalism towards a more interesting post- naturalistic theory is sounded by the following words of suspicion about the independence of language and thought. He remarks that "no conclusive case has not yet been made out, in the domain of scientific theory, for the independence of thought and language"¹.The semantic thesis is therefore relatively independent, but not absolutely independent from the other claims of metaphysics and epistemology. One interesting way in which success could be guaranteed is to naturalize content in Quinean way of bridging the gap between philosophy and science. This necessitate that some form philosophy of mind (Searlian) must be given commitment to some form of language (Fodorian) even while keeping realism in semantics

as an existing option .This is conveniently termed as Searle –Fodor marriage.

Carruthers has played a vital part in the cognitive revolution undergone in recent cognitive sciences. Carruthers' focus of interest is mainly on philosophy of psychology, philosophy of mind etc. It is clear that the greater part of the philosophy of psychology occupying the philosophical aspects of the cognitive sciences².Cognitive revolution discarded simple empiricism and that leads the development of cognitive science as an interdisciplinary study of mind and consciousness, philosophy of psychology started to both drawing on and supplying data to scientific work. As psychology maintains the multifaceted behaviour of human beings (and other sophisticated creatures) is mediated by seemingly unobservable mental states playing a role in apparently secreted mental processes. Will psychology eventually be replaced by neuroscience? (Really, has it already been replaced by neuroscience?).Carruthers believes that folk-psychology has its own explanatory power and hence it can lie in close proximity to neuroscience, if certain architectural assumptions of the brain are in order.

Psychologist recognizes that the central enterprise of psychology is to provide adequate account of intentionally characterized cognitive capacities. The dichotomy between analytic truth and synthetic truth in philosophical literature pave the way for naturalism and psychology become more and more naturalistic. Philosophy of mind also took a naturalistic twist and assumes that advances in scientific psychology play an influential part in the attempt to unravel traditional philosophical problems such as; mind- body problem, the nature of intentional states and problem of innate knowledge. So the problems in philosophy of mind have become increasingly informed and influenced by work in scientific psychology and that work itself elevated new sequence of philosophical issues. Folk psychological realism must stipulate that psychological knowledge has both aspects: knowledge of one's own and others; It is only in this sense the story of language is the story of

mind³. It is obvious from the above that theory- theory is opposed to simulationism as it must be considered as progressive research program in Lakato's sense.

Carruthers' earlier books; *Language Thought and Consciousness* (1996) contains the reflexive thinking theory of language and thought and the subsequent *The Philosophy of Psychology* (1999) deals with the philosophy of psychology with an appeal to independence language. The central claim of *language thought and consciousness* have been reviewed in the previous chapter, where we noted that there was certain ambivalence between language and innate theory of mind; seen from the central work on his naturalistic theory of phenomenal consciousness. Carruthers consolidates the gain by advancing a stronger claim about the best form of philosophy of psychology. Thus *The Philosophy of Psychology* (1999) reviews the traditional theories of mind such as dualism, behaviourism and identity theory, but more importantly it encounters the controversy between theory- theory and simulationism along with the more powerful arguments in the form of eliminativism (eliminativism now of Churchland and eliminativism in-prospects of Stephen Stich). In general it also reviews, the real opposition between realism and anti- realism (Davidson and Dennett) before taking folk psychology in the direction of minimal rationalism *via* naturalism (Chomsky) and modularism (Fodor). Thus what is called the philosophy psychology stands for following claims:

- a) Dualism must explore the causal interactionism between the mental and physical within physicalistic framework;
- b) Behaviourism must be abandoned for both of its version (logical and philosophical), which stands for the reduction of :(i)our psychological knowledge of other minds to behavioural dispositions;(ii) Knowledge of one's own mind to knowledge of behavioural dispositions;
- c) Token identity must be combined with certain version of functionalism;

- d) Theory- theory must involve recognitional application of a theoretical concept;
- e) Realism about facts must entail realism of intention (the former cannot deny the later as eliminativist do);
- f) We can accept folk psychology as interpretative (in Davidson's anti-realist sense) only if it is also the reflection of the extent to which simulationism play a role in folk psychology (better to view Davidson's theory as a species of ascription of content (truth) to others than to one's own);
- g) Similarly Dennett's anti-realism must accommodate 'social role stance'⁴ to go to other stances (intentional physical design stances);

A brief review of rationalistic tradition is given below:

- 1 Descartes: mind has innate ideas;
- 2 Chomsky: grammar (a set of intentionalised rules) is a psychological reality;
- 3 Fodor : mind is a code language called *mentalese*;
- 4 Carruthers: there are possible cycles of linguistic activity in inner speech;

Three topics within the philosophy of psychology that have dominated in the field over a couple of years are intentionality, cognitive architecture, and consciousness. Philosophy of psychology raises the question like whether human beings are actually rational creature or not? Moreover philosophy of psychology attempts to explore issues, which are the theoretical foundations of modern psychology; what is cognitive module? What is innateness? Etc. Today a majority of philosophers and cognitive psychologists share the functionalist view of mind, that mental phenomena can be broadly individuated by their functional role in the lives and behaviour

of people. The acceptance of shared conception of human mind is the upshot of cognitive revolution. Cognitive scientists share the views like; mental phenomena are intentional and they are neuro-physiologically realized and their function is to causally mediate the links between sensory stimulation and behaviour. So philosophy of mind and psychology are engaging in a genuinely mutual venture.

One of the important questions in philosophy of mind and philosophy of psychology is; what is the structural design of mind? There are different models of mind which tries to give answers to this fundamental question; such as computationism, connectionism etc. Modularity is some sort of computational model, which is the physicalist response to the question of cognitive architecture. The term 'module' is a much celebrated and discussed term in the recent cognitive science. What is the real sense of the term? Mainly, there are different notions of module; like Chomskian module, Computational module and Darwinian module⁵. Thinkers differ on what type of mental structure the term module should be referred. It is noted that the term module is used to refer mental structures like mental representations and computational mechanism. If the term module is used to denote systems of mental representation it is called Chomskian module and in second case it is called Computational module. *A Chomskian module is domain specific body of mentally represented knowledge or information that accounts for a cognitive capacity.* This particular notion of module is owing to Chomsky, who claims that our linguistic competence consists in the possession of an internally represented grammar of our natural language (Chomsky 1998).

Computational modules are also domain- specific. More accurately for instance, one specific module will only provide solutions to ascribe to it only. In effect, computational modules are regarded as moderately independent mechanism of mind that the internal information processing of computational modules is untroubled by the external input system. The difference between

Chomskian module and Computational module is that, the former only eventuate in behaviour when controlled by diverse cognitive devices, while Computational modules are processing machines or devices that is responsible for manipulations of symbols or representation. So the point is that they differ in their functional role. *It is noted that Chomskian Modules are often manipulated by computational module.* Computational module uses the contents of Chomskian Module for its function. Fodor's version implies computational module. But evolutionary psychologists reject the particular view defended by Fodor that central cognition is informationally unencapsulated and they hold that central cognitive capacity like mind-reading need to be informationally encapsulated. The notion of massive modularity has its genesis here.

The notion of Darwinian module is supported by the evolutionary psychologists. The features of this special type of module are as follows. They are domain- specific computational mechanism. Even though Darwinian modules are computational modules; they use the domain-specific knowledge (Chomskian modules) for their process (for example, theory of mind module). So in the point of view of evolutionary psychologists, Chomskian module and Computational module are different in their functional role. *Computational module can co- exists with Chomskian module.* But it is careful here that the existence of Chomskian module does not entail the existence of computational module. *Darwinian modules are inborn or(genetic) natural cognitive constitutions*, whose distinctive features are decided by inherited factors. These modules are in general are results of natural selection.

Fodor's modularity thesis deals with the structural design of mind. Modularity thesis may differ on the question of number and identity and nature of mental module. The proposed specialized modular systems are remarkably diverse. They include expert modules for 'mind- reading', grammar and biology etc. According to some thinkers, even inference is

modularized and our cognitive architecture is 'densely populated with a large number of evolved, content-specific, domain-specific inference engines'.

Here we are going to analyze different models of structure of mind. The special focus is to counterpose Carruthers to Fodor on the thesis of modularity from the evolutionary theorist's point of view of massive modularity. There are several problems related with the modularity thesis; such as; 1) whether modularity is restricted to perceptual process or affects reasoning process also? 2) whether modularity is innate or constructed? Let us analyze these problems in connection with Carruthers and Fodor.

Mind is somehow composed of arrangements of physical stuff. Empiricist and rationalist hold different views of structure of mind and knowledge. Empiricists suggest that cognition is process, which is just an elaboration of process of perception; they differ in degree not in kind. Empiricist consider mind as domain general device. Jerry Fodor⁶ claims that linguistic knowledge and principles are innate and so are not learned. His nativism is the outcome of rationalistic thinking. According to him, rationalist considered mind as domain specific device as one made up of systems whose governing principles are very different. It is interesting that the historical debate between rationalist and empiricist are revisited in contemporary discussion of innateness of language, the modularity of mind and connectionism.

According to Chomsky⁷, mind consists of separate systems like language faculty, visual system, facial recognition module etc. these modules have their own properties. He argues that child's mastery over language cannot be accounted for in terms of empiricist learning mechanisms. His hypothesis is that language learners have innately specified information that is specifically about the nature of human knowledge (Universal grammar). The child comes to the language learning task with a head start. This nativism is supported by the findings in cognitive ethology. Rats are born with a grasp of their nutritional needs and the ants

need not to be taught the system of dead reckoning. They use in foraging expeditions. The nativist extended this findings to the higher cognitive functions found in humans. The new field of evolutionary psychology, which adopts a thoroughgoing nativist perspective, focuses on especially on the sorts of cognitive and motivational structures that might have developed as adaptation in the original ancestral settings in which human evolved.

Chomsky's focus is on language or syntax or universal language. Chomsky put forward a poverty of stimulus argument in order to defend his claim. He maintains that language acquisition is not possible without a rich store of innate linguistic knowledge. Fodor extended modularity thesis to other cognitive systems also. He distinguished central logical process and perceptual systems. For him, modules are innately specified systems that take in sensory inputs and yields necessary representation of them. According to the classic account of concept acquisition, learning occurs when new complex concepts are constructed from more primitive concepts and which suggest that there must bet a prior store of basic acquisition. For Carruthers, our mind- reading capacity is a product of maturation. Our mind reading faculty functions *via* a central module of theory-of-mind module which is an innate module. The nativist version of modularism is the correct version according to Carruthers. A main issue at stake is the degree to which cognitive development, everyday cognition, and cultural knowledge are based on dedicated domain-specific mechanisms, as opposed to a domain-general intelligence and learning capacity. The issue of domain-specificity –which, of course, Chomsky had been the first to raise – was becoming a central one in cognitive psychology. Evolutionary psychologist like, Leda Cosmides and John Tooby, was putting forward new arguments for seeing human cognition as involving mostly domain- or task-specific evolved adaptations. Taking for granted that domain-specific dispositions are an important feature of human cognition three questions related to modularity of mental architecture arise⁸:

1. To what extent are these domain-specific dispositions based on truly autonomous mental mechanisms or “modules”, as opposed to being domain-specific articulations and deployments of more domain-general abilities?
2. What is the degree of specialization of these dispositions, or equivalently what is the size of the relevant domains? Are we just talking of very general domains such as naïve psychology and naïve physics, or also of much more specialized dispositions such as cheater-detection or fear-of-snakes?
3. Assuming that there are mental modules, how much of the mind, and which aspects of it, are domain-specific and modular? There are three possible answers here⁹.
 - a) Minimal peripheral-systems modularity
 - b) Massive modularity
 - c) Moderately massive modularity

At one extreme, there is the Fodorian modularity, which is less supported from both biological and evolutionary stand points. According to Fodor, central cognition is a- modular. The second extreme is that Sperberian modularity, which is adaptive and biologically more supported. It is full-blown massive view of modularity. The third moderate view of massive modularity is supported by Carruthers. It is biologically more supported at the architecturally level. Carruthers is passing from module of elegantly engineered processing modules (simple and streamlined internal structures, and which exist independently of other such systems) to kludgy, (recruiting and cobbling together in quite inelegant ways resources which existed antecedently) messy quirk and dirty inter- modular decision rules¹⁰.

