FROM PHILOSOPHY OF LANGUAGE TO COGNITIVE SCIENCE

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1. Naturalism : bald and methodological :

From philosophy as a logical and conceptual analysis of language, we have traversed a long way to reach philosophy as cognitive science. If the former, in a sense, represents the lowest point of naturalism, the latter represents the highest point of naturalism. The history of analytical philosophy cannot be chronicled without a parallel development of the above[1]. Within analytical philosophy itself, naturalistic projects trace their origin to Quine. For Quine, epistemology is a branch of cognitive psychology, and it was looked upon as part of naturalizing epistemology[2]. Can philosophy also be naturalized? Various were the answers that emerged in recent years. Naturalism is understood as a fullfledged project for philosophy of language, semantics, and for philosophy. Michael Devitt and Kim Sterelny first inaugurate this tradition in their introduction to philosophy of language[3]. Within the burgeoning field of cognitive science, an appeal to naturalism appears in a modest way, but it is allowed to sustain stronger programmes. The *differentia specifica* I have in mind is that the former radically rejects *in toto* folk elements in philosophy of language whereas the latter rejects the folk psychology of belief, but it is more open to discuss how philosophy of language can throw light on cognitive science. The distinction may also be termed as one that obtains between bald naturalism (strongly naturalistic), which believes that science alone matters and there is not much for philosophy to do, since it is continuous with science, and sophisticated naturalism (weakly naturalistic) which always tries to throw light on each others domain[4]. I classify Stephen Stich, as belonging to the latter category; he, for example, distinguishes three ways in which philosophy of language can interact with congitive science[5]. They are roughly equivalent to :

(1) Philosophy can become philosophy of cognitive science;

(2) Philosophy of Language can throw light on cognitive science; and

(3) Cognitive science can throw light on philosophy.

(1) is a more remified version of philosophy of science. It remains only at the 'descriptive' level. It is descriptive because philosophers distance from cognitive science in the sense that they never assume that there is anything wrong with the cognitive science. 'While cognitive psychologists say a bit about intentionality and so on, their comments are not so systematic or philosophically illuminating. Many philosophers see cognitive psychology as a fertile ground for careful descriptive work'[6].

(2) represents a very different way of doing cognitive psychology. Here philogophers tried to say what a cognitive psychologist should or should not do. In order words, they prescribe do's and dont's for them. This is mainly because one comes across problems within philosophy of longuage. The celebrated example of Twin Earth paradox (two mental states which are computationally the same, but differ in their realization) is used by Putnam to throw light on the nature of cognition. The problem of supervenience tries to answer whether mind supervenes on matter or the mental is supervenient on the physical. The question they were concerned to show is whether functionalism is true about philosophy of mind. Similar questions arise about physicalism as well. A strong undercurrent of criticism is evident in that many philosophers do not agree with the view that philosophical problems can show the lacunae in cognitive psychology.

(3) reverses (2) in some sense in that it claims that world with cognitive psychology can throw light on philosophical problems. A paradigm case here is the first cognitive revolution stemming from the writings of transformational grammarians. According to this, grammar is a theory of language, but its only drawback is that it is only a tacit theory which posits the psychological reality of grammar. It is called folk theory in linguistics. Following this, philosophers made it a trend to appeal to tacit theory in psychological explanation[7]. Though much empirical work is evidenced in folk psychological explanation, this was challenged by simulation theories. An important work in this genere is found in Simon and his coworkers[8].

The major work of Simon and his coworkers falls within scientific rationality. The question that lies at the centrestage for the domain of query

is : can scientific rationality be simulated? For Stich, this is only a precursor of a more human epistemology. But the challenge to folk theory comes in their denial of any internally represented psychological theory. Two important consequences of this theory are : (1) psychological explanations cannot appeal to tacit theory, and (2) folk psychology is radically false. This is presented as an alternative naturalized epistemology. Stich thinks that a pragmatist epistemology could be a more humanized (Human Epistemology) one than a naturalized version of reliabilism (reliabilists are those who think that truth is still a basic cognitive virtue and justified true beliefs are produced by a reliable belief-forming strategy) or a naturalized (android epistemology) in the computational sense. To cognitivise is to humanize epistemology[9].

