

DREAM OBJECTS, REFERENCE AND NATURALIZED EPISTEMOLOGY

1 Introduction and Thesis

The two most important questions that the sceptic asks regarding knowledge¹ are :

- (a) Is knowledge possible?
- (b) What are its justifications?

(a) is called *knowledge* scepticism, (b) is called *justification* scepticism. Our essay is mainly about (a), or rather about one way to deal with (a). This essay is mainly polemical in nature. In this essay my main aim is to defend Quine's position of naturalizing epistemology² as the only solution to the traditional problem of the sceptic regarding our knowledge of the external world (regarding question (a)), against people who see it as taking help of the very science whose validity is in question. The critic foremost in my mind is Barry Stroud⁽²⁾. Let us call all Stroud-type criticism the SP-thesis. The core of SP-thesis can be summarized thus : to reduce epistemology to the problems of language learning and language acquisition (which is what naturalized epistemology³ suggests) is circular in so far as it takes the help of that very science whose validity is in question. Our thesis in this paper is this :

The traditional epistemologists who tried to give all kinds of 'theories of knowledge' to counteract the sceptic are really trying to deal with the sceptic's problem in an 'external' way. Such an 'external' way of looking at a problem arises because for them the problem of knowledge of the external world is a problem of reference, whereas for Quine the problem of our knowledge of the external world is causal; so anyone criticizing Quine's natural epistemology has to criticize his theory of reference. Once we accept the problem of reference as a semantical and not causal problem, the only epistemology we are left with is a causal one. So SP-thesis is a piecemeal criticism, in so far as it tries to overcome only *partially* NE as an answer to the sceptic's

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problem of the external world, which can be overcome.

Let us introduce the following shorthands :

The problem of reference : T_r .

The traditional epistemologists theory of reference : R_t .

Quine's (and all Quinian) theories of reference : R_q .

Problem of the knowledge of the external world : K_{ew} .

Relation of word to world : T_{ww} .

Relation of word to background word : T_{wb} .

Now let us remember the following points.

(1) For R_t , T_r is T_{ww} .

(2) For R_q , T_r is T_{wb} .

(3) For R_t , K_{ew} is a semantical problem. Let us call this S_p .

(4) For R_q , K_{ew} is a causal problem, not a semantical problem. Let us call a causal problem C_p .

(5) Once, K_{ew} is taken as a C_p not an S_p then the only solution is a NE. In other words we can say that, $T_{ww} = \sim S_p$ then the only reply to the sceptic's problem is NE.

(6) Now, further, R_q is an inevitable consequence of Quine's theory of meaning and indeterminacy of translation, let us call these M_q and S_q respectively.

Further, $M_q \neq T_r$, according to R_q (contrary to what is assumed by R_t). So the problem of meaning is not there in the sense of how to relate words to the external world. Any such relation is outside the scope of a 'theory of knowledge'. The latter question is a 'scientific question', one that can be answered from 'within' science, and not from 'outside' of it. And hence we are free to use science in building up an epistemology.

From my point of view SP-thesis is unfair in the sense that it criticises Quine in the wrong direction when it says that Quine is avoiding the problem or arguing in a circle. If SP-thesis has to reject NE, then it has to first reject M_q and S_q , which is the backbone of R_q , which again implies T_{wb} . We can see that Quine's view is really entrenched in his whole philosophical framework. Only *global* adjustment to Quine's view will help, if we are keen in giving an alternative answer to the sceptic. SP-thesis has only a piecemeal criticism of naturalized epistemology. Although this essay is all about (a) and not regarding (b), and although we shall allow Quine's assertion, that 'Humean predicament is the human predicament'(3)⁴, we will devote a section to show that may be justification of knowledge (as we see it) is possible too.

One of the corollaries that will be reached and discussed by us towards the end of this essay is that, so long as we are either in the empiricist or the rationalist camp, we are prone to give a *theory of knowledge* to the sceptic's problem (from an 'external viewpoint'), all of which at the end will prove to be useless in so far as refuting the sceptic's argument goes. Once we reject both empiricism and rationalism for a more thoroughgoing pragmatism, we give up the idea of a 'theory of knowledge' or foundational certainty (of which both the rationalists and empiricist are guilty) and NE seems to be the only viable answer to the sceptic.