4.2 Carruthers' Earlier Typology of Language-Thought Relation

According to Fodor, there is no possible way to learn a language except by translating it into an already existent language. To learn our first

natural language we should translate it into previously existing language. It is not natural language; a computational representational system or mental language is responsible for acquisition of language. For example, learning a word 'flower' involves constructing and confirming hypothesis of the form 'x is a 'flower' if and only if x is R. Our representational system helps us to form such a hypothesis. These representations are the non- natural language at our disposal in order to learn natural language¹¹. It is obvious that language requires thought and according to Carruthers at least our propositional thought requires language. The choice before Carruthers is mentalese or natural language. Carruthers stands for natural language. The correlation between sentences and thoughts are the foundation of language-thought hypothesis. This hypothesis takes mental representation seriously and maintains that mental representation has a constitutive role in thought which will help demystifying the notion of thought. It is argued by some thinkers, Like all the best debates, in philosophy of psychology the argument over whether thought controls language or language controls thought is ultimately unprovable. What are the ways in which natural language might be occupied with human cognition? To what extent is human thinking dependent upon possession of one or another natural language? There may be *three* possible positions

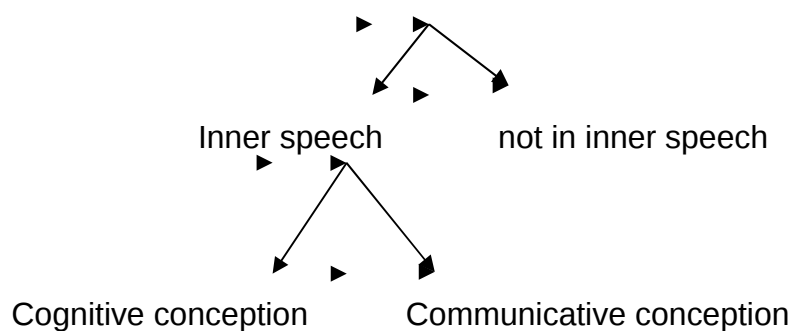
1. The first view defends some sort of conceptual necessity thesis that that all thought is dependent upon language. While the strongest thesis that thought (or all propositionally-structured forms of thought) is conceptually dependent upon language (Davidson, 1973, 1975; Dummett, 1981, 1989; McDowell, 1994). These views are not accepted by recent cognitive scientist because carefully considered attributions of thought to non-linguistic creatures widespread within cognitive science. But it is taken for granted that for any given type of thought, it will be an open empirical question whether such thoughts might be entertained by a creature that lacks a natural language.

2. The second view holds other extreme that thought not only conceptually, but also metaphysically and causally, independent of natural language.
3. The third view stand in between above two views and a multitude of possible claims that most, some, or specific types of thought are dependent upon natural language, where the dependence in question can be conceptual, or Metaphysical (that is, constitutive), or causal.

The other major account of language-thought hypothesis argues that thinker's thoughts are sentences of natural language. It is criticized that some thoughts are not expressed any sentence in any natural language of the speaker. According to Carruthers, there are certain thoughts which are purely imagistic and independent of language. Carruthers' argument is as follows¹²:

1. We can consciously access or think about our occurring thoughts and it is uniquely diverse from our access to the thoughts of other people.
2. There are two possibilities that occurrent propositional thoughts either be given articulation in inner speech, or they do not; and if they are happenings in inner speech there are again two possible ways: the cognitive and communicative conceptions of language.

Figure:4.1.Communicative/Cognitive Distinction of Language.



3. If the manipulation of natural language sentences in imagination (in 'inner speech) is not constitutive of propositional thinking, then our access to those of our thoughts which receive expression in inner speech is interpretative, and similar to the sort of access which we have to the thoughts of other people, when they speak; and hence such thoughts of ours do not count as conscious (by 1).
4. The form of access which we have to those of our occurrent propositional thoughts which do not receive expression in inner speech also involves self-interpretation, and hence such thoughts, too, fail to count as conscious (by 1).
5. So if we engage in conscious propositional thinking at all, then natural language sentences must be constitutively involved in such thinking (from 1, 2, 3, and 4).
6. But we do sometimes engage in conscious propositional thinking.
7. So natural language is constitutively involved in conscious thought (from 5 and 6)

The main criticisms to Carruthers' natural language thesis are as follows:

One of strongest criticisms is from argument apparent semantic underdetermination of natural languages. For this argument, cognition requires a semantically precise and compositional instrument or medium. As natural languages are mainly semantically undetermined, they cannot be a vehicle of cognition. Steven Pinker (1994) and Jerry Fodor (2001) have developed two entirely diverse accounts of the argument. Steven Pinker (1994) argues against the cognitive use of language. He tries to prove that language is not compulsory for cognition. He says, that the human mind/brain works like a Turing machine, and that no natural language can function as a language for the use of a Turing machine. Identical line of argument is presented by Fodor¹³ and he argues that intentional contents

are unambiguous content but natural language possesses highly ambiguous content. For example, the sentence 'dog chased runner with a stick' could mean either that dog has stick or runner has stick. So we need a highly regimented, unambiguous and compositional language in order to determinate content of uttered sentences. This is the essence of mental language theories. Fodor¹⁴ conceives of thoughts as being composed of conceptual atoms and these ultimate components of Mentalese, unlike natural language words, are context-independent.

According to Fodor, scientific study of language, like the study of vision, is an investigation into the arrangement one of the marginal modules of mind, not an examination into the nature of thought itself. It is not clear that whether anyone has ever actually sanctioned the thesis of the independence of thought from language in its most extreme form. Because even thinkers like Fodor (1975), claims natural language as both input-output system for central cognitive processes of thinking and reasoning will permit that there are a lot of thoughts (both tokens and types) that we would never have entertained in the absence of language. The declaration of other people can have a significant impact on the thoughts that occur to us at any given moment. Hence there are some thought tokens that we would never have entertained in the absence of language. And everyone allows that the testimony of other people is the source of many of our beliefs, as well. Hence there are some thought types that we would never have entertained if we had been incapable of comprehending what people say to us.

Some thinkers maintain that language is remarkably implicated in thought as well as being used for purposes of communication. This is the so-called cognitive conception of language. Dennett observes language as a virtual structural device on which conceptual thought runs¹⁵; Bickerton argues that evolution of language is the precondition for conscious, abstract thought¹⁶; Elizabeth Spelke¹⁷ has offered another strong view to support natural language; that our mothertongue maybe acting as an intermodular

lingua franca; evidences from archeology persuade Stephen Mithen¹⁸ to endorse an analogous proposal. But the strongest devotee is Carruthers¹⁹. Following Bickerton²⁰, Carruthers offers an additional argument and he says that it is consistent with a broadly modularist conception of language and mind. Bickerton's argument is nativist but not modularist. The center of attention of the supporters of the "language is an adaptation"-paradigm is essentially on the question of what language evolved for, the most popular answer being, that it evolved for communication²¹.

The defenders of the communicative conception of language maintain that language is not essentially implicated in thinking, but rather serves only to facilitate the communication of thought. As communicative conception maintains, the only purpose of natural language is to make possible communication. It is considered that only through this medium communication take place. This view imply that language is largely isolated, module of the mind, which is both innately structured and specialized for the interpretation and construction of natural language sentences. Language is not the medium of thinking rather, it is system to communicate our intentional states to others or represent our intentional states ourselves. Spoken language thus serves only as the medium, through which thoughts may be conveyed from mind to mind, rather than being involved in the process of thought itself. Carruthers' intention is to defend a relatively weak form of cognitive conception of language. Carruthers supports only natural necessity in weak form but reject conceptual necessity. There are thinkers who support the conceptual necessity. For example, Davidson and Dummett stand for such a thesis. For Carruthers, conceptually thought is independent from language and he rejects the conceptual necessity thesis of the relation between language and thought. The thesis that language is involved in human thought is not here maintained universally, but is restricted to specific kinds of thought; particularly to conscious propositional thoughts. Carruthers' view implies that only some thoughts involve language. So language is not an isolated module of the mind, but is directly implicated in central cognitive

processes of believing, desiring, and reasoning. The role that language might play in unifying and combining the outputs of different central / conceptual “modules” (Hermer-Vazquez et al.,1999; Carruthers, 2002). Carruthers uses the argument from introspection to argue that at least some of our conscious propositional thinking is conducted in imaged either spoken or heard natural language sentences. The systematic introspection-sampling study by Russ Hurlburt²², proved that individuals have inner speech. The conflict between cognitive conception and the communicative conception is that, while the former considers inner speech is partly constitutive of thinking; the latter considers inner speech is merely expressive of thought, is the medium through which we gain access to our thoughts.

For a defender of the cognitive conception, Carruthers can permit that there are some chains of reasoning which cannot occur in the absence of an imaged natural language sentence²³. If it is, for example, by virtue of our thoughts causing the production of imaged natural language sentences that we gain access to their contents and occurrences, then any chain of reasoning which requires us to have such access will constitutively involve an imaged sentence. But, by hypothesis, the imaged sentence is not itself the thought, but is merely what gives us access to the thought. So more needs to be done to get at the intended idea behind (this version of) the cognitive conception of language.

Carruthers’ cognitive conception of language is modularist version of language. It is relatively weak version because; it only claims it to be naturally necessary that some of our thoughts should constitutively involve natural language. The so-called problem of cognitive conception of language is due to unnecessary concentration on universal or conceptual version of it. Carruthers proposes both evolutionary and modularist possibility to support the claim that thinking (propositional thinking) takes place in language. He elaborates how children acquire language and accepts language as an innate faculty of mind. It is criticized that most sentences of a natural

language lack a definite semantic interpretation. This thesis supports an argument against the use of natural language as an instrument of thought. Hence it in turn troubles Carruthers' cognitive view of natural language. For obtaining semantically determinate or definite meaning, natural language sentences should consider pragmatic factors. In other words, in order to attribute a definite meaning to a sentence, contextual factors should be considered²⁴.

Clark (1998) suggests that we use natural language as a way to approach our thoughts in a reflexive way, to 'contemplate' our own thoughts, so to speak draws attention to the many ways in which language is used to support human cognition, ranging from shopping lists and post-it notes, to the mental rehearsal of remembered instructions and mnemonics, to the performance of complex arithmetic calculations on pieces of paper²⁵. The idea is that language gets used, not just for communication, but also to enhance human cognitive powers. Andy Clark has helpfully designed six essential ways in which language can play the role of cognitive tool; which enhancing, extending and facilitating thought and cognition²⁶.

(1) *Memory augmentation*: the acquisition of a public language offers us powerful means of systematically storing data (not simply in written language, but also in communicated oral traditions).

(2) *Environmental simplification*: Applying linguistic labels is one way in which the perceived environment can be broken down into persisting objects and properties.

(3) *Coordination*: Language permits the mutual control of attention and resource allocation in coordinated activities.

(4) *Transcending path-dependent learning*: The learning patterns of linguistic creatures are not constrained by the particular cognitive paths they have followed since linguistic communication allows ordinary learning patterns to be circumvented and short-circuited.

(5) *Control loops*: Language allows us to create control loops for our future behaviour (by writing down plans that might be too complicated to keep in one's head, for example) as well as to register and respond to the instruction and regulation of others.

(6) *Data manipulation and representation*: "Extended intellectual arguments and theses are almost always the products of brains acting in concert with multiple external resources. These resources enable us to pursue manipulations and juxtapositions of ideas and data which would quickly baffle the un-augmented brain."

There are two thinkers whose influential work on this area of philosophy are Whorf(1956) and Vygotsky(1961). What Whorf's social relativist view anticipated is that divergences in culture, different grammatical forms and different modes of conceptualization of natural languages have significant consequences on the cognitive processes of the people in question, leading them to apprehend the world quite differently. Whorf's proposal about the ways in which natural language serves to structure and shape human cognition becomes disrepute due to the development in cognitive science. For example, an experimental study of color naming and color memory in speakers of English (which has eleven basic color terms) and Dani (which has just two) suggested to disprove Whorfian account of the relationship between language and thought. It turned out, as expected, that English speakers use a far greater variety of color terms when asked to name a set of color chips; but there were no distinctions between the two groups in their ability to remember and re-identify a color chip over a 30 second interval.²⁷

Vygotsky was developing his ideas on the interrelations between language and thought, both in the course of child development and in mature human cognition. One of Vygotsky's ideas concerned the ways in which language installed by adults can *scaffold* children's development, yielding what he called a "zone of proximal development"²⁸. Overt speech of

children, arguing that it plays an important role in problem solving, partly by serving to focus their attention, and partly through repetition and rehearsal of adult guidance. Vygotsky argued that in older children and adults' *inner* (sub-vocal) speech serves many of the same functions. It is proved that the self-directed verbalizations of young children are more when the tasks were more difficult, and that children who verbalized more often were more successful in their problem solving.

4.3. From Minimal Peripheral –Systems Modularity to Massive Modularity.

The minimal peripheral –systems modularity is the category of modularity endorsed by Jerry Fodor (1983, 2000). He claims that mind is not a single homogeneous, general-purpose processing system but a somewhat complex or heterogeneous system of both input and output modular systems. According to Fodor's classic²⁹ version, only input and output systems are modular. He defines modules as domain-specific innately-specified processing systems. These modules include vision, audition, face-recognition, language-processing, and various motor-control systems. So modules, on Fodor's view, are special purpose mechanisms that are situated at the front-end of perception. These modular "input systems" situate in remarkable disparity to more central cognitive processes concerned with such things as reasoning, analogy, and even perceptual judgment³⁰.

As Fodor suggests, there are three functionally dissimilar types of mental mechanism; they are transducers, input and output systems and central systems. Transducers are positioned at the crossing point between mind and the world. There are two basic types of transducers.

1. *Input transducers*: It take physical, non- symbolic input and produce symbols as output. For example, retina is an input transducer.

2. *Output transducers*: It takes symbolic outputs and produce non-symbolic outputs. For example, neural firing causes muscle contraction and bodily movements.