Two important authors who show strong likings for strongly naturalistic tendencies are Michael Devitt and Kim Sterenly. Their book was originally published in as far back as 1987 and was reprinted in 1994. In what follows, I comb through their textbook in an effort to capture the contents with a view to appraise the current scene. I shall begin with some reflections on the way one can conceptualize about language.

2. Conceptualizations About Language :

I shall begin to distinguish four different ways in which language is conceptualised within contemporary philosophy, covering thus much of the whole spectrum of analytical philosophy. In other words, there are four different models of philosophy of language. One can appraise them apart from the history of analytical philosophy itself. It is conventional to divide analytical philosophy into major streams : the earlier analytical philosophy of language (analysis, which is psychological, with a recipe for axiomatization of logic and mathematics, or the early Wittgenstein's resolution of the above case for decidability in the *satzsystem* (natural language analogue of axiomatic system) verificationism; soon this was superceded by *satzsystem* verificationism which admits of alternative *satzsystem*) and the later cognitive philosophy of language (which starts with Quine and running through Davidson, it culminates in the proto-cognitivism of Dummett)[10]. The above two broad divisions can be narrowed down to the following three subdivisions, namely, the protoanalytical (Frege, Russell), the analytical (Wittgenstein, Carnap) and the post-analytical (Quine, Davidson,

Dummett). Surely, a better picture should include the way it interacts with the upcoming trends in cognitive science. Accordingly, the following four models are suggested :

(a)   Language as Communication : Language is understood as consisting of a class of spoken utterances (tokens). This is called the 'code' conception of language;

(b)   Language as Logic : Language is understood as a class of propositions which enter into logical relations with each other (logical conception of language); if this is to be called logic as language, its corollary is called logic as calculus;

(c)   Language as Linguistics : Language is understood as the class of sentences which are spoken or written which follow certain rules of grammar (language as grammar); and,

(d)   Language as Reality : Language as part of physical reality, that is as part of physical nature.

Of these, (a) is widely used by communication scientists, and is usually represented in the form of language as encoding-decoding device. Language is understood as a set of tokens issued by speakers of a community. A parallel account within philosophy of language is given as speech act philosophy of language. A speech act is defined to be the act which is performed while one speaks. Such acts are called utterances. A sophisticated variety of speech act philosophy of language deals with the logic behind illocutionary speech acts[11]. An act is illocutionary when it contains a force apart from its logical structure, which consists of a subject and predicate. The glamour surrounding this ordinary concept has been under cloud. While Dummett dismisses the code conception of language with a shrug, thinkers like Burge, Dennett, and Devitt make use of Gricean conversational implication for one reason or other in the serious development of their outlooks[12].

(b)   talks about language as a computation which involves inferential process of thought, and a fortiori, cognitive. But since logic cannot afford to be cognitive, it is apsychological and its corresponding epistemology is also apsychological[13]. This conception of language as logic provides the necessary recipe for axiomatization of logic. Axiomatic systems are many-splendoured

thing. Its major drawback comes in two forms, namely semidecidability of first order predicate logic, and non-semidecidability of second order logic. Given a sentence S, semidecidability yields either an answer 'No' or no answer at all for a question regarding whether it is found in the system whereas, nonsemidecidability conveys that such a sentence is computationally intractable[14]. Since neutral network (as suggested by connectionist paradigm of cognitive science) are represented by second order functions (its activating function can be formulated only by means of quantifying over properties of neurons), they are not algorithmically calculable. This is consonant with Turing's interpretation of Church's thesis, according to which human mind is an unorganized machine. There is not much difference between the classical AI programme and modern connectionist models in cognitive science. But what I call strongly naturalization programmes toe the classical line as it is represented by the received view. The received view stands for the equivalence of mental states with computational states. It is strongly functionalistic in its appeal, and is sometimes identified with the Good Old Form of AI (GOFAI). Axiomatization projects ranges from many axioms, single axiom, or even zero axiom like natural deduction system. The primary relation it brings about is between language and reality (language-ontology interface). Language is a custodian of reality. The relation is between the world and the words. When logic is regarded as foundational (metaphysics is reduced to logic), in a non-foundational sense (science is not resting upon metaphysics), it forms the 'canonical idiom' of science (Quine) or it constitutes the 'primary conceptual system' (Putnam).