The main body of this essay will be devoted to show how NE follows from Quine's theory of translation, meaning, reference and in general his naturalistic behavioristic conception of language. This essay will be divided into three main sections (with subsections). In the first section I shall introduce the sceptic's problem regarding the external world and various formulations of it from Descartes, Kant and Carnap. I shall try to reformulate Quine's account of the sceptic's formulation of the problem of the external world and how he responds to it. Next I shall consider the SP-thesis. In section two I shall discuss how naturalized epistemology follows from Quine's general outlook on language. In the following section I shall consider whether, given a NE, we can answer (b). In the conclusion we shall consider how by rejecting both empiricism and rationalism we are left only with an epistemology that is natural.

2 The sceptic's position and natural epistemology

Descartes ends his *First Meditation* by saying that : " I shall consider that the heavens, the earth, colours, figures, sound and all other external things are nought but the illusions and dreams.... by this means it is not in my power to arrive at the knowledge of any truth"(4). Further Descartes also states "... there is a great difference between the object and its idea"(5). This is, in a nutshell, the sceptic's position. In a similar vein Kant drew a complete general distinction between that which is received through senses and what is or is not true of the outside world which cuts us forever from the knowledge of the external world. Carnap in his *Logische Aufbau* tried to show how the theoretical statements of science can be correlated to statements of sensory experience. According to Carnap, though philosophy appears to talk about the real world it really does not do so. Philosophy talks of

particular linguistic framework within which all problems are to be solved. And the problem of relating it to the real world remains. One way to reward this problem is this : we have to recognize that there is a gap between the input received by the human subject from the external world and the output the subject puts about a description of a three-dimensional external world and its history. In other words, there is a difference between the 'meagre input' and the 'torrential output' (6).

Having seen what the essence of the sceptic has to say regarding our knowledge of the external world is, let us see what the responses are. Descartes tried to respond to the sceptic by giving a 'theory of knowledge' consisting of two levels of truth : *foundational knowledge*, which had *intuitive certainty*, and a derivative knowledge which was *logically* deduced from the foundation and hence certain too. This sort of certainty involves foundational statements like 'I am in pain' and the laws of logic like contradiction, excluded middle, and identity, all of which will pass the test of indubitability and stand the sceptic's criticism. If knowledge of the external world is rationally deduced from them we can believe in its existence too. But we have reasons to think that these foundational evidence like 'I am in pain' is psychological, and psychological certainty is no guarantee for truth. Even the logical laws can be doubted in face of self-referential statements. Also, they can be doubted by virtue of the fact that intuitive certainty in the sense of mental vision does not work in providing the infinitely many substitution instances of the schematic "elementary truth" like, $\sim(S \text{ and } \sim S)$. Hence, a theory of knowledge based on them fails in so far as it tries to counteract the sceptic. Kant gave us an epistemology in which he claims to give only the knowledge of our world of experience and not knowledge of the external world. So, he too, by his 'theory of knowledge', failed to answer the sceptic. Carnap tried to reduce all statements of science to observational statements, and as Quine correctly realizes(7), had not succeeded. Now, what sort of line are we to take here? In answering this question let us go back to the sceptic's problem once more. There are actually two questions that the sceptic is asking:

(a) How do we know?

(b) Even if we know, what *justifies* such knowledge?

As Hume correctly realizes regarding (b) there is no way we can *justify* our belief in the external world. However, regarding (a) we have seen that all our 'theories of knowledge' have failed. Why so? because they have all taken an external position in trying to solve the problem of knowledge. What is this 'external position'? Let us see by going back to

Descartes. Descartes in his *First Meditation* detaches himself from the physical world, and tries to solve the problem by appealing to certain apriori knowledge. If Descartes is taken as the model of R_1 then what R_1 has failed to realize is :

"The crucial logical point is that the epistemologist is confronting a challenge to natural science that arises from within natural science"(8). "Doubt prompts the theory of knowledge, yes; but knowledge, also, was what prompted doubt. Scepticism is an offshoot of science"(9). Since doubt is an offshoot of science there can be no "cosmic exile". Everyone, including the philosopher has to abandon all 'external position' for "... he cannot study and revise the fundamental conceptual scheme of science and commonsense without having some conceptual scheme, the same or another in which to work"(10).