Transducers are mediators between world and mind. Transducers as the subsystems of mind functions automatically rather than computational function. But input systems function is computational function and it represents the world as to make it accessible to thought. But inner cognition or the central cognition where process of belief formation, decision making, reasoning, problem solving constructing scientific explanation etc is taking place is non- modular and in effect, Fodor denies modularity to central cognition where the concepts are deployed, beliefs are formed, inferences drawn and decisions are made. Even though Fodor admits that belief-fixation is global process, he is not optimistic about the explanatory power of cognitive science in explaining the central cognitive system. Fodor further adds that, no one has any idea how such factors could possibly have their effects. So Fodor's view is that the process of central cognition is a forbidden fruit to cognitive science or it is mysterious what process are taking place there in central system or it is informationally unencapsulated. Peripheral process are *local*, in the sense that they only require to reflect on a limited range of inputs, and can only be influenced in a limited way (if at all) by background knowledge. But central processes are holistic, or non-local in nature. Because; what you believe on one topic can depend upon what you think about some seemingly-disparate subject. As Fodor (1983) remarked in principle, our botany constrains our astronomy, if only we could think of ways to make them connect. Or, what you believe on one issue is said to depend upon everything else that you believe. And no one has the least idea how this kind of holistic process could be modeled computationally. This holistic nature of central cognition is regarded as the evidence to support the pessimistic view that computational psychology is unlikely to make progress in understanding central cognitive processes in the foreseeable future.

Fodor's characterization of properties of a module or the nine features of modules are as follows.³¹

1. Domain Specificity

This means that modules operate within their proprietary domain in other words, modular system are controlled in terms of the range of information it can access. A module will be limited in the kinds of content that it can take as input. It is restricted to those contents that constitute its *domain*, indeed. So the visual system is restricted to visual inputs; the auditory system is restricted to auditory inputs; and so on. Furthermore, Fodor claims that each module should have its own transducers: the rods and cones of the retina for the visual system; the eardrum for the auditory system; and so forth. Domain specialty means input modular systems have very specific subject matter, which means modules are sensitive to very specific input systems or stimulation. The domain specificity has to do "with the range of questions for which a device provides answers"³².

2. Mandatory Processing

Fodor's –modularity also supposed to be mandatory and swift in their processing. That means no voluntary control over whether relevant input is processed (one can't turn them off)³³. That means the processes of modular systems are out of control; their process is automatic; in other words, process of modules are like reflex actions. That means when a modular process taking place we have no power to 'switch off' of that process. If they were not to so function then there is no way that transducer outputs can get in touch with the central process in charge of integration of outputs of different modules and fixation of beliefs. They generate their outputs extremely quickly by comparison with other (non-modular) systems.

3 Limited Central Access to Intermediate Representations

Information is not available to conscious awareness. E.g., auditory characteristics of speech sounds, or precise syntactic form of an utterance

are difficult or impossible to report, even though the utterance containing these was understood there is only a limited central access to the mental representation that input systems compute³⁴. According to Fodor, the process internal to modules is limitedly accessible to central process. Intermediary representations are not accessible to central process or they are concealed from central processing. That means that the lowest level representations are least accessible to central systems. That is processing from bottom up access is from top down³⁵.

4 Speed

Complex information processing takes place remarkably quickly. Input systems are fast comparing to central system. This speed of modular process are related to the mandatory nature of (of process executed by input) systems.

5 Information Encapsulation

The information from higher levels is not fed back to lower ones (e.g., no top down processing occurs)³⁶. The information stored in input computational systems are informationally encapsulated .It means that proprietary information of a module can neither be made available to other modules nor can be shared with central systems. As evidence Fodor suggests familiar example of *Muller Lyer illusion* of size which leads us to see a tailed line is longer than an arrow headed line even though we know rely there is no difference. This perceptual illusion test shows that persistence of illusion even when one is aware that is illusion. Another illusion of size is from changing size of the moon when it moves upwards from horizon are example to such perceptual illusions. Even though we know they are illusions or we may try to convince ourselves about the illusory nature of perception; our perceptual mechanism is not affected by our beliefs and it gives outputs in usual way. Fodor suggest this as the evidence of and the important role of non- modular systems in our cognition

6 *Shallow Outputs*

Modular systems computes only a very limited range of representations that means input systems are limited in terms of the information that they deliver as outputs. The outputs of a module are *shallow* in the sense of being non-conceptual. So modules generate *information* of various sorts, but they don't issue in *thoughts* or *beliefs*. For example, according to Fodor, it is not part of the language system (which is an input system) to determine communicative intentions of speakers, rather it is determined by central system. Judgments made by central system go beyond output of the language system. Belief-fixation is argued by Fodor to be the very archetype of a *non-modular* (or holistic) process. Hence the visual module might deliver a representation of surfaces and edges in the perceived scene, say, but it wouldn't as such issue in *recognition* of the object as a chair, nor in the *belief* that a chair is present. This would require the cooperation of some other (non-modular) system or systems.

7 *Fixed Neural Architecture*

Fodor's modules are supposed to be innate, in some sense of that term, and to be localized to specific structures in the brain (although these structures might not, themselves, be local ones, but could rather be distributed across a set of dispersed neural systems). Modules are handled by a circumscribed and dedicated brain region, that is input system related with restricted configurations in the brain.

8 *Characteristic Breakdown Patterns*

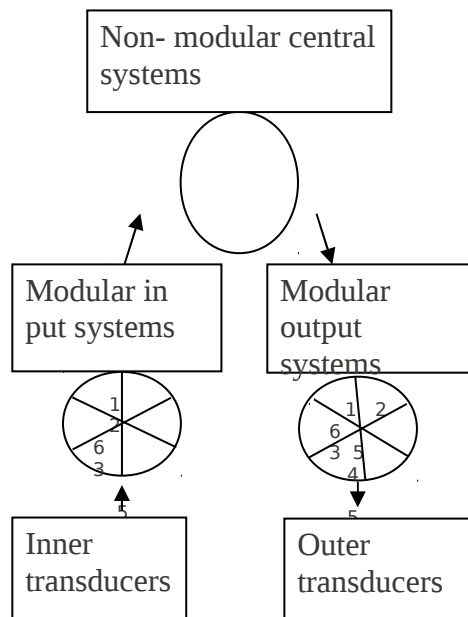
Growth and development of modules would be under significant genetic control, therefore, and might be liable to distinctive patterns of breakdown, either genetic or developmental. So it is argued that associated with selective deficits in one area of functioning that cannot be explained in terms of some general loss of capacity. For example, the agnosias and

aphasias are result of specific breakdown of specific region of brain. This functioning problem may be result of brain damage or genetic impairment.

9. Characteristic Pace and Sequencing in Development

Developmental course of a modular function is highly dependent on maturation of endogenous systems, and insensitive to environmental influences. Developments of input systems are determined genetically and these systems stay apart from experiences and general intelligence of individual. And one would expect their growth to unfold according to a genetically guided developmental timetable, buffered against the vagaries of the environment and the individual’s learning opportunities Thus Fodor’s modularity is nativist version.

Figure:4.2. Minimal Peripheral –Systems Modularity



Carruthers criticizes some of features of Fodarian modularity. Carruthers says that some of the following features of Fodor’s modularity will

need to get struck out as soon as we move to endorse any sort of central-systems modularity. Carruthers' remarks are given as follows.³⁷

1. Conceptual modules cannot have their own proprietary transducers
2. They cannot have shallow outputs. On the contrary, their outputs will be fully-conceptual thoughts or beliefs
3. Carruthers accepts domain specificity of modules and reconceptualised in terms of functional rather than content domains. For him, although it may well be the case that *many* modules are domain specific, it can't be the case that *all*. For example, practical reasoning plainly can't be domain specific, since in order to do its job it will have to be capable of receiving any belief, and any desire, as input.
4. Swiftiness of processing also needs to go, in the context of massive modularity. Fodor's modules were characterized as swift when compared to *central* processes; but a massive modularist adds modularity to the latter, Carruthers argues that conscious thought process are realized in cycles of modular activity,
5. Carruthers retain mandatory operation of modules. Each component system of the mind can be such that it automatically processes any input that it receives. And certainly it seems that some of the alleged central modules, at least, have such a property.
6. Carruthers says it is wisest to drop the innateness-constraint from our definition of what modules. Even though carruthers sympathize with nativist end of the spectrum,he suspect that much of the structure, and many of the contents, of the human mind are innate or innately channeled.

We have seen that how Carruthers discarded features of classical modularity such as, the properties of having proprietary transducers, shallow

outputs, domain specificity, comparatively fast processing, and significant innateness or innate channeling. So according to Carruthers modules might be isolable function-specific processing systems, whose operations are mandatory, which are associated with specific neural structures, and whose internal operations may be both encapsulated from the remainder of cognition and inaccessible to it.

Fodor's argument for the global and holistic nature of central system has received considerably less sympathy than his argument for the modularity of input systems. According to Fodor, the domain of reasoning and belief fixation, (central system) is non-modular in character. But according to Carruthers, central system is also possess the characteristics of modularity. The main arguments against the modularity of central system are as follows.

1. The Central system is not domain-specific because central processing involves taking input from a variety of distinct sources and integrating it.
2. The Central systems are informationally unencapsulated because belief fixation is typically a process of non-demonstrative inference and such process involves framing hypothesis and confirm them by considering data that bear upon their truth value. Fodor compares our belief fixation to scientific verification and for him, the procedure involves not simply considering a restricted body of information delivered by our input systems but entire of scientists commitments.³⁸ The central process is responsible for this formation of scientific belief. Fodor said that if scientific belief is non-encapsulate so as to central process which is responsible for the fixing or formation of scientific belief. If fixing of scientific belief is a form non-demonstrative inference, then Fodor argues that non-demonstrative inference in general is non-encapsulated. But science is, in fact, a bad model for the ordinary cognition or cognition in general. In short,

then, the holism of science fails to establish the holism of central cognition in general. Carruthers' criticism to this argument is as follows³⁹.

1. It is a highly misleading notion that scientist is a lone investigator, gathering all data and constructing and testing hypotheses by him- or her-self and science is, actually a social activity, involving considerable external support. But common thinking takes place inside the head of an individual thinker, with little external support, and within the comparatively short time-frames. There is certainly nothing here to suggest that ordinary belief-formation routinely requires some sort of survey of the totality of the subject's beliefs like a scientists' cognition.
2. Much scientific reasoning is both conscious and verbal in character, being supported by natural language representations (whether internal or external). But Carruthers argues that linguistically formulated thought can be partially holistic in nature and he provides a *moderately massively modular* account of natural-language-mediated cognition which explains the partly-holistic character of such conscious thinking in modular terms.

It is argued that (Currie and Sterelny, 1999; 1999; Fodor, 2000) the exclusive feature of modules are its encapsulation. Encapsulation of modules was never really about limitations on modular *input*, however (that was rather supposed to be handled by them having proprietary transducers, in Fodor's 1983 account). Rather, encapsulation relates to the *processing data-base* of the modular system in question. According to Carruthers, since the supposed duty of central modules is taking inputs and generating outputs of conceptual in nature we cannot argue for the claim that all modules have proprietary transducers, deliver shallow outputs, or that

modules are wholly inaccessible from the rest of cognition. Carruthers's notion of modularity can be summarized as follows;

1. Since central modules are committed to a particular duty and drawing on only a limited variety of information, their interior processes cannot be *computationally tractable*. Thus Carruthers undermines the argument from computational tractability in two ways:
 - i) The first is that its algorithm might require it to consult too much information to reach a solution in real time.(that is cognitive system needs to be realized in informational frugal system if it is to be tractable).
 - ii) The second is that algorithm is too complex to be feasibly executed in real time. This entails processing frugality.
2. Carruthers adds that since central modules are supposed to control on beliefs to produce other beliefs, for example, it seems implausible that they can be completely encapsulated – at least *some* of the subject's existing beliefs can be accessed during processing by a central module.
3. Language is the medium of inter- modular integration supported by empirical investigation into natural language syntax. According to this evidence, natural language syntax is crucially necessary for inter-modular integration. Thus language provides the medium for inter-modular communication.This entails non-domain thinking.(also non-encapsulated cannot draw any information held outside the system).
4. If cognitive processes are to be tractably realized, then the mind must be constructed out of systems whose operations are both *information-frugal* and *processing-frugal*; and this means that those systems must only access a small sub-set of the total available information while executing their tasks.

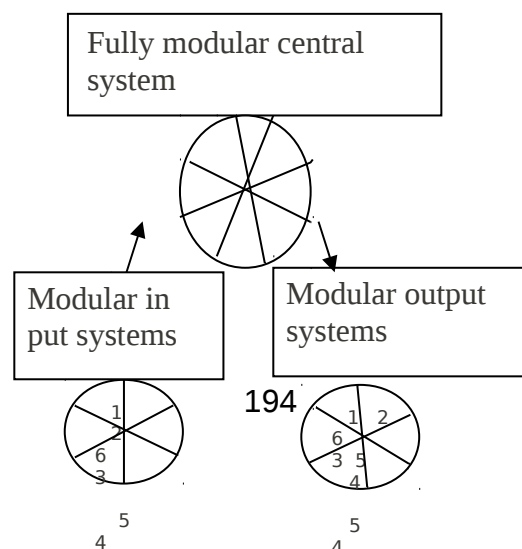
5. So 'module' is a distinct task-specific processing system whose operations are both information-frugal and processing-frugal (and hence which is wide-scope encapsulated)⁴⁰.

The information contained in a given 'frame' can change with time, however (e.g. .case of irregular verbs) .This necessitates us to make a distinction between *weakly modal* and *strongly modal* understandings of encapsulation. In the strong sense a given system cannot access any other information at *any* time during its existence .In a weaker sense a system is can only access whatever information is contained it its own data-base at *that* time. We can say that the idea of an encapsulated system is the idea of a system whose operations *can't* be affected by *most or all* of the information held elsewhere in the mind. But there is a scope ambiguity here⁴¹:

- a) *Narrow-scope encapsulation*: relating to most of the information held in the mind, the system in question *can't* be affected by *that* information in the course of its processing
- b) *Wide-scope encapsulation*: The system is such that it *can't* be affected by most of the information held in the mind in the course of its processing⁴².