(c) reduces languages as a class of sentences to a set of rules. These rules are set by grammar. That is once the rules are given as an input, its output is a torrent of sentences. Such a conception of language is identified with language as a algorithm. An algorithm is an input-output device. What blocks this move is that rule-following is simply enigmatic[15]. Added to this is the computational device of inferential processes, it becomes a stronger version of cognitive modelling. Even so, a stronger version of cogitivism is different from strong AI (Artificial Intelligence) because it includes both hardware (intentional stance) and software (design stance)[16]. The stronger version is quite contemporary and strongly naturalistic. By superimposing the computational mode of thought (inferential process), it is argued, that it adds truth-functionality to linguistics. A certain cohesiveness of language (logic) with linguistics is imminent. In other

words, it begins to offer a corrective to the claim which holds that linguistics is a branch of cognitive psychology, by affirming that psycholinguistics is a cognitive discipline. An immediate fallout is that it takes both philosophy of linguistics (a version holds that grammar is platonistic) as well as philosophy of language as folksy. Thus there emerges a new stance according to which linguistics is about sentence tokens. Such is the nature of bald naturalism pursued by Devitt and Sternly. Its origin lies in the above assumption. Once philosophy of language is cognitivized, then semantics is only the way to become naturalized, and with this philosophy too is likely to become naturalized.

3. The Naturalization Project :

In fact all the above set can be derided as folksy, a term that is used to refer to the immature status of its science. This is what is understood to gear up to the level given as (d) above which therefore represents a more sophisticated way of understanding language as a form of physical reality. Enter the naturalization programme which assumes that language is also a part of physical nature. This is basically revisionary in its intent. Just as there is a close relation between scientific theory which speaks about the world, language is also a naturalized representation of the world. The motions such a bald naturalization goes through are :

1. Philosophy of linguistics must become philosophy of psychology;

2. Psycholinguistics is the science of cognition; and

3. Philosophy is cognitive discipline.

It is only in this category that one can locate the project Devitt and Sterenly pursue in their introduction to philosophy of language. They claim that it has a place in 'the exciting, somewhat chaotic interdisciplinary field that has become known as cognitive science'[17] and so we are well advised to dish out this stuff to our graduate students. To what extent can we justify this requirement? It is in this context that I want to suggest the following alternatives; we can agree that

4. Philosophy is a cognitive science in the sense that it yields a
    representationlist theory of language and mind;

if and only if

> 5. Philosophy of language is itself to be regarded as a cognitive discipline in the sense that it has within it a *verstehen*-imbued meaning theory.

The stumbling block here is that (4) is an attractive proposal in the exact sense in which it wants to have a *verstehen*-free theory of meaning, thus making a bald naturalism into a full circle. If so, its defect, according to my reading, lies in explaining understanding *via* a speech act philosophy of language. There is reason to suspect this project as we have already dismissed the code conception of language earlier. In sharp contrast, *verstehen*-imbued theorists believe that a theory of meaning is a theory of understanding. More poignantly drawn, the contrast comes to : whereas *verstehen*-imbued theorists reduce metaphysics to semantics, the *verstehen*-free theorists reduce semantics to metaphysics. While the former is entailed by the view according to which semantics is the first philosophy of language, the latter take semantics as first epistemology, and in their zeal to pursue a strongly reductionistic programme refuse to understand what is 'philosophy of' in philosophy of language[18]. They even go the extent of detaching philosophy from philosophy of language and graft it on their epistemology. The underlying startegy runs parallel to eliminativists who pursue eliminativism of folk psychology. So, on Devitt-Sterenly's proposal, (4) must be shown to be demonstrably a counterthrust to antirealistic proposals about language, meaning, and understanding. Thus the opposition between (4) and (5) is one between a realistically oriented philosophy of language and an anti-realistic philosophy of language represented by (5)[19]. There is no objection in holding that (5) cannot legitimize a philosophy of language and mind, however incomplete it might be, and consequently, sanction a theory of meaning and understanding. The opponent must show that such a project is totally at odds with the one they are interested in. This they cannot show unless.