So let us ask again, how do we know? Taking the above into account the only logical answer is that in answering this question we can make free use of science, because what we are asking is a scientific question. Philosophy is, in this sense, not 'external' to science, but differs from the latter only in the 'breadth of categories'(12). The last and the most crucial step is the one which follows from the above two: Since our theory of the world far outstrips our 'sensory or stimulatory background'(11) what we need to do is a scientific study of perception, learning, language acquisition, development and transmission of human knowledge. Like all other sciences the 'science of epistemology' has a body of 'theoretical knowledge 'based on relative 'data'. Here we have 'hypotheses' like other sciences, and our hypotheses here are 'physical objects', because, "physical objects has proved more efficacious than other myths as a device for working a manageable structure into the flux of experience"(28). This is the position of W.V. Quine.

Now there are certain significant criticisms that have been pointed out against Quine's idea of reducing epistemology to the study of language learning and language acquisition, in short of 'naturalizing epistemology', in an attempt to answer the sceptic. In putting forth these criticisms I shall follow the SP-thesis.

The first criticism of the SP-thesis is that Quine has changed the subject matter of epistemology. Stroud construes "the original epistemological problem" to be one of explaining how knowledge is possible. He says that insofar as Quine's NE claims to be an enlightened epistemology (as against the traditional 'theories of knowledge') it is a failure, for it does not answer the sceptic for it changes the subject-matter altogether(22). Furthermore, he says, that NE cannot answer the

sceptic(14).

To this objection Quine replies, "A far cry, this, from old epistemology. Yet, it is no gratuitous change of subject matter, but an enlightened persistence in the original epistemological problem. It is enlightened in recognizing that the sceptical challenge springs from science itself, and that in coping with it we are free to use scientific knowledge. The old epistemologist failed to recognize the strength of his position"(15).

However, the main criticism of SP-thesis against NE is that it *assumes the validity of science in order to prove it*. In our view, this criticism is unfair. This is because Quine is quite justified in using science in NE as, for him, the whole problem of knowledge is a scientific problem. One of the main epistemological problems is the problem of relating our knowledge to the external world. So, the problem of relating words to the world is a causal, not a semantical problem for R_q (as opposed to the traditional epistemologists) or, in other words K_{ew} is C_p , and not a S_p . Epistemology has very little to do with meaning. The problem of the relation of ideas to the external world, when posed as a causal problem is not a 'meta-scientific problem' but a scientific problem. Hence, we can make free use of science to solve it. On the other hand, for R_r , K_{ew} is S_p . The problem of failure, in the case of R_r , arises in the first place because they take the problem of relation of our ideas to objects to be S_p , and they do not know how to deal with this problem except to give various alternative frameworks which all have the same pattern: an indubitable foundation, and a system built up from it. In this sense, R_r was trying to solve the problem in the wrong direction. Whereas in R_q to prove that words mean something we do not have to try to relate them to the external world, we have to relate them to other words, to a background theory and the study of semantics will do this. To relate words to external world is no way to show that words or ideas have reference, because reference is indeterminate, so the former has to be understood causally. So, by putting the word-world or ideas-world relation into proper perspective Quine has definitely made an improvement over the traditional epistemologist.

The main body of this paper is devoted to show that SP-thesis is unjustified when applied *piecemeal* to Quine. For the most important thesis for Quine is that all we have got to work with are words, whose relation to the outside world does not belong to the study of meaning or to semantic theory but to causal theory. The work of semantics is to relate words to the background words. So the only way that we can

understand the relationship of words to the world or T_{ww} is by studying how they are acquired, and this is a scientific study. With this shift from ideas in one's mind to words or utterances, their relationship with other words, and the problem of their meaning and reference we are inevitably led to naming their acquisition as a study of language learning. So, if SP-thesis rejects Quine's shift from traditional epistemology to the 'liberated epistemology' as circular then first it has to reject Quine's rejection of ideas, together with his theory of meaning and reference. Once this framework (R_q) is accepted, 'naturalized epistemology' seems to be the only logical conclusion.

3 NE : Logical outcome of Quine's Transition

Our main aim in this section is to show that all the traditional epistemological problem with the sceptic has been that there was no way he could provide for the latter a theory of knowledge by means of which he could then show that the ideas in his mind correspond to the real objects, that is, ideas have cognitive value. For Quine this problem does not arise. As a result of his radical turning of the question of reference of words (rather than objects) to other *words* the problem of reference now is to relate words to background words not to the real world. So instead of word- world relationship we now have a word- word relationship, or rather w_b to w_o relationship, where w_b stands for the word in the background, and w_o to the word that is not in the background. So the problem of reference has changed. In the new perspective, the problem of knowledge is how to relate words with the world which is a causal problem. Once we accept this, the only epistemology left is a natural one, and not some supra-scientific 'theory of knowledge'.

