Logical structure of a sentence as a tool for the assessment of thought disorder (Ancient Indian View)

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It is now well recognised that inconsistency in the spoken or written language of schizophrenic subjects is due to their false logic behind the structural aspect of sentence. The defect in the schizophrenic language is in the output rather than in the input. That is, schizophrenics can perceive and process language normally but they are impaired in some aspect of language production (Rochester 1973). Many attempts have been made to find out the underlying factors in schizophrenics speech, as speech is considered as a vital sign in the diagnosis of schizophrenia — a hydrogenous clinical entity with diverse manifestations and outcomes.

The inherent difficulty in the demarcation between thought language and speech has probably led to the improper understanding to schizophrenic language phenomenon (Lewis 1944). It has also been noted that the peculiar speech of schizophrenic does not arise of linguistic deficit rather in the content of the language (Bleuler 1950). It has been argued that the failure to distinguish among thought, language and speech leads to totological arguments such as: thought disorder is when talk is incoherent and talk is incoherent when thought is disorder (Rochester and Martin 1979). However, the linguists have long back noted the distinction between thought language and speech i.e., language is an abstract set of linguistic rules whereas speech is the individual's performance created by using the language rules and thought is in the background of both (Saussure 1959). Few writers and researchers believe that there is a language called 'schizophrenic language' with its own linguistic rules (Forrest 1976). It is further important to note the estimate of schizophrenic thought disorder varies from study to study (Andreaason and Grove 1979; Gerson and Benson 1977). Studies on 'Word associationism' in the production of schizophrenic language has led to the hypothesis of pecural word association hierarchies implying deviant semantic structure (Mednick 1958). But current studies have proved the word-association hypothesis largely illusory (Schwartz 1978). It has been found that not only schizophrenics but other patients and even normals do make semantic and syntactic mistakes (Chaika 1974). And sometime it is seen that schizophrenics do have the ability to use at least syntactic if not semantic and pragmatic rules (Fromkin 1975). Some researchers have suggested that schizophrenics language lacks normal redundancy (Rutter et al. 1977). Content analysis of schizophrenics speech is done with not much success (Laffal 1979). The pragmatic deficit in schizophrenic's speech has been pointed out by many including Ostwald (1979) and Cohen (1978). All these studies however, are attempts only and could not tackle the problem.

In the present paper, the author is of the opinion that the basic problem of schizophrenic speech has been not because of a linguistic deficit but due to idiosyncratic logic. Therefore (following the lines of Bluler) it is
proposed that the theories of fallacies of reasoning (Hetwabhas) as advocated by the ancient Indian Nyaya Shastra (Logic) can be of some use to understand the schizophrenic speech and thus a tool can be constructed upon this theory.

(ii)

The intimate relationship between mind/thought and speech is recognised in Indian thought right from the Vedic age. The word ‘mati’ which signifies the meaning of mind also used in Rigveda for utterance, prayers, hymns and everything which is related to vocal expression (Sharma 1972). Later, Panini – the greatest sanskrit grammarian (700 BC) crystallised the concept of mind as associated with the cognitive process, through the word, and held that spoken words had the dual functions of object specification and object differentiation (Seal 1956).

And finally each system of Indian Philosophy in general and Nyaya System (Logic) in particular synthesised this concept through the logical analysis of sentence.

Nyaya Darshana’s logical analysis of a sentence

Nyaya Sutras were written by Gautama sometime in 200 A D (Dasgupta 1957). The purpose of his Nyaya Sutras was to determine the reality/truth by means of logical proof – a formal analysis of proposition and the inferential cognitive structure of a sentence (Pramanaaarth Pareekshanam Nyayah – Vatsayana’s commentary on Nyaya Sutra 1.1)

In order to achieve this purpose Nyaya darshana emphasized the need of arranging the words in to a sentence in a certain order, conforming the four conditions: These are: (1) expectancy or ‘Akanksha’; (2) Mutual or semantic fitness or Yogyata; (3) Juxtaposition or Sannidhi, and (4) Intention or Tatparyaya (Potter Karl 1977).

Expectancy refers to that quality of words of a sentence by virtue of which they expect or imply one another. For example, when one hears the word ‘bring’ one at once asks ‘what’? Thus, when the expression is ‘bring a glass of water’ only then it is synthetically well-formed.

Mutual or Semantical fitness means the absence of contradiction in the relation of objects denoted by a sentence. The expression ‘watering with fire’ is an example, where semantical fitness is lacking.

Juxtaposition indicates the absence of long interval between the two spoken words. For example ‘I...go’ will not make a sentence if uttered in two hours time. When spoken as ‘I go’ it is juxtaposed.

Intention is the intended meaning of a word. Since a word may mean different objects in different contexts, the meaning depends on the particular reference on the part of the person who uses it. For example, the word ‘Hari’ has seven meanings in Sanskrit. It is the intention of the user that specifies the particular meaning.

