Journal of Indian Council of Philosophical Research

JICPR

Editor D. P. CHATTOPADHYAYA

VOLUME II
NUMBER 1
AUTUMN
1984

JICPR

is a half-yearly philosophical journal published by the Indian Council of Philosophical Research (ICPR). It is devoted to the publication of original papers of high standard in any branch of philosophy. One of the objectives of the ICPR is to encourage inter-disciplinary research with direct philosophical relevance. Accordingly, contributions from scholars in other fields of knowledge, dealing with specific philosophical problems connected with their respective fields of specialization, would be highly welcome. However, good and original contributions pertaining to any branch of traditional philosophy would be equally welcome.

In addition to the two regular issues each year (Autumn and Spring) there is a plan to bring out one special issue of the journal which will be exclusively devoted to some specific topic to be announced in advance from time to time. Each regular issue of the journal will contain, besides full-length papers, notes and discussions, notes on papers, book reviews, information on new books and other relevant academic information. Each issue will contain about 160-180 pages (Royal 8vo).

If you have something interesting and original to say about any topic of philosophical relevance and you wish to have it published with the minimum delay in a professional journal with an international readership then JICPR would be your best choice.

Annual Subscriptions

	Inland	*Foreign*	
Institutions	Rs. 60	U.S. $ 15	(Surface Mail)
Individuals	Rs. 40	U.S. $ 12	-do-
Students and retired teachers	Rs. 20	U.S. $ 8	-do-

Bonafide students and retired teachers are requested to ask for special subscription forms.

Air mail cost will be charged extra to those subscribers who want to get the Journal by air mail. Request for air mail delivery must be made in writing.

For subscription and all other business enquiries (including advertisement in the JICPR) please contact directly:

Subscription Department
MOTILAL BANARSIDASS
Bungalow Road, Jawahar Nagar
Delhi 110007, India.

All subscriptions must be prepaid.

All contributions to the Journal, other editorial enquiries and books for review are to be sent to the Editor.

Journal of Indian Council of Philosophical Research

VOLUME II NUMBER 1 AUTUMN 1984

Editor D.P. CHATTOPADHYAYA

Indian Council of Philosophical Research
Guru Nanak Foundation Building, New Mehrauli Road, New Delhi 110 067

Printed in India
by Shri Shantilal Jain at Shri Jainendra Press, A 45 Naraina, Phase I,
New Delhi 110 028
and published by Shri Kireet Joshi
for Indian Council of Philosophical Research,
Guru Nanak Foundation Building, New Mehrauli Road, New Delhi 110 067

Contents

Marx and Marxism*

SURENDRANATH DASGUPTA

Hegel died on 14 November 1831 and Karl Marx was born in Trier (Treves), the Rhineland Germany, on 5 May 1818. His father was a German Rabbi. Marx studied philosophy and law in the University of Berlin in 1836-37 and even in these early years he sought refuge in Hegel from the abstract idealism of Kant and Fichte. He also wrote poems but finally the Hegelian philosophy took possession of him, and he burnt his poems and materials for short stories. Until the end of the 18th century the universe and social organizations were conceived for the most part as fixed, constant and eternal. With the coming of the 19th century, however, this concept gradually began to give way to a concept of eternal change and endless evolution. The logic for this new philosophy was supplied by Hegel in his conception of the dialectic. The fundamental principle of this dialectic method is that change took place through the struggle of antagonistic elements and the evolution of these contradictory elements led to a synthesis, the first two elements forming a new and higher concept by virtue of their union. The first stage and the contradiction of its opposite in any part of the chain were respectively called the positive and the negative or the thesis and anti-thesis. According to Hegel, all reality was thought. Thought started with Being. A Being contradicted by Non-Being developed into determinate Being, and being further contradicted by its opposite developed into further stages which were all in their turn contradicted by their opposites; and it is through this series of contradictions that thought gradually developed into the different categories which exhausted the whole field of reality. The contradiction, anti-thesis or negation was, according to Hegel, the source of all movement and life; only in so far as it contains a contradiction that a thing has movement, power and effect. One of the great difficulties in Hegel's philosophy has been the deduction of nature from thought. To suppose that one can deduce a solid thing, a table or a chair, from a system of abstract thoughts is equivalent to supposing that by mere thought we can create these solid things out of nothing. So long as thought remains within itself the deduction of one thought from another may be quite legitimate; but any attempt to derive the concrete and the contingent from mere thought would be an impossible act of logical gymnastics. To suppose also that concrete matter and material objects are nothing but only thought is real is equally impossible. This was a real difficulty in the system of Hegel and, as we shall see later on, it is here that Marx and other philosophers who followed Hegel ruthlessly criticized him. Hegel's own language in his treatment of the

*This paper, composed more than three decades ago by the eminent philosopher (1885-1952), the author of *A History of Indian Philosophy*, is published for the first time with the permission of his wife Dr (Mrs) Surama Dasgupta.—EDITOR

philosophy of nature and of spirit is rather obscure. The only way of defending Hegel would be to think that he did not derive nature from thought but only the thought of nature and its different categories from other aspects of thoughts. So when in philosophy of spirit he seems to deduce civil society from the family and the state from the civil society, what he is actually deducing are the thoughts of these things. Everywhere throughout the entire system he is concerned solely with thoughts and there is nowhere any attempt to do anything except to deduce one thought from another.

Marx, though a student in the university, did not care much about his regular studies but spent sleepless nights in working out philosophical problems which could be of little assistance to him in his studies. In one of his letters, Marx's father writes thus:

> Indeed these men sleep quite peacefully except when they now and then devote a whole or a part of a night to pleasure when my clever and gifted son Karl passes wretched sleepless nights wearing body and mind with careless study, forbearing all pleasures with the sole object of applying himself to abstruse philosophy. What he builds today he destroys tomorrow, and in the end he finds that he has destroyed what he already had without having gained anything from other people. At last the body begins to ail and the mind gets confused while these ordinary folks steal along in easy marches and attain their goal.

In 1841 he got his Doctorate on 'Natural Philosophies of Democritus and Epicurus'. He was an applicant for a lectureship in the University of Bonn along with his friend Bauer, but their applications were turned down on account of their revolutionary ideas. From this time Marx turned to criticism of current views by sweeping away old dogmas and bringing about the intellectual freedom of Germany. In 1842 at the age of 24, be became the editor of a paper *Rheinische Zeitung*. He studied economics at this time and delved deeply into the socialist literature of his time. In 1844 he contracted friendship with Engels, a businessman of Manchester, and had it not been for the kindness of Engels, Marx with his unpractical helplessness and at the same time proud and uncompromising disposition would most probably have perished in exile. In 1844 he published the *Holy Family* which contained the germs of the materialistic conception of history and the theory of the class struggle. He maintained there that ideas were potent in the development of society only as they represented the interests of the masses. Without this, ideas would be fruitless. During this time, i.e. in 1845, Marx became acquainted with Heine and also with Proudhon and other French reformers. In 1847 he criticized Proudhon in his *La Misere de la Philosophie* and in the following year published the *Communist Manifesto* along with Engels. The fundamental proposition of the *Manifesto* may be stated as follows:

(i) That in every historical epoch the prevailing mode of economic production and exchange, and the social organisation necessarily following from it, form the basis upon which is built up, and from which alone can be explained the political and intellectual history of that epoch; that consequently the whole history of mankind (since the dissolution of primitive tribal society, holding land in common ownership) has been a history of class struggles—contests between the exploiting and the exploited—the ruling and the oppressed classes;

(ii) That the history of these class struggles forms a series of evolution in which, now-a-days, a stage has been reached where the exploited and oppressed classes (the proletariat) cannot attain their emancipation from the sway of the exploiting and ruling class (the bourgeoisie) without, at the same time, and once for all emancipating society at large from all exploitation, oppression, class distinction and class struggles.

The Manifesto first deals with the rise and development of the bourgeoisie, i.e. the class of modern capitalist owners of the means of social production and employers of wage labourer and of the proletariat wage earners who, having no means of production of their own, sell their labour and power in order to live. The capitalists have left no other bond between man and man than naked self-interest counted in terms of cash payment. Their tendency during the last one hundred years has been to centralize the means of production of property in a few hands and thereby to acquire more power. But this great development of productive power of machinery is bound to recoil upon it as it contains the seeds of its own destruction. The dangers of overproduction at each crisis have to be removed by mass destruction of productive forces and by the conquests of new markets. Owing to the extensive use of machinery and the division of labour, the work of labour has lost its individual character and the worker is only an appendage of the machinery. The machinery being the most important, the burden of toil has increased and become unremunerating to the labourer. The proletariat is without property, and subjection to capital has stripped him of every trace of national character. Law, morality and religion are to him so many bourgeois prejudices behind which lurk in ambush just as many bourgeois interests. The modern labourer sinks deeper and deeper below the conditions of his own class. The development of modern capital is, therefore, bound to bring labour together into combination and, therefore, cut from under the feet the very foundation on which the bourgeoisie produces and appropriates products. The very productions of the bourgeoisie are its own grave diggers. The workingmen have no country, they cannot take from what they do not possess. Since the proletariat must, first of all, acquire political supremacy, it must rise to be the leading class in the nation. National differences and antagonism ought not in any way to affect the unity of the proletariat, for national jealousy is due to unequal exploitation which the communist programme wishes to dispense with. The first step in the revolution of the working class is to raise the proletariat to the position of the ruling class in the battles of democracy. The proletariat will

use its political supremacy to wrest by degress all capital from the bourgeoisie, to centralize all instruments of production in the hands of the state, i.e. of the proletariat organized as the ruling class and to increase the total productive forces as rapidly as possible. In the *Manifesto* the demands were : the abolition of property in land and application of all rents of land to public purposes; heavy and graduated income-tax; abolition of all rights of inheritance; and equal liability of all labour and so on. With the rise of the supremacy of the proletariat and the disappearance of the class distinction the political antagonism would cease. The *Manifesto* created for the first time a proletarian consciousness by infusing the workers with a high sense of their historic mission and realization of their dignity. The conclusions arrived at in the *Manifesto* were not an argument from metaphysics for principles of abstract right but the result of a historical and economical survey of facts. The *Manifesto* was issued a few days before the outbreak of February Revolution of 1848 in France which was soon suppressed.

Marx, being already banished from France, was living in exile in Brussels and he was again banished from Belgium; but the French revolutionists invited him to Paris and thereafter he was again invited to Germany. The failure of the revolution proved to Marx and Engels that the time of the revolution was not ripe. In 1863 a great conference was held in London as a protest against Russian attack of Poland. Marx who had finally emigrated to England in 1849 took a leading part in it and delivered an address in which he declared that the accumulation of wealth in England was wholly confined to the propertied class; and that as a result the workers were sent down to the lowest depth of misery. In 1867 the first volume of his great work *Capital* was published. In it he stated that even when a society has got upon the right track for the discovery of the natural laws of the movement of the economic laws of modern society, it can neither clear by bold beliefs nor remove by legal enactments the obstacles offered by the successive phases of its normal development. He maintained in the *Capital* that as the productiveness of labour increases, the demand for additional labour decreases and the number of the unemployed increases. Thus the accumulation of capital results in misery. According to his theory of surplus value, though the labourer's work for a short period is enough to earn for him his subsistence, he is made to work for a longer period and the profit goes to the pocket of the capitalist. Thus overproduction leads to greater surplus value and the lot of the labourer becomes worse. Accumulation of capital at one pole is, therefore, at the same time accumulation of misery, agony of toil, slavery, ignorance, brutality, mental degradation at the opposite pole, i.e. on the side of the class that produces its own products in the form of capital. This leads to the revolt of the working class, a class always increasing in numbers, disciplined and organized by the very mechanism of the process of capitalist production itself.

This is bound to recoil upon the tradition and notion of private property, and the capitalist era gives birth to an industrial society based on the possessions in common of the land and of the means of production. From this time onwards Marx gave much thought and energy to the organization and development of International Workingmen's Association (First International) with a view to wresting it from the control of Proudhon and Bakunin. In 1870 came the Franco-Prussian war which was followed by the defeat of the French at Sedan and the formation of the Paris Commune by the working class, much against the advice of Marx. Its bloody suppression led finally to the removal of the headquarters of the First International to America where it gradually dwindled away.*

Up till a short time before the advent of Marx we have a history of many idealistic utopias like those of Bacon's *New Atlantis*, Campanella's *City of the Sun*, More's *Utopia* and the doctrines of other utopian socialists like Nabeuf, Cabet, Saint Simon, Fourier, Louis Blanc, Proudhon, Robert Owen. But it is practically with Marx that we find that the grievances of the labouring class were forging themselves into courses of logical and active demonstration.

It may be necessary here to say a few words about different socialistic theories which were being preached by persons other than Marx. Robert Owen in spite of his many failures stands as a prominent figure in socialistic thought for indictment of the present order of society, for its wastes, its injustices, its tragedy of unemployment and his emphasis on social happiness as ideal of human progress, and for his insistence on co-operative activity for the common welfare in the production and distribution of wealth. All socialists since the days of Owen favour democracy and the total abolition of the capitalistic system. The distinction between socialists, anarchists and syndicalists turns largely upon the kind of democracy which is desired. The orthodox socialists desire a parliamentary democracy and hope that the evils of the present age will pass away with the passing away of capitalism. Anarchists and syndicatists wish to manage the political affairs in a different manner, but they are all in favour of removing artificial inequality and of communal ownership in some form or other. It is wrong to suppose that an anarchist is a person who throws bombs and commits outrages and uses political opinion as a cloak for his criminal tendency. Anarchism is a theory which is opposed to the state as the embodiment of force employed for the government of a community. According to the anarchists, government is free only when it is run not by the opinion of the majority but by the opinion of all the members of the community. Its doctrines were set forth even in as early times as 300 B.C. by Chuang Tzu, a

*The International Workingmen's Association (the First International) was founded in London on 18 September 1864. Karl Marx was one of its leading figures from the very day of it inception. Congresses of the International were held at Geneva (1866), Lausanne (1867), Brussels (1868) and Basle (1869). Dissensions in the International, between the forces represented by Bakunin and Karl Marx, which reached its climax at its Hague Congress in 1872 after the defeat of the Paris Commune in 1871, led ultimately to the transference of its General Council to New York. After four years from that date the International officially ceased to exist.—EDITOR

Chinese philosopher. Bakunin may be regarded as the founder of anarchist communism and his views are very largely represented in the writings of Kropotkin. According to them, small communities are to be formed which should have all the land and there should be no obligation to work, and all things are to be shared in equal proportion among the whole population. Kropotkin thinks that in such a society every one will prefer work to idleness because work will not involve overwork or slavery or that excessive specialization which industrialism has brought about, but will be merely a pleasant activity for certain hours of the day giving a man an outlet for his spontaneous constructive impulses. Proudhon was an idealistic socialist, who believed in a social organization without government, without private property and without inequality. Anarchy with him meant the absence of master or sovereign. But we need not enter into the detailed views of these theorists, because none of their theories ever took a practical shape or could influence the development of socialism in a practical manner.

We now come to Marx as a philosopher of socialism. We know that he started his socialistic thought under the influence of Hegel and he accepted his dialectic method, i.e. development through opposition as the fundamental mode of the advancement of society. There are, however, some important points in which Marx differs from Hegel in a very remarkable manner. According to Hegel, the logical and dialectical development of thought represents the totality of Being and is in reality a manifestation of the self-developing process of God. But Marx thinks that the acceptance of Hegel's position would dissolve the world into appearance. Hegel's law may be true for thought, but it can never deduce the world of matter. Marx was an atheist and he denounced the idealism of Hegel which led him to a pan-psychic theory of theism. Marx further held that the political philosophy of Hegel is not deducible from his metaphysics. Hegel's identification of reason with reality was false. Hegel was a defender of the then prevailing monarchy of Germany and regarded it as the blossoming of the development of spirit. He transforms the empirical fact that in the will of the monarch lies the final decision of the will is monarch. For Hegel the state is the realization of moral principles and concrete freedom but it cannot be logically primary to society. Marx pointed out that state is a product of social life and its condition. Society, therefore, has the right to overthrow any particular form of state. Marx regarded modern state power as merely a committee which manages the common business of the bourgeoisie. Again for Hegel the function of a philosopher is to take a thinking view of things, i.e. to understand the process of development underlying thought and Being. His philosophy is impractical. He has to explain evil as the necessary counterpart in a metaphysical harmony. Marx regarded the concrete world of matter as having an existence by itself but it was never identical with thought. What we understand by thought we must give effect to by our will or activity. According to Marx, it is not enough to theorize about any society or to regard the existing evils as being somehow reconciled with the

ideal conception, but it is necessary to find means how to combat the evils and to remove them. The purpose of his own social theories is to acquaint the people with those social tendencies which are bound ultimately to lead to revolutionary action. Philosophy is not retrospective insight into the past but the prospective anticipation of future work. If the present is what it is because of certain conditions, philosophy provides the weapon as to how and why those conditions can be or will be removed. But in one point there seems to be an agreement between Hegel and Marx, for both of them regarded philosophy as in some sense normative. Marx definitely says that it is criticism which reveals the value of any particular kind of thought. He further says that because every philosophy has its material grounds, true criticism must evaluate the nature of these material conditions. In the class struggle, each class develops an ideology and Marx holds that only that class has a right to speak, which by liberating itself removes the chances of future conflicts. In a classless society no separate ideologies are necessary as the background of philosophy, law, ethics and politics; but there being only one class of need one only requires intelligence as to how that need can be achieved. In a classless society, philosophy ceases to be speculative and turns itself into a practical science.

Again while Hegel was idealistic, Marx was materialistic. Marx agrees with Feuerbach that critical materialism will destroy traditional philosophy. His perspective was that of the world as it was and his ideal was to change it for the good of humanity. Marx really followed Feuerbach in the aspect of his materialism. Marx's chief objection against Hegel is that from logic we can never come to real existence. Marx denies the possibility of absolute thought and thinks that all thought can only be human. Human consciousness again is the only unit of the reactions of society in which one lives. According to Marx, Hegel's deduction of categories in an ontological manner, independent of the material object, is merely a metaphysical fancy. The categories are merely a skeleton of thoughts and nothing else. Marx totally disregards the possibility of any abstract value. He says that given social conditions of productions, values are discovered to be involved in the exchange of commodities without any one intending that it would be so. Although invisible, the value of iron, linen and corn has actual existence in these very articles. Only those universals have meaning for him which can be exemplified. He denied the existence of pure universal or of those universals which could not be concretely realized. In the conception of history also Marx opposed Hegel's teleological and deterministic view. History is not made by the absolute through its inner development, but is made by men, through the realization of their active impulses. History is not a person who forces nation to behave in a particular manner, but is a record of the actual concrete lives of men. Human history is a social history and the record of the struggle of classes. Individuals may not necessarily be moved by economic considerations but they are the resultant effects of their common activities. The constant and pervasive pressure of needs arising from economic conditions makes itself felt as the

ultimate activity of the aggregate. The action and motives of the individuals may sometimes be important but in general it is the aggregate that counts. If all history is the history of class struggle, the pertinent question that arises is: what is the cause of it? Here Marx says:

> The development of the mode of economic production is the ultimate cause. Man is continually improving modes of production, the tools he uses in earning his living, the possession of the new productive forces and the invention of new methods give a natural advantage upon those who still live by the old. The class which adds little to the new forces of production has economic power, a power, however, which is hampered by the political and legal property relationships which express the earliest forms of material production; when the opposition is acute, a social revolution takes place. Unless society is destroyed in such a conflict, the victory comes to those who fight for a formal social organization which corresponds to the changes in the mode of economic production. Political power is transferred to that organized class which has economic power. History progresses from a crude primitive communism to slavery, from feudalism and capitalism, to a complete industrial communism, in which the free development of all is the free development of it.

If Hegel regarded the goal of history as the realization of freedom, Marx regarded it as the socialization of the means of life. The relation between man and man, according to Marx, in the first instance, is not psychological but practical. Men need one another in order to live before they need one another in order to converse. Consciousness is social before it is individual. Speech like consciousness arises from the need, from the necessities of social intercourse. Throughout the effects of inter-dependence of men living in society, there are produced different levels. Ordinarily each person in society looks to his own self-interest and lets the other live or die as they can. But the nature of society makes it impossible in the end to carry out the bourgeois policy. Marx is opposed to the abstract morality of Christ or Kant. His ethics is a class ethics—the concrete class need. According to his theory of surplus value, the bourgeoisie is always robbing the proletariat. The proletariat cannot prove his right, can only force them; and this is the only type of morality that Marx can think of. Tradition, religion, ethics should not stand in the way. Class claim opposes class and one of these must give way. Morality is then for Marx natural and not ideal. Marx repudiates the religion of suffering and the duty of forgiveness in most of its Christian or non-Christian forms. According to him, morality is based upon needs, upon what man as a social creature desires; and these are determined by man's class relationship and his original nature. He further thinks that any objective ethical value is nothing but a class interest in disguise. Each kind of objective value has its own concrete and specific nature which represents the type of his class interest. Since the nature of class needs

must depend on its social environments, it is continually changing. Morality has evolution. This need is sometimes represented in the craving for greater freedom or for power. What is represented as 'ought to be' is a function 'of what is'. The only eternal thing in morality is man's desire for the better or greater material self-interest and he must always fight for it. This fight is not a spiritual fight or an inner struggle of man, but external fight against conflicting class interests. No one can claim anything as his natural right, but that is right what he can secure by his force. Marxian morality does not say 'love one another' or 'give up thy egoism', though it recognizes that for particular kinds of material self-interest sacrifice may be necessary.

Marx argues for economic fatalism, i.e. the condition of class conflict being as it is, it would ultimately end in ultimate reduction of all classes into one. His object was to contribute to the concrete social consciousness and to enunciate definitely the material objective for which the proletariat should fight. He wishes to project the class will enlightened by the knowledge of the conditions and historical antagonism which have produced class divisions.

Marx thinks that the dialectical method of Hegel is mystical, because it seems to generate its ghostly activity in a mythical manner and it wishes to establish a logical structure of one inclusive whole. We have to know everything in order to know anything. Moreover it is unable to explain why the dialectic takes one particular form and not another. Marx does not believe in an absolute whole which is perpetually realizing itself. Both for Marx and Hegel the social system is a whole, but in the whole of Hegel there are no parts. But in Marx the whole will exist in the parts. The very opposition of the parts, good and bad, leads to the whole. It is because the capitalist profits that he ruthlessly forces the development of the productive powers. In the social movement there is a logic of succession. In Marxian system, logic consists in facts. He holds that every new predicate tells us something new about a term, and in the growth of predicates there is a growth in the situation and meaning of the term. It is through the antinomy of the terms that the situation is reinterpreted. In Marx's analysis of capitalist society the relations take the form of opposition between the proletariat and the capitalists, between the necessity of production and the needs of consumption, between the expansion of industries and the contraction of purchasing power. All of these oppositions constitute a whole. They cannot be solved without changing the whole. The equilibrium is destroyed as particular epochs are reconstituted by human action. The dialectical principle is nothing but class activity. The process of development is temporal and depends not only upon the matter within which development takes place, but upon the shifts and rearrangement of human interests. Socialism affirms the social nature of the productive process under capitalism and denies the anti-social character of its distribution, and reinterprets both as the condition under which socialized man uses his knowledge of natural necessity to attain cultural freedom. With Marx the social is prior to the individual and the dialectic relation is merely a social relation which is realized

through human activity which is a part of the whole. The objective conditions form the thesis, and the human needs and desires the anti-thesis; and as a result of the pressure of objective conditions on the will and thought of a definite class, action and synthesis results. 'An attempt is made to actualise the objective possibilities generated by the interruptions of the social environment and the human needs.' Marx holds that any material which is a subject of human activity generates its own normative ideals for the fulfilment of human needs. In the reciprocal influence and interaction between the ideal and the actual, there is produced a new state of things. Through class-consciousness society attains self-consciousness. Consciousness implies activity. This leads to interaction which transforms a social whole. By acting on the external world and changing it, man changes his own nature. 'Human nature, then, far from being a constant in world history, definable in terms of fixed instincts and desires, becomes a variable, which within limits can be modified by man's social and historical activity and all history is the progressive modification of human nature.'

Marx's materialism is somewhat different from all materialism, from Democritus to Feuerbach. Ordinary materialism operating with simple cause-effect relationship could not account for the redirective activity of man. With Marx man was a reality and he started with individuals as they actually are and their material conditions of life. Human needs must, therefore, constitute the starting point of all enquiry. These needs are not abstract but they are primarily needs of production, reproduction and communication. The gratification of these needs requires discovery of instruments and the gratification of old needs gives rise to new needs. The movement of history is not imposed from without by any absolute mind but it is a result of dynamic urge within matter. History is nothing but the interaction between physical conditions and social organizations. All religious attitudes, according to Marx, are false, because they are the result of a fetishistic belief in unhistorical abstractions. Human needs and human struggles are the only realities of life. All philosophy and all religion are against it and are the results of illusion. Knowledge should be acquired not for its own sake but for the power that it gives to the class struggle. With Marx, reality is nothing but satisfaction of self-interest in the material sense and truth is nothing but the attainment of it. Ideas are neither true, nor false. Even if we take the correspondence theory, the idea has to be of the same stuff as the thing. In the coherence theory one falls back on to solipsism. Certain actions must be performed if certain desirable consequences are to follow, and it is here that the truth of the action lies. Without action there is no truth. Marx believed that no existent forms and products of consciousness could be resolved through mental criticism or by being dissolved into self-consciousness, but only by the overthrow of the real social relations out of which these idealistic fantasies developed. It is not criticism but revolution which is the driving force of history. It is a sum of productive forces, capitals and forms of social intercourse, which have been rendered into ghostly apparitions as substance or the essence of man, etc. by the traditional philosophers. Marx predicts that the emotional conflicts and theoretical illusions associated with religion will disappear with the transformation of the economic order which is responsible for these illusions. According to Marx, religion is the opium under the influence of which people are sleeping.

Marx was not in favour of any kind of nationalism. He predicted a universal class war in which the proletariat will destroy the capitalist and reduce the world to one class. But the revolution which his views had produced was not economic in most countries of the continent; everywhere it was inspired by the ideas of nationalism. His theory of surplus value is merely an expression of hatred with which he regarded the system that produces wealth out of human life into abstract terms. It is in this spirit rather than in a disinterested analysis that Marx can be appreciated. Marx had an encyclopaedic knowledge of economics but he used it to cater to his hatred of a certain section of society.

Two questions arise out of Marx's works: the first, are his laws of historical development true? and the second, is socialism desirable? and if it is so, should it take the form that Marx had formulated for it? Marx says that socialism is bound to come into existence. But he has hardly anything to prove that if it comes it should be a blessing. It is true, indeed, that his prophesy of the inevitable advent of socialism is already showing many signs in his favour. But in the political and in the economic field which have been associated with his socialism these have not made their appearance. The cosmopolitan tendencies of socialism have not in any way affected the spirit of nationalism even in the most socialistic country like Russia. The spirit of nationalism is daily increasing, and Russia now possesses an army, which is not inferior to that of any other nation, with which she is always preparing to attack her neighbours. It is true, indeed, that several businesses are growing; but they are generally growing in the form of companies in which large numbers of shareholders are interested, sometimes within the nation and sometimes all over the world. Thus, capital is not being concentrated in increasingly smaller number of persons. Again, though large firms have grown in prosperity, they cannot be said to be showing any tendency of demolishing small concerns. As a matter of fact, smaller concerns and concerns of medium size are gradually increasing. Again, though the labourers were kept at the bare level of subsistence in the middle of the nineteenth century, their condition is now much better and it has improved with the general prosperity of the country, though it may not be to the same extent as that of the capitalist. The examples of cruelty to labourers with which Marx's *Capital* is exhaustively full are, indeed, very rare in the western countries. They are only to be found in those countries where the superior race is trying to exploit an inferior one. Again, the skilled labourers now have attained an important position and it is far from certain as to whether they would side themselves with the labourers or the capitalists, and sometimes they are in some way themselves capitalists, either individually or through trade unions. Thus the sharpness of class war cannot be said to have increased.