From this, Carruthers conclude that the argument which holds that cognition must be modular in order that it should be realized in a computationally tractable form collapses.This simple heuristic program undermine one of the argument in support of massive modularity.

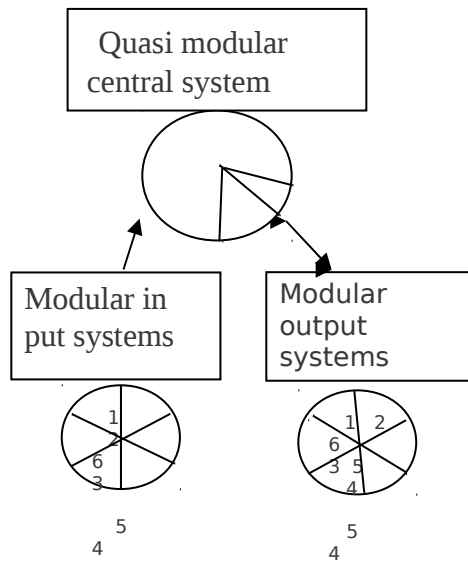
Figure: 4.3. Massive Modularity.



4.3. The Massive View of Modularity and Dual System Theory

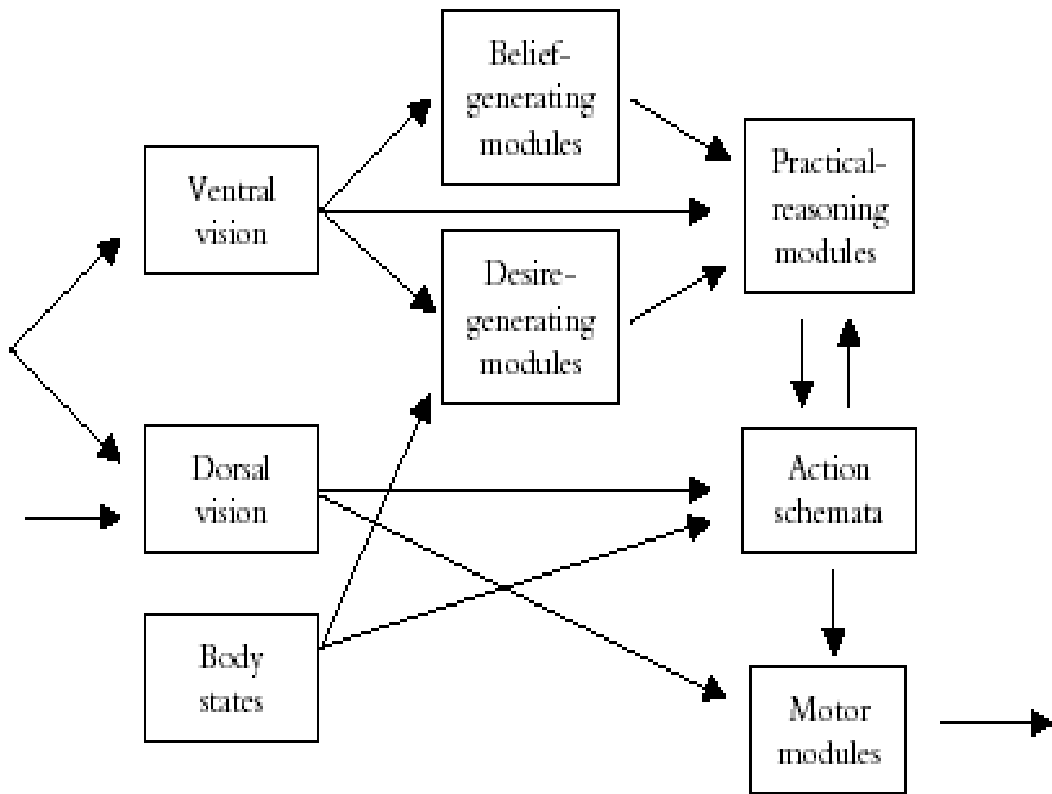
The pessimistic view of Fodor that central cognition is mysterious and intractability has been criticized by the evidences from different studies. For example, it is possible to study the structure and functioning of the central-process working-memory system and structure of central executive.⁴³ A number of investigations argued that central cognition itself may be quasi-modular in structure⁴⁴. Quasi-modules would differ from full modules in having conceptual (rather than perceptual or motor) inputs and outputs. And they may differ markedly in the degree to which their processes, and principles of operation, are accessible to the rest of the system. But they would still be relatively fast, special-purpose processors, resulting from substantial genetic channeling in development, and operating on principles which are largely unique to them and at least partly impervious to changes in background belief. If computational psychology is to be comprehensible, Carruthers (2003b) argues that each cognitive module must contain distinctive inferential processors. Notice that both of these arguments are essentially the opposite of Fodor's (1983) pessimism concerning the prospects of computational psychology. Carruthers defines modules as distinct task specific processing system whose operations are both *information frugal* and *process frugal*. We have seen that it is the general view in recent cognitive science that human mind is modular even though they are opposed to on the issue of what extent we can accept modularity. Moderate View of Modularity argues for the existence of both conceptual as well as peripheral modules. On this conception, then, the degree of modularity exhibited by the human mind is, not massive, but moderately massive.

Figure.4.4. Moderately Massive Modularity



Carruthers⁴⁵ offers a more extreme version of this argument, claiming that holistic computation is not merely inefficient but impossible. Carruthers endorses a neutral position between peripheral modules and conceptual modules and defend a moderately massive modularity. This view is massively modular because, the main non-modular central processing area is constructed out of resources of different modules including peripheral and central modules. For example, natural language module acts both as output as well as input module. More specifically, it will be held that it is the natural-language module which serves to integrate the outputs of the various central-conceptual modules, and which subserves conscious belief-formation and decision-making. According to Carruthers a large part of mind's structure is modular in character. But he denies the wholeness.

Figure: 4.5. Multiple Modules and Dual Visual Systems⁴⁶



Carruthers moderately massive modularity comes along with his dual system theory. Like Fodor, Carruthers also accepts dual systems account. But difference is that, for Carruthers both central and peripheral systems are modular and he provides a quasi -executive or decision making position to language in his dual system theory. According to dual system theory, there exist two *levels* or *layers* of cognitive processes, with one dependent upon the operations of the other, rather than being wholly distinct. The distinctions between two systems are captured in the chart below ⁴⁷.

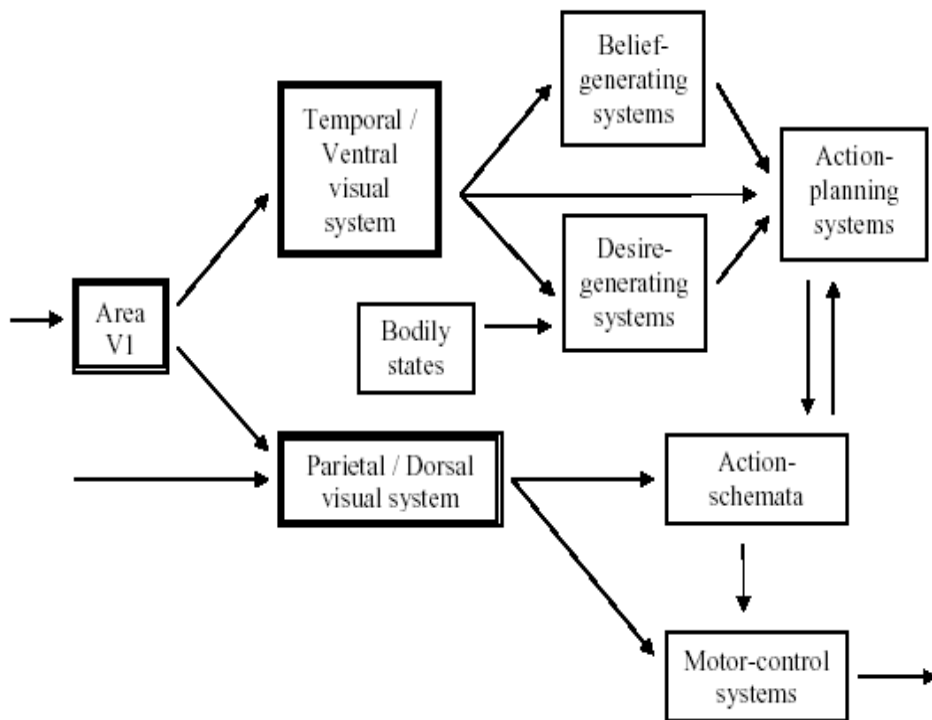
Figure: 4.6.The Difference between Two Systems

System 1	System 2
A set of systems	A single system
Fast	Slow
Parallel	Serial
Unconscious	Conscious
Not easily altered	Malleable
Universal amongst humans	Variable (by culture and by individual)
Mostly shared with other animals	Uniquely human
Impervious to verbal instruction	Responsive to verbal instruction
Independent of normative beliefs	Influenced by normative beliefs
Heuristic based	Can involve the application of valid rules

According to Carruthers, System 1 displays a belief / desire / decision-making architecture ⁴⁸ This System 1 architecture is depicted in the following figure. Which implies the dual visual systems hypothesis of Milner and Goodale (1995), that the ventral / temporal-lobe system makes its outputs available for belief-formation and planning, while the dorsal / parietal-lobe system is concerned with the on-line guidance of movement. He maintains that, System 1 can be identified with conceptual or central modules.⁴⁹ Hence Carruthers' notion of modularity is posed as sharp contrast to Fodor because in Fodor swiftness of process is the peculiar feature of peripheral module (dorsal system?). But Carruthers claims that it is the distinctive feature of central conceptual module. Carruthers (2005) describes Milner and Goodale's (1995) now well-supported hypothesis that two functionally and anatomically distinct visual pathways are at work in the human brain. After traveling through the optic nerve, the lateral geniculate nucleus (LGN), and the primary visual cortex (V1), optic information branches into two functionally distinguishable visual systems. Information in the dorsal

system is used in the coordination and execution of movements after an agent decides on a course of action, whereas information in the ventral system produces beliefs about the environment and grounds desires for perceived items. Carruthers claims, that the activities of the ventral system are unconscious while those of the dorsal system are not. After finishing his description, Carruthers (2005) states that 'the dual visual systems hypothesis provides the grounds for one of the main arguments against first-order accounts of phenomenal consciousnesses.

Figure:4.7. The System 1 Architecture⁵⁰

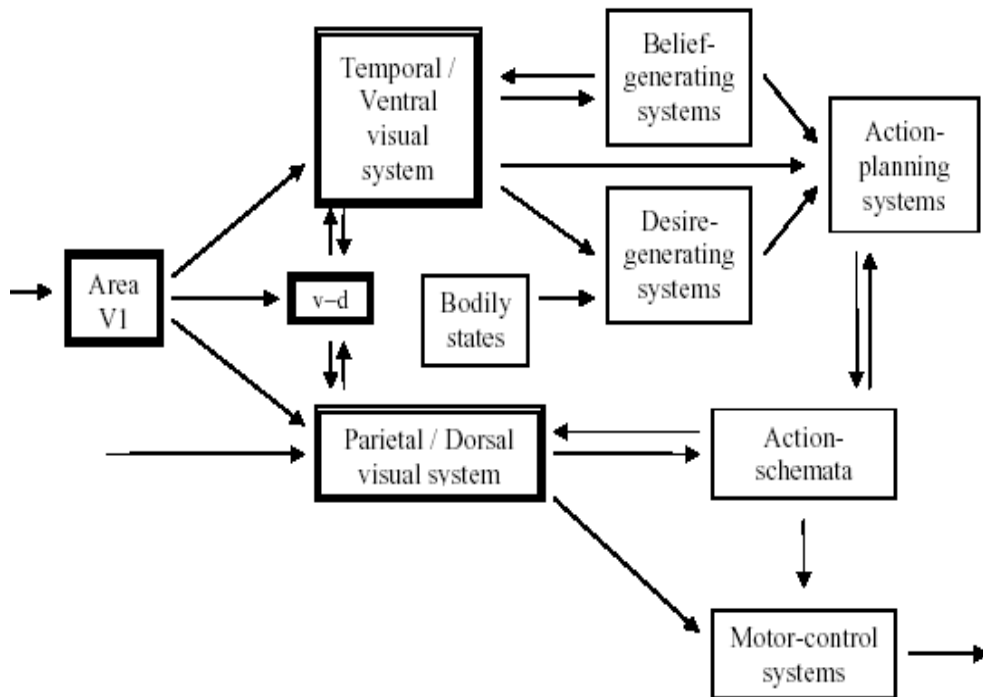


System 2 has three distinct sub-components:

1. One charged with conscious, reflective, belief-fixation;
2. One subserving conscious, reflective, goal adoption;
3. One of which takes conscious decisions (thereby forming new intentions) in the light of one's conscious beliefs and goals.