> (6) *bald naturalism is the only correct way;*

> (7) The cognitivism we associate with (4) is totally at fault.

(7) cannot be so easily disproved as any disproof requires us to show that (8) which asserts that

(8) philosophy of language is first philosophy

must be proved illegitimate. In spite of all the hue and cry, it continues to remain on the agenda. There is a precise reason why this should be so. (8) inherits a legacy from the conceptual analysis of the past and hence it is also as much naturalistic as any other. For Devitt and Sterenly, however, the following assertion, namely.

(9) semantics is first philosophy

is incompatible with (8) above, since it favours *a priori* semantics of natural language, whereas (9) recommends an *a posteriori* way of doing semantics; semantics must be on par with epistemology. Philosophy of language must be abandoned. I argue for a contrary view that philosophy of language itself is cognitive science, and hence the sharp contrast drawn between folk/cognitive, explanatory/understanding, realistic/anti- realistic does not stand for scrutiny. This is exactly where the shoe pinches. Let us elaborate this in the sequel.

4. Realism Vs Anti-realism :

The history of analytical philosophy of language (Karl-Otto Apel's expression), is punctuated, first by a rudimentary cognitive philosophy of language (philosophy of language and mind) and, then, a sophisticated cognitive variety. The earlier is often identified with the view according to which all philosophy is conceptual analysis, and much of the later philosophy of the language is regarded as proto-(folk) science. According to a revisionary view, recommended by Michael Devitt and Kim Sterelny, the former view, must be decisively rejected, whether folksy or not[20]. On the otherhand, folk, (rudimentary) philosophy of language is full of thorny pathways like verificationism, innatism, holism, scientific Whorfiamism, Neo- Kantianism, Structuralism, Verstehenism and Anomalous Monism. It is a 'veritable smorgasbord' (Micheal Devitt and Kim Sterenly's expression). Since the conceptual analysis view of philosophy is wrong, the linguistic turn, especially the later, does not establish first philosophy (this view holds that philosophy of language is first philosophy)[21]. This goes directly contrary to the widespread understanding of the origins of analytical philosophy. The authors go further :

moreover, some of the folk theories of the past (descriptive theories of reference and sense) are spectaculary wrong[22] and hence it is an open question how correct the folk theory is [23]. Targeting verificationism and verstehenism in particular, the authors recommend that they must make moves undeamt of by folk. Philosophy of language is exactly the wrong place to start metaphysics[24]. They all commit a deep mistake. The mistake is that of inferring what the world is like from a theory of language[25]. Eschewing their *a priori* methods, we should only speculate about language from a firm realist (sophisticated) base[26]. The right procedure is to start with a world view and attempt to derive a theory of language. And the most plausible world view to start with is realism[27]. Much of the above is highly controversial to say the least.

So realism will contrapositively imply anti-verificationism (this is the contrapositive of : verificationism implies anti-realism). I shall call this as a method of contrapositive paradigms. I assume that it is false. May be this is what I call 'truth- functionhally' true. This means that they cannot exclude each other. If this much is agreed, at least one key methodological nuance in their argument evaporates. It is roughly at the time when philosophy of language looked to cognitive science, it took on the mantle of rudimentary cognitivism (psychology) for its modelling. This is the second cognitive turn, the first, the first occurred with the advent of transformational grammar in linguistics. The authors critique : the fact that linguistics has become part of cognitive psychology is not enough; it should become a cognitive science in its naturalized setting, overcoming its folksy theory of linguistic competence. It is folksy because it conflates a theory of mental competence and a theory of propositions. This is roughly the thematic of the recent introduction of the above book and its merit as well. It finds a unique expression in their naturalization of semantics. Semantics should become an empirical science like any other[28]. Just as philosophy of language can be completed in semantics, the introduction of truth-conditionality into linguistics can move the cognitive completion of semantic. Such an acumenical view of philosophy of language, as the authors realise, must of necessity include a critical account of contemporary transformational grammar, which falls under the rubric of philosophy of language, however incomplete their relationship might be understood.