3.1 Quine : From Ideas to Words

Quine's first milestone is a shift of attention from 'ideas to words', and of focusing the analysis of representation upon linguistic expression or utterances, rather than upon thoughts or ideas. C. Hookway says, "The merit of this shift was that attention could turn from shadowy objects of introspection to more easily examined public representations"(16). Once this shift is made, now we require a second shift. One problem of the traditional epistemologist who believes that we have ideas which can be grasped by the rational mind is how these

ideas or mental images correspond to the real objects in the outside world from which these ideas get their significance. Similarly, when Quine talks of words, his problem would be what do these words *mean*, or what do they correspond to? This for Quine is a wrong way of questioning about words. What these words we use mean has nothing to do with what they correspond to in the real external world. In other words, the question of meaning of linguistic expression has to be divorced from the question of *reference* of the linguistic expressions. Let us see in the next section how this can be done.

3.2 Quine : Meaning and Reference

Our first task is to divert Quine's theory of meaning from his theory of reference. In TD⁵ Quine gives certain arguments why meaning is not the same as referring. Take the case of singular expressions 'the morning star' and 'the evening star'. They have the same reference or denotation, i.e., the planet Venus; however, they do not *mean* the same thing. Further, take the case of general propositions: 'creatures with a heart' and 'creatures with a kidney', both have same denotation or extension, i.e., *true of the same things*, but do not have the same meaning. From this we can see that meaning or reference are not the same thing.

Further take the following sentences :

- (7) Boston is in the U.S.A.
- (8) Shakespear is British.
- (9) Jane is the sister of Mary.
- (10) L.A. is to the south of San Francisco.
- (11) It is not the case that San Francisco is to the south of L.A.
- (12) Boston is in the US and Shakespear is British.
- (13) Othello killed Desdemona.
- (14) Centaur was half goat half man.

Now the above sentences include : singular terms, predicates and relations. Take the case of singular terms first: 'Boston', 'Shakespear', 'L.A.', 'Jane', 'Mary', 'San Francisco', 'Othello', 'Desdemona'. How do we understand them? By understanding the object they denote or stand for. Now take the case of predicates like 'is British' or 'is in the U.S.A.'; how do we understand them? Let us take the predicate 'is British'. It does not refer to any concrete objects like Shakespear or Boston. What are they and how do we understand them? One answer is that since I understand the predicate 'is British' it must be meaningful. Being meaningful it must stand for *something*. As it does not stand for anything

concrete, it must stand for something abstract, the *attribute* of being British. Regarding this view Quine says: "We do not believe in abstract entities. No one supposes that abstract entities - classes, relation, properties, etc., - exist in space and time, but we mean more than this. *We renounce them altogether*"⁶(18). Further Quine also rejects the view that such things as Othello or a centaur exist, even in the form of an *idea* in anyone's mind. For Quine when we talk about Othello or the centaur these are not the subjects of factual discourse, even though we pretend they are, they are merely 'frivolous' discourse. If this is Quine's view on the relation of reference and meaning, then how is it that we understand the meaning of each other's words and are able to communicate meaningfully? Further, what constitutes reference? According to Quine there is no 'museum myth of meaning', just as there is no fixed reference for any word. Meaning is actually some kind of public observable discourse. In order to understand this theory we have to turn now to one of Quine's most famous theory, the theory of meaning together with the theory of indeterminacy of translation and reference.

3.3 Meaning, Translation and Reference.

Quine's theory of meaning is closely bound up with his theory of translation. In *Words and Objects*, Quine gives us the essence of his theory of translation: "manuals for translating one language into another can be set up in diverse ways, all compatible with the totality of speech dispositions, yet incompatible with one another"(19). In order to understand this let us understand Quine's notion of *radical translation*. Let us imagine an English-speaking linguist called Noam, who is among the Martian's: let us call the latter's language *Eta*. Noam is trying to translate Martian's language into English. This is called radical translation because the language which is being translated here is without any preexisting aids. Noam is trying to translate the words that a Martian named SHRDLU is uttering. Now let us consider the steps which Noam follows in translating SHRDLU's language. Step(1) is to translate the SHRDLU's utterances keyed to present events that are conspicuous to Noam and to the subject. Suppose a cat scurries by, SHRDLU says 'Malai', and Noam notes down the sentence 'cat' (or 'Lo, a cat') as tentative translation, subject to testing in further cases⁷. Step(2) is to look for assent and dissent. The question is not what SHRDLU assents to when uttered a single word in the presence of the