There is in fact just a single system constituting System 2, which can however function in diverse 'modes' matching to belief, desire, and decision-making. The relationship between S1 and S2 is one of the dilemma before Carruthers. He says that S2 is realized in sequences of functions in S1. Activated motor schema provides motor instructions to our muscles to start a movement and at the same time an 'efferent copy' of those commands are formed and compared with the original purpose motor schema in order to permit a quick self modification before the movement it has even started. But the 'efferent copy' is also transformed through 'emulator systems' that model the kinematics of the body so as to match the incoming proprioceptive and other (visual) perceptual representations of action as it is executed., again allowing fast on line correction. This is the main role of dorsal parietal system .Carruthers says that 'efferent copies' are not restricted to dorsal system but also used to make visual imagery within ventral system. Images of ventral system interact with inferential system that normally operates on the basis of ventral input in order to formulate predictions of the likely results of the movement. Motor and pre-motor cortex is accountable for generation and transformation of conscious visual images situated in the temporal cortex. And according to Carruthers this happens *via* an area of ventro-dorso cortex that is assumed as common functional component of two primary visual systems .(This common functional section is the superior temporal sulcus and area of folk psychology in the rostral part of the inferior parietal lobule).

Figure: 4.9. Two Visual Systems with Back-Projecting Pathways⁵¹



The addition of language modules to the mix of modules that make up the human mind that is responsible for much of the latter's flexibility. It is argued that a natural language play an important role in the distinctive flexibility of human thinking. Natural language is what enables us to solve the problem of content flexibility. Carruthers claims that new form of language based thinking well suited with the weak notion of modularity defended by him. Mental rehearsal of action makes possible language based thinking and reasoning, realized in the operation of underlying set of conceptual modules .Natural language occupies an undeniable role in the flexibility of modular mind⁵².The problem before cognitive scientist is to show how the flexibility and modularity of mind go hand by hand.

Massive modularist must meet challenges from context-flexibility, stimulus-independence, content-flexibility, and from the flexibility of human reasoning processes. Carruthers discusses different kinds of flexibility like flexibility of action and context sensitivity. Human mind possess flexibility of

action, facilitated by the mental rehearsal and subsequent global broadcasting action schema.⁵³ Feedback loops are responsible for the creativity and flexibility of mind. There are two different types of content flexibility. As first views, different organism with the same goals in the same circumstances should behave similarly. The second form is that different individuals are apt to pick up on and respond to different aspect of the context and behave differently in same context⁵⁴. If mind contains a general purpose cognitive or conceptual system, it can pick up only one items of information at particular time and is inflexible in relation to the features of context. But if mind contains modular central system it can solve this problem of context sensitivity. Context sensitive of flexibility of can be answered in three ways from the perspective of massive modularity:

- a) Sperberian model of competitive modules
- b) The enzyme account of modularity
- c) Moderate view of Carruthers.

Sperber (2005) claims that the peculiar feature of mental process are various kinds of *competition* amongst modules that means all activated modules try to win the battle by capturing the recourses and to acquire their outputs entry into downstream inferential and decision-making system. But this perspective leaves out the question of context sensitivity. The second proposal is due to Barrett (2005). His account is known as 'the enzyme account' of modularity. The idea is that all multiple modules are focused on a common 'bulletin board' of representations. Whenever a module comes across a representation that 'fits' its input condition it gets turned on, and it then performs some set of transformations on that representation before placing the results back on the bulletin board for other devices to pick up upon. This is similar to Baars' 'global broadcasting' model. Carruthers agrees that this model is primarily an account of 1) How the different conceptual modules frequently inspect the contents of globally broadcast states, probing for ones that activate their input conditions. 2) How

perception gets conceptualized by modular processes. But it cannot explain the process of more abstract modules like theory of mind. Carruthers argues that massive modularist can predict overall flexibility of behaviour—both in response to variations in the natural and social environment, and co-varying with the different learning histories of different individuals. Flexibility of mind is possible through language.(as the content combiner).

4.4. Homo- Ergaster View: Language as Intra-modular Executive System

According to homo-ergaster view, human beings are the only creature endowed with linguistic capacities. So any effort to construct a pure theory of phenomenal consciousness cannot afford to disregard the role of language in cognition. So Carruthers amends his earlier cognition-language parallelism into one where greater emphasis is laid on language where the very question of consciousness transformed into one about thinking in language (that of course does not rule out thinking without language). This necessitates an extensive exploration of the role of language in post-2002 writings where he almost comes to terms with the prevailing view of language as involving production and comprehension systems. This means that he should play Chomsky and previous developments in cognitive grammar against the linguistic paradigm of language of thought (Jerry Fodor). Natural language is involved in human conscious thinking is an undeniable fact.

Carruthers distinguishes some 'uninteresting weak' claims from some 'implausibly strong' views of cognitive conception of language which is different from communicative conception language (natural language is only an input output module to central cognition). Different cognitive conception of language is stated and examined as follows.

A) Weak claims

a) *Language as the medium of belief:* Language is the conduit through which we acquire many of our beliefs and concepts. For example, language is the only medium for acquiring concepts like *s electron, neutrons, and DNA*. These concepts *are* inaccessible to someone deprived of language, shows that language is required for certain kinds of thought; but not that language is actually involved in or is the representational vehicle of those thoughts. Carruthers argues that data from deaf people and wolf children really show that language is a necessary condition for certain kinds of thought and types of cognitive process; not that it is actually implicated in those forms of thinking. It shows that cognitive and linguistic development should proceed in parallel. The cognitive conception proposed here is developmental rather than synchronic, that implies that language is largely important for normal cognitive development. It does not follow that language is itself actually used in children's central cognition.

b) *Language as molding cognition:* Process of language acquisition and enculturation actually sculpts our cognitive *processes* to some degree (Bowerman & Levinson 2001; Lucy 1992a, 1992b; Nelson 1996). As in the above case, present view is also merely developmental rather than synchronic, that implies that language is largely important for normal cognitive development. According to Carruthers, The fact that acquiring one language as opposed to another causes subjects to attend to different things and to reason somewhat differently doesn't show that language itself is actually involved in people's thinking.

c) *Language as a cognitive scaffold:* Vygotsky (1934/1986), who argues that language and speech serve to scaffold the development of cognitive capacities in the growing child. Clark (1998) argues intermediate-strength version of the Vygotskian idea, defending a conception of language as a cognitive *tool*. According to this "supra-communicative conception of language" – certain extended processes of thinking and reasoning

constitutively involve natural language and as cognitive tool it enhancing the range and complexity of our reasoning process. Inner speech facilitates complex trains of reasoning (Varley 1998). According to this view language is involved in thinking and reasoning extended over time. Carruthers argues that this account is closely related with input -output concept. It maintains that there exists a neural episode which causes the production of natural language representation.

B) Strong claims

a) *Language as necessarily required for thought:* This thesis entails anti-realism about mind. As this view entails, it is conceptually necessary that all thought requires language. (This is the view defended by thinkers like Davidson 1975, 1982; Dummett 1981, 1989; McDowell 1994; and Wittgenstein 1921; 1953). Davidson claims that we cannot interpret any one as entertaining fine-grained thought in absence of linguistic behaviour and such thought cannot be independent of linguistic behaviour. This notion both objects commonsense notion and animal cognition. Dummett (1994) introduces the distinction between concept involving thought and proto thoughts to solve this problem. He says the former is language based thoughts and the latter is non- linguistic thoughts of animals. Proto- thoughts are possible when attached to current circumstances and behaviour. Carruthers rejects this view because; this conception undervalues the cognitive capacities of animals. According to Carruthers, thoughts of many types can really happen in the absence of natural language. But Carruthers says that the thesis that some thought might actually involve language is not a closed chapter (NNw).

b) *The Joycean machine:* maintains that language is, as a matter of fact, the medium of all human conceptual thinking. Dennett argues that human cognitive powers were completely transformed following the appearance of natural language, as the mind became colonized by *memes* (ideas or concepts, which are transmitted, retained, and selected in a manner

supposedly analogous to genes;). The arrival of language then meant that a whole new—serial and compositionally structured—cognitive architecture could be programmed into the system. The idea of *Joycean machine* is that there is a highest-level processor which runs on a stream of natural-language representations, utilizing learned connections between ideas, and patterns of reasoning acquired in and through the acquisition of linguistic memes. According to this account, then, the concept-wielding mind is a kind of social construction, brought into existence through the absorption of memes from the surrounding culture. And as this view suggests, the conceptual mind is both dependent upon, and constitutively involves, natural language. According to Bickerton before the evolution of language human cognition is limited in its powers. Carruthers rejects this strong view firstly because they undervalue the cognitive powers of pre-linguistic children, animals, and earlier forms of hominid. Thus *Homo erectus* and archaic forms of *Homo sapiens*, for example, were able to survive in extremely difficult environments, presumably without language. Second, the views of Dennett and Bickerton are inconsistent with the sort of central-process modularism which has been gaining increasing support in recent decades.

Let us see what is Carruthers' latest position on the role of natural language in cognition. There is general agreement that conceptual modules will have restricted connectivity with each other. It will often be the case that two or more modules routinely pass their outputs to a third, "downstream", module, which may then be able to unite those outputs into a single thought. But for systematic modularists, only the language is capable of receiving output from all conceptual modules, the evolutionary function of which is receiving, conjoining, and reporting information deriving from any conceptual module. Language is thus said to strengthen the *flexibility* and *conjoinability* of content that is distinctive of human thought processes. Carruthers views that the role of language in cognition isn't to unify the outputs of some otherwise unconnected modules, rather, language has a quasi-executive role to play serving to manipulate the subject's attention and on-line goals.

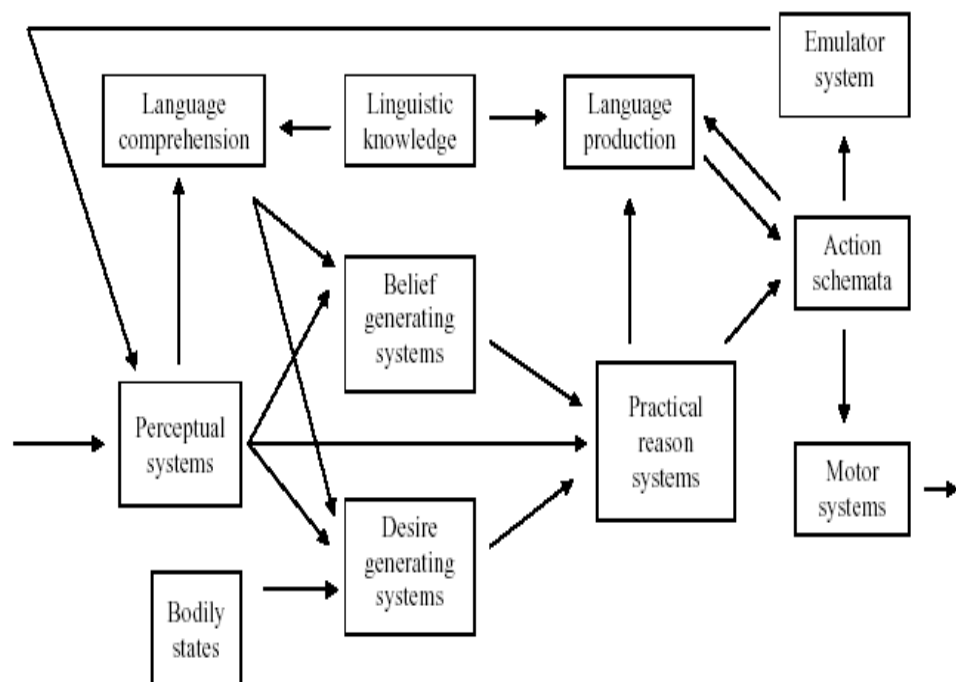
Carruthers argues, representations of natural language sentences have an important role to play in certain aspects of distinctively human thinking and reasoning and he maintain that, the role of language is to unifying and combining the outputs of different central / conceptual “modules” (Hermer-Vazquez et al., 1999; Carruthers, 2002). So for him, language is not only a vehicle but also a content combiner⁵⁵.

Carruthers here plays Chomsky against Fodor. Chomsky’s (1995) “logical form” (LF) is a stage of linguistic representation, where the language ability interfaces with central cognitive systems. New natural language hypothesis is that all such cross-modular thinking operates by accessing and manipulating the representations of the language faculty. Carruthers argues that, the language faculty can build LF representations which unite information across domains and access to the outputs of the various central-process modules. When LF representations built by the production subsystem are used to generate a phonological representation, in “inner speech,” that representation will be consumed by the comprehension subsystem and made available to central systems. One of these systems is the theory of mind module. So Carruthers maintains that language is the vehicle of non-modular, non-domain-specific, conceptual thinking which integrates the results of modular thinking. According to Carruthers’s perspective of natural language not just that our conscious propositional thinking involves language but that *all* non-domain-specific reasoning of a non-practical sort (whether conscious or non-conscious) is carried out in language⁵⁶.

Carruthers (2006, 2008) expands and broadens his picture by arguing that System 2 begins with the custom of mental rehearsal of action schemata. This utilizes back-projecting pathways from motor cortex to the various perceptual systems, which evolved in the first instance for the swift on-line fine tuning of action (Wolpert and Ghahramani, 2000; Wolpert and Flanagan, 2001; Wolpert et al.,2003).On this account, some other species of

animal already possess the beginnings of System 2 (although it is perhaps rarely used). But in the course of human evolution the addition of a number of other systems—for language production and comprehension, for mind-reading and higher-order thinking, and for normative reasoning and motivation—together with a disposition to engage in *creative* activation and rehearsal of action schemata (Carruthers, 2007) led to a transformation in the character of System 2. On this account, then, natural language plays an important constitutive role in distinctively human (S2) thought processes. This not only language plays such a role but also visual and other forms of imagery play such a role, in turn issue in decision-making.