Devitt-Sterenly start with the following assumption that linguistics without the logic of truth functions remains only at the folk level, and this is what is

attested to by the view they present about the history of transformational grammar. According to their reading, the coherence of natural language and natural logic is what is seen in the many appearances of TG grammar, in its standard (classical) and extended theory, and more so, in the development of generative semantics, and in the more recent versions of Chomsky's linguistics as reflected in the principles and parameters (Government and Binding) theory as well as trace theory. Of the four major components namely the phonological, base (tree building plus lexican), transformational (rules commenting deep and surface structures) itself and the semantic components, the controversy is only about how third connects to the fourth, Various answers are given : the standard theory holds that the deep structure links meaning (transformations preserve meaning), while the extended theory includes both deep structure and surface structure, and the trace theory leaves traces in the surface. The point about the principles and parameters theory and trace theory is that they approximate towards natural logic, however defective it might look[29]. Devitt clinches the tale by holding that :

> 'Deep structure seems to provide the structure of natural language
> sentences we seek. Subject it to logical analysis, add a theory of reference,
> and we might hope to have the core of a theory of a meaning'[30].

An immediate objection arises if we look into Chomsky's theoretical interest in semantics. That is, if Chomsky is shown to have not as much theoretical interest in semantics as he has either in syntax, or even so, in pragmatics, then what will happen to the above project, Assuming that this is what is warranted by the historical development of the above as well as the last mentioned stage of the theory (it incorporates principles and parameters which act as constraints on the principles of syntax), we have a paradigm which is nowhere near to Devitt-Sterenly's proposals. There is something amiss in their conclusion which says that the problems of languistics are *au fond* problems of logic pertaining to negations, quantifications, and movement rules from surface to deep structure, even though they were all attested to by later Chomsky according to one interpretation. At least this makes one thing clear that there is no hard and fast interpretation of Chomsky's grammar which will fit either into naturalism or physicalism. More recently, Chomsky has recourse to what he calls methodoloical naturalism which does not seriously believe in any one of the current ways of doing cognitive science[31]. No one has any idea how Chomsky's

grammar must be fitted into the chronicle of analytical philosophy, or how to take seriously his naturalistic concerns so as to see its relevance to cognitive science. Ironically, both Dummett and Chomsky share a scepticism towards the present status of cognitive science. I am in favour of maintaining a Dummettian picture of the entire history of analytical philosophy, a history that still waits to be written, and that would portray how the two major paradigms of realism and anti-realism run through the analytical,the postanalytical, the hermeneutical (von Wright believes that this is non-naturalistic; I disagree), and even so, the cognitive turn[32]. Thus I stand for philosophy of language as cognitive science rather than philosophy of cognitive science; hence the passage in the title.

5. The Problem of Reference :

How the authors propose to takle the problem of adding up the referential component to the above machinery? The authors base their reasoning on a Kripkean premise of description theory of proper names (this is obviously neither Russell's nor Frege's theory) for drawing a Kripkean conclusion based on the notion of rigid designator. On their view, this is what is entailed by the modern cluster-descriptive theory of proper names. A cognitive completion of the above adds two key steps to it. The first may be called the description theory of sense, and the second is the description theory of reference. In the final showdown, it conforms to a Millian theory of proper names but when pruned from his connotation and given by Devitt's designating-claims, which is given in terms of descriptive causal theory instead of a pure causal one, it yields Devitt's idea of disignation. 'The causal theory promises an explanation of the ultimate link between language and the world' [33]. If any, Devitt's idea of designation is supposed to bring out this relationship. Devitt very well knows that this does not say the final world on the problem of reference : many a realist is on the dock in this primal problem, and realism is pronounced to be false.