Moreover, it is far from true to hold that there is any tendency of the societies being transformed only into two classes, the capitalist and the labourer. There is now a large number of gradations among the middle-class people who do not belong either to the one or to the other. The lawyers, the doctors, the professors, the teachers, cultivators, farmers and the like form such a large number of gradation that there is hardly any chance of the society's lapsing into only two classes with the elimination of others. Bernstein in his work called *Evolutionary Socialism* has pointed out the fact that the tendency of the present society is to ameliorate the conditions of the labourers by piece-meal action and not through revolutionary measures. The internationalism of the labour movement is now only a name. Bernstein further advocates the right of the superior races to exploit the inferior ones and thereby minimizes any tendency towards revolution in the western world. Bernstein further states: 'We have to take working men as they are. And they are neither so universally paupers as was set out in the Communist Manifesto, nor so free from prejudices and weaknesses as their countries wished to make us believe.' Sorel in his *La Decomposition du Marxisme* and his *Reflections on Violence* says that the syndicalistic tendencies of transfering the control of government to bigger trade unions definitely undermines Marx's position. According to him, socialism consists not in abolishing class war but in maintaining it. Marx's comprehension of the historical development may, indeed, be false; and yet the economic and political systems that he wanted to create may be right. But the syndicalists declare that the goal which Marx aimed at and the means that he recommended are not desirable. In the very year in which *Capital* appeared, the urban working men were allowed votes in England and universal suffrage was granted by Bismarck in Germany. But though, according to Marx, such a universal suffrage to working men, who form the majority, should have led to the transference of power to them, actual facts do not reveal it. In this, Disraeli and Bismarck have shown greater insight into human nature than Marx or Engels ever did. A state governed by the universal suffrage is not always dedicated to the service of the poor and sufferers as Marx dreamt. In spite of the constitution of the modern states involving universal suffrage, real power lies with the body of the intellectuals who manage to have all the profits of public employment. The syndicalists want to organize men not by party but by occupation, and their tendency is not to create only two classes but many classes based on occupation. They do not believe that even in a socialistic state man can become free, for the socialistic state is bound to interest itself in particular classes of people and not in all. Even the Marxists of today are not contented with the analysis of the situation that was offered by Marx himself. Marxists, no doubt, hold that history is the light with which we are to interpret the future. They also agree that the materialistic conception of history is a theory of class struggle in the economic and political sphere. They rightly interpret Marx in holding that every state is a class dictatorship; that the proletarian state would abolish all classes; and that with the successful

supersession of class the state as an instrument of class-coercion will necessarily wither away. But though the leading states are becoming more and more openly the expressions of the dominant capitalists' interests, Marx's philosophy of the progressive expropriation of small capitalists by the great and the flinging down of the small men into the ranks of the proletariat has not been quite correct. He could not foresee the precise form which the development of the joint-stock system or the syndicalist movement was destined to take and its exact influence on the stratification of advanced societies. We know now that the increased concentration of capital in the hands of small groups of people has not led to the disappearance or proletarianization of the small capitalists. The small employer has not been squeezed out and a vast class of share-holders and bond-holders are now coming into existence. This is bound to be a powerful bulwark in defence of the rights of property against socialist attacks. The small employer is now flourishing in agriculture and in retail trade, and has a considerable influence in the industrial system. In this sphere of production, there are many classes of goods which it pays the big capitalists to leave to smaller firms sometimes as subcontractors, where no great economy can be secured by mass production, or because the industry is too risky or unprofitable, or commands a narrow market. Also it is found that new trades and industries are always springing up leading to the foundation of new, small firms of manufacturers, dealers and middlemen; and there is no sign even in the most advanced capitalist countries of the disappearance of this class. Moreover the expansion of the joint-stock system is daily broadening the basis of the capitalist, and almost all classes of people are holding these bonds and thereby co-operating with the capitalist movement. The foundation of co-operative societies is also gradually improving the lot of the manual working classes. This is bound to recoil upon the socialist attacks on the rights of property in the means of production. Capitalism is now more solidly founded than in the days of Marx. The formation of joint-stock companies in large numbers has also increased the number of salaried workers from managing director on the border line of the proletariat; and a host of professional workers such as directors, lawyers, accountants, teachers, actors, musicians, artists are needed for catering to the needs of these classes. There is a free intermarriage between these classes. Marx and Engels were decidedly in the wrong to hold that these intermediary classes are destined to be crushed with the advance of large-scale capitalism. Marx was thus wrong also in prophesying the future polarization of the economic classes to be two extremes of vast wealth and increasing misery. Marx's diagnosis may be to a certain extent correct only in those countries where there is a very sharp difference between the superior class and the inferior class, and the intermediary classes exist only in name and are too weak to stand between the two. It is for this reason that revolution could happen in Russia which even in the opinion of the Marxists was quite unripe for it. Russia was not a country of advanced capitalist productions; and for this reason she could not bear the strain of the

war which caused a complete economic and political breakdown and gave the socialists a chance for seizing power. The revolution in Russia, therefore, does not testify to the truth of Marxian philosophy. The few ill-used and confused proletariat having socialistic views captured the government when the Czarist system collapsed, and the peasants having no policy for collective action save the land remained outside. The small number of middle-class people collapsed also with the collapse of Czarism. The socialists or rather the communists won because they were the one strong and organized people who could hold the government in the hour of need under a leader of great personal force. History of western Europe since 1918, however, shows that Marx's philosophy of history was unable to stand the test of practical application.

It is sometimes held that it is only a passing phase and that ultimately capitalism will fall. If the capitalist system is affected, the middle class will certainly feel the pinch; but there are no data before us to suppose that it would lead to proletarianization. Wherever there is a sufficiently strong middle class, there is little chance of their joining the proletariat. We have seen in Italy, Germany, Austria how dangerous to the socialist cause the middle class can be, when it is frightened by insecurity. It will never hesitate to align with the capitalists in ruthlessly stamping out the organizations of the working class. It follows from all these that a deterioration of capitalism cannot be expected under any computable circumstances.

There is another logical fallacy in Marx. While he insisted that men make their own history, he could not very well at the same time come to the fatalistic prophecy that ultimately all classes would be reduced to one class. There is another important fact which is to be noted in connection with Marx's doctrine that men make their history. The question is: what kind of men are we speaking of? According to the difference in the psychology of men, the history that they will make is also bound to differ. Marx's interpretation of history being wholly that of class struggle and his theory of man is almost totally false with regard to India. From time immemorial the Indian social and political organization is based upon a class division, rooted in the principles of *varṇa* involving differences in psychological qualities and capacities. Though we may find stray cases of individuals for transgressing the class-barrier, we have almost no instance of a class struggle through the whole period of Indian History. We in India had elaborate systems of guilds among various classes of skilled and unskilled workers even in the time of the *Arthaśāstra*; but we do not find that there was any sign of any discordant note between the prevailing political powers and these guilds. These guilds had their own laws and regulations which could not be transgressed by the members. The political power gave sanction to their laws and regulations and helped the guilds to maintain them. The guilds in their turn were often left in charge of many municipal affairs, public works, educational works and works of charity. It is true that often the condition of the lowest classes, the agriculturists and the manual workers were very unfavourable, but still we find no trace on the part of these

men to outstep the upper classes. There was, therefore, practically no social revolution or social war in the past history of India. Marx's theory of the economic principle being the sole determinant of man's activity is still more false when we look at the history of the mentality of the Indian people. With Marx religion is a sham illusion, but in India religious value and the moral duties have always been regarded as the most important consideration. Marx was an enthusiast and like all enthusiasts he had no balance of judgement. It is true that he was fairly well acquainted with the economic conditions and psychology of the German people and his book, *Capital*, bristles with facts regarding the manner in which the labouring-class people were being tyrannized by the capitalists of his own time. But he had no knowledge about the mental attitude of the Asiatic people. In his analysis of the human mind he has no place for anything else but economic self-interest. He could not imagine that the religious traditions and religious values in a country like India, where theories of *karma* and rebirth flourished among the lowest people, could be so welded up with certain types of class divisions in such a manner that itself in a large measure be a bulwark against any class struggle for solely economic purposes. The teachings of saints and holy men have so long been watering and softening the hearts of men that it would be difficult for a handful of Marxists, who have their inspiration from the West, to undermine the roots of religiosity of the Indian people and to barbarize them to the extent that they should be impervious to all other influences than instincts of self-interest understood only in its material sense. The recent political history of India has opened our eyes to the fact that of all the political leaders it has only been the privilege of Mahatma Gandhi to play the part of a universal leader through the whole of India. The secret of Mahatma's power lies in the fact that he has been a keen and able student of practical Indian psychology. His appeal to soul-force, his extremely modest ways of living, his selflessness, his sincerity and his appeal to non-violence as a political method, have succeeded in uniting the most important shades of Hindu political opinion in a manner wholly unprecedented. It will be observed that people in India are prepared to suffer more for a moral cause than for a cause that satisfies material self-interests. It is true that the endeavours of Mahatma Gandhi are largely political and economical, but yet the method advised for the attainment of the goal is semi-religious. It has been found that the Mahatma's efforts in ameliorating the conditions of the depressed classes have hardly been as successful as his other endeavours. In spite of the fact that many agencies in India have lately sprung up under the western influence to sow the seeds of class hatred by rousing the consciousness of the depressed people that they are being oppressed by the higher classes particularly in the sphere of the religious rights, it has been hard to awaken any such class consciousness among the depressed people that they would try to wrest their rights from the upper classes in a revolutionary manner. The Hindu agricultural people still believe in the orthodox class divisions and look respectfully to a brahmin though the brahmin is neither a capitalist nor has

he generally any material means of oppressing them. It is true that with the spread of western education, the system of *varṇa* and *jāti* is fast losing its old orthodoxy. But still among the vast majority of agricultural classes and the middle-class literate people, the old system exerts a considerable power and influence, and this superiority is not based on grounds of wealth. India is the one country which established the aristocracy of learning and culture largely uninfluenced by considerations of wealth. Moreover, India has all along been an agricultural country; and the establishment of a few firms and industrial organizations has yet done but too little to transform the Indian people on industrial lines so as to create a sharp division of capitalists and proletariats. We find that even among the Moslems the slogan that 'Islam is in danger' acts more effectively in rousing the masses to concerted actions against the Hindus than any fear that the latter are going to snatch away their bread. A Moslem leader who counts knows it very well that their religious brethren are likely to be more stimulated in any aggression of religion than in any economic aggression. It is for this reason that political and economic motives are often transformed by intelligent leaders into religious motives in order to make them effective among the masses. A Moslem would more easily die fighting for his mosque than in any economic struggle. Though there are many Hindu-Moslem riots in India, it is a well-known fact that the issue is almost nowhere economic or political. It is always religious or interpreted as such. This shows very definitely that with the Moslems also the religious values count more than any other value. The Marxian principles may have their appeal to such educated men who have been completely influenced by the western material influence; but it is certain that if the uneducated proletariats or the agriculturists once understand the full significance of the materialistic philosophy of Marx, they will be found to recoil with fear and give up Marxism even though they may have to starve. Marxian thought and philosophy, inspired as they are with the principles of class hatred, are so openly antagonistic to the entire spirit of Indian culture that they can have no appeal to the masses. It is only the young students who are idealistically fired with the sympathy for the starving millions and who do not understand the full significance of Marx's philosophy and are not often sufficiently acquainted with his doctrines; who have gathered information about Marx from stray pamphlets and articles speak of Marx with enthusiasm and try to make a demonstration sometimes with red flags on the streets. One who is acquainted with the economic condition of India and the religious and moral dispositions of Indian people—Hindu, Moslem or Christian—could not think for a moment that Marxism would have any chance of success here. The way to secure the amelioration of the depressed people is not by infusing class hatred but by stimulating more sympathy in the upper classes and appealing to their sense of the religious and moral values. This has been the eternal method that India had adopted in the past by which the great men of India have been able to secure the equilibrium of the classes. No politician, no economist and no philosopher can afford to be blind in his

zeal for his reformatory movements to the traditional psychology, the cultural tendencies and the economic conditions of his country. It is false to argue that because certain measures and certain historical interpretations have been partially true of any particular country, it would also be so with every other country. It is false logic to think that India is a country and, therefore, whatever has been possible in any other country will also be possible in India. Any approach to effect any political or economic good of India must have to take a serious account of the traditional spiritual psychology of the people.

Knowing that one knows

BIMAL KRISHNA MATILAL
All Souls College, Oxford

1. Rival Theories about Knowledge of Knowledge

Writing in 1962, Jakko Hintikka argued that '*a* knows that *p*' always implies '*a* knows that *a* knows that *p*'. Some contemporary philosophers agreed while others (such as, Arthur C. Danto) disagreed. The issue, however, has not been much discussed in contemporary analytical philosophy, while in the classical Sanskrit tradition of India it generated a vortex of controversy. It had various ramifications which were discussed by philosophers of very different persuasions. It was believed that the issue strikes deep into the heart of the philosophic opposition between realism and idealism, materialism and mentalism. In other words, it became a very central concern among philosophers who flourished between A.D. 500 and A.D. 1200 in India. In what follows I shall not discuss whether this concern was justified or not, but try to present the argument of the ancients about the main issue in its richness and diversity. Towards the end, I shall argue why Hintikka's view cannot be accepted and why the opposite view of Nyāya fares better.

To appreciate fully the intricacies of the problem one needs to discuss the background to some extent. The arguments of the ancients are admittedly arduous, if not a bit daunting. But I am convinced that they are worth the effort. For they certainly deepen our understanding. The classical Indian philosophers assumed an 'episodic' view of knowledge, and their discussion centres around this concept. Therefore, knowledge in what follows would be regarded as a knowing event, an 'inner' episode, and an awareness as an awareness-event.

In claiming that knowing is an 'inner' episode classifiable with other similar episodes, we do not and need not claim that knowing consists in being in a special (infallible) state of mind. For if such a state of mind means that we possess some 'inner search-light' (Ayer) which guarantees absolutely the truth of the experience or the reality of the object upon which it is directed, then it will be, as Ayer has pointed out, patently wrong.[1] I am not taking issue here with the Phenomenologist (for this is at best a caricature of E. Husserl), but I wish to reject the hypothetical position that may endorse the 'inner search-light' theory. It is generally agreed that if something is known, it must be true or it must exist. Nyāya says that this fact does not warrant us to say that if one knows, then necessarily one knows that one knows; and this holds even when one is quite convinced about what one knows. One may, in fact, be absolutely sure about what one cognizes, but such a certainty neither contributes to knowledge nor becomes an essential ingredient of it.

Nyāya conceives the matter roughly as follows. A verbalizable cognitive episode can be either a knowing episode or a 'non-knowing' episode, such as an illusion or a doubt. It is a knowing episode when it hits the 'truth'. Knowledge-ness consists in its truth-hitting character, and not in its indubitability or in its constructive character. When it misses truth it is a 'non-knowing' awareness-episode. Even an archer cannot always hit the bull's eye. Nyāya fallibilism says that if it is possible for him to hit it, it is also possible for him to miss it. If he hits it, it is not by being absolutely sure that he does so. There are other causal factors that are responsible for making the incident a successful one. It may be true that the archer hits the mark *mostly* when he is absolutely sure, and similarly a man may feel absolutely sure when he knows. But the point is that the fact of hitting the mark or missing it is independent of the presence or absence of such certainty.

Let us try to formulate different theses of rival (classical Indian) philosophers in clearer terms. Let 'c_1', 'c'_2...stand for individual cognitive events or awarenesses. When I am aware that p, a cognitive event arises. I may be truly aware that p or it may be that I am falsely aware that p (if p is not the case). Let us say that I *know* that p if an only if I am truly aware that p. I may be aware that p but do not know that p, in which case I oscillate between *that p* and *that not p*. Let us say that I have a doubt (*saṃśaya*) if and only if I am dubiously aware that p in the above manner. A knowing event is a special kind of cognitive event (or awareness-event), for I have to be *truly* aware. Let us say that a cognitive event is a knowing event if and only if it has (acquired) a specific feature, k; it is an illusion or a doubt if and only if it has a different specific feature, d. (To avoid complexities, let us for the moment ignore other types of cognitive events, e.g. remembering, intuition and dreaming, although they are found in the list of Praśastapāda.) If we accept this convention, then 'c_1+k_1', 'c_2+k_2'...will stand for individual knowing events, and likewise 'c_1+d_1', 'c_2+d_2'...for individual illusions or doubts.

I would like to introduce at this stage a transitive verb 'caps' which should go between the name of a cognitive event and that of its object (where the object may be either a simple thing, a, or a complex entity having a propositional structure, *that p*.) For example, if I am aware of the cat called Pussy, the cognitive event 'caps' Pussy. If, however, I am aware that Pussy is on the mat, then the event 'caps' *that* Pussy is on the mat. We may now formulate the following positions of rival Indian philosophers:

T_1 : If c_1 arises, it caps not only a, or *that p*, but also c_1 itself by the same token.

T_2 : If c_1 arises, it caps only *that p* (or a), and then c_2 arises to cap c_1 ($c_1 \neq c_2$).

The Prābhākara Mīmāṃsaka and the Buddhist of the Diṅnāga school accept T_1. (The Advaitins also accept it but understand it in a different way which

we will forbear to go into here.) The Prābhākara calls it 'the self-revelation theory of awareness' (*sva-prakāśa-vāda*), while the Buddhist calls it 'the self-awareness of awareness' (*sva-samvedana-vāda*).

According to the Prābhākara school, there is also a third party, the knowing self, which is also revealed besides the object and the cognition itself. The prevailing view (Śālikanātha's) is that each cognitive event is a sort of perceptual event revealing the trio, the object grasped, the fact of grasping (i.e. the cognition) and the knower self (cf. *tri-puṭi-pratyakṣatā-vāda*). Hence according to this view, knowledge that this is a cat is always verbalizable as 'I know that this is a cat', which makes explicit reference to the trio 'capped' by the event (the first two words referring to the last two members of the trio, and the *that* clause to the first). An older view belonging to the same school is, however, formulated in a slightly different way. It says that it is counter-intuitive to say that event c_1 'caps' anything else beyond its object (a or *that p*). Instead both the cognition itself and the knowing self are such that they become, unlike the object 'capped' by c_1, the subject matter of *vyavyahāra* (i.e. become publicly discussable objects, etc.) solely by virtue of event c_1 itself. In other words, I can talk about the cat Pussy when and only when I have had an awareness of it (i.e. my c_1 has 'capped' it) and this is true of any other object I may be aware of, but this does not mean that I have to be aware of c_1 or the knowing self in order to talk about them. The last two can be talked about (cf. *vyavahāra*) provided only c_1 has arisen, it is not necessary for c_1 also to 'cap' them. In the light of this ancient view of the Prābhākara school, T_1 has to be modified as: if c_1 arises, then just as the object 'capped' by c_1 is usable for *vyavahāra*, c_1 should also thereby be usable for *vyavahāra* (i.e. fit for public discussion, for being talked about for being remembered, etc.), even when c_1 is not aware of itself. Śālikanātha, however, prefers the unmodified T_1.[2].

In Buddhism, however, there is no third party besides the cognition and what it grasps as the object. T_1 needs no modification for the Buddhist. Each awareness is also a case of self-awareness. Here c_1 caps the particular object as well as c_1 itself. Just as an occurrence of pain arises and makes itself known by a single stroke, a cognitive event arises and makes itself known at the same instant. Each event of the cognitive kind has as its integral part an 'inner' (mental) perception of the event itself. This reflexivity of awareness is unavoidable for, the Buddhist argues, one cannot remember what one did not know; and since we do remember that we *knew* whatever we knew or were aware of, we must have known that we knew or were aware that p (see next section).

Both the Buddhist and the Prābhākara seem to agree on another point: if c_1 arises it is necessarily cognized. This leads to another pair of disputed positions:

T_3 : If c_1 arises, c_1 is necessarily cognized (known).

T_4 : If c_1 arises, it is only possible that c_1 is also cognized, i.e. it

is possible for some c_1 to come into and go out of existence, without being cognized at all.

T_1 implies T_3, and hence both the Buddhist and the Prābhākara Mīmāṃsaka will have to accept T_3. T_2 under some interpretation may be compatible with T_3 and hence the two can be combined to say that if c_1 arises, c_2 must arise. This presumably gives the view of the other two Mīmāṃsakas, the Bhāṭṭa and the Miśra (the followers of Murāri Miśra). In this case c_2 can be an 'inner' perception (cf. *anuvyavasāya*), but in any case it would be an occurrence distinct from c_1. Or as the Bhāṭṭa would say, c_2 may be an *automatic* inference when c_1 has arisen.[3] (It may be doubtful whether the Bhāṭṭa would stick to this position in the final analysis, but I will not enter into that problem here).

T_4 is rather a controversial thesis, for it may be claimed to be counter-intuitive. But Nyāya boldly accepts T_4 along with T_2. This means, in short, that c_2 may or may not arise even if c_1 has undoubtedly arisen. T_1 and T_3 jointly say that if I am aware that p, I am necessarily aware that I am aware that p. T_2 and T_4, on the other hand, say that if somebody, S, is aware that p, it does not necessarily follow that S is aware that he is aware that p.

The above positions have been formulated in terms of *cognitive* events in general. What would be the view about the *knowing* events in particular ? There are two different issues involved here. The first concerns the origin (*utpatti*) of the knowing events, while the second is about the knowledge of a knowing event, i.e. knowledge of the event as a piece of knowledge. As regards the former, we can formulate again two rival positions:

T_5 : Whatever causes c_1 to arise causes, by the same token, $(c_1 + k_1)$ to arise.

T_6 : Since $(c_1 + k_1)$ is a special case of c_1, for such an event to arise some additional condition, G, is needed over and above H which causes c_1.

Regarding the knowing of an awareness-event, the following rival positions can be formulated:

T_7 : Whatever causes the knowing of c_1 causes, by the same token, the knowing of $(c_1 + k_1)$.

T_8 : Whatever causes the knowing of c_1 cannot cause the knowing of $(c_1 + k_1)$ by the same token; some additional condition is needed to make $(c_1 + k_1)$ known.

There seems to be a natural connection between T_5 and T_7 as well as between T_6 and T_8. All the Mīmāṃsakas (i.e. Prābhākara, Bhāṭṭa and Miśra) accept the former pair. Nyāya accepts the latter. The Mīmāṃsakas argue that a cognitive event arises under *normal* conditions as a knowing event until and

unless some 'bad' factors intervene to upset normalcy. When 'bad' factors intervene, a defective cognitive event (a misperception or a dubious awareness, $c_1 + d_1$) arises. Therefore, according to this view, the totality of causal factors generating c_1 needs the intervention of additional *bad* factors (cf. *doṣa*) to generate $(c_1 + d_1)$. This is similar to saying that mangoes are *naturally* sweet or man is *naturally* good but that intervention of *bad* factors in the *normal* circumstances can make it possible to produce non-sweet (sour) mangoes; similarly, *bad* extraneous circumstances can make a man bad.

Nyāya, on the other hand, holds the opposite view. Instead of talking about 'normal' circumstances for generating a cognitive event, Nyāya (cf. Gaṅgeśa) talks about a set of *general* causal conditions along with a set of *specific* causal factors in each case of a cognitive event. If and when c_1 arises, it would be either $(c_1 + k_1)$ or $(c_1 + d_1)$, just as when a mango grows it is either sweet or not so. Therefore, the set of general causal factors for generating c_1 must always be attended with either a set of *good* factors in order to generate $(c_1 + k_1)$ or a set of bad factors to generate $(c_1 + d)_1$.

Let us note that T_2 can be combined with T_5 and T_7 to yield the view of the Bhāṭṭa and Miśra. For saying that c_2 'caps' c_1 is compatible with saying that whatever generates c_1 generates by the same token, $(c_1 + k_1)$. Further, even if we need c_2 to 'cap' c_1 (for c_1 cannot reflexively 'cap' c_1), we might still claim that whatever generates the knowing of c_1 generates also the knowing of it as $(c_1 + k_1)$. Notice that the difference between knowing c_1 and knowing $(c_1 + k_1)$ is similar to that between knowing that it is a mango and knowing that it is a sweet mango. The Mīmāṃsakas would say that knowing c_1 is like tasting a mango; and hence if you have tasted it, you have tasted it as sweet. Nyāya, on the other hand, could argue that knowing c_1 may be like seeing a mango, and hence when you see it you cannot know that it is sweet and you need a different means (that of tasting) in order to know that it is sweet.

There is a further complication when we ask about the knowledge of a defective cognitive event, i.e. knowing of $(c_1 + d_1)$. Corresponding to T_7 and T_8, we can formulate:

T_9 : Whatever causes the knowing of c_1 causes by the same token the knowing of $(c_1 + d_1)$.

T_{10}: For the knowing of $(c_1 + d_1)$ to arise, some extraneous condition is needed for whatever causes the knowing of c_1 to arise cannot be sufficient to cause the knowing of $(c_1 \pm d_1)$ to arise.

Four possible combinations of T_7, T_8, T_9 and T_{10} yield, according to the post-Gaṅgeśa writers, four well-known positions. Taken together T_7 and T_9 give the Sāṁkhya view, T_9 and T_{10} the Bhāṭṭa view. T_8 and T_9 yield supposedly the Buddhist position, while T_8 and T_{10} give clearly the Nyāya position.[4]

Roughly stated, the Sāṁkhya says that when I know that I am aware that

p, I also know by the same token that I am aware, truly or falsely as the case may be, that *p*.[5]

The Bhaṭṭa says that when I know that I am aware that *p*, I also know by the same token I am *truly* aware (i.e. know) that *p*. However, if I am falsely aware (misperceive or misjudge) that *p*, I would have to depend upon some extraneous condition in order to know that I am *falsely* aware that *p*. For example, if I misperceive something as a tree-trunk, some other evidence will *tell* me that I have misperceived; my knowledge of the awareness itself will be of no help. This view may be endorsed by other Mīmāṃsakas.

The Buddhist (supposedly) says that even if I know that I am aware that *p*, I would not know by the same token that I am *truly* aware that *p*. I would need an extraneous condition to know that I know, i.e. be truly aware, that *p*. Thus Dharmakīrti insisted upon successful activity as evidence of our knowing that I had a piece of knowledge of the fact with regard to which our activity has been successful.[6] But if I am falsely aware of something, my knowledge of this awareness would be sufficient for my knowing that this is a false awareness. It is difficult to find support for this latter half of the thesis in the available Buddhist texts. Probably this is a reformulation (by the Naiyāyikas) of the Buddhist viewpoint according to which all constructive judgements (cf. *vikalpa*) are by definition false, and this would be known as soon as their constructional character is known. According to Buddhism, a construction with the help of concepts is always propelled by our desires and drives for pleasure, etc. and hence by definition it represents a distortion of the reality. We *construe* as we would like, or ardently desire, to see reality, not as reality actually is!

Nyāya says that when I know that I am aware that *p*, I do not know whether I am truly aware or falsely aware. I have to depend upon some extraneous condition in order to know that I know, i.e. am truly aware. I need extraneous condition even to know that I am falsely aware.

All the positions mentioned above were supported by some argument or other. I will not go into those arguments here. In view of my general purpose I shall try to develop first, the Buddhist view of self-awareness, then the Nyāya position, in order to see whether the sceptics can in any way be answered from the point of view of these philosophical positions.

2. Self-Awareness

If I am aware that *p*, then it is generally assumed that I am also aware that I am aware that *p*. This general pre-theoretical assumption seems to gloss over several philosophical issues which the classical Indian philosophers thought relevant and important as I have already indicated in the previous section. The assumption implies that although what we are aware of or what we cognize is, by and large, an object, an external object, a non-mental, physical object, we can also be aware of the mental events happening 'inside'. We can

be aware of an awareness itself. The traditional 'subject' can become also the 'object'. An apprehension itself is also apprehensible (*grāhya*).

A simple argument can be given to show that we must be cognizing our 'cognitions' too along with the 'objects'. We cannot remember what we have never cognitively experienced. How do we remember not only what we have cognitively experienced but very often also that we have cognitively experienced them? Therefore, it is reasonable to assume that we must have been cognitively aware that we experienced whatever we had cognitively experienced. Now the question arises: how and when do we become aware of our own awareness?

There are usually three views on this matter in classical Indian philosophy. First, a cognitive event is self-cognizant. That is, an awareness may be reflexively aware of itself. Second, it may be cognized by another cognitive event, by what has sometimes been called introspection 'inward' perception (cf. *anuvyavasāya*)—an event that *immediately* follows the first event. Third, I may be reflectively aware, i.e. infer that I must have been aware of such and such things on the evidence that such and such things appear as known to me (cf. *jñātatāliṅgakānumāna*). Of these three, let us take a close look at the Buddhist version of the first position: c_1 reflexively 'caps' itself.

After defining perception as a cognitive event which is entirely free from conception or imaginative construction (*kalpanā*), i.e. unassociated with names and concepts, Diṅnāga asserted that this essential character of a perceptual awareness would be applicable even to what we may call 'mental' or 'inner' perception of two kinds.[7] One kind of 'inner' perception presumably cognizes the material form (*rūpa*), i.e. the external object, while the other kind cognizes desire, anger, ignorance, pleasure, pain, etc. Diṅnāga's own passage is enigmatic here and I have followed Hattori, who followed Dharmakīrti in interpreting this passage. Diṅnāga's cryptic statement here created a great deal of exegetical confusion among the later commentators. Recently M. Nagatomi has called it 'a conundrum in the Buddhist Pramāṇa system'. He tried to resolve the issue as follows.[8]

The problem lies to be sure with the above-mentioned first variety of 'mental' perception. The second variety is more or less recognizable as a variety of perception (in the sense defined) and generally accepted by the commentators without question. It is called *sva-samvedana* 'self-awareness', i.e. the self-luminous character of all mental events, beginning from human passion to the Buddha's compassion. All these events make their presence known (as soon as they arise) without requiring a further event. But what could be the possible case of the first variety? How can an external object, such as colour, be 'capped' by a mental perception and be at the same time, as the requirement demands, non-conceptual or unconceptualizable? Some commentators believe that Diṅnāga had to talk about a 'mental' perception which is on par with the five kinds of sense perception in order to be faithful to the tradition of the Buddhist scriptures! The Buddha mentioned a variety called *mano-vijñāna*,

side by side with the other five types of sensory awareness. Mokṣākaragupta quoted a saying of the Buddha which reads as follows: 'Colour-form is cognized, oh monks, by twofold cognition, the visual perception and mental perception induced by it.' The saying was quoted by Mokṣākaragupta in order to justify his contention that although the mental perception of colour, etc. is not commonly experienced by ordinary people, it might well have been the case with the Buddha's experience.[9]

Nagatomi argues that Diṅnāga in the passage referred to did not talk about *two* types of mental perception but only about one type with a twofold aspect. If this means that the event called mental perception is identical with the self-awareness part of each mental event, then I readily accept the interpretation. Dharmakīrti explicitly stated in the *Nyāyabindu* that all mental events (*citta* = a cognitive event as well as *caitta* = derivatives of the cognitive event, pleasure, etc.) are self-cognizant.[10] It is possible that Diṅnāga only referred to the twofold appearance of the self-cognitive part of the event: the object-appearance (that aspect of a mental occurrence which makes an intentional reference) and the appearance of the cognition itself (the cognizing aspect). Since pleasure, pain, passion, anger, etc.—all such mental events are also cognitive in character according to the standard Buddhist view and by the same token self-cognitive, Diṅnāga might well have intended to emphasize the double feature that self-awareness of such events captures: the object-aspect as well as their 'own' aspect.