Figure:4.9. The Mental Rehearsal of Speech⁵⁷



It seems Carruthers defends here a Vygotskian stand on inner speech. For example, Vygotsky (1934/1986), who argues that language and speech serve to scaffold the development of cognitive capacities in the growing child. According to Vygotsky⁵⁸ Overt speech of children, plays an important role in problem solving, partly by serving to focus their attention, and partly through repetition and rehearsal of adult guidance. It is argued

that they have found that children tend to verbalize more when task demands are greater, and that those who verbalize most tend to be more successful in problem-solving. Earlier Carruthers follows a Vygotskian stand, but now a combination of Vygotsky and Whorf can be seen, that means he accepts a combination of strong and weak view.

To conclude that, two crucial developments in his post-2000 writings assisted his protracted march towards naturalism and it is not easy to comprehend his standpoint without them. One is the realization of the role of language in cognition within the dispositional variety of higher-order theory of consciousness and second is the introduction of dual system hypothesis (System 1 and System 2 account) to account for dual architecture of what is called 'distinctively human reasoning'. The former hypothesis enables him to reintroduce language for intra-modular integration while the latter claims to close the explanatory gap by introducing mirror neurons as an important step, thus taking the earlier default theory in the path of extended naturalism. The resultant dual architecture of brain provides the gist for this. In the developments after 2002, Carruthers went on to absorb all these later developments before defending a weak folk psychological realism as form of interactive dualism or minimal rationalism.

In this chapter, we have contrasted Carruthers earlier philosophy of psychology with new 'moderately massive modularity and his modified stand on the role of natural language in cognition in the light dual system theory. In case of modularity of mind, Carruthers defends Chomsky against Fodor which seems to be disguised criticism against modularity itself. Massive modularity thesis modifies the nature of modules in related to central modules. Its encapsulation requires a new base where rules become frugal. This gets explained in terms of wide ambiguity (wide and narrow).

This account is still to be completed by an account of innate knowledge in his use or what he calls as the culminating point of Cartesian epistemology. The theory-of-mind is innately endowed and in turn in our

belief in self transparency of mind is innate or embedded in theory of mind module. But although moderate, it is pitched towards the massively modular end of the spectrum, which strikes a balance between two extremes of peripheral-systems modularity and massive modularity. It is exactly here that Carruthers argues that language becomes intra- modular in that it proves the study of mind is study of language or that some of our conscious thinking takes place in natural language sentence.⁵⁹ Carruthers' view is that the role of language in cognition isn't to unify the outputs of some otherwise unconnected modules .Rather, language is playing a quasi-executive function, serving to manipulate the subject's attention and on-line goals. Vygotsky⁶⁰ argues that language and speech serve to scaffold the development of cognitive capacities in the growing child..Carruthers in the final run takes a blend of Vygotskian and Whorfian (which he have not fully accepted earlier)stand in this regard because now he accepts rehearsals of inner speech which depend on the dual system theory.

If dual system hypothesis survives Carruthers' stand is vindicated. But dual system is subjected to more and more criticism today in the light of new experiments. The question before us is to see whether Carruthers supports a Cartesian interactive dualism. This is advanced as new theory- of- mind module that keeps a distance from both simulationism (Goldman, Gordon etc) and a TOMM version of it defended by Stich and Nicholas and he develops a modified form of Cartesian epistemology, which is the content of the final chapter.

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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'¹.

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.² In other words, simulationism is the view that, we put ourselves in other people's shoes³.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 methodology⁴ 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 others⁵.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'.

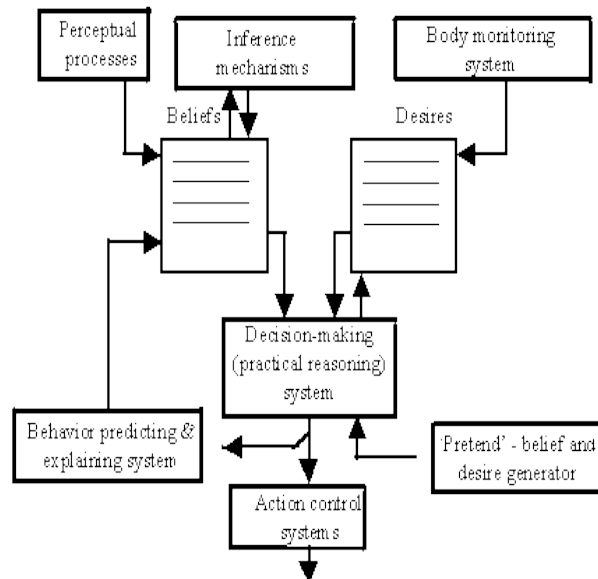
Gordon argues that self- ascription relies on *ascent routines*. For example, the way in which adult normally determines ‘whether or not they believe that p’ is simply asking questions to themselves ‘whether or not p’. The former is question about a mental state about p, while later is the question directly 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 feel⁶. 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 behaviour⁷.

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 feels⁸. 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.

Figure: 5.1 Off-Line Simulation Theory



Simulationist like Gordon and Goldman defend little scientist (child in lab 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 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- knowledge¹⁰.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.¹¹ 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 introspection¹². 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

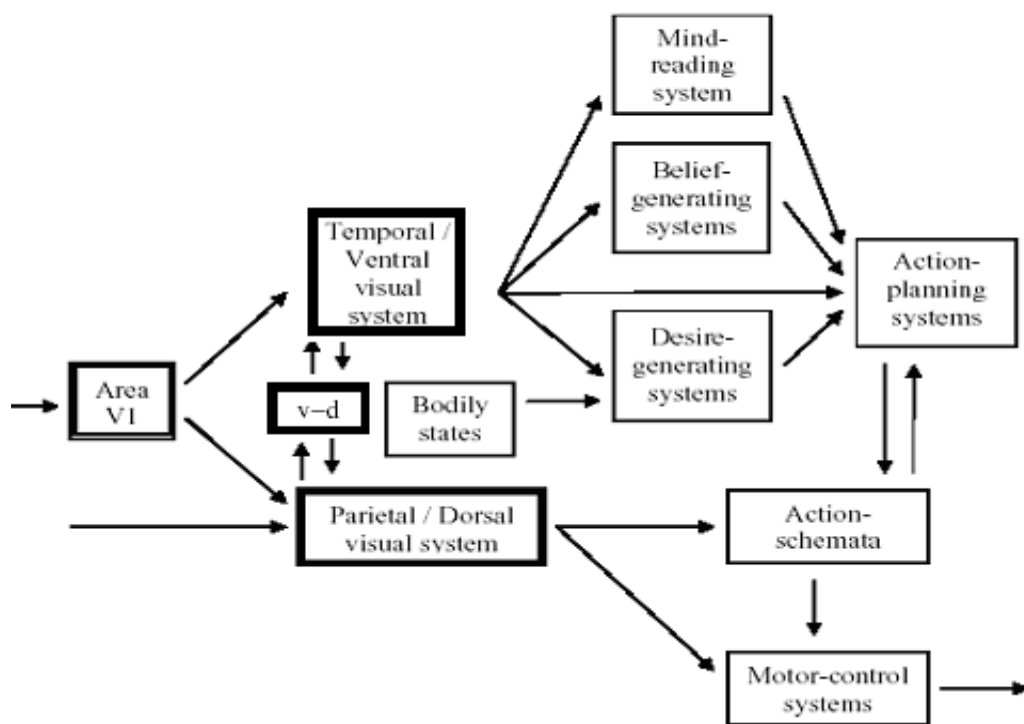
interpretation, as noted by a number of philosophers and psychologists, the cogency of this line of criticism is unclear. This argument is more technical than other arguments and it fails to give any reasonable examples of common irrationality. So Carruthers believes that it is unsatisfactory argument 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- theory¹³. 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 responses¹⁴. 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 Miall¹⁵ 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 attribution¹⁶. 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)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 systems¹⁸. Carruthers argues that mirror neurons are just as well positioned to allow us to map our own anticipated movements into visual representations¹⁹. 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 unconscious processes (Baars, 1983, 1988, 1993, 1997). Access between 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"²⁰. 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"²¹. 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 interactions²². 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 states²³. 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 psychology²⁴. 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"²⁵

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"²⁶. 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). The special purpose of theory of

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. Perner²⁷ shows that mind-reading grows through three subsequent stages. The following are the *three* important stages.

Figure: 5.3 The Three Stages Development of Theory of Mind.

First stage	During the first 18 months of life	Simple desire psychology
Second stage	Between 18 months and 3½-4 years	Desire perception psychology
Third stage	Between 3½-4½ years	Develops mature theory of mind

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 considerations²⁸, 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 others²⁹. 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 mind³⁰. 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 innate³¹.

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 Wellman³² 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 capacity³³.

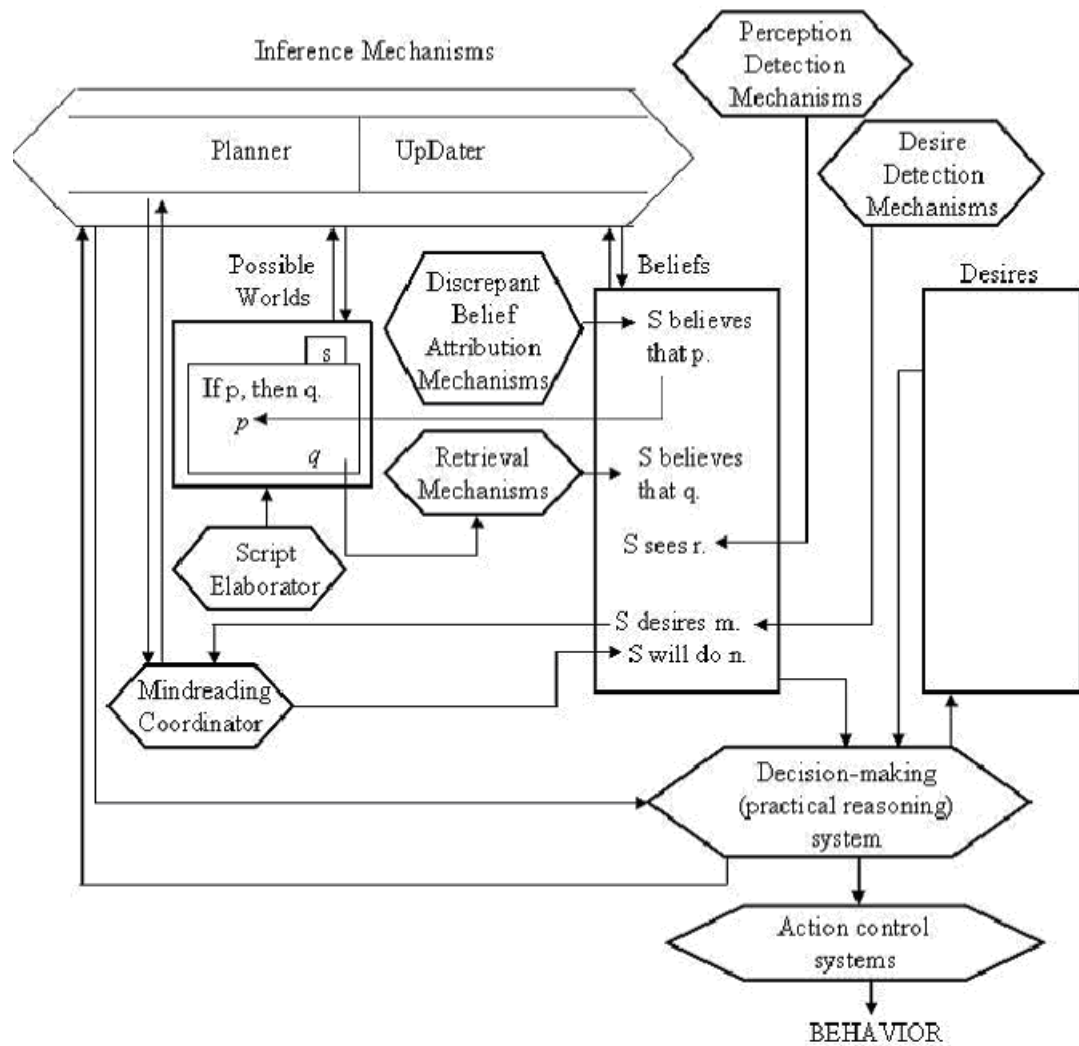
The other evidence is from Down- syndrome patients; whose theory of mind faculty is undamaged but their intelligence is not normal. These patients are highly social and communicative and tested along side autistic

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 emotions³⁴.