Inconsistency, therefore can be found with respect to any of these four conditions in general. But, for the assessment of higher thinking/reasoning of an individual, the principles of logic have to be applied, as logic is directly connected with thinking and reasoning with respect to its consistence and formal validity.

Logical analysis though consists of a proper adjustment of sequence, occurrence, co-existence, collocation and vital growth of object/word and meaning, Gautam formed his logical theory only on the basis of inferential cognition (Anumana) which in interpreted in three ways (1) Cause to effect or Purvavat; (2) effect to cause or Sheshavat; and (3) General co-relation or Samanyatodrashta (Nyayasutra 1-5).

The above theory is further standar-
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emphasized on the five basic factors of logic. These are: (1) Hypothesis or Pratigna; (2) Reason or Hetu; (3) Example of Udañhara; (4) Application or Upanaya; and (5) Conclusion or Nigamana (Nyaya Sutra 1 - 32). One example is enough to highlight all these factors: Mountain is fiery (Hypothesis) – because of smoke-possessing (Reason). Wherever there is smoke, there is fire (example), as seen in kitchen (application). Therefore, mountain is fire-possessing (Conclusion). Here, the hypothesis is restated in proved terms and any derangement in above said process is liable for logical fallacies. Since, reason or ‘Hetu’ is main factor among these 5 factors, the logical fallacy is named after reason only viz., Fallacies of reason or “Hetwabhasa”.

Gautama has mentioned five kinds of fallacies of reason. (We propose these fallacies as the tools for the assessment of thought-disorders).

These are: (1) Discrepancy or Sabyabhiñchara; (2) Contradiction or Virudha; (3) Ambiguity or Prakaran – Sam; (4) Futility or Sadhyasam and (5) Mistimed or Kalatita (Nyayasutra 2.5).

1. Discrepancy – A reason which is indecisive causes discrepancy. It is of three types (A) Overwide or Sadharana (B) Peculiar or Asadharana and (C) Non-exclusive or Anupasamhari. The examples of these three will make the concept clear:

(A) Overwide – Mountain is fiery because object-possessing; since the smoke is also an object, the logical statement may be correct, but this is not accurate as it is an over wide statement.

(B) Peculiar – Sound is eternal because it has sound-possessing quality (Sabdhah Nityah, Shabdalatwat). Though this statement does not isolate the laws of logic, it is failure to think.

(C) Non-exclusive – Everything is mortal because everything is object, again makes no logical apprehension.

(2) Contradiction – A reason which contradicts the accepted tenets is called contradiction (Virudha). For example, world is a modification (Vikara) of something and no modification is eternal, but the world continues to exist since it cannot be destroyed. Here, self contradiction is present.

(3) Ambiguity – A reason which has two equal arguments to support and defeat as in this example – sound is eternal as it is not created by someone and sound is non eternal as it is created by someone. These two arguments show the ambiguity.

(4) Futility – A reason which is as much in need of proof as the things to be proved. For example – shadow is a substance because it possesses motion. It is not shown that shadows move. Therefore, it is equally possible that they don’t move.

(5) Mistimed – A reason which is mistimed. For example – sound is eternal because it is manifested by contact, like colour. Here the contact [between light and jar] which produces colour is of a different sort from the contact which produces sound. The modern Nyaya (Udayan etc. 12 AD) has further shown the functions of supposition (Tarka) on 5 basis, which can also be measured as a tool for the assessment of inconsistency (POTTER, 1977). These are:-

(1) Self-residence or Atmasraya – It is a self projection of individual that shows departure from reality.

(2) Dilemma (Anyonyasraya) – It is inability to reach a definite conclusion.

(3) Circular argument (Chakraka) – It is a consecutive utterance of two or more sentences betraying the contextual relationship between them.
(4) Regression and infinite (Anavastha) It is reduction of a sentence to such an extent as being incognizable.

(5) Reduction and absurdity (Pramahadita). It is a sort of minimizing the meaning of an object up to an absurd level.

The primary analysis of speech with special reference to thought-process can be made through two ways – that speech which has to do with meaning and that which has to do with structure of a sentence. The later one is the domain of our present theory. Thought disorders necessarily involving considerable incoherence in speech indicate faulty logic at work. An analysis of the quality of this incoherence in speech is attempted here, as a probable indication of thought disorder.

The items of incoherence in the sequence of the talk is singled out and analysed according to:

A) Canons and principles of ancient Indian Logic,

B) The rationale in the web of ideas and the

C) Faulty logic and clumsy expression – understood through the conceptual functions of each of the logical fallacies or 'Hetwabhasas' namely discrepancy, contradiction, ambiguity, futility and falsity. So, what has been presented here is the plain structure of these logical fallacies. A psychological test is being developed on this pattern to assess the capacity of reasoning/thought in groups of normal as well as schizophrenics. It is our hope and expectation that this paper will stimulate researchers in this field to find out alternative paradigm and innovative models for the testing of the speech of mental patients so as to know their thought disorder.

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