Each mental event in this theory has a perceptual character and this includes any cognitive event, sensory perception, inference, conceptual judgement, etc. It is in each case their self-awareness. Self-awareness is a kind of perception because it is a mental awareness that is free entirely from conception and construction. It forces itself into a non-mediated (non-conceptual) grasp of itself. It is called 'mental' or 'inner' because the external sense-faculties are not directly responsible for such a non-mediated grasp of itself (cf. Diṅnāga: *indriyānapekṣatvāt*). Suppose I now close my eyes and think of my beloved. My thoughts will be invariably attended with passion, etc. (the *caitta*). This particular mental event is certainly not free from conceptual construction for only an *idea*, a concept, of my beloved, and not she herself, is grasped by my awareness. But my awareness itself as well as my passion or other emotive experience is self-aware. Thus self-awareness of any mental event is conception-free and hence a 'perception', *a la* Diṅnāga. He says: 'Even conception (or conceptual judgement) is admitted to be (a sort of perception) as far as its self-awareness is concerned. It is not (a perception) with regard to its object because it indulges in conceptualization.'[11]

Diṅnāga repeatedly insists in the first chapter of his *Pramāṇa-samuccaya* upon the dual aspect of each cognitive event: the object-aspect and the cognizing aspect (*arthābhāsa* and *svābhāsa*), more commonly known in the Yogācāra system as the apprehensible-form (*grāhyākāra*) and the apprehension-form (*grāhakākāra*). Later on his *arthābhāsa* transpired as *arthākāra*, the 'object-form' of the cognition, in the wiritings of the post-Diṅnāga exponents and hence the nickname *sākāra-vadin* (*sākāra* = 'awareness with an object-form') was given to this school. If the object-appearances ('blue', 'yellow', 'hard', 'round', etc.) are inherently distinguishing marks for particular cognitive events, then the claim (of the Sautrāntika) that external objects are causally responsible for the arising of the object-appearances or object-likeness (*sārūpya*) seems to dwindle. This position became very suitable for the Yogācāra school to which Diṅnāga belonged. For instead of saying with the old Yogacarins that the external objects do not exist, for nothing but consciousness (awareness) exists, one can now say along with the exponents of the Diṅnāga school that in this theory of awareness and mental phenomena in general references to external objects are dispensable.

Diṅnāga advanced some arguments to show that an awareness has always a twofold appearance and later added that even self-awareness of an awareness is proven thereby. Thus it has been said (I follow Hattori's translation):

> The cognition that cognizes the object, a thing of color, etc. has (a twofold appearance, namely,) the appearance of the object and the appearance of itself (as subject). But the cognition which cognizes this cognition of the object has (on the one hand) the appearance of that cognition which is in conformity with the object and (on the other hand) the appearance of itself. Otherwise, if the cognition of the object had only the form of the object, or if it had only the form of itself, then the cognition of cognition would be indistinguishable from the cognition of the object.[12]

To explain: let c_1 stand for a cognitive event which can be described as my awareness of blue. We can distinguish between its two aspects, the blue-aspect and the cognition aspect, of which the latter grasps the former; if the same event has also self-awareness, then this 'self-awareness' aspect is to be distinguished from the cognition-aspect in that the self-awareness aspect picks out the cognition-aspect as distinguished by the blue-aspect while the cognition-aspect picks out the blue-aspect only. Now if instead of the dual aspect, my awareness had only one aspect, either the blue-aspect or the cognition-aspect, then the awareness of the awareness, the self-awareness, would be indistinguishable from the awareness itself. How? Suppose the cognition has only the blue aspect to qualify it. We would then have an awareness taking the blue-aspect for its object and another awareness, i.e. self-awareness, also taking the blue-aspect for its object. This will collapse the distinction between awareness and self-awareness. If, on the other hand, the cognition has only the cognizing aspect (no object-aspect), then also the distinction between awareness and self-awareness will collapse. For both will be marked by the same cognizing aspect.[13]

Further, it is argued by Diṅnāga, there is another fact that can be happily explained under the assumption of the dual aspect of a cognitive event. Some-

times an object cognized by a preceding cognition appears in a succeeding cognition. But this would seem impossible since the objects are, according to the Sautrāntika Buddhists, in perpetual flux and, therefore, the object ceases to exist when the succeeding cognition arises. But admission of the dual aspect saves the situation here. For we can say that at moment t_1 there arises a cognitive event, c_1, which grasps the blue, b_1, as its object (presumably b_1 being there at t_0) and at t_2, c_2 arises and grasps not b_1 but c_1 as an event which has the dual appearance. This will show that c_2 grasps 'the b_1 –appearance' of c_1 which is part of its dual appearance (it does not grasp b_1 directly). For b_1 being in a state of flux cannot be present at t_2. This argument provides an explanation of the common-sense belief that an object grasped in a cognition can be grasped by several succeeding cognitive events, but it is not clear whether it accomplishes anything else.

Diṅnāga gives next his major argument. Our recollection is not only of the object previously cognized but also of the previous cognition itself. This proves not only that a cognitive event has a dual aspect but also that it is self-cognized. For 'it is unheard of', says Diṅnāga, 'to have recollection of someting without having an experience of (it before)' If, as the Naiyāyika claims, a cognition is cognized by a separate cognitive event, then, says Diṅnāga, an infinite regression would result and there would be no movement of thought (cognition) from one object to another.[14]

Śāntarakṣita gave another argument in favour of self-awareness. An awareness cannot depend upon another awareness in order to make its presence known, nor could its presence remain unknown. Therefore self-awareness must be the natural trait of any awareness.

The usual objection against the 'self-awareness' nature of a cognitive event was well answered by Dharmakīrti and Śāntarakṣita. It may be said that even a very well-trained dancer cannot climb up his or her own shoulder, and even the sharpest sword would not cut its own blade. Hence how can a cognition cognize itself? As against this, it is pointed out that a lamp or light illuminates itself. In other words, the act-agent relationship need not always follow the model of a wood-cutter and a tree. It could illustrate the relation of the determinant and the determinable (cf. *vyavasthāpya-vyavasthāpaka*). Besides, to say that a cognition is self-cognizant is simply to say that a cognition is a non-material entity (*ajaḍa*), very much unlike a material object. Self-awareness is what constitutes the *essence* of the mental events, (events such as an awareness, and any attendant emotive facts such as passion and anger).

It is held that cognitive event is actually a partless whole (cf. *niraṃśa*). The so-called division of it into aspects or features or appearances is only imagined. Hence it is only a provisional division. Thus for Śāntarakṣita:

> The self-awareness of the awareness need not be analysed into the (model of) the action and the agent (and the object), for it is a single unity without parts, and hence cannot be divided into the three parts (the cognizer = the agent, the cognition = the action, and the cognizable = the object).

In sum, it is climed that self-awareness of an awareness is experiential. An echo of this claim is found in Dharmakirti's often quoted line from the *Pramanaviniścaya*: 'If an awareness itself is not perceived, the awareness of the object would never be possible.'[16] It is, however, not absolutely clear whether experience could positively establish also the *reflexivity* of awareness. For it is possible to be *reflectively* aware of another awareness. This brings us to the second and the third alternatives preferred by the Nyāya and the Bhāṭṭa respectively.

3. Must I Be Aware That I Am Aware?

We have now to work with the idea that one is *reflectively* aware of one's own awareness. Awareness does not have self-awareness (i.e. awareness is not, among other things, *reflexive*). One may be *reflectively* aware of one's own awareness that something is the case in either of the two ways: by an inference or by an *inward* perception arising in the next moment. In fact, both may be designated as 'reflection' (in the Lockeian sense?) or 'introspection'. Locke, in fact, defined Reflection as 'that notice which the mind takes of its own operations, and the marriage of them, by reason whereof there came to be ideas of these operations in the understanding'.[17] This notion of 'reflection' seems to be closer to that of the *inward* perception (although not that of the Buddhist 'self-awareness') than that of an automatic inference. It is not very clear whether Locke was aware of the distinction that we are talking about here. Besides, Locke identified Reflection as one of the two sources of knowledge (the other being Sensation) and there are many other problems involved here. For all these reasons, I would avoid translating *anuvyavasāya* (which is said to perceive *inwardly* the immediately preceding cognitive event) as 'reflection' or 'reflective awareness' (as some modern exponents of Nyāya have done). For almost the same reason, I would avoid using 'introspection' in this context. 'Introspection' is sometimes regarded as a modern version of the old 'reflection'. It has also been given a much broader function to perform in psychology. For William James, introspective observation is the principal method of psychology. In fact for all we know, both these terms may be very intimately connected with the notion of an *inward* perception or an *automatic* inference. However, it seems to me, 'introspection' generally stands for a set of different, sequential, but not often homogenous, mental episodes which are cognitive in character. In fact, a number of *inward* perceptions or *inferences* may be members of this set. Thus, to keep in our mind the episodic nature and singularity of the 'inward' perception (*anuvyavasāya*) as well as that of the automatic inference (*anumāna*) of the awareness episode, I would not use the term 'introspection' here. For *anuvyavasāya* I shall use 'inward perceptual determination' (sometimes *inward* perception), for *sva-samvedana* 'self-awareness' or 'inner perception' and I would let the distinction between them (that the

former occurs in the immediately succeeding moment while the latter is an integral part of each awareness-event) be understood from the context.

We still operate here on the general assumption that if there arises an awareness, there arises also an awareness of the awareness, though not simultaneously. Hence we have still not gone against the commonsense notion that it is impossible for one to be aware of something without being aware that one is aware. Transition to the Nyāya view will take us beyond this position. For we will then say that it is *not* impossible for somebody to be aware of something without his being aware that he is aware (see T_4 of section 1).

One may argue that this is highly improbable. For if man is aware at all of something without being aware that he is aware then certainly something must be wrong with him, for it would be grossly inconsistent. But this oddity can be dispelled. Our uneasiness here lies in the fact that a person cannot claim or say that he is aware that *p*. How many times, looking at a child's behaviour, we can say that he is aware that *p* but not exactly aware that he is aware? J. Hintikka used two distinct notions of implication, the *epistemic* implication and the *virtual* implication in order to argue in favour of the thesis that we are talking about here (i.e. the Nyāya thesis, T_4). According to him, 'I am aware that *p*' *epistemically* implies (epistemic implication being defined in terms of a clearly defined notion of epistemic *indefensibility*) 'I am aware that I am aware that *p*', but '*a* is aware that *p*' does not *virtually* imply (virtual implication being defined in terms of indefensibility *simpliciter*) '*a* is aware that he is aware that *p*'. If Hintikka's argument is right, then it lends additional support to the Nyāya thesis, T_4, to which we must now turn.[18]

It is obviously true that we cannot recall what we have not cognitively experienced. Nyāya readily accepts this point but goes on to point out that we do not recall everything that we have cognitively experienced. This does not always mean that my memory-impressions on such occasions have been lost. It may mean *occasionally* that I did not have a memory-impression to begin with! The general theory about memory-impression is that a memory-impression of a particular object is generated (no matter how 'faint' the impression may be) as soon as the object is cognitively experienced. (A hypnotist can evoke from us sometimes recollection of an object which we had normally taken to be *not* experienced at all). But certainly we cannot recall what we never experience cognitively. This must be true of our awareness and other mental events when they play the role of the object of remembrance. Therefore, if under all possible provocations, I cannot recall that I had an awareness of (i.e. a perception of) an object, it is reasonable to assume that I did not have an awareness of that awareness of the object. It may be that I cannot remember that I had seen something at the moment I fell asleep, while an argument can be given to show that some seeing (perception) must have arisen at that moment; for I was awake, the lights were on, my eyes were open, etc. This will then prove that the presence of a cognitive event at a particular moment does not necessarily imply the presence of the awareness of the cognition. For I now understand, by the force of the argument suggested, that I *saw* something at that moment. This understanding is not remembering.

Nyāya further argues that it is possible to remember many objects without our necessarily remembering that we had once experienced these objects. We may now surmise or 'see' that we had experienced cognitively those objects, but this new awareness would not be a revival, i.e. the memory-impression of the cognition itself. Such a state of affairs would be compatible with the view that we had experienced (cognitively) those objects, but we did not have the awareness of the cognitive experience until now; and for this reason we have been unable to recall it.

Nyāya says that it is not always necessary (cf. *avaśya*) that one should be aware of one's awareness either simultaneously (as soon as the awareness-event arises) or at the immediately succeeding moment. I have tried to show that this view, although it initially strikes us as somewhat odd, is not incompatible with known and commonly accepted facts. We can explain our memory of many previously experienced objects, and on the evidence of such memory we can infer that such and such cognitive experiences must have taken place; but there is no logical compulsion here to say that we must have had also the awareness (inward perceptual recognition) of such and such cognitive experiences. For the Buddhist, self-awareness is an *essential* (necessary) property of each awareness. But if this is denied, the intermediate view is that the awareness of an awareness is an *invariable* concomitant of each awareness (invariably arising immediately afterwards). Nyāya goes further and says that the awareness of an awareness is only accidental (contingent), for it may or may not arise immediately afterwards, or may not arise at all.

Another good argument in favour of T_4 is that it becomes necessary to save realism as well as our pre-theoretic assumption of the possibility of our knowledge of the external world from the attack of such idealists as Dharmakīrti. The usual counter-argument against Nyāya is this. If we admit that an awareness-event can occur in a person about which event he is unaware, we make a mental event as good as a 'material object' (*jaḍa*), for both the mental and the material can exist unperceived or uncognized. This consequence leads to materialism. Nyāya will accept the charge, for otherwise mentalism or idealism would win the day! For the usual mentalistic strategy is to introduce an insurmountable barrier between the mental and the non-mental (material), and then claim that the mental (a cognitive event, a mode of consciousness) cannot be connected with the material object unless it transforms the latter into a mental object. This would, therefore, create what has sometimes been called the 'veil of ideas'. An argument can usually be developed to show eventually that this veil of ideas becomes, in fact, our veil of ignorance about the external, material world: if this is so, then, in our explanation of knowledge and awareness, a reference to the external world would seem to be dispensible.

The other argument of Dharmakīrti leads to almost the same conclusion. If the awareness of blue and the awareness of that awareness of blue are neces-

sarily arising together, and hence are ultimately indistinguishable, there is no way by which we can claim that the blue (the blue-form) in awareness is (or even corresponds to) a reality separate from the awareness itself.[19] The causal theorists can be easily faulted and hence an idealistic explanation of knowledge and awareness will win the day. The philosophic motivation of Nyāya behind its thesis T_4 is to deny this possibility at the very beginning. T_4 is consistent with commonsense because it is possible for me to say that this baby is aware of the red flower before him, but he is hardly aware that he is aware. Why does T_4 initially seem so odd? The answer is that we tend to confuse the first-person statements (which are necessarily true) with the third-person statements (which are only possible, that is only sometimes true). I cannot say that I am aware without my being aware that I am aware. But I can say of Mr. *X* that he is sometimes aware without being aware that he is aware. Then I can argue that what is true of Mr. *X* should be true of me, viz. that I could be aware without being aware that I am aware, although I cannot *say* that I am aware without being aware that I am aware. For *saying* it (a sort of *vyavahāra*, to use the Sanskrit term) presupposes my being aware of the awareness of it.

Udayana has added a further argument: our internal events such as pleasure and pain are necessarily perceived *inwardly* because they are irresistible (cf. *tīvra-saṃvegitayā*), but our awareness sometimes lacks this character of irresistibility. Hence it is not always *inwardly* (perceptually) recognized.[20]

4. Nyāya View about Knowing That One Knows

Nyāya differs from others in its theory about how we grasp the truth-hitting character of a piece of knowledge, i.e. the knowledge-hood of a knowledge. We grasp the truth, it may be said, when we know a piece of knowledge as knowledge, and not as a mere awareness. I may *inwardly* perceive an awareness in the next moment of its origin, but I need something more to grasp its truth-hitting character or its knowledge-hood. The Nyāya theory implies, in the first place, that I may know that I have an awareness without knowing that this awareness is true, i.e. a piece of knowledge. In fact, if certain conditions obtain (or do not obtain, as the case may be), I may never know (or know) that this awareness of mine at moment t_1 was a piece of knowledge. Moreover, if I were falsely aware at t_1, it would never be revealed to me that this was a false awareness unless some other set of conditions obtains. On the other hand, the set of conditions that is fit to generate in actuality a cognitive awareness would generate it as either a *true* or an *untrue* (= *apramā*) one, for according to Nyāya, a cognitive event must be either true or untrue. An exception to this rule would be the case of a pure sensory awareness, a conception-free perception.

Vācaspati expounds the Nyāya view as follows.[21] First, we should distinguish the scriptural matters from mundane matters, for scriptures are different kinds of action-guide. Concentrating upon 'mundane' matters, we should notice the following. The 'mundane' matters of our acquaintance may be

classified as those with which one has acquired familiarity (e.g. daily chores) and those with which one has not (cf. *anabhyāsadaśāpanna*). My familiarity with a cup of tea in the morning or that there is a cup of tea on the table belongs to the first case. My perception of an unfamiliar man approaching me would belong to the second type. Vācaspati says that, in both cases, the truth of my awareness is known to me by an inference but the nature of the inference varies substantially one from the other. In the second case, I know that my perception has been veridical (that I am not under illusion) because it leads to confirmatory behaviour (cf. *pravṛtti-sāmarthya*). For example, I can go and talk to the man; and his behaviour that follows, if confirmatory, would allow me to infer: this perception has been a case of knowledge, for it has led to confirmatory behaviours. This is rather a pragmatic solution of the problem within the context. We have to remember that commonsense dictates that knowing that we have a perception does not in any way guarantee that we have a veridical perception, and this is the strong point in favour of the sceptical arguments. Nyāya makes room for this common intuition, but proposes to resolve the issue as follows. A perceptual awareness, whose veridicality is in doubt or unestablished (cf. *sandigdha-prāmāṇyaka* or *agṛhīta-prāmāṇyaka*) is as good as a dubious cognitive awareness (cf. *saṃśaya*). But even a dubiety, Nyāya asserts, may prompt us to act, and such action can very well be crowned with success. In such cases, Nyāya says, we *infer* the knowledge-hood of the awareness on the basis of some, confirmatory behaviour' as evidence. Behaviour, here, includes activities. Vācaspati has said that our actions and awareness (belief?) are (causally) related in the following way:

> Action or propensity to act depends upon the awareness of the object (*artha*), not upon the *certain* determination of it; for intelligent people act even from a dubious cognitive awareness of the object. It is not that those who act even being certain that the means will bring about an end (e.g., farmers ploughing fields for future crops) do not entertain (occasional) doubt about the result that is yet to come.[22]

The point is that even if the knowledge that my present perception is veridical or yields knowledge comes later, my present perception, whose knowledge-yielding character (truth-hitting character) has not yet been determined, can initiate action or behaviour that may be confirmatory in the end. Udayana says: 'Everywhere, one tends to act, having considered that there is more to gain by acting, and that even if the result is not confirmatory, the loss is less (than gain)'[23] (I follow Vardhamāna's interpretation).

According to Vācaspati, in the cases mentioned above, when the matters are sufficiently 'familiar', another inference is used, to establish the truth of an awareness. Vācaspati calls it the '*tajjātīyatā*' inference. I shall call it 'inference from likeness'. Briefly, it is this. Everytime that I am in the kitchen in the morning, I see a cup of tea on the table. In order to know that my perception

that there is a cup of tea on the table is veridical in such cases, I do not always need confirmatory behaviour (I go and take it in my hand, drink it, etc). Rather I infer then and there that the perception *that* there is a cup of tea on the table is veridical (knowledge-yielding), for it belongs to the same type, i.e. it is LIKE others, many others, I had had before. In such cases therefore, our action or tendency to act (or our behaviour) is prompted by a certainty about the object, for we already *know* that this perception is veridical. This explains our strong commonsense intuition that in many cases we act on the basis of a *dead* certainty about an object. This is admittedly an inference based upon a premise involving the rather intriguing notion of LIKENESS. It says that if *A* and the likes of *A* have been proven before to have the property *K*, then if *X* is like *A* (in essential points), *X* has *K*.

Udayana discussed this intriguing notion of LIKENESS.[24] Briefly, the LIKENESS varies with each type of cognitive structure. Besides, one sort of LIKENESS would be emphasized in the case of perception, another in the case of inference. Basically, the idea is this. On the first occasion, my awareness that 'there is a cup of tea on the table' (suppose on the first day) was no doubt a piece of knowledge, but I did not know immediately about its being a piece of knowledge until confirmatory behaviour proved it to be so. After some days however, I would start knowing its knowledge-hood immediately after I see the cup of tea, for I would instantly infer its knowledge-hood on the basis of its LIKENESS to my past veridical experience. The LIKENESS is also based, in this case, upon the identical structural content.

Just as most philosophers defend the commonsense assumption that '*a* is aware that *p*' virtually implies '*a* is aware that he is aware', most philosophers of both Western and Indian tradition would assert that knowledge of knowledge is virtually equivalent to knowledge *simpliciter*. However, the traditional philosophers used arguments based upon introspection to defend this thesis. Ryle has subjected this argument-from-introspection to severe criticism and thereby rejected the thesis. Nyāya, however, rejects the thesis on different grounds and propounds an alternative doctrine which may not be acceptable to a follower of Ryle.[25] Nyāya asserts that knowledge of knowledge is not virtually equivalent to knowledge *simpliciter*. Translated in terms of the episodic notion of knowledge, this would mean that what leads to the episode of knowledge in a person, *a*, is not identical with what leads to the episode of knowing that knowledge in *a*.

As we have noted in section 3, part of the apparent oddity in the Nyāya position can be explained away by contrasting the 'first person singular' statements with the 'third person singular' ones. The statement 'I know that *p* but I do not know that I know' is plainly absurd, but '*a* knows that *p* but he does not know that he knows' is not necessarily so. In fact, a follower of Nyāya would argue that the second statement is not at all absurd. This will simply mean that the set of immediate (causal) conditions that leads to the episode of *a*'s knowing that *p* is not identical with the set of conditions that leads to the

episode of *a*'s knowing that he knows that *p*. Not only can the two episodes take place at different times, they can also have different causal precedents.

Udayana says that all of us have an inherent propensity in us to desire and look for knowledge (cf. *samutkaṭa-vāsanā*), but the fact is that a cognitive event only occasionally amounts to knowledge (becomes a knowing event).[26] As a result, we frequently take (mistake) a false awareness to be a piece of knowledge. A man, for example, can take the appearance of a wandering monk and we would quickly (*jhaṭiti*) take him to be a monk; but we cannot say that we *know* in such cases, unless we also know whether the appearance is faked or genuine, as the case may be. For a doubt as to whether or not the appearance was genuine would be overwhelming. In an 'unfamiliar' situation (*anabhyāsa-daśā*) of the above kind when a cognitive event arises and is also grasped (known), it is commonly felt that an overwhelming doubt as to whether this cognition is genuine (i.e. a piece of knowledge) or not often arises within a very short period (say, in the second or third moment). This fact cannot be explained if we suppose that when a person knows that he is 'AWARE', he knows *ipso facto* that he 'KNOWS'. Moreover, we have to say that the person has already come to know about his awareness, i.e. that he is aware that *p*, if the said doubt as regards the knowledge-hood of the awareness is to be possible. For doubt regarding the qualifying characters, A-ness or B-ness, presupposes knowledge of the subject entity (*dharmin*). In other words, if somebody doubts whether an object is a camel or a kangaroo, he must have some acquaintance (at least a vague visual experience from a distance) with the object itself. Here the subject-entity is the awareness itself. Hence an awareness of this awareness-event is a prerequisite for the said doubt to arise.

The doubt regarding the knowledge-hood of an awareness *infects* what is grasped by the awareness itself. This doubt it to be removed by an inference to ascertain the knowledge-hood of the awareness concerned. In 'unfamiliar' situations, as we have already explained, the inference is based upon 'confirmatory' behaviour. In 'familiar' situations it is based upon 'likeness' with other, already decided, knowledge-episodes, the second inference being very natural, automatic, and almost unconscious (it is not 'consciously' done unless, of course, we are sufficiently provoked). According to Nyāya, this fact misleads the opponent into the belief that if a person knows that he is aware that *p* then he also knows that he knows that *p*.

With such arguments, Nyāya supports the contention that knowledge of knowledge is neither equivalent to knowledge *simpliciter*, nor even to knowledge of the awareness event (which may, in fact, be knowledge). This seems to go against the new 'formal' proof offered by J. Hintikka in defence of the thesis that '*a* knows that' *virtually* implies '*a* knows that he knows that'. But I do not think that there is any conflict here as far as the 'formal' proof of Hintikka is concerned. Hintikka sharpens the notion of knowledge well enough and makes several assumptions in order to make his thesis almost irresistible. In fact, his basic assumption is the condition C.KK*, which is based

upon the rule A.PKK*, and the equivalence of knowledge of knowledge with knowledge *simpliciter* really turns on this assumption. But the infallibility of this rule may be disputed. Hintikka himself is quite aware of the problems involved here. He also requires, for his thesis to obtain, that the person referred to by *a* in '*a* knows that' knows that he is referred to by it.[27]

E.J. Lemmon once clearly rejected the thesis that "*a* knows that..." implies '*a* knows that he knows that...'. He said: '...there is a clear sense in which it is untrue: there are many things people know without realizing that they know them.'[28] It is significant to realize that Lemmon disagreed with the Hintikka-type view even without developing a sense of knowing that may be identical with that of Nyāya. The upshot is that one cannot *deductively* prove that knowledge *simpliciter* is equivalent to knowledge of knowledge, unless one prefixes the notion of knowledge so as to make the thesis irresistible. And this is what Hintikka has apparently done. The insight from Lemmon's disagreement would be that, in some acceptable sense of knowing, very little of the kind of epistemic logic (that Hintikka envisioned) would be forthcoming.

This would be a good place to explain further the Nyāya notion of knowledge. Nyāya would say that *a* knows that *p*, provided:

1. *a* is aware that *p*,
2. proper (causal) conditions for generating a knowing event have obtained;
3. certain psychological conditions, e.g. dubiety, awareness of the opposite of *p*, etc. do not obtain; and
4. *p* is the case.

It now seems feasible to say that a subject, *a*, knows that p at time t_1, but he does not know that he knows that *p*. Notice that *a* does not have here the right to assert that he knows, even if all the four conditions are met. In other words, if he can assert that he knows, then Nyāya would say that he already knows that he knows. Even if *a* remembers later on that *p* was the case, Nyāya would say that *a* might have already known that he knew that *p*, although there is another possibility. It may be that *a* remembered simply the fact that *p*, not the fact that he knew that *p*; and from this fact of remembering that *p*, he now infers (i.e. knows) that his previous awareness was a piece of knowledge. The last event is an inferring, not a remembering.

In the light of the points mentioned above, some comments on Lemmon's example may be in order. Lemmon says that if he suddenly remembered an obscure fact about Persian history which he had learned as a child, it would be said that he knew this fact; but until he remembered it he did not know that he knew it. This is misleading. Lemmon is obviously against taking knowledge to be episodic ('current action' in his language), as Nyāya would like to have it. But in spite of this difference the following Nyāya observation is possible. Nyāya would say that it all depends upon what exactly Lemmon remembered. If he remembered simply that obscure fact about Persian history, then he is only warranted to assume that he knew it before. But if he remembered that he learned (knew) it in his Persian history class, as is often the case, then he would be warranted to assume, as we would be to assume about him, that he knew that he knew it (when he learned it). In fact, Lemmon's example is unfortunate from this point of view, for learning in a class is very often the case of knowing that one knows (in the Nyāya sense of the term). Thus unless one so defines knowledge as to make it analytically true that knowledge *simpliciter* implies knowledge of knowledge, it would always be possible to say of somebody that he knew that *p*, although he did not know at that moment that he knew that *p*. Thus the Nyāya thesis may very well be defended.

Our criticism of Hintikka here may appear to be too hasty. For, after all, Hintikka constructed a 'formal proof'. But it is rather refreshing to note that we are not alone in rejecting the second part of the Hintikka thesis. Among the philosophers, A.C. Danto has very convincingly argued that the above part of Hintikka's theory (or that of Schopenhauer whom Hintikka cites as a predecessor in upholding it) is false, provided Hintikka by his use of the verb 'to know' intends to capture *usage*. In short, Danto points out, by using what he calls his 'style of *grosso-modo* proof', that the conjunction of '*a* knows that *p*' and '*a* does not know that *a* knows that p' is not inconsistent.[29]

The main argument of Danto is that '*a* knows that *a* knows that *p*' has a truth-condition in excess of the truth-conditions for '*a* knows that *p*', and 'in such a way that the full satisfaction of the truth condition of the former is satisfied'. It is thus possible to hold that the former could be false while the latter is true. Danto explains this point as follows: we can take the notion of 'understands the sentence *p*' as giving a truth-condition for 'knows that *p*'. Thus the former would require that *a* understands the sentence '*a* knows that *p*' while the latter simply that *a* understands the sentence *p*. Danto further comments: 'And surely it is possible to understand a great many things without understanding what knowledge is, or what "knowing that" means.'[30] All this goes to support the Nyāya view against Hintikka and the Mimāṃsakas of India. But we should also note that Danto does not contribute to episodic conception of knowledge as Nyāya does. And this might explain the fact that Danto reaches a conclusion similar to Nyāya against Hintikka through a slightly different route.

In the case of perceptual awareness and awareness derived from linguistic expressions (*śabda*), Nyāya clearly says that knowledge-hood of such awareness is established (known) by an inference based upon the evidence of either the 'confirmatory behaviour' or LIKENESS (according as it is an 'unfamiliar' or 'familiar' situation). But there seems to be a controversy among the Naiyāyikas, which most probably was initiated by Vācaspati, about how the knowledge-hood of this kind of inference as well as of the *inward* perception that caps an awareness is to be established. This will lead us to the next discussion.

5. Inference, Confirmation and Introspection

There are many problems that arise in the context of the Nyāya view about knowledge of knowledge (that has been stated in the previous section). Naiyāyikas tried their best to resolve these problems and I shall deal with a few of them here. Several points must be understood when we try to formulate the Nyāya view (as Gaṅgeśa makes them clear).

(1) Doubt is infectious. If *a* entertains a doubt regarding the knowledge-hood of his awareness that *p*, then *a*'s awareness becomes *infected* with doubt and this means that *a* cannot be sure whether *p*.

(2) Human action is not always prompted (i.e. caused) by knowledge. Thus *a* may act with regard to *p* even when he has simply an awareness that *p* (even when he cannot be sure).

(3) A person can be sure that *p*, only if he has a certitude (an awareness) that *p* and this awareness is *not* infected or overwhelmed with doubt as regards its falsehood. He does not always have to be sure by ascertaining the knowledge-hood of his awareness.

(4) One may say: if c_2 ascertains the knowledge-hood of c_1, we may need another c_3 to ascertain the knowledge-hood of c_2 and so on. This inifinite regress can be stopped in the following way. If c_2 ascertains the knowledge-hood of c_1, and no doubt about the falsehood of c_2 arises, there is no need to look for c_3, etc. to ascertain the knowledgehood or otherwise of c_2.