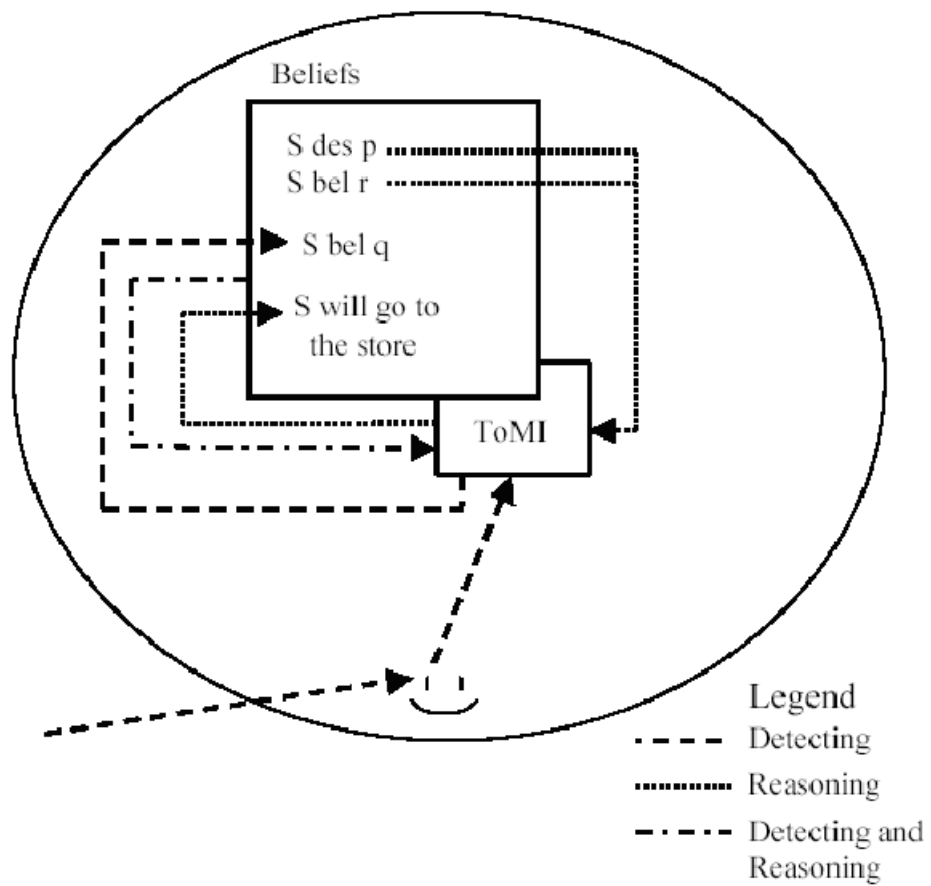
As Stich argues the evidences from autism indicate that the capacity for self-awareness does not depend on the Theory of Mind, rather it functions through a Monitoring Mechanism that is independent of the Theory of Mind. The deficit in theory of Mind abilities, does not suggest that autism involves a deficit in the Monitoring Mechanism. He claims this account is supported both by developmental evidences and by evidence acquired from psychopathologies³⁵. The following figure represents Stch's and Nichols's model of 2003³⁶.

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:

Figure 5.5: Theory-Theory as The Model of Self and Others



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

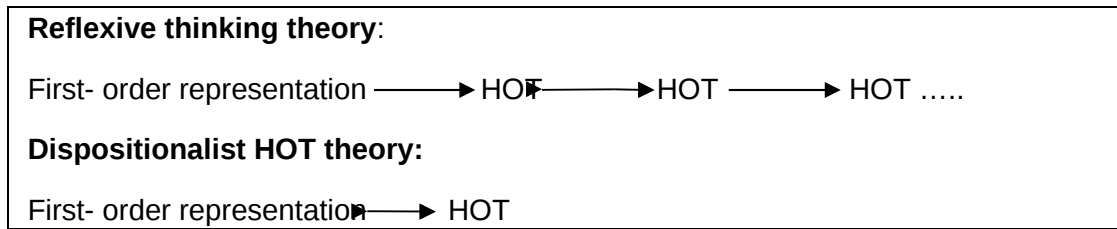
suggests that autistic children are not entirely deprived of self-attribution but they are disadvantaged in their third- person mind- reading³⁷ .

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 thatexample 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 principle³⁸. Thinkers like Origgi and Sperber³⁹ 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 al⁴⁰ 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 intentionality⁴¹. The following figure shows how Carruthers' theories consider different levels (orders of thought) of intentionality.

Figure: 5.6. Different levels of HOT in Carruthers



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 language⁴². 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's 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 mentalese 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 faculty⁴³ 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 others 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-evolved⁴⁴. Carruthers argues that this view does not affect his thesis that structured thoughts are present in the modern man in the absence of language⁴⁵. 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 reading⁴⁶. 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 speech⁴⁷. 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 2⁴⁸. 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 decisions⁴⁹.

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 behaviour⁵⁰.

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 animals⁵¹. 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 underlie 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 weak⁵². 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”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 Gennaro⁵⁴ 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 colours⁵⁵. 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 Stoerig⁵⁶ 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 possess 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)⁵⁷. The following figures show the difference of structure of animals and human mind.⁵⁸

Figure 5.7: The Structure of Animal Mind

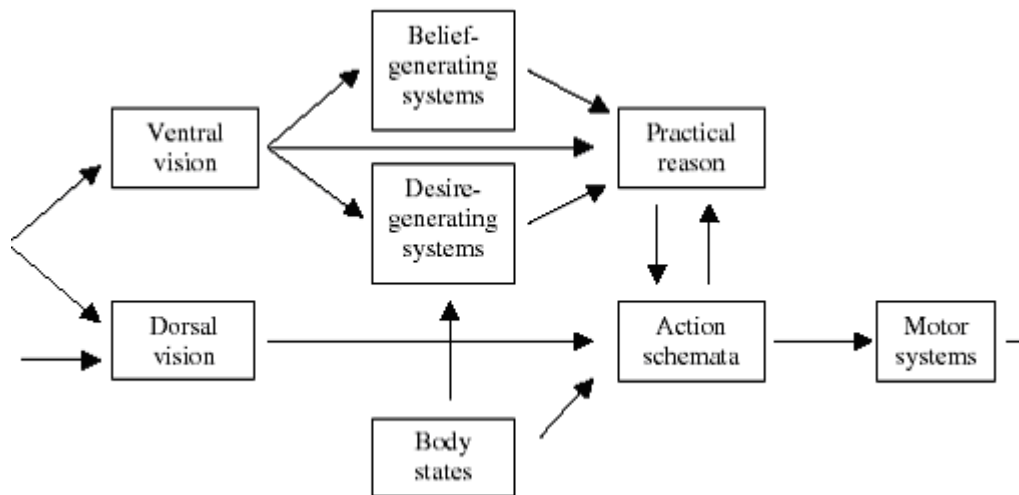
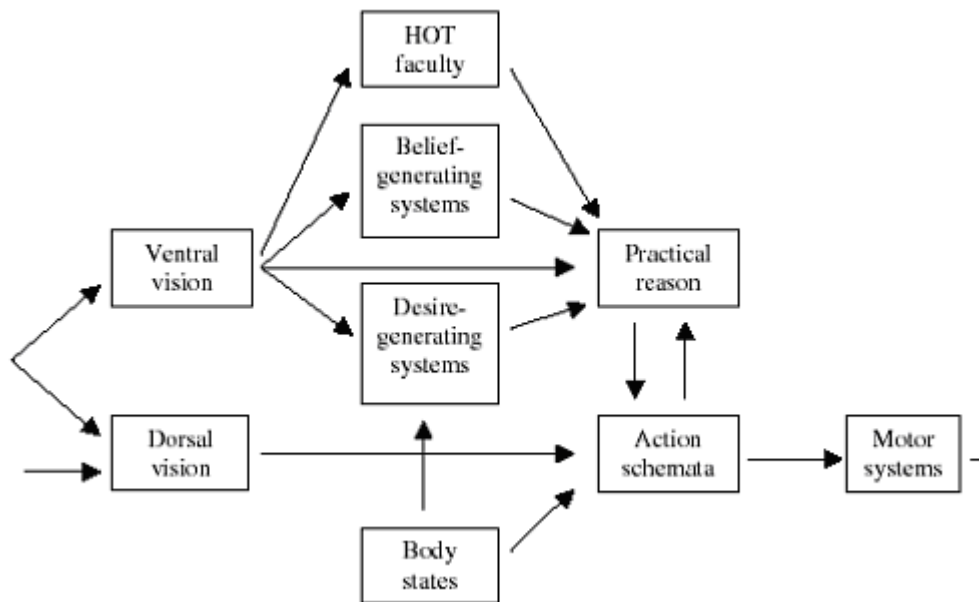


Figure: 5.8: Human Cognitive Architecture



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 argues 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-learning⁵⁹. 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 seeing⁶⁰ 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.⁶¹ 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. Andrews⁶² 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 al⁶³ 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 conspecifics'⁶⁴ Povinelli and

Vonk claim that the food competition study offers no evidence that chimpanzee 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 person⁶⁵.

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 follows⁶⁶

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 myself⁶⁷.

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.⁶⁸ 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 says⁶⁹ 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

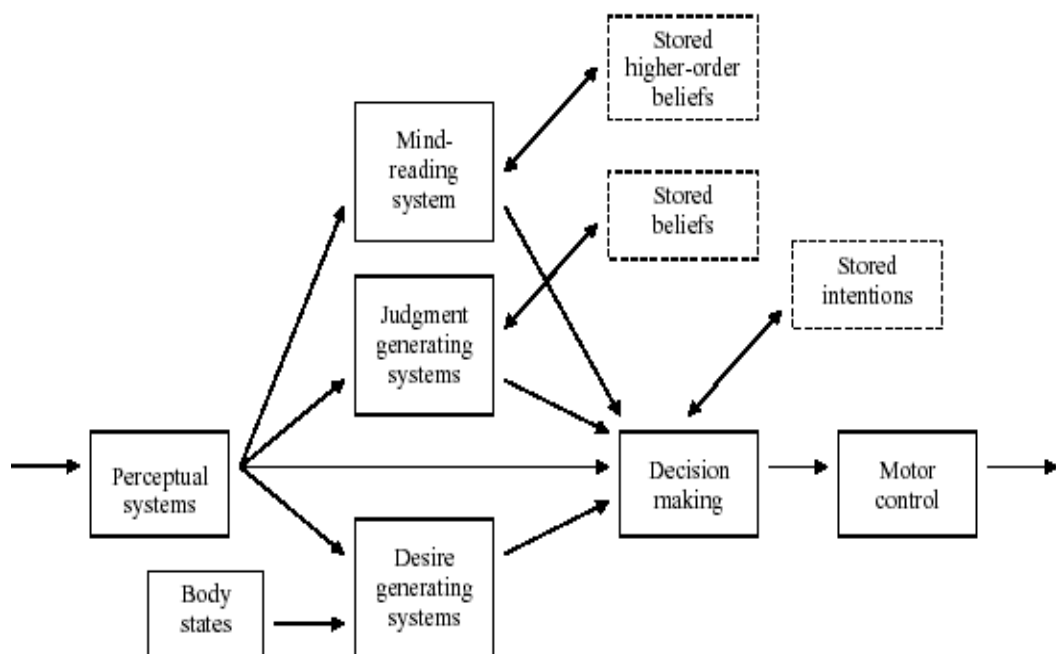
that subjects know, immediately and without self-interpretation, what they are experiencing, judging, and intending⁷⁰. Carruthers claims that there is good rationale for thinking that a belief in the self-transparency of mind is innate—either forming an explicit component of our mind-reading ability, 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 false⁷¹. Carruthers⁷², 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.⁷³.

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)

both⁷⁴. 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.

Figure:5.9 The Place of Mind-reading in the Mind⁷⁵



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 subject⁷⁶.

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 some what 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).

1. Mind-reading and metacognition are independent capacities; realized in distinct cognitive mechanisms. Nichols and Stich (2003 & forthcoming).
2. Mind -reading depends upon introspection; Goldman (2006).
3. Metacognition depends upon mind-reading. (Gopnik, 1993, Gazzaniga, 2000; Wegner, 2002; Carruthers, 2006, 2007, forthcoming;

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 mechanisms for mind-reading and metacognition.

Nichols and Stich⁷⁷, 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 Stich⁷⁸, 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.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 Mind⁸⁰.

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.⁸¹

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 ourselves⁸².

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 species⁸³. 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

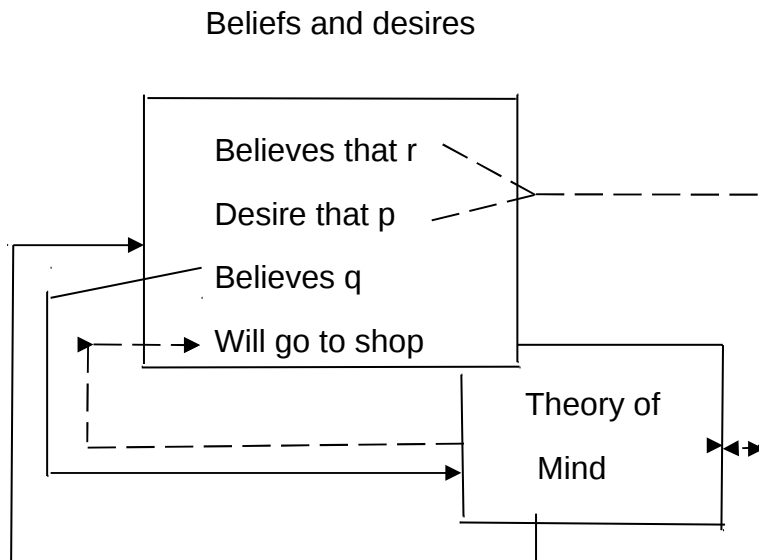
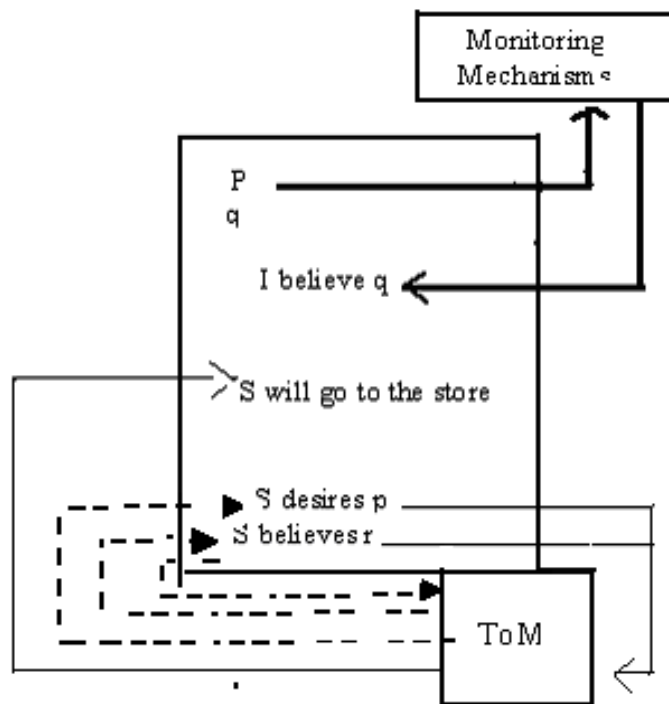


Figure:5.11.Stich's MM theory



Thinkers like Botterill, Carruthers and Perner⁸⁴ 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 modularism(Fodor).So over all findings of the entire research can be assembled as concluding remark.