correct stimulus, but what SHRDLU could have uttered in the case of that stimulus. So Noam in the presence of a proper stimulus, utters the word and waits for assent or dissent from SHRDLU. One problem with this is that is no way to guarantee what a sign for assent or dissent is in *Eta*. One partial criterion for this is the following : Suppose in the presence of appropriate stimulus a Martian is asked by Noam, he will assent to it under similar episodes in the receptual neighbourhood of the episodes near to which he volunteers the same sentence. A partial criterion for dissent is that a speaker will dissent under no circumstances producing episodes in the receptual neighbourhood of the episodes to which he volunteers the sentence. This is specially difficult in the case of observation sentences, but Noam can always guess.

Step(3) Next after quering an object several times and getting assent, Noam can *inductively* establish which word correspond to which. Now, with this there always remains the possibility of mistake in the process of this query, so with the next dissent we discard whatever translation we have made. Even with continous assent say repeatedly Noam asks 'Malai?' in the presence of a cat and is repeatedly getting assent. Now with a high degree of certainty he can write in his manual 'Malai' as the translation for 'cat'. But even though there is this high degree of certainty, still it remains vague as to whether 'Malai' is a translation of 'cat' or 'cathood' or 'Lo, a cat' or 'cat stage'. This is what Quine refers to as the *indeterminacy of translation*.

The steps indicated above requires the step of *analytical hypothesis*. Noam divides the Martian's utterances into short "words" and compiles them. Various of these he hypothetically equates with English. But analytical hypothesis does not provide absolute equations of English and *Eta*. If these hypotheses are not certain how can Noam arrive at them? According to Quine Noam apprehends a parallelism in function between some component fragments of a translated whole (SHRDLU) sentences and some component words\ of the translation of the sentence⁸. The prior assumption of Noam is a projection of prior linguistic habits. Thus, he uses analytical hypothesis, and by the momentum of his home language is thrown into the Martian's language. One interesting fact about this is that Noam brings his own conceptual scheme and superimposes his own language on SHRDLU's language at almost every step. Now, what is more interesting is to see that here we have not only an indeterminacy of meaning, but also an *indeterminacy of reference*. How is the theory of indeterminacy of translation related to the theory of reference? Quine says that "when we

merely explain what a thing a theory is about or what things its terms denote"(27) what we want to show is "how to translate all or part of the object theory into the background theory"(27).

Quine says about his theory of reference that the indeterminacy of translation now confronting us cuts across extension and intension alike. The term 'cat', 'undetached parts' and 'cat stage' differ not only in meaning; they are true of *different things*. Reference itself proves behaviourally inscrutable⁹. Let us see what exactly Quine means by this here? Suppose we want to know what 'Malai' means in SHRDLU's language. As the indeterminacy of the translation shows that it can mean any of the three above('cat', 'cathood', or 'Lo, cat'), and *all three are equally defensible in the absolute sense*. So, the reference of 'Malai' is absolutely speaking indeterminate. From this instance we can generalize that all terms have indeterminate reference.

Now, statements about a terms' relative reference *do not show how to relate the term to the world, but how to relate it to its background theory*. Further Quine also says that, "It is really a matter of showing how we propose, with some arbitrariness, to relate terms of the object theory to terms of the background theory; for we have the inscrutability (i.e. indeterminacy) of reference to allow for"(23). Now as Aune points out, "These remarks suggest that, for Quine, statements of the form \emptyset refers to (denotes, is true of) K's actually relate words to other words rather than (or at least directly) relating words to the world"(25). Next let us work out to see how this background theory is reached¹⁰. As we have seen before ' \emptyset refers to K' relates, according to Quine, words to other words. In other W_o is not related in R_o to the other world, but to the background theory. So, for R_o , K_{cw} is not T_{ww} but T_{wb} . Now go back to our story of Noam and SHRDLU. There must be at least some terms in Noam's vernacular (which is English) which is co-referential with some terms in SHRDLU's vernacular which is *Eta*, although one is not a good translation of another. 'Only domesticated feline' has the same reference as 'cat', but it is not a good translation of 'cat'.