(5) Actions, behaviour, etc. are 'shaky' (cf. *sakampa*) when they are prompted by dubious awareness. They are 'unshaken' (*niṣkampa*) when prompted by a certitude about *p*. Such certitude may arise because either no doubt regarding the falsehood of the awareness has arisen; or when such doubts arose, they were removed on the basis of evidence.

(6) In sum, action in us is never produced by knowledge of knowledge. A person acts because he knows (not because he knows that he knows) or he is simply aware, or he is in doubt but wishes to benefit from doubt, etc. (cf. Pascal's wager).

All this would apply to perceptual knowledge and they can be applied (as Vācaspati and Udayana have shown) *mutatis mutandis* to scriptural knowledge.[31] Three further cases remain to be examined: (*a*) inferential knowledge, (*b*) knowledge of the 'result' (*phala*), that ensures confirmatory behaviour and (*c*) inward perceptual recognition.

First, let us deal with inference. The sceptic, who is fond of the infinite regress argument, might say: if some inference is supposed to impart knowledge of the knowledge-hood of an awareness, then we may need another inference to examine what the former inference is said to establish. Vācaspati answers this by saying that an inference properly made would be 'self-verifying' in nature. This cryptic statement of Vācaspati became a matter of controversy for the later Nyāya. According to Vācaspati, an inference is 'properly made' iff it is based upon a reason or an evidence (figuratively called 'inferential mark') that is *invariably* connected or concomitant with the property that is to be inferred (cf. *anumeyāvyabhicārilinga-samutthatvāt*). In other words, if invariable concomittance is guaranteed between *A* and *B*, then from *A* we infer *B*, and in this nothing can go wrong. If inference follows this 'logical' rule, it imparts indubitable knowledge (cf. *niṣkampam upapadyate jñānam*). For,[32] 'The 'mark' is there (present), and the 'mark' cannot be present unless the 'marked' (the property to be inferred) is present.' It is not clear whether the point of Vācaspati is that a logical (argument-like) inference is valid *a priori*, because the principle of such inference embodies a necessary truth. Perhaps this would be a *volte face* for a Naiyāyika. He says that any inference, whether it is of the kind (described above) that is based upon the logical 'mark' called confirmatory behaviour or upon a logical 'mark' about which all kinds of doubt regarding its non-concomitance or deviation have been removed (cf. *nirasta-samasta-vyabhicāra-śaṃkasya*), would impart knowledge, and knowledge-hood of such inferential cognition cannot be doubted.

Vācaspati's expression 'self-verifying' (*svata eva pramāṇa*) would, of course, mean that the knowledge-hood of such inferential awareness (conclusion) would be known by the same set of conditions that would generate knowledge of that awareness itself. Since, according to Nyāya, each awareness is cognized by an *inward* perception, in this case also when the inferential awareness arises an *inward* perception would grasp such an awareness as well as its knowledge-hood. In other words, what Vācaspati intends to say (as Vardhamāna explains) is: when I have inferred that *p* I *inwardly* perceive that I have inferred that *p*, and by the same token I inwardly perceive that this inferred awareness is a piece of knowledge.[33]

Udayana reformulates the matter as follows. In the case of inference, i.e. inferential awareness, doubt may arise as regards its knowledge-hood in either of two ways. We may doubt the adequacy of the causal factors involved. Or we may doubt the knowledge-hood of the 'concluding' (resulting) awareness. Two relevant causal factors are involved: Knowledge of the concomitance (invariability) between *A* and *B*, and knowledge of the presence of *A* (in the case under consideration, i.e. in *pakṣa*) on the basis of which we infer *B*. Now if these two pieces of knowledge are established (known), Udayana says the first contingency, i.e. arising of the first kind of doubt, is removed.

The second contingency is removed as follows. The inferred conclusion is '*B* is there'. The relevant doubt would be of the form: whether this awareness is a piece of knowledge or not. This would, according to Nyāya, *infect* the conclusion and the awareness would then be virtually equivalent to a doubt of the form, 'perhaps *B* is there, or perhaps not.' But this latter doubt is, according to Nyāya theory, what actually initiates the process of inference. (It is technically called *pakṣatā*.) In other words, people infer generally in order to remove such a doubt; and hence when inference has taken place (i.e. an awareness '*B* is there' has arisen) the said doubt would have been removed alr eady. Therefore, both types of doubt are removed in this way. Hence when

the *inward* perception takes place to grasp the inferential awareness (i.e. when I know that I have inferred that *B* is there), it grasps also, in the absence of any possible doubt, the knowledge-hood of the said awareness. This means that we do not need a further inference in order to know the knowledge-hood of the inferred conclusion (awareness). (And this may be a good answer to a Nāgārjunian sceptic who talks about a vicious circle or an infinite regress.)

This position of Vācaspati does not admittedly fit well with the rest of the Nyāya system. But I do not think it is entirely unsatisfactory. We should notice that the so-called 'self-verifying' character of an inference is not essentially the same as it is in the rival (Mīmāṃsā) schools. The Mīmāṃsā school seems to assume that knowledge-hood is the *natural* trait of an awareness-event (only 'faulty' causal factors give rise to the cases of 'faulty' awareness, falsehoods); and hence when the awareness is known its knowledge-hood is also *necessarily* known along with it. For Vācaspati, however, the knowledge-hood of the inferential awareness is known only contingently along with the knowing (*inward* perception) of the awareness itself. It is insisted upon, for example, that this happens only when all the possible doubts are removed. Udayana has shown how such possible doubts can be removed (see above). Further, inference is not said to be indubitable here on *a priori* grounds: what is appealed to is only a *practical* impossibility (cf. 'Contradiction of Practice' = *vyāghāta*) of raising any doubt.

Vardhamāna adds that the *inward* mental perception that grasps the inference *B* is there' grasps it also *as* an inference. Since 'inference' means an awareness derived from sound evidence or reason, our *inward* perception grasps the awareness as one derived from a *logical* evidence. In Nyāya theory of inference, what is derived from a *logical* evidence (*sallinga*) can never go wrong. As Vardhamāna insists: 'For, an inference produced by the 'consideration' of a (logically) sound evidence is never false or a pseudo-inference.'[32] If this is correct, then our knowledge of our own awareness *as* an inference would automatically be knowledge of its soundness, i.e. its knowledge-hood. This implies that the Nyāya theory of inference is computational and the mechanism of inference can never deliver *false* inference as output. The output could be a false awareness (a pseudo-inference) if only the input (the "consideration" of evidence) is false. If the input (the premise or premises) is not false but the conclusion is not really *entailed* by it, the Nyāya mechanism for inference would not generate any output, any inferential awareness. For it would reject the input and say, as it were, 'it does not compute'. In other words, while in the Western tradition one can draw a *fallacious* conclusion from some premise (and hence we talk about 'logical fallacies' in such cases), one cannot INFER, in the Nyāya sense of the term, using such a premise as one's input or initial awareness.

In spite of the above explanations by Udayana and Vardhamāna, later Naiyāyikas never felt happy about such a view of Vācaspati. To be sure, while one can agree with the point that inference, properly made, is *always* true and

hence a piece of knowledge (in other words, truth would arguably be its omnitemporal, if not its necessary, character), one cannot see why it would *not* be possible sometimes to raise doubts as regards the truth or knowledge-hood of some particular inference. Gaṅgeśa, Vardhamāna *et al.*, think that such doubts can be entertained, and when they arise in us a further inference is needed to resolve them. Hence Vācaspati's expression *svata eva* is actually interpreted to mean 'with ease' (*sukara eva* in Vardhamāna). Vācaspati's cryptic comment would then mean, according to Gaṅgeśa, the knowledge-hood of an inferential awareness is easily grasped. And this means that doubts as regards its falsehood are *generally* absent and hence there is *unshaken* activity after inference.

Vardhamāna suggests another alternative explanation. The 'self-verifying' nature does not apply to all types of inference, but only to the inference by which we infer the character of knowledge-hood in any other awareness. Hence the inference based upon confirmatory knowledge or LIKENESS would be knowledge, and knowledge-hood of such inference would be known as soon as that inferential awareness itself is known (by an *inward* mental perception). The ground would be almost the same as before: all doubts as regards this particular type of inference going wrong are removed and hence further doubt should not arise.[33]

This leads to the second case: confirmatory behaviour. Jayanta directs his attention to the notion of 'confirmatory behaviour' that is used as the 'logical' mark to infer knowledge-hood of some awareness. He refers to the interpretation of some previous teacher or teachers (cf. *ācāryaiḥ*), who say that confirmatory behaviour means another awareness that ensues upon the first or an awareness of the logical evidence to confirm the first awareness. The idea is that if I see a man approaching and later on shake hands with him, this second awareness of mine confirms the first. Or, the shaking of hands would be the logical mark, my awareness of which (cf. *viśeṣa-darśana*) will establish that he is a man, which in turn would show that my perception was veridical. However, Jayanta rightly rejects such interpretations and says that Vātsyāyana, who originated the notion of confirmatory behaviour in the first sentence of the *Nyāya-bhāṣya*, meant by it a sort of confirmatory knowledge or confirmation by virtue of the 'effects' or 'result' expected of the object known (cf. *arthakriyākhya-phalajñānam*). My perception that it is water there would be known to be veridical if it, for example, quenches my thirst. Awareness of the latter fact would be called *phalajñāna*, confirmatory knowledge, or knowledge of the 'result'.

The question now arises about how we know the knowledge-hood of the confirmatory knowledge, according to the Nyāya scheme. Here Jayanta differs from Vācaspati in resolving the issue. Vācaspati insists that cases of confirmatory knowledge are similar to that of 'familiar' situation, and hence an inference based upon LIKENESS is needed to know its knowledge-hood. Jayanta says that confirmatory knowledge does not stand in need of verification. It goes against the invariable practice of all persons to raise doubt about the

knowledge-hood of the confirmatory knowledge. Jayanta almost claims that it is impossible to entertain a doubt here. For one thing, since my purpose has been served (cf. *siddha-prayojanatvāt*), i.e. my thirst has been quenched, there is no necessity to examine or question the awareness any further. In other words, absence of any doubt accounts for the non-arising of the question whether it is a piece of knowledge or not. For Jayanta says: how can I doubt whether I have a knowledge of water or not when I am already in the middle of water—taking a bath, for example? But this is only a practical impossibility, not a logical one. For one can easily imagine that it is all a dream, my thirst and the quenching of it, etc. Assuming this objection, Jayanta gives an argument that he himself repudiated in another connection. He says that the difference between dream experience and waking experience can be marked by our inward feeling (cf. *samvedyatvāt*). 'Here I am awake, not dreaming'—an inner perception of this kind is concomitant with our waking experience.[36]

This, however, is a desperate attempt to get out of a tight corner. For Jayanta himself agreed (a few pages earlier) with the sceptic, as against the other Naiyāyikas and Mīmāṃsakas, that there cannot be any ostensible mark that we are necessarily aware of, when a perception arises, whether it is veridical or not. He challenged his opponent to spell out such specific mark as would unmistakably distinguish the veridical perception from the non-veridical one. For it cannot be clarity or vividness (*spaṣṭatā-viśeṣa*, probably mentioned by Dharmakīrti in one connection), nor can it be unshakable disposition to act (*niṣkampatā*; Vācaspati refers to it), nor absence of any doubt, nor perceived absence of any contradiction; for all of them would equally and indiscriminably characterize both an illusion and veridical perception and, one may add, even a dream. Even if we concede Jayanta's point about dreaming and the presence of our 'inner' evidence in waking experience, it is quite possible to imagine a situation, following Vasubandhu, which is equivalent to that of a mass hypnosis, or a Cartesian situation imagined to be created by an evil demon, or the case of a 'brain in a vat' as imagined recently by Hilary Putnam, where 'inner' evidence will not be of any help.[37] Jayanta, however, tries an alternati ve way of establishing our knowledge of the knowledge-hood of the confirmatory knowledge. We become certain about the truth of the confirmatory knowledge only after a satisfactory examination of all its causal factors. This would, therefore, imply that confirmatory knowledge may need verification on occasion. I can examine, for example, whether my eyesight is defective or not, whether I am excessively hungry (and therefore hallucinating those sumptuous dishes), whether I am dreaming or awake, and so on.

The opponent might say that we can in the same way engage ourselves in examining the causal factors to determine the veridicalness of the first perception for which confirmation was needed. Why do we have to resort to such a method in the second, confirmatory knowledge, and not in the first one? Jayanta answers that this is also possible but generally people resort to examining the confirmatory evidence rather than examining the causal factorse of the

first perception when it arises. If I see water, I immediately act to see whether it quenches my thirst (provided I am thirsty); and if it does, my first perception is confirmed to be a piece of knowledge. This is a much easier way than examining the causal factors of the first perception and people usually take the easier way out. To quote: 'Who would ignore the proximate and go for the distant object?' In sum, there is a practical solution to the sceptic's problems, but the super-sceptic can never probably be answered satisfactorily.

In confirmatory knowledge we, in fact, reach the end of the line. If the regress which the sceptic points out has to stop anywhere then it stops here. Mortiz Schlick has commented about the nature of confirmations (as Mohanty has already pointed out): 'They are an absolute end. In them the task of cognition at this point is fulfilled...it gives us a *joy* to reach them, even if we cannot *stand* upon them' (my emphasis).[38] Jayanta holds another view that coincides with that of the sceptic. He says that it is possible for all cases of our awareness to be considered as infected with doubt or uncertainty in the beginning, i.e. prior to confirmation, etc. For so long as the certainty about its knowledge-hood (or otherwise) has not arisen we can say that there is a lack of certainty as regards the truth of my awareness, although an actual doubt has not arisen; and this lack of certainty transmits itself to the object of my awareness or 'infects' it. Hence there is a possibility of universal doubt in this extended sense of the term 'doubt'. Jayanta says that by 'doubt' here he would designate the lack of certainty which characterizes each awareness due to the lack of our knowledge about its truth.[39] The reason for conceding this position to the sceptic has already been explained. The Nyāya position that the knowledge-yielding character of an awareness cannot be known at the moment the awareness arises may entail such a possibility of universal doubt. We will initially lack certainty about the truth of any awareness. Jayanta says clearly that he is not arguing for the establishment of the possibility of universal doubt, but the Nyāya position might entail this possibility.[40] Each awareness, in other words, is suspect until proven not guilty.

Vācaspati, I have already noted, has a different view about the cases of confirmatory knowledge. He thinks that they should be treated in the same way as our perception of 'familiar matters' (*abhyāsadaśāpanna*) is treated. For they are after all 'familiar' through habit, repetition, practice, etc. Hence our knowledge of the truth of the confirmation is given by the inference (of the kind described before) based upon LIKENESS as the logical mark. Many times, for example, I drink water and thirst is quenched. Hence the 'instant' inference based upon LIKENESS gives the required knowledge that the confirmatory awareness of the quenching of thirst is true or is a piece of knowledge. The former confirmatory awareness only reinforces the latter. But it is possible to reach a point when I am drinking water for the first time to quench my thirst (before now, suppose I drank only coke);[41] in that case the inference based upon LIKENESS would not be available to me. Vācaspati anticipates this point and answers that in this case my tasting (drinking) of water belongs to the class

of mundane objects or matters with which no 'familiarity' has been developed (*anabhyāsa-daśāpanna*). Therefore, here my action or tendency to act would (causally) follow from mere awareness which may even be a dubious one, but not from my *knowledge* that it is a piece of knowledge. When confirmatory behaviour follows, I become truly aware that I have a confirmatory knowledge. Vācaspati qualifies this statement by saying that such further confirmation of the initial confirmatory knowledge is needed only when we entertain a doubt about the veridicalness of the initial confirmatory awareness on the analogy of dreams, etc. The idea is that I might experience quenching of the thirst but still I may not be sure whether it is not a dream, etc. for in dreams, etc. I can also have the same experience. When such a problem arises, I depend upon confirmatory behaviour to support my confirmatory knowledge (e.g. I may just examine whether the thirst is gone, wait for a few minutes, etc.).

Vācaspati, therefore, gets out of the dilemma posed by the sceptic as follows. The problem is this. In saying with Nyāya that an awareness is known to be knowledge by another knowledge—in fact, an inference—we may end up with either a vicious circle or an infinite regress. For even to make such an inference possible we need a knowledge of the logical 'mark', i.e. either a knowledge of what we have called LIKENESS or the confirmatory behaviour. Now the second knowledge may need further confirmation. In other words, we have to know its knowledge-hood to prevent the 'infection' of doubt. (A dubious awareness of the logical mark does not generate inference.) Vācaspati says in unmistakable language:

> The awareness of the logical mark LIKENESS, belonging to the first awareness, is a mental perception. Falsity of such mental perception is not (never?) to be found, and hence all doubts about its being wrong are completely (*partaḥ*) removed. Therefore knowledge-hood of this (mental perception) is 'self-established'. Hence there is no infinite regress.[42]

Here 'self-established' is explained again by Vardhamāna as 'being known (established) by (another) *inward* (mental) perception, which grasps the first mental perception'. An awareness, say c_1, whose veracity is not known yet, certifies the knowledge-hood or veracity of another awareness, say c_2, provided no doubt has originated regarding the lack of veracity of c_1. If such a doubt arises, it infects the object of c_1, and thereby renders the veracity of c_2 dubious. In such cases we have to remove the initial doubt by the knowledge of c_0 which will certify the veracity of c_1, and it in its turn will certify the veracity of c_2. This need not lead to an infinite regress as long as we admit with Nyāya that a piece of knowledge does not have to be *known* first as a piece of knowledge for it to certify the veracity of another. The last in the series (backwards), c_0, can by itself do the job of certifying, and the cognizer may meanwhile move to a different subject and/or may not pause to question the veracity of c_0. This seems to be a better and pragmatic explanation of the Nyāya reply to the sceptical charge of infinite regress.

If Vācaspati is to be interpreted *literally*, then one has to say that he divides knowledges (knowing events) into two groups. There are those cases, whose knowledge-hood is established by a separate inference: external perceptions and knowledge from scriptures or linguistic expressions. There are others whose knowledge-hood is 'self-established' (i.e. established by whatever grasps the awareness itself): inference, *upamāna* (analogical identification), and mental perception. Udayana adds one more item to the second list: *dharmi-jñāna* (perceptual awareness, internal or external, of the entity that constitutes the subject-entity of a 'propositional' or constructive awareness), e.g. awareness of *a* which is a constituent of the awareness '*a* is *F*'. Udayana believes that the knowledge-hood of the awareness of *a* cannot be doubted in this case, for that would make the construction '*a* is *F*' practically impossible. In other words, if I am already aware that *a* is *F*, I must have already an awareness of *a*.

The prevailing Nyāya view, however, is that knowledge-hood of all knowing events *can* be established by an inference (of either kind described above), whenever it is possible to doubt whether the cognitive event concerned is a piece of knowledge or not. Udayana, therefore, offers the following compromise between Vācaspati's statement and that of other Naiyāyika's. When Vācaspati uses the expression 'self-established', he simply means that it is not the case that these are never self-established and this implies that these knowing events are *mostly* (though not always) self-established.

In other words, according to Udayana, Vācaspati's intention is to underline the undeniable fact that these knowing events are such that their knowledge-hood is *easily* (cf. *sukara eva*) established by the immediately succeeding mental perception of these events. This is so precisely because chances of doubt, as I have already noted, are practically non-existent in these cases. But Udayana insists, it is quite (logically) possible that a person is in doubt as regards their knowledge-hood. In such remote cases, however, their knowledge-hood can be established by another inference (cf. *parataḥ*). The supposed infinite regress can be stopped through practical considerations that we have already noted.

Another important point that we must note in this connection is this. Both Gaṅgeśa and Udayana seem to allow that our mental *inward* perception of inner events, such as, cognition, pleasure, pain and desire, is *invariably* a piece of knowledge (cf. *prāmāṇya-niyatatvāt*, Gaṅgeśa), although we may not *always* know its knowledge-hood automatically. To show this the following argument is suggested.

Let us suppose that a person, *a*, is aware that this is silver. This awareness may be true or false according as the object identified or referred to on that occasion by 'this' is a piece of silver or not. Next, he has an *inward* (mental) perception of this awareness in which he is aware that he is simply aware that this is silver. Since the second awareness grasps the first simply as an aware-

ness (not as knowledge or illusion) nothing can possibly go wrong in it. The second awareness could have been wrong or false only if the first awareness were not, in fact, an awareness. But this is ruled out from the beginning. This point seems to be intuitively grasped when somebody says: 'How can I be wrong about my own feelings, intense pain, etc.?' Udayana says that our inner episodes are sometimes characterized by an intensity (*tīvra-saṁvegitā*) such that they force themselves into our consciousness, such as some intense pain. Some cognitive events (awareness) have this character of intensity, and hence there always arises a mental inward perception of them; and such perceptions can never be misperceptions. This would mean that, according to Nyāya, one cannot be deluded about one's being in pain etc.:

> Just as the knowledge-hood (of an awareness), with regard to "unfamiliar" situations, is ascertained (i.e., known) by confirmatory behaviour, the falsity (of an awareness) is ascertained by failure of such behaviour. Similarly, just as before the confirmatory behaviour ensues in "familiar" situations knowledge-hood is ascertained by LIKENESS, falsity (in such situations) is also ascertained (through LIKENESS).

A person suffering from eye-disease will see a double-moon repeatedly in the evening sky, and this will, therefore, be a case of 'familiar' situation. But he will still take it to be false on the basis of the LIKENESS inference. He will see that this cognition resembles in relevant respects other cases of false awareness (where falsity has already been determined). This is the general LIKENESS. He would also see that his cognition resembles, in essential details, his first awareness of the double moon (when his eye-disease started and when he ascertained its falsehood by asking others, etc.).

This shows that Nyāya is consistent in maintaining that a person may be aware that he is aware that *p*, but this is not enough for him to know whether *p* is true or not. Knowledge-hood and falsehood are properties of his (first) awareness and he may remain unaware whether his awareness has such a property or not even when he is aware of his (first) awareness. Usually an inference (of either kind described above) helps us to establish the knowledge-hood as well as falsity. However, when an *inward* perception is grasped by another *inward* perception, Udayana says that its specific characters, *inwardness*, etc. are also grasped thereby. This is another way of saying that we grasp its knowledge-hood also by the same token. But if we still indulge in a doubt as regards its knowledge-hood, we have to fall back upon an inference to resolve it.[43]

NOTES

1. A.J. Ayer, 1956, pp. 23-24.
2. Sālikanātha, pp. 170-73.

3. Kumārila Bhaṭṭa holds that a cognitive episode is imperceptible, that is to say, it is not even amenable to *inner* perception. According to him, we become aware of the occurrence of a cognitive episode in us with the help of an automatic inference: we know the object first, and then from the known-ness of the object we infer that a cognitive episode has therefore arisen. This is called the theory of *jñātatā-liṅgakānumāna*
4. See Kumārila, *Codanā-sūtra section*, verses 33-61. See also Gaṅgeśa, *Prāmāṇyavāda* section.
5. This position is ascribed to the Sāṃkhya school by Kumārila.
6. See Dharmakīrti's introductory comments in his *Nyāyabindu*.
7. Diṅnāga, 'Mānasaṃ cārtharāgādi sva-samvittir akalpikā', *Pramāṇasamuccaya*, ch. i, verse 6ab. See M. Hattori, pp. 92-94.
8. M. Nagatomi, pp. 243-60.
9. Mokṣākaragupta, ch. i, 6.1. See Y. Kajiyama, pp. 45-47.
10. *Nyāyabindu* ch. i, 10.
11. 'Kalpanāpi sva-samvittav iṣṭā nārthe vikalpanāt', *Pramāṇasamuccaya*, ch. i, verse 7ab.
12. *Ibid.*, *vṛtti* under verse 11ab. See M. Hattori, pp. 29-30.
13. Dharmakīrti, *Pramāṇavārttika*, ch. iii, verses 385-86.
14. See M. Hattori, p. 30, pp. 111-13.
15. Śāntarakṣita, verse 2011.
16. The oft-quoted line is: 'Sahopalambhaniyamād abhedo nīla-taddhiyoḥ'.
17. John Locke, *Essay*, II, i, 4.
18. J. Hintikka, 1962, pp. 79-81.
19. See note 16 above. Another oft-quoted line of Dharmakīrti is: 'Apratyakṣopalambhasya nārthadṛṣṭiḥ prasidhyati.' See for a discussion of this line, B.K. Matilal, 1974, pp. 145-47.
20. Udayana, *Pariśuddhi* (A. Thakur's edn.), p. 100.
21. *Ibid.*, Vācaspati (Thakur's edn.), p. 29.
22. *Ibid.*, p. 29.
23. Udayana, *Pariśuddhi* (Thakur's edn.), p. 95. For Vardhamāna's comment, see Bibliotheca Indica edn, p. 100.
24. *Ibid.* See comments of both Udayana and Vardhamāna. See also J.N. Mohanty, pp. 53-54.
25. Thus Hintikka comments: '...Ryle rejected, namely, that knowing something virtually implies knowing that one knows.' Hintikka, 1962, p. 111.
26. Udayana *Pariśuddhi*, (Bibliotheca Indica edn.), p. 49.
27. J. Hintikka, 1962, pp. 106-10.
28. E.J. Lemmon, pp. 38.
29. A.C. Danto, pp. 100-03.
30. *Ibid.*, p. 101.
31. Vācaspati (Thakur's edn.), p. 29; Udayana, *Ibid.*, p. 99.
32. *Ibid.*, p. 29, and p. 97.
33. Vardhamāna (Bibliotheca Indica edn.) p. 112.
34. *Ibid.*, p. 112. Vardhamāna comments: 'Na hi sallingaparāmarśād anumitir ābhāsībhavatītyarthaḥ'. For Gaṅgeśa's comment see *Pratyakṣa* volume, pp. 283-84.
35. Vardhamāna, *ibid.*, p. 112.
36. Jayanta, pp. 158-59.
37. H. Putnam, pp. 1-21.
38. M. Schlick, 'The Foundation of Knowledge,' in A.J. Ayer (ed.) *Logical Positivism*. See also J.N. Mohanty, p. 52n.
39. Jayanta, p. 157.
40. Jayanta, p. 157; J.N. Mohanty calls this an 'absurd' view. See Mohanty, p. 55n. I do not think this to be a fair criticism: each awareness is a 'suspect' until proven innocent.

41. This is indeed a possibility. The young son of my American friend once commented in my presence that he drank only coke for he thought that drinking water would not quench thirst.
42. Vācaspati (Thakur's edn.), p. 30. See Udayana's comment in *ibid.*, p. 99.
43. *Ibid.*, p. 99. Compare Udayana's comment: 'Utpatter evārabhya viṣaya-viśeṣa-grahaṇa-grastatvāc ca na śaṅkāvakāśaḥ.'

Bibliography

Ayer, A.J., *The Problem of Knowledge* (Pelican edn.), 1956.

Danto, A.C., *Analytical Philosophy of Knowledge*. Cambridge University, Cambridge, 1968.

Dharmakīrti, *Nyāyabindu* (ed. Chandrasekhar Sastri) Chowkhamba, Benares, 1954.

Diṅnāga, *Pramāṇa-samuccaya* in M. Hattori, *Dignāga on Perception*, Harvard University Press, Cambridge (Mass.), 1968.

Gaṅgeśa, *Prāmāṇyavāda* in *Tattvacintāmaṇi* (ed. Kamakhyanatha Tarkavagisa), Asiatic Society, Calcutta, 1897.

Hintikka, J., *Knowledge and Belief*, Cornell University Press, Ithaca, 1962.

Jayanta, *Nyāyamañjarī* (ed. by Suryanarayana Sukla). Kashi Sanskrit Series, Benares, 1934.

Kumārila Bhaṭṭa, *Mīmāṁsā-śloka-vārttika* (ed. R.S. Telanga Manavalli), Chowkhamba, Varanasi, 1898.

Lemmon, E.J., 'Is There Only One Correct System of Modal Logic?' *Proceedings of the Aristotelian Society*, sup. vol. xxxiii, 1959, pp. 23-40.

Locke, J., *An Essay Concerning Human Understanding* (ed. A.C. Fraser), Oxford, 1894.

Matilal, B.K., 'A Critique of Buddhist Idealism' in *Buddhist Studies in Honour of I.B. Horner* (eds. L. Cousins, A. Kunst and K.R. Norman) Reidel, Dordrecht, 1974, pp. 137-69.

Mohanty, J.N., *Gaṅgeśa's Theory of Truth*, Visva-Bharati, Santiniketan, 1966.

Mokṣākaragupta, *Tarkabhāṣā* (ed. and tr. Y. Kajiyama, *An Introduction to Buddhist Philosophy*, Kyoto University, Kyoto 1966.

Nagatomi, M., '*Mānasa-pratyakṣa:* A conundrum in the Buddhist *Pramāṇa* system' in *Sanskrit and Indian Studies* (eds. Nagatomi et al.), Reidel, Dordrecht, 1980, pp. 243-60.

Putnam, H., *Reason, Truth and History*, Cambridge University, Cambridge, 1981.

Śālikanātha, *Prakaraṇapañcikā* (ed. A. Subramanya Sastri), Benares Hindu University, Varanasi, 1961.

Śāntarakṣita, *Tattvasaṁgraha* (ed. by Swami Dwarikadas Sastri), Bauddha Bharati, Varanasi, 1968.

Schlick, M., 'The Foundation of Knowledge' in *Logical Positivism* (ed. A.J. Ayer), Free Press, Glencoe, Illinois, 1959.

Udayana, *Pariśuddhi* (ed. L.S. Dravid and V.P. Dvivedin, Asiatic Society, Calcutta, 1911, (ed. A. Thakur), Mithila, 1967.

Vācaspati Misra, *Tātparya-ṭikā* (ed. R.S. Dravid), Chowkhamba, Varanasi, 1925.

Vardhamāna, *Nyāyanibandhaprakāśa*, comm. on *Pariśuddhi*. See Udayana (Asiatic Society edn.).

Indian philosophy and mokṣa: revisiting an old controversy*

DAYA KRISHNA
University of Rajasthan, Jaipur

Almost two decades ago I had published two articles[1] questioning the integral relationship between Indian philosophy and *mokṣa*, on the one hand, and the exclusive characterization of Indian philosophy as spiritual, on the other.