From the congnitive point of view, however, the most important question that requires an answer is about the relation between language and mind. The authers critique the theory of innate competence (Chomsky) before they begin to explore the innateness of representation which brings out the linkage between structures of language and structures of thought, and thereby the linkage between the structure of language and the structure of the world. The former is a sort of

telementational isomorphism[34] and the latter is an exteriorized isomorphism. I think they are somehow opposed to each other. Is the project, therefore, merely a Boolean telementational isomorphism with truth functions added to it? Computational or not, realistic or not within the intertional domain (Cf. Fodor), the authers have to take into consideration many other paradigms of cognitive science, of which the connectionism (cognitive architecture) is the most important[35]. The point is that such a realistic cognitive asumption is opposed to by the anti-realistic cognitive view, according to which language is an external clothing of the thought. This stance, taken by Dummett while making philosophy of language as first philosophy, is continued to be heavyweathered by critics. As it is obvious, it represents one half of the above in that it attempts to bring out the relation between structures of thought and structures of language, the realistic projcet takes over the other half, namely the relation between structures of language and the structures of reality without openly committing themselves to the former. Quite unmindful of all this, the authors tell us how truth relevant structures of language are to be understood, in total disregard of the verification conditions. Should we lay down to rest folk anti-realism along with othres? This is the dilemma.

The critique of folk philosophy of language is defective at least in one respecct in that it rejects the folksy character of anti-realism *in toto*. Sterenly, for example, may not be in full agreement with this, since he maintains a 'compatibilist' outlook in his own book, which takes into consideration both of the above halves, namely the intentional and the physical system. As he takes it, both the scientific and folk picture converge on the idea of representation. Having asserted that that his approach is not physicalist, but naturalist, he goes on to tell us that naturalism is a vague term and it is in danger of becoming merely honorific term too. So, he wants to naturalizes folk as well as naturalize representation. In fact folk theory is inclued and incorporated into cognitive psychology (modest naturalism) precisely because we cannot do away language of thought, however folksy it might be[36]. We miss here the revisionary outlook that marks the earlier book. At the methodological level, Devitt and Sterenly distinguish themselves by adopting the following dicta. While Devitt claims that by naturalizing philosophy of language, we can naturalize philosophy itself (philosophy becomes a natural kind word), Sterenly avows that by naturalizing folk psychology (of belief and desire), *pace* Fodor and his *mentalese* (cognition

involves an inner mental code or language of thought), we can naturalize a modest version of the representation theory of mind. If all this is agreed upon, then Devitt's exclusive derision of antirealism is mistaken, Somewhere realism and anti-realism complement each other and *a fortiori*, they are all compatibilist in certain respects. The counterfactual view which Devitt-Sterelny advocate is therefore a miasma. Methodologically, it is defective. It is the most correct assessment since eliminativists do not eliminate, and so the chances of the compatibilist position, in comparison to that of revisionists, are better off. The auothers round off the above criticims with a brief discussion between rational psychology and philosophy along the lines indicated above. The compatibilist are not as 'ironic' bald naturalists as they look to be at first sight[37]. Two thinkers namely Davidson and Dennett are favoured for discussion in an introductory course like this. Both according to the authors, they engaged in rationalizing psychology in their own ways and thereby they pose a real challenge to naturalization programmes. They are verstehenists who cannot reconcile folk psychology with cognitive science.

Dennett adheres both a no-replacement thesis as well as a non-integration thesis, while Davidson follows a no-reform thesis. Davidson does not believe that folk psychology could be reduced to physics. Dennett thinks that folk theory is a different tool for a different job and thereby makes their separation a reality. He even goes to the extent of rejecting folk psychology. He makes a basic distinction between intentional stance and design stance. The former is the domain of folk psychology and the latter is that of cognitive psychology. For Dennett, the identity conditions are such that people can be computationally very different, yet still they have the same beliefs. Even this is too simplistic a picture of Dennett's physicalistic approach to cognition, on the basis of the computational model of parallel processing.

Dennett has also been variously described as an instrumentalist or even an anti-realist. He is also well known for his heterophenomenological (third-person descriptive) method which has certain metting points with the externalist interpretation of belief ascriptions. Similarly, Davidson's anomalous monism accepts that there are physical equivalents of the mental but we do not know the laws that operate in the region, Devitt- Sterenly's way of overcoming these stand-points is to assume that there could possibly be psychological laws. More importantly, if there are no laws, then folk psychology cannot be a

protoscience. Or contrapositively, there is protoscience, and hence there must be some laws, as far as narrow psychology is concerned. This is Grandma's way of naturalizing psychology[38]. Contrapositive once again. Unless they are truthfunctional, they should have counterexamples, anti-realism is not to be laid to rest but it remains as ghostly as it is folksy. I have discussed thus far one important methodological nuance, namely that realism and anti-realism are *toto caelo* different and found to be false[39,40]