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SUMMARY AND EVALUATION

It is unquestionable fact that Carruthers has had a great influence on the development of cognitive science research even within our country because of his leaning towards dualism. His journey started with realism (folk- psychological states are real) and passing through naturalism (folk psychological states are not other than what science could possibly describe them) and finally reaching at the physicalist position (folk psychological states depend on certain architectural states of brain, the casual laws which are waiting to unfolded e.g. mirror neurons) .Carruthers has many vicissitudes of reflections .We have constituted a grand perspective of his so called naturalistic theory of phenomenal consciousness (feel) pulling together many of the subtlety and twists of his arguments which are otherwise not available to any general reader. To attain this such a reader have to come through the entire corpus of his work and extensive selection of articles mainly from 2000 – 2009. For convenience, we have classified the developments of his overall project into the proto-naturalistic (upto 1998), naturalistic (upto 2000/2002), and post-naturalistic stages (upto 2008/2009). What is called post- naturalistic is only an indicator to the technique he carries forward the argument ‘beyond’ naturalism. Naturalism hardly leaves a trace but for the strong scientifically oriented theory of mind, which is based on brain research with a metaphysical tinge of its own. The central piece and the first stage in his naturalization project is Dispositionalist variant of HOT Theory (Carruthers (2000). In his ‘The Cognitive Functions of Language’(2002) and after words, Carruthers makes a strong integrationist approach to natural language as the medium for non-domain-specific thinking, thus serving to integrate the outputs of a variety of domain-specific conceptual faculties(or central-cognitive quasi-modules”). Here he is relying on the past to complete a linguistically oriented perspective. Carruthers

rejects strong cognitive conception of language and propounds the thesis that natural language is the medium of intra-modular integration. Carruthers' integrated approach of bringing together language, thought and consciousness radicalizes the earlier views of modularity of the sort defended by Fodor. He uses Chomsky's minimalist program as launching pad and claims that, natural language syntax is crucially necessary for intra-modular integration. More specifically, the claim is that, non-domain-specific thoughts implicate representations in what Chomsky (1995) calls "logical form".

At the *second* stage of development is an extended naturalized project or dual aspect theory. At this stage Carruthers realizes that his "dispositional HOT theory" to be a form of HOP theory .He explains that it is because dual content theory "proposes a set of higher-order analog—or 'experiential'— states, which represent the existence and content of our first-order perceptual states, that the theory deserves the title of 'higher-order *perception*' theory, despite the absence of any postulated *organs* of higher-order perception." He says reductive explanations are successful when (a) all of the questions that puzzle us are answered, either directly, or indirectly by showing why the facts should *seem* a certain puzzling way to us when they are not; and when (b) every thickly individuated fact described at the target level can be reductively explained. His view is not to defend that phenomenal consciousness can actually be reductively explained by microphysics, but just that it is reductively explicable *in principle*. The *third* stage is the recent development of Carruthers' so-called "dispositional higher-order thought (HOT) theory of consciousness," which he now prefers to call "dual-content theory; which is strongly supported by dual system theory. The major phase of departure after 2000, his theory adds many ramifying structures to the naturalization ending up with Cartesian epistemology. He goes outwardly to meet Stich's program, which exploits heuristics rather than scientific method. By introducing 'flexibility' and 'malleability'in an effort to achieve a moderately massive modularity, but in

the end to turn it against Stich- Nicholas paradigm. Thus he is trying to keep alive the age-old controversy between nativism and empiricism .as well as controversy between 'mind- reading' and 'metacognition'. The greatest merit of this perspective is to show how Carruthers plot his points in relation to every other theory of consciousness (naturalistic or otherwise) that are developing today. Thus he is placing himself in the reductionist camp which integrates phenomenology with science of mind.(neurobiology). A priori speculation is not the only the methods to reach metaphysical conclusions about the nature of mind; but the scientific developments in fields such as computer science and neuroscience give their share in this regard.It is argued that epistemology depends on the research related to mental structures and learning procedured rather than mere conceptual excercises.Carruthers also shares this view. The explanatory gap is closable *in principle contra* Chalmers *via* third person phenomenology.

Thus, we find that in the later stages of development of Carruthers' theory the question about consciousness is gradually transformed in to one about language and thinking. So his earlier thesis on language is replaced with a more naturalistic consideration of language as integral. In his 2002, Carruthers defends the idea that natural language is the medium for non-domain specific thinking, serving to integrate the outputs of a variety of human domain- specific conceptual faculties.(or central cognitive, domain quasi-modules).This is radically different from his earlier view where he merely distinguished between the communicative and cognitive conception of language and invariably supported the latter. It is argued that natural language syntax is crucially necessary for intra- modular integration. The central cognition functions accessing, controlling and influencing the representations of language capacity. Caruthers project is strongly supported from the data collected from psychology and psychopathology thereby accommodates folk psychology within the framework of scientific psychology.

Carruthers arguments are so nuanced as to give support for a dualism in that it is balanced not to deny strong dualism and thus the issue is decided by swinging back and forth between strong and weak dualism. Both are not rejected leaving a stronger room for a variant of token- physicalism. Physicalism remains a better option but at the same time he supports dualism of interactionist type. Strong dualism commits a fallacy. But it can be overcome in the final run. In contrast to Block, token -physicalism remains a live option for the very reason that it is capable of reconciling metaphysics with the epistemology of other minds. We have a scientific theory-theory that will explain the knowledge of other minds. The immediate consequence is that the identity question can be completely discarded without advancing any claim about brute identity. That is to say, it is acceptable as a metaphysical position. So it is clear that the subjects of mental states could not be non-physical states (person thesis: souls are persons). This is supported by a strong physicalism, which upholds that mental states are as much physical or brain states which, of course, rejects strong dualism. Since selves are physical, mental states are physical states (souls are persons with bodies). Does this represent a sort of weak dualism with a metaphysics that is reconcilable with an epistemology of other minds? The question is left open because weak dualism cannot support the argument from analogy. Neither it is possible to know other minds through perceptual knowledge alone nor by means of induction. Nor reliabilism (knowledge from reliable sources) will help here. Carruthers is Cartesian in the sense that he accepts narrow content of mental states; that is Cartesian view influences Carruthers' way of understanding the nature of mind. Carruthers' defense of theory-theory shows the post-naturalistic implications of a variety of Cartesian dualism. He realized that it is necessary to travel beyond naturalism ,physicalism and reductionism and in its extended form he supports weak dualism which is more epistemic than ontological and paves the way for integration of metaphysical epistemic and semantic claims.Carruthers joined to qualia irrealist camp through changing the

phenomenal consciousness into one about 'phenomenal feel' without embracing the non-reductionism. He transits through the three theses that are stated as:

1. Qualia irrealism implies folk-psychological realism;
2. Folk-psychological realism requires naturalism
3. Naturalism implies minimal rationalism.

In the developments after 2002, Carruthers went on to absorb all these later developments before defending a weak form of dualism or minimal rationalism. In case of modularity of mind Carruthers, defends Chomsky against Fodor, which seems to be a disguised criticism against modularity itself. Massive modularity thesis modifies the nature of modules in relation to central modules. Its encapsulation requires a new base and rules become frugal. This gets explained in terms of wide ambiguity (wide and narrow). For him, theory of mind is innately endowed and in turn in our belief in self-transparency of mind that is innate or embedded in theory of mind module. But although moderate, it is pitched towards the massively modular end of the spectrum, which is the hybrid or moderate view between peripheral-systems modularity and massive modularity. Our observation is that Carruthers deviates from the orbit of naturalism to embrace a scientifically – oriented minimalist program offered by Chomsky. Still physicalism is an option, but the combination of brain research and language provides an advance that reached its completion in minimal rationalism.

We have analyzed Block's arguments against phenomenal naturalism and shown that how Carruthers pass from phenomenology to a shared phenomenology. Carruthers aim is to combine physicalist identity theory (token identity theory) with functionalism, which will also vindicate mentalist psychology without ineffable non- representational qualia. What ever may be the interpretation of harder problem of consciousness. His theory mainly deals with the so- called harder problems of consciousness

with the help of inference to the best explanation. The credentials are still left open for further research. Carruthers has no reason to accept both phenomenal consciousness as well as access consciousness, but uses access-consciousness to develop two stages of his reasoning. He uses the 'phenomenal feel' and the availability of it (first) to develop a reflexive thinking theory and (then) again a higher-order theory. Since Block criticizes any attempts to identify P-consciousness with any of these cognitive notions and for him, Carruthers' is a theory of monitoring consciousness rather than phenomenal consciousness. Block thinks that to identify P-consciousness with internal scanning is really tilting towards eliminativism about P-consciousness. As Block maintains, access consciousness is system-relative. But for Carruthers, phenomenal consciousness is also system relative and he argues that function of representational content in system 2 makes a state phenomenal consciousness. Here Carruthers appears to conflate different notions of consciousness or he tries to explain one notion of consciousness in terms of other (phenomenal consciousness in terms of reflexive or monitoring consciousness). So, if the distinction between different notions of consciousness by Block is accepted as true that will leave Carruthers theory in trouble. I think Carruthers support a hybrid of phenomenal dispositional stereotype and cognitive stereotype.

Still we have left upon the question about language. Carruthers views that the role of language in cognition isn't to unify the outputs of some otherwise unconnected modules. Rather, language is playing a quasi-executive function, serving to manipulate the subject's attention and on-line goals. Vygotsky argues that language and speech serve to scaffold the development of cognitive capacities in the growing child. According to Vygotsky, overt speech of children, plays an important role in problem solving, partly by serving to focus their attention, and partly through repetition and rehearsal of adult guidance. It is argued that they have found that children tend to verbalize more when task demands are greater, and that those who verbalize most tend to be more successful in problem-

solving. So I think Carruthers takes a Vygotskian stand in this regard because now he accepts rehearsals of inner speech, which needs the support of dual system theory, which added many new contours to his theory. So I think Carruthers in the final run takes blend of Vygotskian and Whorfian (which he have not fully accepted earlier) stand in this regard because now he accepts rehearsals of inner speech, which depend on the dual system theory. Our observation is that his views on the question of flexibility, malleability and plasticity of human thinking must be lauded. Consequently the very idea of modularity goes through tremendous changes. His notion of modularity is a veiled criticism to modularity. So the question: 'is it unified theory in the making' is justifiable only in this background and answered in the affirmative, but then since it is premature to arbitrate the full extent without more input from research from cognitive science.

Some of the major findings of the researchers are stated as follows;

1. Though Carruthers takes rationalism and empiricism as distinct , he it leaves open whether the distinction needs a more integrated set- up. 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. So the difference of domain between rationalism and empiricism does not get resolved here, the issue is one of nativism but a scientific ensure is yet to emerge.
2. Likewise Carruthers' ambivalence towards strong and weak (property dualism) remains rather mysterious.
3. Carruthers systematically connects his mind reading with the practical reasoning but the full connotation of which remains in the dark.

4. The way he allows modularity to meet heuristic brings in its train the question about scientific methodology that remains unresolved
5. In a similar way one can subject his closing of explanatory gap (in principle) as not conducive to the perspective.
6. Despite traces, Carruthers cannot escape from the large-scale dealing with various other cognitive modeling such as dynamic emulator neural engineering models on the one hand thus reason and emotion view of the sort defended by Damasio on the other..
7. His integration of folk psychology with physics calls for a fresh review.

The scope for future research can be envisaged as follows:

1. In philosophy integration of epistemology, metaphysics, and semantics still await future input. The challenges to integrate these three disciplines have not seen fruition.
2. In the wake of recently emerged skepticism of dual system theory, Carruthers project needs a thorough research .If dual system theory fails to explicate certain issues, so much the worst for the perspective.
3. The relying on the mirror neuron particularly on the side of language and the on going debate between Chomsky and Jackendoff has to be channeled in to the perspective, for the sake of greater clarity.
4. The question about modularity, nativism and minimalist account may indicate change of views in the face of strong criticism.
5. Criticizing the self-model of mental activity needs more extensive comparative study with sponsored research in other labs.
6. Explanation of outer body experiences show that this experience is to be incorporated in cognitive science research in a much more philosophical way.
7. The large implication for Indian theories remain hazy at present.

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