Few scholars in the field of Indian Philosophy have taken any serious note of either of the contentions or of the arguments offered on their behalf in the articles concerned. Prof. Karl H. Potter is one of the few exceptions, as he has not only devoted a substantial portion of his paper entitled 'Indian Philosophy's Alleged Religious Orientation'[2] presented in the conference on the same subject held at Brockport, U.S.A. in 1972 but also referred to it again in his *Encyclopedia of Indian Philosophies*, vol. ii. As the issue may be deemed to be of fundamental import for the very articulation of Indian philosophy, it may not be amiss to try to discuss and clarify the points in the debate once again.

The issue, in a sense, derives its vital power from what one conceives of philosophy to be and from one's desire to find in the Indian tradition that which one thinks ought to be there. There is even a deeper clevage in the debate between those who, for some reason or other, feel negatively or positively toward anything that is designated as 'spiritual' or 'religious'. Deeper than this, perhaps, is the division amongst those who are hostile or antipathic to tradition and those who have not only an admiration or nostalgia for the past but also feel that without a living relationship with their own intellectual culture they cannot be themselves or grow and contribute to the global cognitive concerns of today.

Yet, whatever the divisions and the motivations amongst the participants in the debate, some ground rules will have to be accepted if the dispute claims to be cognitive and thus, at least in principle, settlable in character. The following ground rules are offered in the hope that they would provide at least a tentative beginning in the formulation of what may be called a meaningful discussion on the subject.

The first and foremost precondition of a serious cognitive debate may be taken to be the acceptance of a common criterion or a set of criteria for the admission of a text or a thinker or a tradition as philosophical in character. Even if this is not accepted on Wittgensteinian grounds, one may be expected

*This article is dedicated to my students of the Wednesday Seminar whose independent responses to the controversy between Potter and me would shortly be published elsewhere.

at least to subscribe to the negative contention that in case one uses any criterion whatsoever to designate a text, a thinker or a tradition as philosophical, then one would have to admit all other texts, thinkers or traditions as philosophical if they display the same characteristic or characteristics, also. In case one wants to deny even this on some such ground as 'everything is what it is, and not another thing', then not only would one opt out of the cognitive debate but also deprive himself of the possibility of even the first characterization, as there was nothing in it intrinsically to confine it to just that object alone unless it happened to be a definite description or a rigid designator in Kripke's sense of the term.

If this be accepted even provisionally and if it is also accepted that the term 'philosophy' arises from within the western tradition deriving in the main from Greek thinking on the subject, then it is obvious that whatever will display these characteristics would have to be understood not only as philosophy but as philosophy bearing the same characteristics which philosophy in the western tradition is supposed to have. The terms 'spirituality' and 'religion' should share the same constraints, and if someone complains that this is to surreptitiously underwrite the western concept of philosophy as the only concept of philosophy and treat it as paradigmatic and thus impose it on other traditions, we would only say that it will be better in such a situation if some other term is used to avoid confusion.

Further, in a discussion of this sort, one may be legitimately expected to use the same characterization on the basis of the same criteria irrespective of the fact whether one is talking about one philosophical tradition or another. In the light of this, we may formulate the questions whose answers we are seeking in the following manner:

(1) Is Indian philosophy 'spiritual' in a sense in which western philosophy cannot be characterized as such?
(2) Is the concept of *mokṣa* distinctive of Indian philosophy in the sense that no analogous concept is to be found in the western philosophical tradition?
(3) Even if such an analogous concept can be found in the western philosophical tradition, is it a fact that it (i.e. *mokṣa*) occupies such a central pivotal place in the Indian philosophical tradition that the latter cannot make sense or even be possibly understood without reference to it ?

The characterization of Indian philosophy as 'spiritual', and the contention that it is integrally related to *mokṣa* in the sense that it cannot be intelligibly understood without reference to it are usually supposed to be identical by most writers on Indian philosophy. Yet the two contentions, though closely related, are not identical. In fact, one may hold the one without holding the other as the two may vary independently of each other. The former contention is generally supposed to entail the later, but only if the term 'spiritual' is understood in a very specific sense of the word. *Mokṣa* is a concept which may be

said to belong to practical philosophy or to what Kant called 'practical reason'. It designates a goal to be pursued, an ideal to be actualized and as such it will have to be related, evaluated and understood in relation to other values, goals or ideals which have also been prescribed for man's realization. True, there is a feature of *mokṣa* as an ideal which does not belong to most other ideals, particularly those that pertain to something outside the self. *Mokṣa* is supposed to be the realization of the true nature of the self itself even if it be the case, as in Buddhism, that there is no true nature either of the self or of anything else.[3] But if it is the *true* or *real* nature of the self, or no-nature as in Buddhism, then how can it ever be lost? This is the point of dispute between those who have argued for the *nitya-siddha* nature of the self as against those who have argued for the *sādhana-siddha* nature of the self. Also, in Śaṁkara-Vedanta *mokṣa* cannot be relegated to the practical sphere as it cannot, in principle, be the result of *karma* or action.

Yet, whatever the difficulties in assimilating *mokṣa* to the practical sphere, it should be remembered that the difficulties are *theoretical* in character, and that it would be even more odd to treat it as belonging to the cognitive part of the philosophical enterprise in India. The problem of *mokṣa* arises because what is ontologically required to be the case is not existentially such—a situation which is radically different from others where what 'ought to be' does not happen to be so as a 'matter of fact'. Normally, the 'ought' when it obtains with respect to any objective situation whatsoever is not treated as ontologically real, even though in the Platonic framework the difference between the 'idea' and the 'ideal' vanishes, and everything is supposed to be judged for its reality in relation to the idea which it more or less embodies in itself. Yet, even in the Platonic context, one may assume some difference between those sense objects with respect of which one cannot do anything towards the lessening of the discrepancy between them and their idea and those in whose cases such is not th[illegible]. Even amongst the latter, one may assume a radical difference betwe[illegible]n an awareness with respect to one's own self and every other thing in th[illegible]orld which may possibly be brought nearer to its idea by effort on one's part.

The paradox with respect to one's own self lies in the awareness that though ontologically one is what one ought to be—and it cannot be otherwise—one does not feel it to be so. Kant faces this dilemma in the dichotomy between the Holy Will which ought to *be* and the Moral Will which is determined by the sense of Duty and which the Will is actually supposed to be in its ontological reality. Yet if the sense of Duty arises from the contrary pull of desires and inclinations and if the latter are the necessary material for the will to excercise its function upon, then how can the idea of the Holy Will be tenable in principle? The alleged unity between the theoretical and the practical reason in Kant raises a similar problem, though in a different context. For Kant there is a deep dichotomy between knowledge and action, and the transcendental presuppositions, which each one of them has, are radically different

from each other. Also, for Kant, the ontological freed om which action presupposes is *only* in the context of moral action which is the same as the doing of an action from the sense of duty, which itself makes sense only because of the existence of desires and inclinations on the part of the person concerned. On the other hand, the freedom which the Indian talks about is not so much the freedom involved in moral action as that of enjoying a state of being or rather of just being or being, being-as-such. *Mokṣa*, therefore, in the perspective of Indian philosophy, is more talked about in the context of knowledge of what truth is, and Knowledge in this case being of the self ensures or rather coincides with its own reality, that is, the real nature of the self.

Mokṣa then is not *dharma*, that is, it does not belong to the domain of moral action even though the latter *may* prepare the ground for the true knowledge of the self to arise and thus, in a sense, to bring it into being also. The central problem for the Indian philosophical reflection, therefore, has been that of error and not of evil as has been the case in the western tradition. And, depending on the way one conceives the true nature of the self to be, one also conceives of what the realization of *mokṣa* would consist in. But the acceptance of such an ideal would not necessarily make Indian philosophy spiritual just as the acceptance of any other ideal, even with respect to the self, would make any philosophy spiritual or non-spiritual.

A philosophy is usually characterized as 'spiritual' or 'non-spiritual' because of the way it conceives of the nature of 'reality' and not because of the manner in which it conceives of the ultimate or highest ideal for man. It is its answer to the question about the reality of matter that determines whether a philosophy is to be considered as 'spiritual' or not, and not its answer to the question about the supreme end which human beings ought to pursue.

Thus a philosophy would not be entitled to be called 'spiritual' if it posits as the highest or ultimate goal for man the freeing of himself or itself from the bondage of matter or the involvement in the embodied state and all the attendant problems that it involves. Rather, it would be entitled to that title if and only if it denies the reality of matter and argues for the ultimate reality of only consciousness or that which is more akin or analogous to consciousness in our experience than to what we call matter. Judged in this perspective, the 'theistic-atheistic controversy' regarding the predominant characterization of the Indian philosophical tradition in terms of one or the other is irrelevant to the issue of its characterization as 'spiritual' or otherwise. Potter is right in pointing out that one's view about the predominance of 'theism' or 'atheism' in India would depend upon the date one chooses for the characterization. If, for example, one chooses the second century A.D., one would discover that 'the major systems extant at that time—Sāṁkhya, Mīmāṁsā, Nyāya and Vaiśeṣika, Jainism, the several schools of Buddhism, and Cārvāka—are none of them theistic'. But 'if one slices instead at, say, the fourteenth century A.D. one finds that Nyāya-Vaiśeṣika has become pronouncedly theistic, that Buddhism and Cārvāka have disappeared, and that several varieties of theistic

Vedānta have come to prominence'.[4] Yet, however true, this cannot help Potter in establishing the 'spiritual' character of the Indian philosophical tradition. In order to do that, he should have tried to show that there was an increasing denial of the independent reality of matter on the part of a large number of philosophers in India. But this would have been difficult to establish as, except for *Vijñānavādin* Buddhists, hardly any school of Indian philosophy has denied the independent reality of matter in an ontological sense. Most of the Indian philosophers have been pluralists in their ontology and those who have opted for an uncompromising monism, like the *Advaita Vedāntins*, have also generally opted for the position that the ultimate reality cannot be described with any differentiating characterizations, even though it may be pragmatically more convenient and intellectually more adequate to understand it at the phenomenal level as more analogous to the nature of consciousness that we know of than in terms of that which is experienced by us as its opposite, that is, matter. From the strictly *Advaitic* point of view, the characterization of ultimate reality as 'that which is material' is as incorrect as 'that which is conscious, or that which has the nature of consciousness'.

The issue would perhaps be clarified a little more if we raise it in the context of the western philosophical tradition. Would the acceptance of God by a philosopher in his system make us characterize it as 'spiritual' in nature? In case Potter's answer to this question were to be in the affirmative, he would be hard put to find a philosopher in the whole history of the western philosophical tradition who has not accepted God in some form or other. There are, of course, a few exceptions and their names are known to everybody, but if one were to count heads on this score there is little doubt that the Indian philosophical tradition would be found to be far less 'spiritual' than the western one in this respect. In fact, if one were to make a comparative study of the role that God plays in the two philosophical traditions, one would find that his role in the Indian intellectual traditions in the field of philosophy is far more marginal than in their counterpart systems in the western tradition.

Yet, even though most persons in the field of comparative philosophy have known of these facts, hardly any of them have even raised these questions with respect to the western philosophical tradition. In fact, it is strange to find that issues and questions which have been so persistently raised with respect to the Indian philosophical tradition have never been so raised with respect to the philosophical tradition in the West. 'Is western philosophy essentially spiritual?' or 'is it essentially concerned with Man's liberation?' are questions which have never bothered the students or historians of western philosophy. This is not the occasion to go into the historical reasons which were responsible for the obsessive concern with these issues in the context of Indian philosophy. But it would be strange if we do not note the complete blindness of scholars who have taken part in the debate towards the existence of those very features in the western philosophical tradition on the basis of which they distinctively characterize the Indian philosophical tradition one way or another.[5]

At the ontological level, then, the characterization of any philosophical tradition as distinctively 'spiritual' would lie not in its acceptance or denial of God or of its acceptance of the independent reality of 'consciousness' but in its denial of the independent reality of what is usually understood by the term 'matter' in common parlance. Judged on this count, it would be difficult for Potter or for anybody else to characterize Indian philosophy as 'spiritual' and this at any period in its more than two milennia long period of growth and development.

But philosophy, as everyone knows, is not just asserting an ontological or epistemological proposition, but rather giving reasons for it *and* countering possible objections that may be raised against it. This is what philosophical activity consists in—argument and counter-argument, *pakṣa* and *pratipakṣa*—and this is what philosophers in India did all the time. The very format of philosophical writing demanded that one present the counter-position, the *pūrva pakṣa* first and, only after refuting it, establish one's position. Many of the positions are now known only through the statement of these counter-positions as the texts in which they had been argued have been lost. Also, the greater the philosopher, the more powerful his statement of the *pūrva-pakṣa*, the ideal always being that even the proponent of the counter-position could not have presented it better. Potter knows all this, as does everyone else. And yet he alleges that 'it is not clear to what extent Daya is offering persuasive definitions in the Language of factual claims.'[6] According to him, 'the crux of the problem Daya raises is: should we use the word "philosophy" in some appropriate way *drawn from contemporary Western* practices or should we redefine it to fit a concept employed within Indian philosophy itself ?'[7] (italics mine). But there *is* no need to go to contemporary or even older western sources to find what philosophy is when the Indian tradition itself spells it out so explicitly. Each *śāstra* or field of knowledge has to have its *uddeśya, lakṣaṇa* and *parīkṣā*; and *parīkṣā* presupposes *vimarśa* or *saṁśaya*, that is, doubt. Doubt or *saṁśaya* arises because there is *vipratipatti*, i.e. two opposite positions seem to be supported by equally weighty arguments. It is true that 'the word" philosophy' is not a Sanskrit word"[8] but there is no reason to suppose there is no Sanskrit analogue to it in the Indian tradition. Surely, the term *ānvikṣikī* comes as close to it as one may want it to be. Also, one should not forget that the traditional Greek meaning of the term 'philosophy' related it more to wisdom than to what it has gradually come to mean in its milennia-long usage in the western tradition.

Potter tries to take help from the theory of *puruṣārthas* to support his contention that philosophy in India is centrally and inalienably related to *mokṣa*. He writes: 'There *is* in India a traditional distinction among fields of knowledge, according to which treatises devoted to such fields may be divided according as they fall into *arthaśāstra, kāmaśāstra, dharmaśāstra* or *mokṣa-śāstra*'.[9] He goes on to argue that...

> the logic of the four aims of life is such that one who transcends the first two by coming to view life in terms of *dharma* does not thereby leave behind the points of view (subject-matter, methodology) of the first two but rather combines them into a new and more adequate overview of life. The same thing, in turn, is said to happen when one advances toward *mokṣa* or liberation. Since in this way the point of view of liberation not only constitutes the highest value and the ultimate goal, but also represents the most adequate understanding of anything worth understanding, it is evident why treatises on all sorts of subjects were introduced in such a fashion to suggest that the work would present its subject under the aspect of liberation.[10]

It is surprising to find a scholar so eminent as Potter succumbing to the rhetoric of *puruṣārthas* and not be able to see through it. First, how are the so-called *arthaśāstras* and *kāmaśāstras* related to *artha* and *kāma* of the Indian tradition? The former relate to the science of politics and the latter to the science of sex. *Artha* and *kāma* as *puruṣārthas*, on the other hand, are not supposed to be confined 'just' to these. Where then are those *śāstras* which are concerned with these as *puruṣārthas*, unless every treatise which is not concerned with *dharma* or *mokṣa* is treated as being concerned with either *artha* or *kāma* by definition? Further, as is well known, only three *puruṣārthas* were accepted in the beginning and the fourth *puruṣārtha*, that is, *mokṣa* came to be added only later under the influence of the *śramaṇa* tradition.[11] Also, there was always a tension between *dharma* and *mokṣa*, as the latter denied all significant relationship with others, a relationship without which *dharma* would cease to have any function or meaning. The heart of *dharma* was obligation to others, while *mokṣa* was always treated as the transcendence of all obligations whatsoever. The realm of *dharma* was the realm of *dvanda* (duality), while the realm of *mokṣa* was *dvandātīta* (beyond all duality).

This is not the occasion to go into a detailed exegesis of the *puruṣārthas* and their interrelationship, but it should be obvious that while there may be some justification for integrating *dharma* with *artha* and *kāma* and suggesting that 'a new and more adequate overview of life' is reached with it, there is little justification for doing the same with *mokṣa*. The term 'liberation' as a translation of *mokṣa* is systematically misleading as it suggests the essentially this-world-centred western secular ethos of the term. *Mokṣa*, in most Indian systems, is either a *denial* or a *transcendence* of the world. It is linked with the fourth *āśrama*, that is, *sannyāsa* in which one is supposed to be *ritually* dead to the obligations of society, i.e. the world. Hence it would not be correct to say, as Potter does, that it is only in the perspective of *mokṣa* that 'the most adequate understanding of anything worth understanding' can occur. What is understood is that nothing else was worth understanding and that one was under a basic illusion when one thought they were worth understanding. In fact, the pursuit of *mokṣa* as a *puruṣārtha* or even its awareness as such makes one realize the hollowness and fruitlessness of the enterprise of understand-

ing.[12] *Jñāna* certainly has always been regarded as one of the paths to *mokṣa*, but then *jñāna* is not knowledge in the usual sense of the word. Rather, it is a denial of the possibility of that knowledge and its relegation to the realm of ignorance or *avidyā* as it is founded on the distinction between self and object and the acceptance of *bheda* or difference as real. It may be urged that this is to accept the *Advaitic* position as paradigmatic for the understanding of the notion of *jñāna* in the Indian tradition. But even when the ontological position is held differently, as in other schools of Indian philosophy, the situation in respect of secular knowledge is no different. In the state of *kaivalya* in Sāṁkhya, for example, it is difficult to see how after the deidentification with *buddhi*, any knowledge can remain there at all. The whole enterprise of knowledge even in Sāṁkhya occurs within the ambit of and is made possible by the identification of *puruṣa* with *prakṛti* which is the root cause of both ignorance and bondage in this system. Similarly in Nyāya-Vaiśeṣika, the soul in the state of *mokṣa* is not supposed to be conscious at all, and thus the question of its providing 'a new and more adequate overview' to what had been known earlier cannot even arise. As for the Buddhists, everything is *vikalpa*, a conceptual construction whose constructional character comes to be known in *nirvāṇa* and hence given up. Or rather it falls of itself when the nature of truth comes to be known; for 'giving up' would imply an act of will or choice which is perhaps not possible at this stage. The Jains, of course, ascribe omniscience to their realized souls, but it seems difficult to settle whether this means adding *syāt* to all knowledge or leaving it behind as it was a sign of finitude and ignorance.

Thus Potter's attempt to see a continuity between the *puruṣārthas* and their final fulfilment in *mokṣa*, however interesting and laudable in itself, is hardly sustained by the way *mokṣa* is conceived of in most systems of Indian philosophy. One would have to radically reinterpret the notion of *mokṣa* to make it perform the function which Potter wants it to do in his way of looking at the whole thing.

Similar is the problem with his attempt to see philosophy as 'a moment in every inquiry, rather than a distinct kind of inquiry' itself.[13] Now, if philosophy is to be a moment in every inquiry, one should know what philosophy is and what role that philosophical moment plays in different enquiries. Unfortunately, it does not seem that Potter is clear about the issues involved in his formulation. He writes, for example: '...the interrelated totality of the various sciences should ultimately issue in a systematic account reflecting the various discoveries of specific sciences conditioned and synthesized through philosophical criticism.'[14] But this is to assume that the specific sciences should have completed their task before the philosophical activity can perform its function—an assumption that would render philosophical activity impossible as it is difficult to understand how the various sciences could have completed their task at any point in historical time. Also there is and can be no fixed list of sciences as Potter seems to assume. New sciences continuously

come into being and disturb whatever 'interrelated totality' might have been achieved. But the deeper problem is with this 'interrelated totality' itself and the so-called 'philosophical criticism' through which it is 'synthesized'. Why should 'philosophical criticism' be considered necessary for achieving this 'interrelated totality' of the discoveries of the various sciences? Why cannot science itself perform this function? And what is this moment of 'philosophical criticism' over and above the critical function which all scientists exercise with respect to each other's work? It 'there is no special method of philosophy distinct from the method or methods utilized in the several kinds of enquiry', and if one should view 'the various sciences as specialized facets of the general pursuit of philosophy', as Potter contends, then why use the term 'philosophy' at all, for it has nothing distinctive to convey from that which is already conveyed by 'science'? Further, if this is what Potter wanted to say, then it was misleading for him to talk of philosophy being 'a moment in every inquiry'; for it is not just a *moment* in every inquiry but rather the whole of the inquiry itself. To see philosophy as identical with the whole cognitive enterprise of man is to do justice neither to philosophy nor to the cognitive enterprise or even to illumine anything in this regard. But Potter seems unsatisfied even with this limited identification and wants to go beyond and identify philosophy with all other enterprises of Man as well.

That there are non-cognitive quests seems to be accepted by Potter, at least by implication in his article. Whether these are to be considered as philosophical or not remains unclear in his formulation. Are they to be regarded as 'philosophical' because there is an essential intellectual moment in them or because 'philosophy' itself need not be essentially cognitive or intellectual in character? The distinction is important, as the quest for liberation, i.e. *mokṣa*, seems to be regarded as philosophical on both grounds. He writes: 'Thus the quest for liberation involves an intellectual component, though doubtless it is not exhausted in intellectual inquiry'.[15] And that 'if the quest for liberation involves intellectual as well as non-intellectual moments, and if liberation represents among other things an ideal state of cognitive attainment towards which all branches of inquiry ultimately aim, then the contrast between what he [Daya] thinks of as philosophy and what he takes to be the non-rational pursuit of liberation collapses.'[16] Now an 'intellectual moment' cannot make a non-cognitive quest cognitive. And what are the 'other things' which liberation also is supposed to represent? And does *mokṣa* represent 'an ideal state of cognitive attainment' in the usual sense which is attached to the word 'cognitive'?

These questions have to be posed and answered in as clear and straightforward a manner as possible, for Potter's formulation seems to thrive on systematic ambiguities in the terms that he chooses to employ. When he writes that 'the search for liberation is a search for an ultimate understanding of the truth', the reader forgets that the use of the terms 'understanding' and 'truth' have little in common with the way they are used not only in common parlance

but scientific contexts. In most schools of Indian philosophy, the state of *mokṣa* is conceived of in such a way that either there is no object left there to be known or, if any object is allowed at all, no relationship with it of any kind, whether cognitive or otherwise, is permitted. In Advaita Vedānta, the very awareness of something as an object is a sign that one is still in ignorance and that *mokṣa* has not been achieved. In Sāṁkhya, though the ontological reality of *prakṛti* is accepted, *puruṣa* in its state of *kaivalya* cannot be aware of it as it is dissociated from *buddhi* which alone permits *viveka*, that is, distinction between *prakṛti* and *puruṣa*.[17] As for Nyāya-Vaiśeṣika, the soul is supposed to be unconscious in its state of liberation, and hence the question of knowledge cannot even arise in that state. In *nirvāṇa*, according to Buddhism, the flame is extinguished and what remains can hardly be regarded either as knowledge or its fulfilment in the usual senses of these words. Jainism, of course, has the notion of a *sarvajña*, the all-knowing person, in the state of liberation and this may be said to fulfil Potter's understanding of what *mokṣa* means in the Indian tradition. But one swallow does not make a summer, and it would be strange if the Jaina position in this regard is taken as representing the dominant Indian tradition in this respect.

These facts are well known and it is difficult to believe that Potter is unaware of them. In fact, the way he himself articulates the so-called 'intellectual moment' in the pursuit of *mokṣa* should make clear not only its accidental and adventitious character, but also that it cannot survive in any significant sense in the state of *mokṣa* when achieved. According to him, 'this intellectual component can in the case of Indian philosophy be best understood as the effort to remove doubts and fears which, deriving from sceptical and fatalistic views, threaten to render a person incapable of undertaking the quest.'[18] But what if one has no such doubts and fears? Would one still need philosophy for undertaking the quest? On all ordinary understanding of the sentence just quoted, the answer would be a definitive 'No'. In fact, it is not even clear how would Potter characterize the so-called sceptical and fatalistic views which generate the doubts and fears which 'render a person incapable of undertaking the quest.' Would he regard them as a part of philosophy or not? Or, in his view, there can be no sceptical or fatalistic philosophies, but only those which are the opposite of these and arise only in the context of their refutation. Further, would he distinguish between 'doubts and fears' which arise from 'sceptical and fatalistic views' and those which have no relation to them? And if so, would he hold that it is only the former sort of 'doubts and fears' which 'render a person incapable of undertaking the quest' for *mokṣa*? And should not one distinguish between 'doubts' and 'fears' in this connection? The notion of 'doubt' generated by *purely* intellectual considerations is well known to philosophers, but one can hardly say the same thing about 'fear'. The deeper problem, however, concerns the issue whether 'doubts and fears' raised by purely intellectual considerations can ever render a person incapable of undertaking a quest of any kind whatsoever. I had raised this issue in my earlier discussion

of Potter's position, but for reasons best known to him he has chosen to remain silent on the subject. The evidence from the history of philosophy on this point is at least *prima facie* against Potter's contention. Not a single paradox from Zeno to Russell or even later has ever stood in the way of man's quest, whether cognitive or practical. Also, there is a gratuitous assumption in Potter's thought that sceptical and fatalistic views cannot find new arguments to sustain themselves against their opponents. The history of philosophy in India and elsewhere shows the untenability of such an assumption. In fact, sceptical and fatalistic positions seem as perennial in philosophy as those that are supposed to be their opposites. The relation of theoretical positions to non-theoretical quests is not easy to determine, but it would be gratuitous to assume, as Potter does, that the latter need always be obstructed by the former. In fact, Potter's own formulation seems to confine the presumed relationship between 'the sceptical and fatalistic views' and the inability to undertake 'the quest' for *mokṣa* to Indian philosophy only. But it is not quite clear why the 'doubts and fears', 'deriving from sceptical and fatalistic views', should render only an Indian 'incapable of undertaking the quest'. In case the relationship holds, all men should suffer from it and not Indians only. It would not do to say that as the Indians alone were concerned with *mokṣa* the restriction is confined to the Indian case only; for, presumably the difficulties created by sceptical and fatalistic views affect all quests equally and not just the quest for *mokṣa*. But if such were to be the case, it would apply to all philosophers, whether Indian or not, and thus be a characteristic of philosophy in general and not just of Indian philosophy in particular.

Further, there is the diversity of schools in Indian philosophy; and if each one of them is supposed to be integrally related to *mokṣa*, then either *mokṣa* itself would have to be conceived in a pluralistic manner or only *one* of them (no matter which) would be truly related to *mokṣa*, and the rest only spuriously. The Mīmāṁsā, for example, does not even ritually proclaim itself as concerned with *mokṣa*. Yet Potter does not see any difficulty in the situation; and though he quotes my statement that 'many schools of philosophy have literally nothing to do with *mokṣa*. Nyāya, Vaiśeṣika, and Mīmāṁsā would predominantly come within this group', he chooses to discuss only the first two and not the third.[19] The discussion even with respect to the first two is carried on in a manner that leaves much to be desired. Potter writes:

> The first part of Daya's argument must be met by showing what the path to liberation is according to Nyāya-Vaiśeṣika, and how theoretical speculation gets involved in the life of the freedom seeker.... As for the charge that belief in *mokṣa* is a matter of lip service without sincere conviction, I think it will become apparent from the nature of the arguments used by Naiyāyikas...that liberation is always on their mind even if not uppermost in the question of the moment.[20]

Potter's discussion of the issue does not take into account the fact that there are serious doubts about the text of the *Nyāyasūtras* in its present form. The most detailed discussion regarding this problem may be found in the 'Introduction' by Debiprasad Chattopadhyaya to the volume on Nyāya published in the series 'Indian Philosophy in Its Sources.'[21] It is, of course, true that Potter could not have taken this into account as the second volume of the *Encyclopedia* was published long before the volume in which the 'Introduction' by Debiprasad Chattopadhyaya appears. But it is inconceivable that the material to which Debiprasad Chattopadhyaya refers in his 'Introduction' could have been unknown to Potter. In fact, Potter refers to H.P. Sastri's article 'An Examination of the Nyāya-Sūtras', which opens with the statement that 'anyone who carefully reads the Nyāya-Sūtras will perceive that they are not the work of one man, of one age, of the professors of one science, or even of the professors of one system of religion.'[22] But he has referred to the article as containing 'comments of interest concerning the author of the *Nyāyasūtras*' and not in connection with the author's remarkable contention regarding the contents of the *sūtras* themselves.[23] This is surprising since the author does not accept the second *sūtra* on which Potter relies for his argument for the integral relation between Nyāya and *mokṣa*, as against my contention to the contrary. He writes: 'What is not clear from Kaṇāda's account is how knowledge is related to this process (of liberation). Gautama's *Nyāyasūtras* makes this more explicit. In his second *sūtra* he presents a fivefold chain of causal conditions leading to bondage.'[24] But as H.P. Sastri pointed out: 'The second *sūtra* contains topics which are not enumerated in the first...?' and that 'the only reasonable explanation of this double enumeration seems to be that some later writer has interpolated the second *sūtra* with a view to add philosophical sections to the work.'[25]

Now there can be little doubt that the second *sūtra* is not just a repetition of the first *sūtra*, but adds a totally different dimension to the so-called purpose of the *Nyāyasūtras*. The first *sūtra* lists the *distinctive* concern of the Nyāya which is supposed to deal with argument or reasoning. The second deals with what may be regarded as common to most of the philosophical and non-philosophical traditions in India after the Vedic times. Potter himself notes the similarity of the 'fivefold chain of causal conditions leading to bondage' mentioned in the second *sūtra* with the 'twelvefold chain of Buddhism' without seeing the devastating implications of what he is saying. He writes: 'This is reminiscent of the twelvefold chain of Buddhism (pratītyasamutpāda) which leads from ignorance (avidyā) to rebirth and misery in a somewhat more complicated series.'[26]

But if this is the *central philosophical issue*, what happens to the radical differences between the Nyāya and the Buddhist positions and the great debate between the successive giants of the two schools, a debate which lasted for more than half a millennium and which has been so ably documented by D.N. Shastri in his *Critique of Indian Realism*.?[27] Surely the debate was not

about the fact whether the so-called causal chain leading to bondage was fivefold or twelve-fold or even about the nature of liberation and the means by which it could be attained. This is important, for anyone who seriously wishes to argue that Indian philosophy is integrally related to *mokṣa*, has to show that the differences between the so-called schools of Indian philosophy centre around their differing conceptions of *mokṣa* or the way in which it can be realized or regarding issues deriving from these. But, as far as I know, nothing of the kind has been attempted, let alone shown by anyone, including Potter. In fact, Potter accepts that the generalized method which all philosophical systems accept for the attainment of *mokṣa* is what in the Indian tradition has come to be known as *yoga*. But if this is the situation, how can *differences* between philosophical schools be accounted for on this basis? Ultimately, it is the differences or rather the arguments for the differences that define the separate identity of a school or system from others. One of the cardinal principles of philosophical exegetists in this connection is to try to interpret the texts in such a way as to preserve the differences in philosophical positions rather than blur them. The tension between the actual text and the ideal type philosophical position would, of course, always be there. But then the way out would be to distinguish between the actual philosophical position attributable to a thinker on the basis of an extant text and the alternative positions that could possibly be held logically on the issue concerned.[28]

Potter has tried to suggest that, at least in the case of Nyāya, a distinctive method for attaining *mokṣa* could perhaps be found. As he writes: 'This true knowledge, Gautama explains, is to be achieved by the classical methods of concentration, meditation, and yoga, but he significantly adds that one may get it by discussion with others.'[29] And he adds: 'It is this latter means that the Nyāya system is especially concerned to expedite....'[30] The reference here obviously is to *sūtra* 47 of the 4th *adhyāya*, *āhṇika* 2 which prescribes *sahasaṁvādaḥ*, i.e. discussion for purposes of gaining *jñāna*, i.e. knowledge. Now, even if the term *jñāna* is taken to mean *mokṣa*, as some of the traditional commentators did, it is difficult to be clear about the relation between 'concentration, meditation, and yoga' mentioned in the 46th *sūtra* and the discussion with learned people mentioned in the 47th *sūtra*. Normally, the latter is needed only until the former processes of *sādhanā* have been firmly established, for they alone, when perfected, will lead to *samādhi*, i.e. *mokṣa*; in no case can the latter by itself lead to *mokṣa*. The sequence of the *sūtras*, on the other hand, leads one to think that the practice of yoga, etc. is only a preliminary exercise to *sahasaṁvādaḥ*, i.e. discussion with others without which the ultimate good cannot be realized. But 'discussion with others' may at best lead to *niḥśreyasa* as promised in the first *sūtra* and not to *apavarga* which is mentioned in the second *sūtra*. In fact, the attainment of the latter, i.e. *apavarga* would make *sahasaṁvādaḥ* impossible as in *sūtra* 45 it is clearly stated that in the state of liberation the body does not exist, and presumably there can be no discussion without the body. Rather the presence of the latter, i.e. 'discussion

with others' may be taken as a sure sign that *apavarga* or liberation has not been achieved.