NOTES AND REFERENCES

1. The view which holds that the very origin of analytic philosopohy is naturalistic is aired in the recent estimate of articles on the *Rise of Analytical Philosophy*, see *Ratio*, IX (3) 1996, see esp. Dagfinn Follesdal's counter to G. H. von Wright's understanding of hermeneutics as non-naturalistic and hence it is incompatible with analystic philosophy can be fully endorsed. See his article, '*Analytic Philosophy : What is it and Why should one engage in it?*' pp. 193-208. G. H. von Wright's survey titled 'Analytic Philosophy : a Historico-Critical Survey' is reprinted in his *The Tree of Knowledgte and Other Essays* (Leiden Brill, 1993); see also f. n. 32 and 37 below.

2. Quine's '*Epistemology Naturalized*' which is anthologized in his *Ontological Relativity and Other Essays* (New York, 1969), provides the grist for naturalistic projects, occasioning both a critique as well as an improvement. The critique demands more than Quine can offer. A microlevel application is attempted in cognitive science. If epistemology is a branch of pyschology, and psychology is a branch of biology (or physiology), then philosophy, in its naturalistic form, should be a branch of physiology. I borrow this intriguing argument from Professor Ruth G. Millikan.

3. Michael Devitt and Kim Sterenly's combined proposal has a strong contrast between folk and mature science, generally favoured by cognitively-oriented philosophers like Stephen Stich. See their book on *Language and Reality : An Introduction to the Philosophy of Language (LR* hereafter) (Bradford, MIT : Cambridge, 1987/1993 (4th Printing). This stands in contrast to Sterenly's later book on the *The Representational Theory of Mind : an introduction* (Basil Blackwell, 1990) The title of my article minics Stich's *From Folk Psychology to Cognitive Science* (Cambridge : MA, 1993). The contrast lies between a strong naturalism and a modest one. I am always indebted to Professor Michael Devitt

for his encouraging tip to the best way of doing philosophy : be critical of others, and also for the numerous reprints and books that gave me the necessary input. I owe a word of thanks to ICPR Reprographic Services for the materials on Sterenly's book.

4.   I own the characterization of bald naturalism to R. Bernstein's Patrick Romanell Lecture on *'Whatever Happened to Naturalism?'* published in the *Proceedings and Addresses of the American Philosophical Association* (November, 1995), pp. 57-76; for the definition of bald naturalism see f. n. 37 below.

5.   I am indebted to Stephen Stich's review of the three types of naturalism as found in his 'Naturalizing Epistemology : Quine, Simon, and the Prospects for Pragmatism' in *Philosophy* (Royal Institute of Philosophy Supplement 34 (1995) pp. 1-17; See esp. p.9.

6.   Again, I owe much to the classification made by Stephen Stich in his contributory article under the entry *'Psychology and Philosophy'*, especially to his remarks and comments, in the *Companion to the Philosophy of Mind'*, ed. by Samuel Guttenplan (Blackwell, 1994) pp. 500-507.

7.   A mojor work in psychological explanation is Jerry Fodor's *Language of Thought* (New York, 1975). Kim Sterenly's book defends a modest version of intentional realism advanced by Fodor : 'Fodor's proposal is at least coherent, theoretically motivated, and experimentally productive' (p. 79). The book is conservative (and perhaps 'chauvinist', p. 146) in the light of the present controversy with regard to the very idea of representation. Stich stands for pluralism in representation, whereas Terence Horgan decries this as an important paradigmatic idea.

8.   The standard work is due to Simon and coworkers who have studied scientific discovery by means of computational stimulation of creative processes; see the reference under Stich (1995) mentioned in f. n. 5 above.

9.   The terminology is due to Stich.

10. The term *satzsystem* and its plural *satzsysteme* are introduced by Stuart Shanker. Following him, we can understand the Tractarian verificationism as *satzsystem* verificationism. For an account of this, see S. Shankar's *Wittgenstein and the Turning Point in the Philosophy of Mathematics* (Croom Helm, 1987).