If we represent a chosen translation manual, *Lisp* or shortened as L , then to the question 'How is a relative reference related to its translation by a certain manual?' we can have the following answer :

(15) \emptyset refers $_L$ to Ks iff (x) (x is a K iff Tx).

Here T is our translation, according to our manual named *Lisp*, or L , of the \emptyset . Now, if we take the meaning of \emptyset refers to K as, for all the substitution instances of x, \emptyset refers to x, iff x is a K. Logically,

(16) (x) (refers_L x iff x is a K).

The right hand side of (15) allows us to deduce the truth of

(17) (x) (x is a K iff Tx)

(18) (x) (\emptyset refers_L to x iff Tx).

So Quine's implication is that a term's relative reference do not relate the term to the world, but shows its relation to other term, we can infer the following regarding R_q :

(19) $T_r \rightarrow T_{wb}$.

(20) $T_{wb} \rightarrow \sim C_p$

So $T_r \rightarrow \sim C_p$.

But $K_{ew} \rightarrow C_p$.

(21) $\sim C_p \rightarrow \sim K_{ew}$.

Therefore, $T_r \rightarrow \sim K_{ew}$.

However, for R_i problem of knowledge is taken as S_p , which again implies T_{ww} . Once this is done, there is no way the sceptic could be answered. They fall into the sceptic's hand. To answer the sceptic we have to divert the T_r from C_p , and connect it with S_p , and we can say that the R_i was looking at the solution in all the wrong places. What is needed to be done to answer the sceptic is a revision of their theory of meaning and their theory of reference, and not a building up of a 'theory of knowledge'. And once we have in our hand M_q and S_q , NE is definitely the only answer in NE.

4 Can we justify knowledge?

Let us begin with what Quine says. Quine says that there is no way we can answer Hume's question, which is : "What is the justification for our knowledge of the existence of the outside world?". In answering question(a) we saw that inspite of the SP-thesis we can make free use of science to refute the sceptic. Can we make free use of science in the case of (b)? Well, maybe Quine is right in saying that Hume's criticism cannot be avoided. However, if we peruse NE, as an answer to (a), we thereby accept that the problem of knowledge is a *scientific problem*. After all, by accepting NE, we have accepted epistemology as a science but differs from the latter only in the 'breadth of categories' (12)¹¹. If it is a scientific problem, then why not use the same justification that natural science uses? After all, we claim to have knowledge in natural science. The traditional epistemologist will probably ask : How do you know that science gives us knowledge? Our answer is : your question is an external one. There is nothing 'meta-scientific' in knowledge in so far we accept

(a). We are *not* trying to justify an answer to (b) by itself, but by assuming that we have accepted NE as an answer to (a). So far we have accepted NE as an answer to (a). Instead of undermining the foundation of science, we can enquire what it is that gives knowledge in science. On the other hand, by accepting NE, we have accepted epistemology as a science. The SP-thesis stands a chance *only if it rejects our other theories (such as M_q and S_q), about which it says nothing.*

We have already said that we accept epistemology at par with other sciences, only as a wider science. If so, then why not apply here the same justification as the other sciences? **So, we turn the tables now, instead of trying to justify science, we first establish the new broad science called epistemology, and then we go to other sciences to find their method and use it here.** What sort of knowledge do scientists claim to have in their fields of enquiry? **Not certain knowledge but probable knowledge based on some evidence, and the power of prediction which may subsequently be refuted by gathering of further evidence.** But so long as no contrary evidence is available our current body of knowledge is held to be certain. What sort of justification goes on in science? Suppose, we have to confirm a scientific hypothesis H on the basis of evidence E. One important thing about a scientific hypothesis is its power of prediction. Suppose we say that :

IF H and C, the R

C obtains

R obtains

Therefore H is confirmed to a degree of profitability.

On the other hand, If H and C, then R

C obtains

R does not obtain

Therefore H is refuted.

Now statisticians have given powerful tools for the confirmation of hypothesis. These have the virtues of a deductive theorems. To test whether there are protons, for example, the scientist predicts that if the gas is passed through the gas of a Wilson cloud chamber, distinctive trail of ionized gas will be observable. Such predictions can be made and if they come out true then the result will be approximately true. Of course, the conditions can change, and then this prediction will come out false. Many hypotheses in science are tested like this. One popular theorem for testing the most probable hypothesis is :

$$P(h/e) = \frac{P(h).P(e/h)}{P(e)}$$

$P(h/e)$ is the updated probability, $P(h)$, $P(e)$ are prior probabilities, and $P(e/h)$ is the likelihood.