Potter's statement also gives the impression that, according to Nyāya 'discussion with others' is an alternative means to 'classical methods of concentration, meditation, and yoga', and that this is its distinctive contribution to the methodology of liberation in Indian philosophy. But it would be difficult for even a Naiyāyika to accept this interpretation as 'discussion with others' may lead to clarity regarding what is to be realized but not to the realization itself. Not only is it not a sufficient condition, but it may not even be regarded as a necessary condition, as few in the Indian tradition have maintained that without 'discussion with others' one could not realize *mokṣa*. In a sense 'discussion with others' will have a uniform role to play in all systems as it is hoped by each system that 'discussion with others' would lead both to the acceptance of what is regarded as true by the system and to clarity regarding the goal that it holds to be desirable above everything else. The fact that such a situation has never obtained does not trouble Potter any more than it did any of the Indian philosophers in the past for the simple reason that as philosophers they were interested more in argumentation than in *mokṣa*. To the extent that they were interested in *mokṣa* as a *puruṣārtha*, they practiced the usual time-honoured yogic practices along with all the other non-yogic ones which had been handed down by tradition and through the practice of which one hoped to reach whatever was designated as *mokṣa* by the tradition. In fact, it would be difficult to correlate the differences in the practical pursuit of *mokṣa* on the part of a philosopher in case he pursued any such thing at all and the philosophical positions he held and the arguments he gave for holding them. The two had little to do with each other and formed almost autonomous realms where each could be pursued independently of the other.

There is another problem with respect to the use of two different terms—*niḥśreyasa* and *apavarga* in *sūtras* 1.1.1 and 1.1.2 of the *Nyāyasūtras*. Normally both are taken by most translators to mean the same thing, i.e. *mokṣa*. But as D.P. Chattopadhyaya has sought to argue in his 'Introduction' to the volume on *Nyāya* in the series entitled 'Indian Philosophy in Its Sources', the two need not mean the same thing.[31] As he writes, there is 'the long drawn habit of the Indian thinkers to conceive "the highest good" in terms of "liberation" itself. *But the habit is unfounded* (italics mine).'[32] And Mrinalkanti Gangopadhyaya goes even further when he writes:

> And therein lies the most obvious objection against the explanation of Vātsyāyana—that he has taken the two words *niḥśreyasa* and *apavarga*—to be synonymous which is not a fact. The word *niḥśreyasa*—dissolved, as *niścitam śreyaḥ*—literally means 'definitely beneficial'; it does not necessarily stand for an extraordinary (*alaukika*) state like liberation only.... In fact, as has been pointed out by the commentators, there are two kinds of *niḥśreyasa—dṛṣṭa* or ordinary, such as the obtainment of a garland and *adṛṣṭa* or extraordinary, such as the attainment of *svarga*. Thus, the word *niḥśreyasa* is wider in meaning than the word *apavarga*, the state of liberation being merely one of the kinds of *niḥśreyasa*.[33]

Gangopadhyaya goes on to argue further that 'in the first *sūtra* Gautam most probably is concerned with *dṛṣṭa niḥśreyasa* only and has got little to do with *adṛṣṭa niḥśreyasa*'.[34]

There is, of course, the added problem that the *Vaiśeṣikasūtras* in 1.1.2 talks also of *niḥśreyasa* in connection with *dharma* which is supposed to be the declared topic of the *sūtras*, as mentioned in *sūtra* 1.1.1. Of course, the second *sūtra* also talks of *abhyudaya* and seeks to define *dharma* mentioned in the first *sūtra* by the fact that it leads to the attainment of *abhyudaya* and *niḥśreyasa*. Now this is a very strange definition, as it is a definition not in terms of the distinguishing properties of the notion concerned but in terms of the *consequences* it has for the person who pursues *dharma*. This is not the occasion to discuss the *Vaiśeṣikasūtras* in detail, but it may be pointed out that the definition of *abhyudaya*, which was immediately required by the second *sūtra*, is not given till 6.2.1. and even that hardly provides a definition of *abhyudaya* as it is a purely negative definition in that it identifies *abhyudaya* with any and every *prayojana* that does not happen to be *dṛṣṭa*. The *sūtra* 10.20 again gives almost the same definition of *abhyudaya*. Besides the fact that it suffers from the same defects as the earlier definition, there is the added problem that it occurs almost at the end of the *Vaiśeṣikasūtras* and thus seems to give it an importance over and above *niḥśreyasa*, giving an appearance of making it the central concern of the *sūtras* which goes against the whole spirit of the traditional way in which they have been interpreted uptil now. Moreover, the definition of *niḥśreyasa* given in the fourth *sūtra* suffers from various difficulties also.[35] First, the definition is once again given in terms of causes of which it is supposed to be the consequence. It is *tattvajñāna* that is supposed to result in *niḥśreyasa*. But that is an empty formula which would be accepted by everybody. The differences would arise concerning how the blanks are to be filled in; what is to count as *tattvajñāna*, and what as *niḥśreyasa*. Unless independent criteria are provided for both and their invariable concomitance established, the phrase *tattvajñānāna niḥśreyasam* would have little meaning. There is, of course, the added problem whether the two are *identical* as is presumably held in Advaita Vedānta or whether, as the *sūtra* seems to indicate, the latter is a *consequence* of the former. Further, there is the question as to how the word *jñāna* is to be understood in these contexts. At least in the context of the subsequent *sūtras* there can be little doubt that as far as the *Vaiśeṣikasūtras* are concerned, the term *Jñāna* is not to be understood on the pattern of what it is supposed to mean in Advaita Vedānta. It is clearly stated in the *sūtra* that the *tattvajñāna* which the *Vaiśeṣikasūtras* are speaking of and which is supposed to lead to *niḥśreyasa* is the knowledge of *sādharmya* (similarity or resemblance) and *vaidharmya* (difference) between *padārthas* which them-

selves are extensionally defined as *dravya, guṇa, karma, sāmānya, viśeṣa,* and *samvāya.* Each of these is later, as is well known, defined extensionally also.

Besides the extensional and the causal characteristics of the definitions offered by the *Vaiśeṣikasūtras,* there is another peculiarity which seems to have escaped as much notice as the former by the writers on the subject. The fourth *sūtra,* which purports to give the definition of *niḥśreyasa* which is supposed to tell at least partially about *dharma* as is clearly enunciated in *sūtra* 1.1.2 and whose exposition and analysis is the main task of the *Vaiśeṣikasūtras* as a whole as proclaimed in sūtra 1.1.1 itself, mentions the term *dharma* without clearly indicating the sense in which it is being used. All the six *padārthas* whose *sādharmyavaidharmya* knowledge is supposed to lead to *tattvajñāna* which, in its turn, is supposed to result in *niḥśreyasa* are themselves supposed to have *sādharmya-vaidharma* determined by what the author of the *sūtras* designates as *dharma-viśeṣas* (1.1.4). But what are these *dharma-viśeṣas*? Surely, they cannot be the *padārthas* themselves, for the similarities and differences amongst the *padārthas* are themselves a creation of the *dharma-viśesas.* Nor can they be identified with the *dharma* of the *sūtra* 1.1.1, as it would give rise to the charge of circularity in the foundational definition lying at the very base of the *Vaiśeṣikasūtras. Dharma* in 1.1.2 is defined at least partly in terms of *niḥśreyasa* and *niḥśreyasa* is defined in 1.1.4. in terms of *dharma-viśeṣas.* It may be said that the difference between *dharma* and *dharma-viśeṣas* saves the situation; but how can we know the *dharma-viśeṣas* without knowing what *dharma* is? If the term *dharma* in the *sūtra* 1.1.4 is to be construed differently from that given in 1.1.1 as has to be done to avoid the charge of circularity, then the author of the *sūtras* would have to be held guilty of not only introducing a term which is deceptively similar to the one used in the *sūtra* 1.1.1 and thus giving rise to unnecessary ambiguity in discourse, but also of introducing a *new* term without first defining it in the system. The latter is a serious defect in the *sūtra* style of writing in particular, and the situation becomes even more serious when the author seems, at least on a *prima facie* reading of the text, unaware of it.

However it be, it is fairly clear that the term *niḥśreyasa,* as used in the *Vaiśeṣikasūtras,* could hardly be taken in the sense of *apavarga* without not only completely forgetting the context of the *sūtra* 1.1.4, which defines the term *niḥśreyasa* for the system, but also the fact that the *Vaiśeṣikasūtras* themselves not only use the term *apavarga,* in a sense different from that of *mokṣa* in *sūtra* 2.2.25, but also give a definition of *mokṣa* in 5.2.18 which is different from that of *niḥśreyasa* given in 1.1.4. This, of course, assumes that *apavarga* in the same as *mokṣa.* In case this is not done, we would have the added problem of distinguishing between *apavarga* and *mokṣa.* All this accords well with the generally accepted position that the *Vaiśeṣikasūtras* are not only earlier than the *Nyāyasūtras* but in their earliest form also anti-Vedic in character. As Kuppuswamy Sastri observes:

> ...the Nyāya ontology is built upon the atomic theory and pluralistic realism of the Vaiśeṣika. The Nyāya epistemology with its fourfold scheme of *pramāṇas* is distinctly pro-Vedic: and in this respect, it shows a sharp contrast with the Vaiśeṣika scheme of *pramāṇas* which consists of perception and inference and which betrays anti-Vedic leanings.[36] Also, it may not be unreasonable to conjecture that the *Rāvaṇa-bhāṣya* was perhaps dominated by atheistic and pro-Buddhistic proclivities, such as were quite in keeping with the text of the *Vaiśeṣika-Sūtras* and with the spirit of the tradition characterising the Vaiśeṣikas as *ardhavainā̃śikas* (semi-nihilists)...[37]

All of this, of course, belongs to the earliest period when the so-called systems were only in their formative stage. If we move on to the Gaṅgeśa and post-Gaṅgeśa period in the development of Nyāya, it would be a bold person indeed who would even look for their relationship to the pursuit of *mokṣa.* The period covers almost five hundred years, from twelfth century to the seventeenth century, and has at least thirty-six known thinkers who are supposed to have actively contributed to the development and refinement of logical thought in India—a development that affected all branches of learning to such an extent that practically no study could lay claims to intellectuality without giving evidence that it had mastered the techniques and methodology of the Navya-Nyāya form of analysis.[38]

Of course, to most writers on Indian philosophy, including Karl H. Potter, these five hundred years are of little consequence. Not only these but all the rest of the facts mentioned earlier do not have sufficient weight to outweigh the self-proclaimed declaration of the purpose of the *sūtras* in the eyes of these writers. These very same people, however, do not show any hesitation in characterizing the whole western philosophy in terms of its modern period, which, by common consent, is supposed to start with Descartes in the seventeenth century. Prejudices die hard, and the prejudices of scholars die harder still. But when the prejudices of a scholar govern the structure of an *Encyclopedia,* as it does in the case of Potter, it will only ensure that something achieves the status of certain knowledge when, at best, it is uncertain opinion based on arbitrary methods of interpretation which are applied only in the case of the Indian philosophical tradition and never to the one in the West.[39]

Notes

1. 'Three Conceptions of Indian Philosophy', *Philosophy: East and West,* January, 1965, pp. 37-51; 'Three Myths about Indian Philosophy', *Diogenes,* no. 55, July-September 1966; *Quest,* no. 53, 1967.
2. *Philosophic Exchange,* vol. i, no. 3, (Summer 1972) pp. 159-74. (The Journal of the

Centre for Philosophic Exchange of the State University of New York, College of Arts and Science at Brockport, New York, USA).

3. Perhaps there is a radical asymmetry between the lack of any essential nature in all things and the lack of essential nature of self. The latter is far more difficult to envisage or realize than the former. It may be because of this that *nirvāṇa* primarily means the realization of the 'no-self' nature of self rather than of the 'no-self' nature of objects. It remains a moot question whether the two 'no-selves' in Buddhism are necessarily seen as identical, as they are seen in the Advaitic realization.
4. Karl H. Potter, 'Indian Philosophy's Alleged Religious Orientation,' *Philosophic Exchange*, p. 102.
5. For a similar situation in the field of socio-cultural studies relating to India, see the author's review article 'Anthropology: The Bonded Science?' *New Quest*, May-June 1983.
6. Potter, p. 164.
7. *Ibid.*, p. 164.
8. *Ibid.*, p. 165.
9. *Ibid.*, p. 165.
10. *Ibid.*, p. 165.
11. The following two *ślokas* from *Mahābhārata* amongst many others that could be quoted amply confirm this:

    (a) *Trivarga iti vikhyāto gaṇa aiṣa svayaṁbhuvā /*
    caturtho mokṣa ityeva prathagarthaḥ prathaggaṇaḥ //
    12.59.30.

    (b) *Mokṣasyāpi trivargoanyaḥ proktaḥ sattvam rajastamaḥ /*
    sthānaṁ vṛddiḥ kṣayaścaiva trivargaścaiva dandjaḥ //
    12.59.31.

12. Potter has complained that 'Daya doesn't indicate which texts he has in mind as a basis' for this. Well, the following may perhaps suffice as a small sample to substantiate what is well known to most persons, at least in India. *Kaṭhopaniṣad* (1.2.9, 1.2.23, 2.6.10) and *Muṇḍakponiṣad* (3.2.3.) are some of the well-known passages in this connection. The tradition is epitomized in the common Bengali saying *Biśvāse milāy kṛṣṇa, tarke bahu dūr* (Only through Faith, one may find Krishna. Far, far is he from all argument and reasoning).
13. Potter, p. 166.
14. *Ibid.*, p. 166.
15. *Ibid.*, p. 166.
16. *Ibid.*, p. 167.
17. *Ibid.* See on this point my article 'Is Iśwarkṛṣṇa's Sāṁkhya-Kārikā Really Sāṁkhyan?' *Philosophy-East and West*, July 1968.
18. Potter, p. 166.
19. Potter, *Encyclopedia of Indian Philosophies*, vol. ii, p. 19. With regard to *Mīmāṁsā*, he does accept that 'in ancient times Pūrvamīmāṁsā did not accept liberation as an end, preaching that the ultimate purpose in life was to attain heaven through performance of acts prescribed in Vedic injunctions and avoidance of those acts prescribed by the same sacred scriptures.' (p. 24). However, he does not see the implications of what he has accepted.
20. *Ibid.*, pp. 23-24.
21. *Nyāya-Sūtra* with Vātsyāyana's commentary. Complete English translation by Mriṇāl Kānti Gangopādhyāya, Calcutta, 1982.
22. H.P. Sastri, *Journal of the Asiatic Society of Bengal*, 1905, reprinted in Debiprasad Chattopadhyaya (ed.) *Studies in the History of Indian Philosophy*, vol. ii, Calcutta, K.P. Bagchi & Co., 1978, p. 88.

23. Potter, *Encyclopedia of Indian Philosophies*, vol. ii, p. 694.
24. *Ibid.*, p. 32.
25. H.P. Sastri, p. 93.
26. Potter, *Encyclopedia*, vol. ii, p. 32.
27. D.N. Shastri, *Critique of Indian Realism*, Agra University, Agra 1964.
28. For some concrete explications of this exegetical principle see author's 'Is Iśwara-kṛṣṇa's Sāṁkhya-Kārikā Really Sāṁkhyan?' *Philosophy: East and West* July, 1968; 'Adhyāsa—A Non-Advaitic Beginning in Śaṁkara Vedanta' *Philosophy: East and West*, July 1965 and 'Vedanta—Does It Really Mean Anything?' *Conspectus* (2), 1966.
29. Potter, *Encyclopedia*, vol. ii. p. 32.
30. *Ibid.*, p. 32.
31. *Nyāya: Gautama's Nyāya-Sūtra with Vātsyāyana's Commentary.*
32. *Ibid.*, p. lxii.
33. *Ibid.*, p. lxii. There are, in fact, many instances where it is clear that *niḥśreyasa* has not been used in the sense of *apavarga*. Besides the *śloka* from *Mahābhārata* 2.5.24 (critical edn.) which Mriṇāl Kānti Gangopādhyāya has quoted, there is for example the śloka 5.25.12 in the same text which says:

    Mahadbalaṁ Dhāratrāṣtrasya rajñaḥ,
    ko vai śakto hantuṁkṣīyamāṇaḥ /
    sohaṁ jaye caiva parājaye ca,
    Niḥśreyasaṁ nādhigacchāmi kiṁcit //

34. *Ibid.*, p. lxiii-lxiv. See on this point the whole argument developed by the author from p. lxii to p. lxv.
35. Of course, the *sūtra* 1.1.4 as given in Śaṅkara Miśra's *upaskāra* commentary is not found either in the *Sūtra-pāṭha* given on the basis of Candrānanda's *vṛtti*, published in Gaekwad Oriental Series (No. 136) edited by Muni Sri Jambūvijayajī, or in the *Sūtra-pāṭha*, published from Mithilā Vidyāpīṭha, on the basis of a *vṛtti* which is earlier than that of Śaṁkara Miśra but presumably later than that of Candrānanda. But if the Sūtra 1.1.4 as given in Śaṁkara Miśra's version is not accepted, then we would have the added problem of explaining how the *sūtrakāra* could have committed procedural absurdity of proceeding with the *vyākhyā* without defining the terms *abhyudaya* and *niḥśreyasa* which were used in the *sūtra* 1.1.2.
36. Debiprasad Chattopadhyaya (ed.), *Studies in the History of Indian Philosophy*, vol. ii, Calcutta, K.P. Bagchi & Co., 1978, p. 118 (from S. Kuppuswami Sastri, *A Primer of Indian Logic*, Madras, 1951). This has been disputed by Sri Ananta Lal Thakur in his *Introduction to the Vaiśeṣikasūtra of Kaṇāda* with the commentary of Candrānanda critically edited by Muni Sri Jambūvijayajī, published by Baroda Oriental Institute, 1961, p. 3. He is also of the opinion that 'the word "dharma" in Vs. T.i. 182 means *padārthadharma*' (p. 3).
37. *Ibid.*, p. 119.
38. See M. Chakravarti, 'History of Navya-Nyāya in Bengal and Mithila' in Debiprasad Chattopadhyaya (ed.), *Studies in the History of Indian Philosophy*, vol. ii, pp. 146-82.
39. This may seem unfair to Potter as he *has* referred to positions contrary to those held by him on the subject. But the basic question is whether it was academically proper for him to give a whole perspective to the *Encyclopedia* through his 'Introduction' to the Second Volume when he has such a strong *partisan* position on the subject.

Communication, interpretation and intention

J.N. MOHANTY
University of Oklahoma, U.S.A.

1. Two Contrasting Models

When one person A communicates a message to another person B, B must be able to understand the signs or the language in which the message is transmitted. To understand is to decipher the right meaning. To understand a person is to decipher what he *intended* his utterances (or gestures) to mean. When what the speaker intended to mean by his utterances and what the utterances themselves mean coincide, the intention of the speaker, though still present, need not count. When the auditor deciphers the right meaning of the utterance, he has interpreted it rightly. Interpretation is the reverse side of communication. The speaker communicates and the hearer interprets. Communication may fail just as interpretation goes wrong.

The relationship between communication and interpretation, as I conceive of it, requires that we reject two contrasting models. One of these I will call the Fregean model according to which: if A utters the sentence *S*, an auditor B may be said to understand *S* (equivalently, A successfully communicates to B) if *S* expresses a thought T, and B is able to grasp T upon hearing *S*.

Note that in this model, there is no place for the idea of interpretation. In this model, B does not interpret *S*, he simply grasps T, which is the right sense expressed by *S*. He no more interprets *S* than does A himself. Both grasp the same thought. (The situation is analogous to the one in which A points his finger to a physical object, and B, following the direction of the pointing, fixes his attentive look on the same physical object.)

The other model which contrasts with it is this: if A communicates a message to B, A no more grasps the thought expressed by his own utterance than does B. In reality, A and B are both interpreters. A as much interprets his own utterance as B does. If A interprets the utterance as meaning T_A, B interprets it as meaning T_B. B understands A, however, when the two interpretations T_B and T_A are fairly close, close enough to permit appropriate responses, linguistic or practical. The important feature of this model is that A, the utterer, is also an interpreter of his (own) utterance, and that an expression *by itself* does not express a specific thought, but that a community of interpreters by consensus confers on an expression a meaning. Let us call it the Peirce-Davidson model.

If the Fregean model lacks the notion of interpretation and, as a result, makes communication a relatively unproblematic affair, the Peirce-Davidson

model lacks the notion of grasping; and as a consequence makes communication a relatively insoluble problem. By understanding the auditor as playing the role of a co-perceiver, communication is understood by the Fregean under the misleading analogy of *perception*. By construing both the communicator and the auditor as interpreters, the Peirce-Davidson model deprives the communicator of any privileged status with regard to *what it is that* is being communicated. A theory of communication has to be able to take into account, for one thing, for the fact that the communicator *knows* what he wants to communicate by uttering the expression that he does; as also for the fact that the auditor, if the communication is to succeed, must be able, by interpreting the utterance, to ascribe to the communicator the intention to communicate the thought that the communicator did in fact intend to communicate. Neither of the two models formulated above is able to take these two facts into consideration.

2. A Conceptual Decision

One may not want to concur with the claim that, in the case of communication, the communicator *knows* what he *intends* to communicate. The disinclination to agree with this may be due to the fact that often the communicator may be such an impersonal agent like the television. But the television is not itself a communicator, it is rather a medium of communication. More persuasive is the argument that communication is not restricted to humans; it pervades not only all animal and organic life but also intra-organic processes: cells and neurons within the body communicate with each other. I will for the present make only two remarks on such facts as communication amongst birds and ants and communication amongst cells within an organism. There is no doubt that the concept of communication is originally derived from the human case; and then extended to the larger realm of organic being as being the most helpful concept at our disposal to systematize the known facts about transmission of information amongst birds, ants and cells. If, in the course of its extension, some components of the original concept need to be dropped, then there are two options to choose from: either one regards the original concept, even as applied to human communication, at having been only provisional and in need of purification in the light of later extension, or one may come to regard the later extensions as of doubtful validity if taken as literal applications of the original concept and at most as useful but analogical extensions of it. *I choose the second alternative.* In the second place, I want to insist that if the concept of communication (and also of 'information') is to be applied beyond the restricted domain within which it had its original intuitive validity, then one is under an obligation to carry over, with suitable analogical extensions, the other components of the original *nexus* of concepts. In that case, one is perfectly well entitled to say, e.g. that a bird 'knows' what it 'intends' to communicate to its partner, or an intra-organic cell has a knowledge of the information it seeks to communicate to another such cell. This is the price one pays for carrying over a central concept, which inevitably would need importing its associated concepts as well.

3. Physicalism and Mentalism

For the present, however, I restrict myself to communication amongst human individuals. But even with regard to this domain, philosophers are apt to question the wisdom of introducing such explicitly cognitive concepts as 'intention' and 'knowledge' into one's theory, however useful they may be to describe the folklore about what transpires. Our theory, we are told, has to eschew such mentalistic talk, and has to learn to do with publicly observable entities such as an organism emitting sounds and another organism assenting or dissenting, i.e. emitting sounds or nodding the head in the appropriate manners. I totally reject this physicalistic behaviourism, and the underlying conception of what a philosophical account should be like (no matter, how a scientific theory may resolve to shape itself). The sounds emitted by the communicator-organism need to be interpreted by the auditor as expressing the thought that p, and the (assenting or dissenting) behaviour (linguistic or otherwise) of the auditor has to be interpreted by the communicator as expressing assent of dissent. To be interpreted by x entails that the concept of x involves mentalistic concepts, and the language into which publicly observable entities favoured by the theory are interpreted are themselves mentalistic. In fact, the ideas of 'communication' and 'interpretation' are hopelessly so. To reject physicalistic behaviourism is not to reject all sorts of behaviourism; in fact an intentional behaviourism still remains open. For physicalism, communication is no problem. If all that is there is the outer and the noise emitted, it is open to public inspection. The speaker's mind and thoughts are but those publicly observable entities. What is then there to communicate or for the auditor to understand? On the Fregean model, there is still the problem of assigning the same thought to the speaker's utterance as the speaker himself does. But on the physicalist's theory, even this much of the problem is not there. There is no thought to assign. Everything is out on the public arena.

If for the physicalist, there is no *problem* of communication (excepting the scientific problem of tracing a causal route and the technological problem of devising the most efficient channel), for the extreme mentalist there surely is a problem but one that threatens to be insoluble. If the intending communicator is a windowless monad, and his intentions, though infallibly known to him, are inaccessible to the other, then the very possibility of successful communication would be ruled out. The auditor may very well arrive at a correct guess and may even be right in his hunch, but his information cannot be said to have been received on the basis of a communication he received. A mentalism which leads to this ruinous consequence is as little acceptable as physicalism. We still have to find an account that can take account of the twin facts of communication and interpretation, and neither physicalism

nor the sort of mentalism which yields the consequence just mentioned can do so.

4. The Nyāya Model

In discussions of *śabda-pramāṇa*, the Nyāya philosophers have worked out a model of understanding which is explicitly mentalistic, but which does not get bogged down in the problem of privacy. The situation that the Nyāya envisages is one in which a speaker utters a sentence, and the auditor, on the basis of hearing the utterance, comes to have a justified belief in the fact that is being referred to by the speaker. It differs from the Fregean model inasmuch as what the hearer grasps is not a thought that is expressed by the speaker's utterance, but the actual fact, the true state of affairs that is denoted by that sentence. It is because of this that, on the Nyāya theory, understanding the sentence, *under specifiable conditions*, can amount to a knowledge of a real entity in the world.

Both the speaker and the hearer are, on this model, selves, each is an *ātman*, having an inner world of thoughts, beliefs and other mental acts, attitudes, and responses. Most of these inner episodes belonging to a self have outer, publicly observable, linguistic expressions. On this theory, then, the question whether the inner episodes can at all be conveyed by linguistic utterances is ruled out *ab initio*. An inner episode, despite being an episode, has a logical, i.e. propositional structure, which is what permits its linguistic expression. What is linguistically expressed, then, is its propositional *content* and not its belongingness to an *ātman*. If A utters 'It is raining', the sentence expresses a content that belongs to A's cognitive experience, e.g. belief but not necessarily the fact it is A's belief. Since that content can be shared by any number of selves who believe that it is raining, what is expressed thereby is communicable. The theory, however, is developed in two steps. The first step consists in identifying the conditions that determine if the utterance conveys a meaning. The second step consists in identifying *what* it is that B understands and thereby comes to know.

Step One: Conditions of an utterance's meaningfulness

The words uttered by A must possess four characters in order to constitute a meaningful sentence. These are: expectancy or *ākānkṣā*, appropriateness or *yogyatā*, contiguity or *āsatti*, and intention or *tātparyam*. Words, in order to constitute a meaningful sentence, must be uttered in close contiguity (*āsatti*). Utterance of one word must be such as to arouse expectation for what is to follow: the string of words must be bound together by a chain of expectations, the sentence as a whole expressing a complete thought in the sense that it does not need to be 'saturated' by another word or words. A word which purports to fulfil the expectation aroused by another must be *appropriate* to do so, it must possess semantic appropriateness. Behind the meanings of the words and the constituted meaning of the sentence as a whole stands the speaker's intention: to understand a sentence is to understand the intention of the speaker, i.e. what the speaker intends to mean by it. While in the case of a 'literal' sentence this tends to coincide with the normal meaning, in cases of elliptical discourse one has to interpret the normal sentence in the light of what the speaker might have meant by taking contextual factors into account.