11. Searle's exploration into the logic of illocutionary act is a case in point.

12. Such a conception is critiqued by Michael Dummett in his article on *'Language and Communication'* anthologized in *Reflections on Chomsky* ed. by Alexander George (Blackwell, 1989) pp. 192-212.

13. I owe this to Tyler Burge's survey on 'Philosophy of Language and Mind : 1950-1990' in the *Philosophical Review* (1992) pp. 3-52.

14. I am very much indebted to the remarks made by B. Jack Copeland in his contributory article on '*Artificial Intelligence*' in the *Companion to the Philosophy of Mind* (Blackwell, 1994) pp. 122- 131; see especially pp. 127-128.

15. The significance of Kripke's interpretation of *Wittgenstein on Rules and Private Language* (Basil Blackwell, 1982) for cognitive science has never been assessed so far.

16. Daniel Dennett's distinction between intentional stance and design stance roughly correspond to that of hardware and software. The remarks about Dennett may not be the same if his recent contributions were taken into consideration. Devitt's list ranges only from his 1978 book *Brainstorms* to his 1985 title *Elbow Room*.

17. Devitt and Sterenly note this in the Preface (p.x.)

18. The significance of 'Philosophy of in *Philosophy of Language* inaugurates an innovative way of branching philosophy which is radically different from the traditional classification of its branhes. Once this is understood, its foundational interest becomes obvious; see f.n. 32 below.

19. The opposition between realism and anti-realism is totally misconceived; this is different from the way it is conceived later by Sterenly.

20. Dummett's views are discussed from 234 ff.

21. See *LR*, p. 235.

22. *Ibid.*,

23. See *LR*, p. 209.

24. *Ibid.*,

25. See *LR.*, p. 197.

26. See *LR.*, p. 220.

27. Devitt's exclusive adherence to eliminativism of philosophy of language, in favour of semantics as epistemology is not sustainable in my view.

28. See, for example, Devitt's recent contribution to the '*Methodology of Naturalized Semantics*' in *Journal of Philosophy* (1994) pp. 545 - 572.

29. See J. Hintikka's Essay on the '*Logical Form and Linguistic Theory*' in *Reflections on Chomsky*, see f.n. 12 above.

30. See *LR*, p. 103.

31. Noam Chomsky's article on *'Language and Nature in Mind'* (1995), pp. 1 - 61; see also his *'Naturalism and Dualism in the Study of Language and Mind* in *International Journal of Philosophical Studies* (1993), pp 181-209. I thank Professor Chomsky for the reprints.

32. My project on the *'Major Analytical Traditions* was executed with this intention in mind dividing the traditions into the analytic, post-analytic, the hermeneutic, and the congnitive turns with the above Dummettian imprint; See f.n. 1 and 18 above.

33. See *LR*, p. 60.

34. See P. M. S. Hacker and G. P. Baker's *Language, Sense, and Nonsense* (Blackwell, 1984).

35. Sterenly considers connectionist paradigms (Chapeter 8) and find it difficult to come to terms with its 'deflationary' position in his later book.

36. Sterenly's position, which accepts the language of thought hypothesis and hence does not eliminate folk psychology, is summarized here; see esp. p. 6, 19, 22, 23, 28, and 79.

37. Bemstein's definition of bald naturalism is that which aims to domesticate conceptual capacities within nature conceived as the realm of law, Rorty is an 'ironic' type since he does not deify natural scientific discourse; see f.n. 7 of the lature quoted in f.n. 4 above.

38. Grandma's view as defended in his recent work is neither as theory of representation nor is it an exactly narrow theory of meanning, as it is claimed, but its credentials are not very apparent. See for example, Devitt's *'A Narrow Representational Theory of Mind'* in *Mind and Congnition* ed. by William Lycan (Blackwell, 1989).

39. I have avoided critical arguments about other leading issues. I have borrowed from my companion article on *'Philosophy of Language: Folksy or Revisionary?'* which was to be presented in the 69th Session of the Indian Philosophical Congress (1994) where I make more methodological remarks (abstract published).

40. I am indebted to Professor Dr. S. V. Bokil, Editor of the Journal, for the advice to recast the article which was originally written as a review.

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