This together with conditionalization will give us the best result for testing a hypothesis. What the latter rule does is to update the older hypothesis and use it as new evidence.

One important thing must be reminded by here : that is that, we are not trying to answer the philosophical question : what is the *guarantee for knowledge*? We are merely trying to explore what the *scientist does when she/he is claiming to establish an hypothesis*. We have already seen that there is no logical contradiction *within our theory of meaning and reference in implying a scientific epistemology*, or NE (as Quine and Quinians call it) so there is no harm *within this framework to guarantee a theory of justification at par with the other natural sciences*.

5 Conclusion

In the foregoing pages, we have tried to defend NE, from the SP-thesis whose basic criticism is that NE, in refuting the sceptic's argument, takes science for granted whose very validity is in question. One thing is clear from the above pages. All those who are trying to give an answer to the sceptic by giving a 'theory of knowledge' are assuming some *certain foundations of knowledge*, from which to build up a 'theory of knowledge'. And this holds both for the empiricist and the rationalists. Once we reject any such *a priori foundation*, we are no longer under the obligation to *go beyond* science in order to validate the objects of science. Moreover, once we accept that the theory of reference has nothing to do with word-world relationship, which is causal theory, the question itself demands a scientific answer. So, once we see the theory of reference in proper perspective and accept NE as the only epistemology, we can, without doubt, use science without fear of losing some 'certain foundations', as supposed by the rationalistic or empiricistic camp. For, our whole concern is now pragmatic. Quine says that the conceptual scheme of science is a tool, "Physical objects are conceptually imported into the situation as convenient intermediaries - not by definition in terms of experience, but simply as irreducible posits." (28) Further, we can *turn the table in answering the second question*. We do not *seek the ultimate justification for science* but we *go to science and analyse its foundation to see what it uses, and*

return with whatever justification it has given us.

I am not suggesting that NE is foolproof against Hume's scepticism regarding (b), and Aune is perhaps, after all, right in saying that, in choosing our basic premises in induction we can only be guided by our epistemic end, and not by any other appropriate justification. My claim, in this essay, is rather restricted: that is that, the SP-criticism of NE being circular is *piecemeal*. Once we recognize this, the rest of our thesis follows naturally.

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NOTES

- ¹ Although the sceptic is interested in all kinds of knowledge, we in this essay, are primarily concerned with knowledge of external world.
- ² See 'Epistemology Naturalized'(1)
- ³ Henceforth NE.
- ⁴ We shall discuss this later.
- ⁵ Short for 'Two Dogmas of Empiricism'(17)
- ⁶ Italics mine
- ⁷ I have adopted this formulation from Quine with some changes, see Quine(20).
- ⁸ See (21).
- ⁹ See OR p.35(24).
- ¹⁰ I owe this idea of words relating to background words and the whole working out of this particular thesis to Aune's paper, 'Quine on Translation and Reference'(26)
- ¹¹ See above.

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- (3) HK p. 347.
- (4) HK p. 113.
- (5) HK p. 119.
- (6) HK p. 352.

- (7) from *HK*, pp. 241-53.
- (8) *Roots of Reference* by W.V.Quine, La Salle, Ill.: Open Court, 1974. p.2. henceforth RR.
- (9) 'The Nature of Natural Knowledge', in S.Guttenplan edited, *Mind and Language*, Oxford 1975, p. 67.
- (10) *Words and Object* by W.V.Quine, henceforth WO.
- (11) *WO*, p.3.
- (12) *WO*, p.275.
- (13) *HK*, p.252.
- (14) *SPS*, p.243.
- (15) *RR*, p.3.
- (16) *Quine : Language, Experience and Reality*, by C.Hookway, California, SUP, 1988.
- (17) *HK*, p.241.
- (18) *Quine : Language, Experience and Reality*, by C.Hookway, California, SUP, 1988.
- (19) *WO*, p.27.
- (20) *WO*, p.29.
- (21) *WO*, p.70.
- (22) *SPS*, p.228.
- (23) *Ontology, Relativity and Other Essay*, New York, Columbia University Press, 1969. p.61, henceforth OR.
- (24) *OR*, p.35.
- (25) 'Quine on Translation and Meaning', *Philosophical Studies*, 27, (1975): p.223 Henceforth QTM
- (26) QTM.
- (27) QTM
- (28) *HK*, p.252.

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