Step Two: What is it that B understands and thereby comes to know

Since each word denotes its own object and when these words, as uttered, satisfy the above four conditions, they together denote a relational objectivity composed of the objects denoted by each word as related in the appropriate manner. When the hearer hears the utterance, each word heard brings to his mind its object or denotation; and the total sentence conveys a relational objectivity of which those objects are constituents. Thus when a speaker utters the sentence 'Caitra worships Viṣnu', the auditor, if he correctly understands it, will grasp the relational objectivity 'Caitra is the locus of an action having Viṣnu as its object and intended to please him' (*Viṣnukarmakaprityanukulakṛtimān Caitraḥ*).

Step Three

To these two must be added a third component of the theory, namely, the epistemic conditions that must be satisfied in order that B will be able to understand the utterance by A, for it may very well be that the utterance by A forms a meaningful whole, and yet B does not grasp its meaning. These conditions are two: first, B must already *know* the meanings of the component words; secondly, B must *believe* that A knows what he is talking about and is not lying or trying to deceive him. Verbal communication requires that there is mutual trust between the speaker and the auditor—the latter's belief that the former is reliable, and the former's belief that the latter is capable of understanding him.

How does a person learn the meanings of words? That a certain word has a certain meaning may be learnt from: grammar (via etymology), comparison (an instruction such as '*gavaya* means an animal that looks like a cow'), dictionary, instruction by scriptures, (e.g. the word *yava* denotes such-and-such grain and not grain of some other sort); an expansion of the word into a larger 'synonymous' expression; proximity to a known word (i.e. to one whose meaning is already known); and context. But these means of learning presuppose some prior acquisition. On the theory under consideration, the first learning of meaning takes place in two ways: ostension (mother pointing her finger at the moon and saying, 'That is the moon'), and observation of

'behaviour' (*vyavahāra*). The process of learning by observing *vyavahāra* is described as follows:

A young child A observes an older person B instructing another linguistically competent person C 'Bring me the cow'. On hearing this sentence, C brings a cow. This observation leads A to ascertain what the meaning of the total sentence 'Bring the cow' is, but he does not as yet know the meanings of the component words. Subsequently he hears B ordering C 'Bring the horse, and tie the cow'. Observing how C follows the instructions and by processes of elimination and assimilation, he identifies the meanings of the verb 'bring' and of the nouns 'cow' and 'horse'.

The theory then has an account of how the sentential meaning is constituted, how the meanings of words (and of sentences) are learnt, and what it is that one knows when one understands a sentence uttered under appropriate conditions.

5. What the Nyāya Model Lacks: A Theory of Interpretation

What the Nyāya, in fact, much of the Hindu theory of 'verbal understanding' lacks is a recognition of the role of interpretation in the overall process. And yet without such a recognition, no theory of understanding could be complete. The role of interpretation, however, is implicitly recognized by introducing the concept of *tātparya* or the speaker's intention. However, by distinguishing between normal signification (where the idea of intention is thinned into the idea of God's intention to mean such and such by such and such word) and non-normal signification (where alone the speaker's intention comes into play), the role of the auditor's interpretation is reduced to the minimum.

For an account of interpretation, however, we need not go as far as the Indian theories of poetic language. Even within the limits of literal (as opposed to poetic) discourse, there are instances of serious concern with the problematic of interpretation. One such is to be found in Hindu law.[1] The authors of legal texts were concerned with the question: 'What is the meaning and the intention of a particular word, sentence or paragraph in a law book?' Where the intention and meaning are not sufficiently explicit, how to decide whether what we have is an obligatory rule or a quasi-obligatory rule or even a non-obligatory matter at hand? Since Hindu law was not state-made and was never under complete control of the sovereign, the question of interpretation became of paramount importance. Some rules of interpretation, derived from Jaimini's *sūtra*, and the law texts of Yājñyavalkya and Nārada are the following:

(i) When a sentence is complete and explicit in sense and grammar, no attempt should be made to twist its meaning.
(ii) When an expression has more than one meaning and the ordinary meaning does not agree with the context, its meaning is to be determined by the context.
(iii) When words or sentences are not explicitly or clearly connected, they should be so connected in accordance with grammatical rules so as to form a meaningful sentence.
(iv) When a sentence or a clause by itself makes no complete sense, it should be incorporated into, or read along with, other texts with which 'it agrees.'

Principles of charity were adopted in various forms. Every word or sentence must be taken to have some meaning or purpose. Where one rule or proposition suffices, more must not be assumed. Contradictions between words and sentences should be taken to be only seeming, and attempts must be made to remove them. When there is a real contradiction, one of the contradictories may be chosen by the interpreter. Above all, a word once uttered must have only one meaning.

In the case of legal texts, specifically, one must distinguish between obligatory, quasi-obligatory and non-obligatory recommendations; one must show to whom an obligatory text is meant to apply; one must determine the order or sequence of such application.

6. Communication and Action

According to Miller, Communication has as its central interest those behavioral situations in which a source transmits a message to a receiver with *conscious intent to affect the latter's behaviours*.[2] How far should this account of communication be extended? If the sentences uttered be divided into declarative or fact-stating and imperative (giving orders), then no doubt any communication made by or received from utterance of a latter sort of sentence is intended to affect the auditor's behaviour. But can we say the same of the utterances of the former sort?

Amongst the Indian theories, Miller's view had its strongest supporters amongst the Prābhākaras, who held the view that all verbal meanings refer to some possible course of action; that words are not employed, sentences are not uttered simply to name objects or state facts, but always to suggest a possible course of action. Where a word or an expression does not suggest a course of action, it merely brings about 'memory' of something previously perceived, experienced or known, but does not bring about a genuine 'understanding' or *śābdabodha*. We need not accept this extreme view which entails that three can be no genuine 'understanding' of sentences about what is already an accomplished fact, unless in some way the latter is 'brought' within the range of the auditor's possible actional response. There can be communication, and correlatively understanding, without any intention (on the part of the communicator) to influence the practical behaviour of the auditor, and without any such actual influence.

7. Interpretation and Tradition

The Indian thinkers were aware of the problems of interpretation, especially those who were concerned with interpreting the scriptures, the Dharmaśāstras and the legal texts. But the theme of interpretation did not occupy the focus of their attention, as much as the theme of 'understanding' or *śābdabodha* did. For the former, we need to turn to the hermeneutic tradition of western thought.

If communication needs understanding ('A communicates a message to B' entails 'B understands A's message'), understanding involves interpretation. Looked at from the side of result or achievement, understanding is grasping of meaning; looked at from the side of the process or activity, it involves interpretation. All interpretation requires, makes use of, and presupposes a context. The context within which two language-using individuals communicate is a *tradition*. Community of tradition is a presupposition of successful communication. A and B must share in a tradition, i.e. in a common stock of meanings, of earlier interpretations which have now become 'anonymous' and sedimented into the very texture of one's life and one's world. One does not communicate, understand and interpret in a vacuum. Thus there is a seeming circularity which one cannot break: interpretation presupposes a shared tradition, tradition is the result of earlier interpretations. In fact, we have one 'circular' structure within which communication is made possible.

8. Communication, 'Information' and Causation

Because of the connection between the concepts of communication, understanding, interpretation and tradition, I reject any theory of communication which explicates the idea of 'communications' in terms of causation or 'causal routes' (from A to B). However, the notion of 'information' is most relevant, for communication is transmission of information. If transmission of information is to be understood on a causal sequence mold.[3] then the idea of causality that would be needed to do the job would have to be comprehensive enough to include not only physical causality but also psychological motivation. In fact, the idea of 'information' itself is definable only in terms of one's, the auditor's, present fund of knowledge and in terms of the freedom of choice one has in a given situation to select one message rather than another.[4] It involves the ideas of uncertainty and choice,[5] of what could have been, of the idea of possible worlds,[6] and so eventually a Fregean sense or Husserl *noema* (given a suitable interpretation of the latter as a function from possible worlds to individuals in those worlds[7]). What this rather cryptic rehearsal of conceptual connections suggests is that a purely *extensional* theory of communication must be inadequate.

9. Starting with the Ego: Ricoeur's Strategy

Must we then return to the inner life of the speaking ego, within the privacy

of which the intentional acts of meaning and referring, understanding and interpreting have their genesis and constitution, before they *somehow* break the bounds of that privacy to make claims on an other ego? In a striking paper 'Diskurs und Kommunikation',[8] Ricoeur defends the thesis that communication only then becomes a *problem*, when one breaks with every form of quasi-physicalistic picture, and instead begins with two monads—following Leibniz and Husserl—i.e. two mutually exclusive streams of experiences. Reflection, Ricoeur insists, should begin not with the idea of communication but rather with the impossibility of communication between the monads. This impossibility then is sought to be overcome by the concept of *discourse*.

Discourse is distinguished by Ricoeur from language. Language as a system of signs does not refer beyond the system of signs. But discourse, whose unit is not sign but sentence refers beyond itself, on the one hand, to the intention and act of the speaker; on the other, to the *thought* it expresses and, then beyond the logical meaning, to the real entity in the world it purports to be about. Every discourse originates as an *event*, but is understood as a *sense*. The theory of discourse has, according to Ricoeur, three parts: (i) a theory of propositions, (ii) a theory of speech acts, (iii) and a theory of intention. The theory of proposition, as the sense of sentences, provides the key element around which communicability is restored. Thus far Ricoeur's theory is Fregean. But what is communicated is not merely the thought expressed by declarative sentences; but also desires and wishes, commands and forbiddings, promises and resolutions, all of which may still have an identical propositional content. The speech act theory (of Austin and Searles) provides the theory, wider than the theory of proposition, that is needed to take these into account. If the locutionary act externalizes itself in the features of predication and identification of particulars (*a la* Strawson), the illocutionary acts are expressed through other grammatical and lexical marks. But communication also extends to the speaker's subjective intentions, which are especially indicated by expressions for those reflexive acts by which the speaker refers to himself when he also says something about something else.[9]

The structure underlying all these three levels of communication is a strict correlation between the semantic and the mental. One could say that the mental is rooted in the semantic, or also that the mental is subordinated to the semantic. In so far as the mental is thus *subordinated* to the semantic, it is not any longer the merely psychological (in the sense in which Frege and Husserl reject psychologism) but rather the *noetic*.[10]

What then discourse succeeds in communicating is the noetic and *not* the mental in its non-intentional, lived immediacy and privacy.

10. Limits of the Correlation between the Mental and the Semantic

Ricoeur's account makes use of two deep insights: (*i*) that a *philosophical* theory of communication must start with the idea of ego as the domain of an

individual's experiences in so far as they are his *own* and so define a realm unique to each individual; and (*ii*) that there is a remarkable correlation between language as discourse (in Ricoeur's sense) or as *la parole* (in the sense of Sassure) and the mental (in the sense of the intentional acts, quâ intentional, performed within one's own ego). The first makes communication a *problem*, the second resolves the problem and makes communication possible.

The scientific, technological and mathematical theories of communication have, by virtue of their limited interests, no need for (*i*). But a *philosophical* theory which wants to go to the roots of the matter cannot afford to loose sight of it. It would not do to say either that such an egological life in its ownness and privacy is not accessible to us, or that, even if it is accessible, it is of no use. Phenomenological reflection on one's own mental life, aided by the methods of reduction and *epoché*, can open up this domain. Its use is that both the public and the private have their origin here. I cannot perform any intentional act which does not have its origin within my own ego. Philosophical radicalness demands that we return to it in order to reconstruct our paths as we emerge from it into the public domain.

The other point, namely, the correlation between the semantic and the noetic, is also important; but for it no communication would have been possible. In fact, this is, as was emphasized, an important ingredient of the Nyāya theory outlined above. But one should not construe that thesis to mean that every mental act is *eo ipso* linguistically expressed. The right thesis is rather that it is expressible.

This modification has important consequences for a theory of *understanding*, two of which the Nyāya explicitly draws. One is that when the speaker expresses his thought by uttering a sentence, the auditor not only grasps what is so expressed, namely, the thought; he also grasps what is not expressed by any of the components of the expression, namely, the fact that the speaker believes, knows, supposes, or questions. In other words, if the speaker says 'The rate of inflation has fallen to the lowest level in a decade,' the auditor *both* grasps the thought expressed by the sentence *and* the fact that the speaker believes in what he says. The mental act of the speaker is not denoted by any component of the sentence, but is indicated, announced (*augezeigt, kundgegeben*) by the utterance. If the speaker syas 'I believe that the rate of inflation ...', the thought that is expressed included the sense of 'I believe' and so the latter is grasped along with grasping the thought; but this utterance indicates or announces that the speaker is performing a reflective act directed towards his belief. Thus the linguistic utterance does not fully express all that is understood. What is understood goes beyond what is expressed linguistically. But this surplus, i.e. that which is not expressed but understood (as the act of believing in the first of the two utterances just quoted) *can be expressed* (as it in fact is in the second utterance).

The other consequence is that if the auditor says, 'That is a cow', the hearer not only identifies the objects referred to by the component nouns 'That' and

'cow', but also grasps them *as* (quâ) characterized by the corresponding 'qualifiers' 'thatness' and 'cowness'. The fact of this 'quâ such and such' is not expressed by any component of the sentence uttered; but one who understands the sentence grasps the complex objectivity 'the object over there quâ the object that is being pointed out by the speaker is identical with the object which possesses the property of 'cowness'. Such an objectivity is not fully expressed by the sentence in the sense that not all components of this objectivity are denoted by some component of the sentence.

What all this suggests is that mental life always exceeds its linguistic expression, but (*i*) what is not expressed can be expressed, and (*ii*) what is not expressed is nevertheless conveyed to the auditor by the utterance as a whole, together with its context.

11. Perfect Communicability?

Ricoeur's strategy of starting from the threat of impossibility of communication and removing this threat by the idea of discourse suggests: as though, in the end, communication is no problem and discourse re-establishes what egology had threatened to disrupt. What, on Ricoeur's admission, still falls outside of communicability is that layer of mental life which is not noetic, i.e. which is not correlated to the semantic, which is 'psychological' in the pejorative sense. As far as the noetic level of the life of the ego is concerned, Ricoeur's theory rehabilitates, after a temporary methodological questioning of its possibility, unrestricted and perfect communicability.

This indeed is too optimistic. If the initial egology threatens to eliminate the very possibility of communicability, the discourse theory (with its perfect correlation between the intentional and the semantic) makes the noetic fully transparent to the other, removes every problematic character from the experiences of communicating and understanding, and exposes the initial egoligical stance as redundant after all. I want to suggest that the egological stance has a permanent value inasmuch as it highlights the permanent threat under which communication and understanding take place; and that while the discourse theory shows how communication takes place it cannot sublate that egological starting point.

By 'the permanent threat to which communication and understanding are subject', I do not have in mind what Habermas calls 'the systematically distorted communication'. The factors, which systematically distort communication and impede ideal communicative situations, are of empirical nature; and we owe it to Habermas to have drawn attention to them as well as to the regulative ideal of a perfectly communicative society. The threat I am speaking about belongs *a priori* to the very nature of egological communication. Since each ego has its own interior life, perfect communication in the sense of transparency of the other's intentions and perfect coincidence of the intentions and thoughts of two egos is at most a regulative ideal. In actual practice,

even in Habermas' ideal communicative situation, the possibility of a failure of communication and of misunderstanding and misinterpretation shall never be excluded. If the sort of egological stance which makes communicability impossible has to be transcended, the sort of semantic theory which makes failure of communication and of understanding equally impossible has also to be rejected. Every successful communication averts a possible disaster and is thus an occasion for celebration.

12. The Communicative A priori?

Apel and Habermas have raised the idea of unimpeded ideal communicative society to the status of a Kantian *a priori*.[11] The reason this claim does not satisfy me is that it is possible to raise the Kantian sort of transcendental question with regard to the *fact* of communications. One can also raise the question about the constitution of a communicative social order. In other words, one can ask in the Kantian vein: what are the conditions of the possibility of communication? Further, how is society as a communicative order itself possible? Some indispensable components of any satisfactory answer to the first question are: a non-psychological theory of meaning, the linguistic expressibility of each ego's mental life, the expressive role of the body, and embodiedness of the egoes. In any case, although for a consensus theory of truth to be applicable communication has to be presupposed, we still do not reach thereby the level of the transcendental presupposition, even when the idea of communication is idealized into a normative concept.

Notes

1. A useful account of the rules of interpretation is to be found in K.L. Sarkar, *The Mimamsa Rules of Interpretation As Applied to Hindu Law* (Tagore Law Lectures, 1905), Thacker, Spink & Co., Calcutta; 1909.
2. Gerald R. Miller, *Speech Communication: A Behavioral Approach*, Bobbs-Merril, New York; 1966.
3. Cp. Fred Dretske, *Knowledge and the Flow of Information*, M.I.T. Press, 1980.
4. Thus W. Weaver writes: 'The concept of information applies not to the individual messages, as the concept of meaning would, but rather to the situation as a whole, the unit of information indicating that in this situation one has an amount of freedom of choice, in selecting a message...' See 'The Mathematics of Communication' reprinted in Alfred G. Smith, *Communication and Culture*, Holt Rinehart & Winston, New York, 1966, esp. p. 18.
5. For Shanon, a 'bit' is a unit of uncertainty or choice and information is defined mathematically as a bit per message or bits per second.
6. Cf. J. Hintikka, *The Intentions of Intentionality* and *Other New Models for Modalities*, Reidel, Dordrecht, 1975.
7. Compare my comments on Hintikka's approach in 'Intentionality and Possible Worlds: Husserl and Hintikka' in Hubert L. Dreyfus (ed.), *Husserl: Intentionality and Cognitive Science*, M.I.T. Press, 1982.
8. In *Neue Hefte für Philosophie*, Heft 11, 1977, pp. 1-25.
9. Ricoeur refers to Paul Grice's well-known papers. But also relevant are the works of Henri-Nector Castañeda, especially his 'On the Philosophical Foundations of the Theory of Communication: Reference' in French, Uetling and Wettstein (eds.), *Contemporary Perspectives in the Philosophy of Language*, University of Minnesota Press, Minneapolis, 1979, pp. 125-158.
10. If phenomenology is the study of the noetic and analytic philosophy study of language, Ricoeur finds here a striking convergence between the two.
11. Cp. especially Karl-Otto Apel, *Transformation der Philosophie, Bd 2: Das A priori der Kommunikations-gemeinschaft*, Suhrkamp Taschenbuch, 1976.

Russell against sense*

PRANAB KUMAR SEN
Jadavpur University, Calcutta

In the following pages I propose to undertake a detailed study of the notorious passage in Russell's 'On Denoting' in which he develops an argument against Frege's sense/reference distinction. After a long period of total or nearly total silence, caused evidently by the extraordinary difficulty posed by Russell's writing, philosophers have recently started offering expositions and criticisms of Russell's argument.[1] But there is yet no thorough examination, line by line, of the eight paragraphs comprising the relevant passage. (Not known to the present writer, that is.) I attempt to do just this, at least something as close to this as possible. The text used is the R.C. Marsh edition of "On Denoting" in *Logic and Knowledge* (eight paragraphs from p. 48 to p. 51, marked A to H following Blackburn and Code 1978), London, 1956. It would be necessary to keep the following points in mind while following our discussion:

(1) Throughout, Russell's terminology of "meaning" and "denotation" is used in place of the more usual terminology of "sense" and "reference".

(2) Whenever I refer to a linguistic expression, I use double inverted commas, as Russell himself occasionally does, excepting when I have *displayed* the expression on a separate line.

(3) Speaking about the use of different kinds of quotation marks (single and double inverted commas), Russell has been usually, and rightly, criticized for being extremely careless. I have tried to rectify this by supplying the full quota of inverted commas depending exclusively on the internal evidence and following Russell's own explicit stipulations. Although Russell's use of quotation marks can confuse any reader, I have found no adequate evidence for the view that he *himself* was confused by his use and abuse of quotes, for the view that the whole of his argument is nothing but a tissue of use/mention confusion (Church 1943). He was writing at a time when we were not so fully conscious of the need for strictly maintaining the use/mention distinction as we have been made by our logicians (especially by Quine). People used to de-

*Dr Arindam Chakrabarti provoked me to write this paper, and also helped me in seeing one crucial point in the texture of Russell's argument, noted at the appropriate place. For providing me with an opportunity of writing the paper, however, I am indebted to the Warden and Fellows of All Souls College, Oxford. The first draft of the paper was written during my stay at that College as a Visiting Fellow in 1983-84. I have also been greatly benefited from my discussions with Professors P.F. Strawson and Michael Dummett, Dr Simon Blackburn, and the members of the Friday Group at Calcutta, who all kindly read or heard the paper in its first draft.

pend heavily upon context to make their intention clear, and so did Russell. It is only in the writings of a philosopher of *our* time that the actual use of punctuational devices can override contextual requirements. There is no reason to suppose that the same is true of Russell's essay written in 1905. We are free to make our guesses from contextual clues, without being inhibited by Russell's actual practice.

(4) I have found no reason to suppose that Russell was trying to refute his *own* views in *The Principles of Mathematics*, and not Frege's views at all (Geach 1972). The account of Frege's doctrine of sense and reference given in Appendix A of *The Principles* is fairly accurate, and it would perhaps be unfair to suggest that he so greatly misunderstood Frege that he could not see the obvious differences between the two views.

(5) There is actually no overwhelming reason for supposing that Russell, in the passage under consideration, was concerned with the problem of indirect sense, i.e. the sense of an expression in *oratio obliqua* (Blackburn & Code 1978 and Dummett 1981 [b], Ch. 6, esp. pp. 88-89). This supposition as well as the one mentioned in 4 has, I am afraid, been mainly due to a confusion over the use of the term "denoting complex" by Russell. This term has too readily been assumed to be synonymous with the term "denoting concept" used in *The Principles of Mathematics* (For example, Geach 1972 and Cassin 1971 as well as Blackburn and Code and Dummett.) Far from being obvious, this is in fact contrary to textual evidence. There are two extremely important footnotes on page 46 (of *Logic and Knowledge*). I quote them in full:

Footnote 1. Frege distinguishes the two elements of meaning and denotation everywhere, and not only in complex denoting phrases. Thus it is the *meanings* of the constituents of the denoting complex that enter into its *meaning*, not their *denotation*. In the proposition 'Mont Blanc is over 1,000 metres high', it is, according to him, the *meaning* of 'Mont Blanc', not the actual mountain, that is a constituent of the *meaning* of the proposition.
Footnote 2. In this theory, we shall say that the denoting phrase *expresses* a meaning; and we shall say both of the phrase and of the meaning that they *denote* a denotation. In the other theory, which I advocate, there is no *meaning*, and only sometimes a *denotation*.

The term "denoting complex" is first used by Russell in the first of these two footnotes, and it is evidently used to stand for a complex denoting *phrase* here. It is true that at other places in the course of his discussion Russell uses the term to stand for the complex *meaning* of a denoting phrase. But it would be too hasty to accuse Russell of inconsistency on this ground. Unlike the term "denoting *concept*", the term "denoting *complex*" is not a *technical* term, and is used throughout in its ordinary sense to stand for *any complex which denotes*. The second of the two footnotes quoted above brings out that on Russell's understanding Frege believed in *two kinds* of complex which denote: (*i*) the complex denoting phrase, and (*ii*) complex meaning of a denoting phrase. So both of them are spoken of as *denoting complexes* by Russell. On each occasion of the use of the term in the text, I have taken care to point out what the term is used to convey on that particular occasion.

PARAGRAPH A (p. 48)

TEXT

The relation of the meaning to the denotation involves certain rather curious difficulties, which seem in themselves sufficient to prove that the theory which leads to such difficulties must be wrong.

Exposition

Russell tells us here what actually is wrong about the meaning/denotation distinction in his opinion. It is that we cannot give any satisfactory account of how meaning and denotation are related with one another. Later on, in paragraph C, Russell explains why he thinks that no satisfactory account of this can be given: we cannot *both* preserve the connection between meaning and denotation *and* prevent them from collapsing into one another.

Comments

It is a fair question to ask, right in the beginning, whether what Russell is out to refute is just the view that there are two *distinct* things, viz. denotation and meaning, or the more radical view that there is no such thing as meaning at all. To refresh our memory, Russell is quite explicit, in the second footnote on p. 46, that, on the theory which *he* advocates, *there is no meaning*, and *only* denotation in some cases. So it is the more radical view which he really has in his mind. In these passages, however, his target of attack is the *distinction*, in terms of which Frege sought to solve some puzzles.

PARAGRAPH B (pp. 48-49)

TEXT

When we wish to speak about the *meaning* of a denoting phrase, as opposed to its *denotation*, the natural mode of doing so is by inverted commas. Thus we say:

The centre of mass of the solar system is a point, not a denoting complex;
'The centre of mass of the solar system' is a denoting complex, not a point.
Or again,
The first line of Gray's Elegy states a proposition.
'The first line of Gray's Elegy' does not state a proposition.
Thus taking any denoting phrase, say *C*, we wish to consider the relation between *C* and '*C*', where the difference of the two is of the kind exemplified in the above two instances.

Exposition

Russell begins his argument by noting what is essential for conducting any discussion of the relation between meaning and denotation. What is essential is that we should be able to *speak about the meaning* as well as the denotation of a denoting phrase. (We should be able to speak about both Bill and Jones in order to be able to say how they are related, to be able to say that they are brothers.) Since this is so, we shall have to find out first a way of speaking

about the meaning, as opposed to the denotation, of a given phrase. In answer to this demand, the following may be said.

When we *use* the denoting phrase itself, we can speak about the denotation of the denoting phrase only. So, if we wish to speak about the *meaning* of the denoting phrase, we have to do something else. It may be said that the most natural mode of speaking about the meaning would be by use of (single) inverted commas. So, for example, if we want to say about the meaning of the denoting phrase "the centre of mass of the solar system" that it is a denoting complex and not a point, we write the following: 'The centre of mass of the solar system' is a denoting complex, not a point. But, if, on the other hand, we wanted to say about the denotation of the denoting phrase that it was a point and not a denoting complex, we could simply write the following: The centre of mass of the solar system is a point, not a denoting complex. Now that we seem to be equipped with a means of speaking about both the denotation and the meaning of a denoting phrase, we can formulate our task of considering the relation between the two (which is problematic according to Russell): When our denoting complex is "*C*", the task would be to consider the relation between *C* and '*C*'. Here we first use the phrase to refer to the denotation, and then the same phrase within single inverted commas to refer to its meaning.

Comments

(*a*) On a first reading of the paragraph, it looks as though Russell himself is offering a solution to the question regarding how we can speak about the meaning of a denoting phrase. But this impression is wrong. As we proceed, it becomes gradually clear that one of the things Russell is trying to make out is precisely that it is *not* possible to speak about meaning as distinct from denotation. So whatever he is offering here is offered on behalf of Frege, *who* is in need of speaking of meaning as opposed to denotation. It is not unlikely that Russell picked up the idea of referring to the meaning of a denoting phrase by help of (single) inverted commas from Frege himself, from his remark in 'On Concept and Object' that when we want to talk about a concept for which a predicate stands we can put the predicate inside quotation marks, as Benno Kerry has done, or use italics, which he himself prefers (Frege 1892. Geach and Black, p. 46.)

(*b*) In this paragraph at least Russell confuses use and mention. In the concluding sentence the letter "C" must be put inside inverted commas to indicate that it is the *phrase* which is spoken about (and so mentioned) here. Later on, especially in para D, he is careful enough to put the letter inside inverted commas, and also uses *double* inverted commas to show that it is not the meaning of the phrase which is in question.

(*c*) In this para, Russell is using the term "denoting complex" to refer to the (complex) *meaning* of a complex denoting phrase, not to the denoting phrase itself. But we shall see later that this is not what Russell always does.

PARAGRAPH C (p. 49)

TEXT

We say, to begin with, that when *C* occurs it is the *denotation* that we are speaking about; but when '*C*' occurs it is the *meaning*. Now the relation of meaning and denotation is not merely linguistic through the phrase: there must be a logical relation involved, which we express by saying that the meaning denotes the denotation. But the difficulty which confronts us is that we cannot succeed in *both* preserving the connexion of meaning and denotation *and* preventing them from being one and the same; also that the meaning cannot be got at except by means of denoting phrases. This happens as follows.

Exposition

In this paragraph Russell makes a more pointed statement of his objection to Frege. To do this he recalls first the most significant point about the convention just introduced for talking about meaning and denotation. It is that, when the phrase occurs *by itself*, what we speak about is its denotation; but when it occurs inside single inverted commas, what we speak about is its meaning. Then he urges us to realize that on Frege's view the relation between meaning, i.e. '*C*', and denotation, i.e. *C*, cannot be *merely linguistic* through the phrase. The picture is *not* like this:

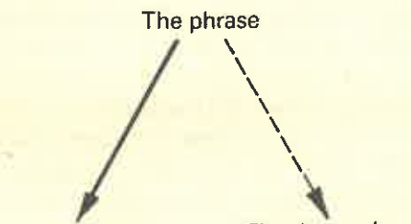


Figure 1

It is rather like the following:

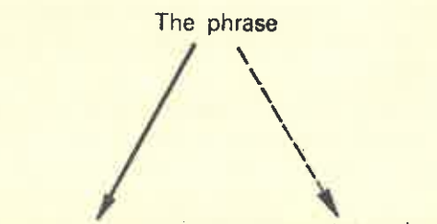


Figure 2

The reason for this is that not only does the phrase denote, but also the meaning of the phrase does. There is thus a *direct* relation between the meaning and the denotation as well, not only a relation *via* the phrase, *which* has both mean-

ing and denotation. The meaning denotes not only by being the meaning of a phrase which denotes, but also by itself. So the relation between meaning and denotation cannot be merely linguistic; and, if it is not merely linguistic, it has to be logical. Now any adequate view of the relation between meaning and denotation must take this (logical) connection into account. But it is just this which gives rise to the problem, says Russell: we cannot *both* preserve this connection between meaning and denotation *and* prevent them from being one and the same.

There is no doubt that *this* is problem, and that it would constitute not only a difficulty but also a *reductio ad absurdum* of the Fregean view. But Russell is not content with pointing out this difficulty alone. In this paragraph itself Russell mentions one other: it looks as though that he thinks that, *besides* the problem regarding difference and connection between meaning and denotation, there is this other problem, namely, that we cannot get at the meaning except by means of denoting phrases. But it is not at all clear why this should be regarded as a *problem*, a "difficulty". If it is the case that we cannot get at the meaning without using the denoting phrase, then if we want to get at the meaning, we *shall* use the denoting phrase, and it is extremely difficult to see why *that* should be a problem. It is, indeed, curious that Russell writes as though the very need for the denoting phrase in getting at the meaning is itself a difficultly; a difficulty which is comparable to the one about retaining the distinction as well as the connection between meaning and denotation.

I suggest the following solution to this exegetical puzzle. The need for the denoting phrase in getting at the meaning is not itself a problem, and his manner of putting the point notwithstanding that it is so is not what Russell really wanted to say. This need *leads* to a difficulty, albeit in conjunction with some other requirements, and from the subsequent development of the argument it seems that the difficulty to which it leads is precisely that we cannot preserve both the connection and the difference between meaning and denotation: *given* that we have to get at the meaning *as well as* the denotation, by means of the (same) denoting phrase, it is impossible simultaneously to satisfy both of the two demands, namely, that meaning and denotation be logically connected and that they be distinct.

And it is this which, I think, Russell is trying to bring out in the following paragraphs.

Comments

(*a*) In the first sentence there is again a confusion of use and mention in the handling of the letter "C" meant to abbreviate the phrase in question. It is surely the occurrence of the *phrase* that Russell is talking about, *not* of its meaning or denotation. What he is saying is that, when the phrase occurs by itself, we speak about its denotation, and, when it occurs inside single inverted

commas, we speak about its meaning. Obviously, to be able to say this about the two occurrences of the phrase Russell has to *mention* them by help of some special device for mentioning as opposed to using. His own device, clear from para D, is the use of double inverted commas. So the relevant parts of the first sentence should be rewritten as follows:

Line 1: ...when "*C*" occurs...
Lines 2-3: ... when " '*C*' " occurs...

(*b*) Russell is trying to impress upon us that Frege cannot, and does not, conceive of the relation between meaning and denotation just as a matter of linguistic convention, i.e. as a matter of both meaning and denotation being conventionally assigned to the same phrase. They are both *objective entities*; and the relation between the two is also objective, obtaining between them irrespective of which linguistic expressions convention associates with them. And Frege himself has said what this relation is. He has said, Russell reminds us, that the meaning *denotes* the denotation, and not only the phrase does. Thus *both* the phrase "the first line of Gray's Elegy" *and* its meaning denotes the sentence "The curfew tolls the knell of parting day." But the denotation by *meaning*, unlike denotation by the phrase, is not just a matter of language, perhaps, according to the view Russell attributes to Frege, not a matter of language *at all*.

Two questions immediately arise at this point. They are:

(*i*) Is Russell right in ascribing to Frege the view that not only the phrase but also the meaning of the phrase *denotes*, and denotes the same thing? (This view, which at least *sounds* odd, is not one which we usually associate with Frege or with anyone else holding an analogous view. We *are* used to think that *denoting* is something which is typically done by a *linguistic* expression.)

(*ii*) Even if Russell is right in ascribing this odd view to Frege, is he right in demanding that the relation of denoting in which the meaning stands to the denotation must be logical (even on Frege's view, that is)?

The answer to the first question is that, although it sounds odd to say that the meaning of a denoting phrase as well as the denoting phrase itself denotes the denotation, this may, indeed, be Frege's view. Dummett, at least, presses for this interpretation. He actually argues that this is the only view which is compatible with Frege's twin theses: (α) the reference (denotation) of a sentence is its truth-value, and (β) it is only the sense (meaning) of a sentence, a thought, which can be said to be true or false.[2]

The second question is more difficult to answer. It may be that the term "logical" has for Russell a merely negative force here and is used by him to mean the same as "not merely linguistic". If this be so, we need not worry about Russell's use of the term "logical". It seems, however, that Russell wants to say something more than this. I think he means that there must be some *intrinsic* connection between meaning and denotation, by virtue of which

the meaning denotes the particular denotation which it denotes. But what is this intrinsic connection, and why should it be regarded as *logical*? I think that if one part of the answer is that it is not merely linguistic, as it is explicitly said by Russell, another part is that it is not *psychological*. In *The Principles of Mathematics*, Russell tells us, in expounding his own view of denoting, that the notion of denoting is not a psychological notion, although, in a sense, it is *we* who denote. It is a logical notion, because the relation between concepts—a concept is *not* the linguistic expression but what it indicates—and terms which they denote is logical. Thus he writes the following:

> But the fact that description is possible—that we are able, by employment of concepts, to designate a thing which is not a concept—is due to a logical relation between some concepts and some terms, in virtue of which such concepts inherently and logically *denote* such terms (p. 53).

I think that Russell's thinking was following the same line when he attributed to Frege the view that there must be some logical relation between meaning and denotation. Of course, in following this old line of thinking, he ignored the difference between *concepts* indicated by denoting phrases and meaning (sense) expressed by them. Maybe, he was not entirely unjustified in ignoring the difference in the present context. Both concepts and meanings are supposed to be extralinguistic and objective entities; and, so, whether it is a concept or a meaning which is supposed to denote an object, the denoting itself must be an objective, i.e. neither merely linguistic (through the phrase) nor psychological, relation between what denotes and what is denoted.

But we have not *still* answered the question why this relation should not only be objective but also *logical*, even in the sense of being intrinsic or 'inherent". Not all objective relations are logical, e.g. the relation between a man and the house in which he lives. The only answer to the question I can think of is the following. One of the ways in which the sense (meaning) of a proper name (here, a denoting phrase) is characterized by Frege, particularly in his "On Sense and Reference", is that it is *the mode of presentation of the object* which the proper name denotes, i.e. of its denotation.[3] Now, if the sense or meaning is identified as the very mode of presentation of the denotation, the relation between the meaning and the denotation can be treated as a logical one: since a mode of presentation cannot but be a mode of presentation of the object of which it is a mode of presentation, a meaning cannot but denote what it denotes; and herein lies the logical necessity of the relation between meaning and denotation.[4]

(*c*) The use of the phrase "got at" is significant. It seems that Russell takes *getting* at meaning to be something more than merely referring to meaning. The phrase seems to convey the idea of actually *capturing* the meaning. But we shall deal with this point at length later, when the importance of the idea of capturing meaning will make itself felt.

PARAGRAPH D (p. 49)

TEXT

The one phrase *C* was to have both meaning and denotation. But if we speak of 'the meaning of *C*', that gives us the meaning (if any) of the denotation. 'The meaning of the first line of Gray's Elegy' is the same as 'The meaning of "The curfew tolls the knell of parting day", ' and is not the same as 'The meaning of "the first line of Gray's Elegy".' Thus in order to get the same meaning we want we must speak not of 'the meaning of *C*', but of 'the meaning of "*C*",' which is the same as '*C*' by itself. Similarly 'the denotation of *C*' does not mean the denotation we want, but means something which, if it denotes at all, denotes what is denoted by the denotation we want. For example, let '*C*' be 'the denoting complex occurring in the second of the above instances'. Then

C='the first line of Gray's Elegy', and
The denotation of *C*=The curfew tolls the knell of parting day.

But what we *meant* to have as the denotation was 'the first line of Gray's Elegy'. Thus we have failed to get what we wanted.

Exposition

Russell begins in this paragraph to develop his argument to show that it is not possible both to retain the necessary connection between meaning and denotation and to keep them from coalescing with one another. He points out at the very outset that the essential point of Frege's doctrine is that it is the *same* phrase "*C*" which is to have both meaning and denotation. Given this, we shall have to consider how we can get at the meaning, as opposed to the denotation by employment of the phrase. (I have pointed out above that by the words "get at the meaning" Russell means something more than referring to the meaning. But let us, for the time being, take the term to mean just referring to meaning, which may be called the minimum sense.) If we try to refer to the meaning of the phrase by writing the phrase itself in the blank in the longer phrase "the meaning of ...", then we succeed in referring to the meaning of the *denotation* of the phrase, and *not* of the phrase itself. For in the longer phrase "the meaning of *the first line of Gray's Elegy*" the phrase "the first line of Gray's Elegy" is actually *used*, and, by being used, refers to its denotation, which is the first line of Gray's Elegy, i.e. the sentence "the curfew tolls the knell of parting day". But, of course, the meaning of *this sentence* is not the same as the meaning of the phrase itself, viz. "the first line of Gray's Elegy". Thus in order to get the meaning we want, i.e. the meaning of this phrase, we have to use the longer phrase resulting from writing it in the blank in the following:

The meaning of "..."

Thus the appropriate phrase would be:

The meaning of "the first line of Gray's Elegy",

and not

The meaning of the first line of Gray's Elegy.

But *that* appropriate phrase is equivalent with

'the first line of Gray's Elegy',

according, presumably, Russell's use of single quotes.

Russell next argues that the same kind of thing happens with denotation. "The denotation of *C*" would not denote what the phrase "*C*" itself denotes, but what, if anything, is denoted by the denotation of the phrase. Thus "the denotation of the first line of Gray's Elegy" would not denote what the phrase "the first line of Gray's Elegy" does, viz. the sentence "the curfew tolls the knell of parting day", but would denote what this sentence itself denotes, if the sentence denotes anything at all. (A better example could be this: the denotation of "the first name occurring on the Faculty list". This would refer to a person and not a name.)

The example Russell himself uses to bring out his point about denotation is different, and this example suggests that he wanted to make a more specific point than the one I have just said he is making. The point which he seems to want to make is that just as it is not clear how we can refer to, i.e. get at, meaning by using a phrase of the form "the meaning of ...", where the phrase whose meaning is in question would somehow occur in the blank, it is not clear how we can achieve that goal by writing something in the blank in the phrase "the denotation of...". (In brief, he is trying to bring out that we cannot give the meaning of the denoting phrase either as the meaning of or as the denotation of a linguistic expression.) So I now try to give an account of Russell's argument in the second part of the paragraph (i.e. from "similarly" to the end). In doing so, I take care to use the quotation marks to avoid use/mention confusion according to the convention introduced by Russell himself, although it is not a convention which is followed by him consistently.

Let "*C*" be (an abbreviation of) "the denoting complex occurring in the second of the above instances". Then "*C*" denotes what is denoted by "the denoting complex etc."

What is denoted by "the denoting complex, etc." is the denoting complex, etc. (What is denoted by the phrase "the first man on the moon" is the first man on the moon. We can always get the denotation from the mention of the phrase, by means of quotation, by disquotation.) Therefore "*C*" denotes the denoting complex occurring in the second of the above instances.

But this denoting complex is 'the first line of Gray's Elegy'. (That is, the meaning of the phrase "the first line of Gray's Elegy" as expressed by use of single quotation marks according to Russell's own convention.) Therefore "*C*" denotes 'the first line of Gray's Elegy'.

But, although "*C*" is thus designed to denote the meaning of the phrase "the first line of Gray's Elegy" (i.e. the denoting complex in question), we cannot get at this meaning by writing the phrase "*C*" to fill the blank in "the denotation of...". For "the denotation of *C*" would denote the denotation of *C* (by disquotation).

Now, since *C* is the denoting complex 'the first line of Gray's Elegy', the

denotation of *C* would be denotation of 'the first line of Gray's Elegy', and *that* is the first line of Gray's Elegy itself, i.e. the sentence "the curfew tolls the knell of parting day". Thus we get the odd and obviously wrong identity:

The denotation of *C* = The curfew tolls the knell of parting day.

What we wanted to get as the denotation is the meaning of the phrase "the first line of Gray's Elegy", i.e. 'the first line Gray's Elegy', and not the sentence which this phrase denotes.

Comments

(*a*) There should be double inverted commas round the first occurrence of the letter "*C*". Similarly, round the words "the meaning of *C*"—instead of single inverted commas, for it seems that "speak of" means here "speak in terms of or by use of". If the words "speak of" are used in their normal sense, there should not be any inverted commas at all. (We do not put the name "Socrates" inside inverted commas if we want to speak of Socrates, the philosopher, by use of the name.) In fact, for more than half of this paragraph, Russell uses single inverted commas in a manner which is at variance with the convention he has himself introduced for them right in the very beginning of his discussion, i.e. to speak about the meaning of the denoting phrase. From time to time, when he wants to speak about the phrase itself, he himself uses double inverted commas to enclose the phrase. Thus all the following phrases

(*i*) "the meaning of *C*",
(*ii*) "the meaning of the first line of Gray's Elegy",
(*iii*) "the meaning of "the curfew tolls the knell of parting day" ",
(*iv*) "the meaning of" "the first line of Gray's Elegy" ",
(*v*) "the meaning of *C*",
(*vi*) "the meaning of "*C*" ", and
(*vii*) "the denotation of *C*"

should be written with double inverted commas, as they have just been written. Also, in the fourth sentence, where he is *referring to* the short form of the phrase "the meaning of "*C*" ", Russell should have put this form itself in double inverted commas as follows:

" '*C*' ".

In the rest of the paragraph, however, Russell makes accurate use of single inverted commas, accurate according to his own stipulation. This laxity in the use of two distinct kinds of quotation marks might have been a result of an editorial policy. Even today the majority of editors would require a great deal of convincing to allow the use of double (single) inverted commas inside double (single) inverted commas.

(*b*) *If* what Russell wanted to bring out is that we cannot refer to the meaning of a denoting phrase either as the meaning or as the denotation of *any* expression, then he appears to have failed. He has himself suggested a way of referring to the meaning of a denoting phrase *as* the meaning of the phrase "*C*": to do this we shall have to use the phrase written below:

the meaning of "*C*"

We can now suggest ways of referring to this meaning as the *denotation* of an expression. *First*, if we follow Russell's earlier convention of putting the phrase inside single inverted commas to refer to its meaning, we can do this by use of the phrase:

the denotation of " '*C*' ".

Second, if we follow Russell's stipulation, in this paragraph, of using the bare letter "*C*" as an abbreviation of the phrase "the denoting complex, etc.", where the denoting complex in question is the *meaning* of a denoting phrase, we can refer to the meaning by the simpler phrase:

the denotation of "*C*".

And *this* would be a perfectly legitimate way of referring to the meaning of a denoting phrase *as* the denotation of an expression.

(*c*) One should be extremely cautious about Russell's use of the letter "*C*". It has been used in different ways at different times. It is sometimes used as an abbreviation of (a surrogate for) the denoting phrase (note the second occurrence of the letter without quotation marks), sometimes as a name of the denoting phrase (note the first occurrence, which is also without quotation marks), and, in the second part of this para—most evidently in the first of the two identities formulated by Russell—*as the name of the meaning of the denoting phrase*. It is very easy to fall into confusions if one makes such multifarious uses of the same sign, and especially when one's main concern is to be clear about what can or cannot be done by use of signs.

(*d*) The second of the two identities formulated by Russell is quite startling: a *sentence* is used as the second term of the identity here. Of course, it is absurd to treat a sentence on a par with a singular term like "the first line of Gray's Elegy", even in the context of Frege's semantics, in which a sentence is regarded as a name of a truth value. There is no reason to suppose that in deriving this identity Russell has succeeded in working out a *reductio ad absurdum* of the view he is attacking. What follows at this point of this argument is only that the denotation of the meaniing of the phrase "the first line of Gray's Elegy" is the same sentence as the one which is denoted by the phrase itself. But to formulate *this* identity, by mention of the sentence, one has to have a *name* of the sentence as the second term of the identity, *not* the sentence itself; and there is no reason to suppose that a use of a name of the sentence, as opposed to the sentence itself, is ruled out by the argument he has developed so far. Thus the identity in question should have been formulated as follows:

The denotation of *C*="The curfew tolls the knell of parting day."

(*e*) It is clear that in this paragraph Russell uses the phrase "denoting complex" to stand for the (complex) meaning of the denoting phrase, and not the complex denoting phrase itself.

PARAGRAPH E (pp. 49-50)

TEXT

The difficulty in speaking of the meaning of a denoting complex may be stated thus: The moment we put the complex in a proposition, the proposition is about the denotation; and if we make a proposition in which the subject is 'the meaning of *C*', then the subject is the meaning (if any) of the denotation, which was not intended. This leads us to say that, when we distinguish meaning and denotation, we must be dealing with the meaning: the meaning has denotation and is complex, and there is not something other than meaning, which can be called the complex, and be said to *have* both meaning and denotation. The right phrase, on the view in question, is that some meanings have denotations.

Exposition

The paragraph clearly falls into two parts. The first part is a summary of the argument developed in the preceding paragraphs. The second, beginning with the words "This leads us to say", is supposed to bring out further consequences of results obtained so far.

The summary part is pretty straightforward: to the crucial question regarding *how* at all we can speak of the meaning of a denoting complex (phrase) there is no satisfactory answer, for it seems that we cannot get at the meaning by using the phrase (whose meaning it is) either alone or as part of the longer phrase "the meaning of...". But the second part of the paragraph is not straightforward at all. It is difficult to see what consequence is taken by Russell to follow from the failure just noted. A very careful reading of the lines however suggests the following.

If it is not possible to speak *both* of the denotation *and* of the meaning of a denoting phrase by using it, then we should not say that the denoting phrase itself has both denotation and meaning. (In concluding this Russell is clearly assuming it to be obvious that if a denoting phrase has both denotation and meaning, then we should be able to speak of them both by use of the denoting phrase.) What Russell has argued so far is that it is possible to speak of the denotation, *and the denotation alone*, by use of the denoting phrase. Since we cannot speak of both denotation and meaning with a single phrase, we should conclude that there is not a single thing (expression), a denoting phrase, which

has both meaning and denotation. Now if this be so, then if we still distinguish meaning from denotation, we shall have to say that when we are using a denoting phrase, we must actually be dealing with the *meaning*, and not at least *directly* dealing with the denotation at all. The phrase gives us the meaning, and then *it is the meaning which gives us the denotation.* (Not all meanings, but some. The meaning of the phrase "the present king of France", for example, would not have any denotation.)

Comments

(*a*) There is again a misuse of single inverted commas enclosing the words "the meaning of *C*", a misuse according to Russell's stipulation. Obviously, he does not want to speak about the meaning of the quoted phrase, but about the phrase itself.

(*b*) The words "denoting complex" are plainly used to stand for the complex denoting *phrase*, and not for the meaning of such a phrase, as in the earlier para.

(*c*) The term "proposition" stands for a sentence here. Russell is considering the result of putting a denoting phrase in a sentence. It is important to remember this, for at other places in this very essay he often makes his distinctive use of the term to stand for the non-linguistic entity which may or may not contain an object as a constituent.

(*d*) The assumption that we cannot ascribe meaning to a denoting phrase unless it is possible to speak of, talk about, the meaning by using the phrase is obviously wrong. In any view which distinguishes meaning from denotation at all, the denoting phrase will be conceived as being related *differently* to meaning and to denotation. Certainly, the phrase is used to talk about the denotation and not about the meaning. In fact, that follows from the very concept of denotation: the denotation is precisely that which we talk about by using the denoting phrase. The meaning (sense) is the mode of presentation of the denotation, or the criterion for identifying it, or whatever, which is involved in the use of the phrase in a manner quite different from the manner in which the denotation is. We shall come back to this point later.

(*e*) The irresistible question is this: if Russell wants to establish that it is not possible to speak of the meaning at all, what happens to his earlier suggestion that we *can* speak of meaning by use of any one of the following expressions?

(*i*) the meaning of "*C*"
(*ii*) '*C*'

As I have pointed out right in the beginning, the suggestion that we might speak of meaning by use of these expressions was made by Russell only on behalf of Frege. He is, in fact, out to refute this suggestion, and his final assault on it will come in the following paragraphs.

(*f*) The interrelation of denoting phrase, meaning and denotation, which Russell wants to show Frege is forced to accept, is very naturally represented by the following picture:

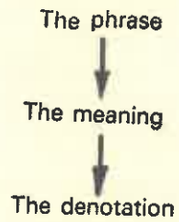


Figure 3

This picture is different from the two pictures given above. What is most interesting is that this picture coincides with the picture Frege himself draws in his letter to Edmund Husserl.[5]

PARAGRAPH F (p. 50)

TEXT

But this only makes our difficulty in speaking of meanings more evident. For suppose *C* is our complex; then we are to say that *C* is the meaning of the complex. Nevertheless, whenever *C* occurs without inverted commas, what is said is not true of the meaning, but only of the denotation, as when we say: The centre of mass of the solar system is a point. Thus to speak of *C* itself, i.e. to make a proposition about the meaning, our subject must not be *C*, but something which denotes *C*. Thus '*C*', which is what we use when we want to speak of the meaning, must be not the meaning, but something which denotes the meaning. And *C* must not be a constituent of this complex (as it is of 'the meaning of *C*'); for if *C* occurs in the complex, it will be its denotation, not its meaning, that will occur, and there is no backward road from denotations to meanings, because every object can be denoted by an infinite number of different denoting phrases.

Exposition

I think that there is no part of this essay in which carelessness about the use of quotation marks can lead to so much of confusion. The letter "*C*" clearly stands for the same thing in its first occurrence as it does in its third. It is quite obvious that Russell is talking about the expression by using the letter in its third occurrence, for it is only an *expression* which may or may not occur without inverted commas. So the letter should go inside double inverted commas in both the first and the third of its occurrences. The same is true of the eighth and tenth occurrences of the letter. Regarding the fourth occurrence, I am inclined to say that there should be single inverted commas round the letter here. The expression " '*C*' " should be written with double inverted commas as it is just written by me, for he is speaking of the use of the expression here.

When confusions such as these are removed, we begin to see how Russell

continues with his argument in this para. In the preceding para, he arrived at the conclusion that the denoting phrase itself cannot be said to denote; it gives us only the meaning, *which* may or may not denote. Now he proceeds as follows.

The above conclusion makes the difficulty about speaking of meaning all the more obvious. Supposing "*C*" is the (complex) denoting phrase, we should be able to say, according to this conclusion, that something is its meaning *by using this very phrase* as it is used in the sentence written below:

(M) *C* is the meaning of the complex denoting phrase (occurring in the beginning of *this* sentence).
[This is comparable to
Socrates is the denotation of the name
(occurring in the beginning of *this* sentence).]

But the fact remains that, whenever a denoting phrase (here "*C*") occurs without inverted commas, whatever is said by use of the phrase is said about it *denotation*. For example, when we say *the centre of mass of the solar system* is a point, we say that the thing which the itallicized phrase denotes is a point. (The *meaning* of the phrase, as Russell has pointed out at the very outset, is a complex made of parts, and *not* a point.) Thus the denoting phrase in (M) can only stand for its denotation. So if we really want to talk about the meaning of the phrase, we must use an expression which, unlike the phrase, denotes its *meaning*. But what is that expression? We should naturally now come back to the expression " '*C*' ", formed by putting the denoting phrase inside *single* inverted commas, the phrase introduced long ago to stand for the meaning, as opposed to denotation. But we should now realize that we cannot denote the meaning even by using this expression. The reason why we cannot do so is that we do not know how the denoting phrase "*C*" occurs in the expression " '*C*' ". It is extremely important to realize that it cannot occur as a *constituent*, i.e. as a genuine (semantical) part out of which the whole expression is built up. That is, it cannot occur in " '*C*' " in the way it occurs in the expression:

the meaning of *C*.

The reason why it cannot has already been pointed out. It is that, when a phrase occurs in an expression in this way, it can refer to its denotation only. Now, if the denoting phrase "*C*" occurs in the expression designed to denote its meaning in this way, then it would *first* introduce its denotation into the discourse, not its meaning, and that would be its undoing as an instrument of speaking about meaning. The mischief created by the use of the denoting phrase as a constituent of the putatively meaning-denoting expression cannot be neutralized by the use of the single inverted commas, although its purpose

is to indicate that it is the meaning which is our concern. If the denoting phrase has already carried us to its denotation, what meaning can we then get by putting the phrase under single inverted commas, if at all we get a meaning by this device? We can at best get that meaning which denotes the denotation which the phrase (also) denotes. And that is not all. We get this meaning just *as the meaning which has this denotation*. But to know of a meaning that it is a meaning which has a certain denotation is not to know *what* meaning it is, for an indefinite number of different expressions, each having its own *distinctive* meaning, can all have the same denotation. Given the denotation, there is no way of *uniquely* determining any meaning which has this denotation. Once we are carried to the denotation (of the phrase) by use of the phrase as a constituent of the expression (" '*C*' "), there is no coming back to the meaning which may have this denotation; for "there is no backward road from denotations to meanings".[6]

Comments

(*a*) It really seems that Russell is moving round and round in a circle: always coming back to the expression " '*C*' " (or less frequently, to "the meaning of "*C*" ") as a possible means of speaking about meaning, and always finding some reason for rejecting it. One cannot help feeling being in a mess. But this precisely is the effect that Russell is trying to create. These are the "curious difficulties" (para A) and the "inextricable tangle" which, he wants to show, are involved in Frege's position, and *they* should convince us of its untenability.

(*b*) In this paragraph Russell formulates against Frege *one* horn of a dilemma which is inescapable on the latter's view of meaning and denotation. The dilemma is this: *either* the denoting phrase "*C*" occurs as a constituent in the putatively meaning denoting expression " '*C*' ", *or* it does not; and the consequence of neither of these two alternatives is acceptable. The first horn is posed in the present paragraph, and the second horn in the next. So I postpone further comments till we have gone through the next paragraph(G).

PARAGRAPH G (p. 50)

TEXT

Thus it would seem that '*C*' and *C* are different entities such that '*C*' denotes C; but this cannot be an explanation, because the relation of '*C*' to *C* remains wholly mysterious; and where are we to find the denoting complex '*C*' which is to denote *C* ? Moreover, when *C* occurs in a proposition, it is not *only* the denotation that occurs (as we shall see in the next paragraph); yet, on the view in question, *C* is only the denotation, the meaning being wholly relegated to '*C*' This is an inextricable tangle, and seems to prove that the whole distinction of meaning and denotation has been wrongly conceived.

Exposition

Russell poses the second horn of the dilemma. To refresh our memory,

the first horn of the dilemma was this: "*C*" is a constituent of " '*C*' ". This must be avoided for reasons given in the previous para. Now the second horn is as follows: "*C*" is *not* a constituent of " '*C*' ". But this too has to be avoided for the reasons given below.

If "*C*" is not a constituent of " '*C*' ", the two expressions are utterly different from one another, having no significant connection between them. The two expressions thus falling apart, it becomes totally inexplicable why " '*C*' " should denote *C*; for there is now no reason whatsoever why " '*C*' " should have the same denotation as "*C*" (rather than, say, "C_1"). [To use Russell's own example, there is no reason why the denotation of

> 'the first line of Gray's Elegy'
> should be the same as that of
> the first line of Gray's Elegy,
> and be not the same as that of
> the centre of mass of the solar system.]

Again, if "*C*" and " '*C*' " are so utterly unrelated with one another, and their respective denotations are entirely *different entities*, then the first, the denoting phrase, will introduce into the discourse the denotation *only*, and its occurrence in a sentence will have nothing to do with meaning; since the task of introducing meaning into the discourse has, on the view we are considering, been *wholly relegated* to the other expression, viz. " '*C*' ". But this consequence should be intolerable to Frege, for, on his view, the meaning of an expression *is* relevant to whatever is said by its use in sentences. (No sooner does the denoting phrase introduce the denotation than it introduces the meaning as well.)

Comments

(*a*) It seems that perhaps we have, at long last, found an explanation of why Russell insists on saying that between the meaning and denotation there must be a *logical* connection. That there is such a connection is manifested in the difficulty that we inevitably face when we try to form an expression denoting the meaning of a denoting phrase *without* using it. Our inability to form such a totally independent meaning-denoting expression looks like being the linguistic counterpart of the logical connection between the corresponding entities—the meaning and the denotation.

(*b*) It seems that at least part of Russell's puzzlement is, to put it in Quine's terminology, over the question whether the occurrence of an expression inside quotation marks used to form a name of the expression, is an *orthographic accident*. If it is, then the phrase "the meaning of 'the first line of Gray's Elegy' " is devoid of any significant connection with the phrase "the first line of Gray's Elegy", and the former can hardly give the meaning of the latter. If it is not, i.e. if the occurrence inside quotation marks is not just a matter of orthographic accident, then, Russell thinks, the expression within the quotation marks is actually *used*, and so refers to its denotation. And in this case also the expression "the meaning of 'the first line of Gray's Elegy' " fails to give the meaning of the quoted phrase. (We need not consider the construction " 'the first line of Gray's Elegy' " separately for it is only a derivative form of the construction we are considering here.)

(*c*) Russell's puzzlement over the above question can perhaps be removed by saying that in the quotation name of an expression, the occurrence of the expression is neither an orthographic accident nor referential in the customary sense. In it we form a name of an expression by writing a token within inverted commas actually to *display* the type of expression which it is designed to be a name of. So, putting an expression inside quotation marks *is a way of using the expression referentially, but self-referentially*. But still the question whether the phrase "the meaning of 'the first line of Gray's Elegy' " actually gives the intended meaning may remain unanswered. One may say that we do not give the meaning of the phrase "the first line of Gray's Elegy", *in the sense of telling what the meaning is* (this is what Russell means by the words "*get* at the meaning"), by simply saying that it is the meaning of "the first line of Gray's Elegy". One who does not already know the meaning of the phrase would not know anything from this.

If this is the question which Russell has in his mind, then he seems to have anticipated a question which has occupied in recent years the attention of nearly all philosophers of language, viz. what should be the proper way of giving the meaning of an expression? (What should be the proper form of a theory of meaning?)

(*d*) In the so-called homophonic theories of meaning, of the kind advocated by Davidson, this is precisely what is done in a very important sense: by using the expression, typically the sentence, to state its own truth-conditions. But that is a different story.

(*e*) So it does seem that there is a genuine problem which Russell senses here. But this problem seems more to be a problem about how the meaning of an expression is to be given rather than about the very distinction of meaning and denotation. For, even if it be conclusively established that the meaning of an expression cannot be given at all, that would not prove that there is nothing like meaning; for one may still maintain, as Dummett has actually done, that the meaning is not what can be *said*, it is something which can only be *shown*.

PARAGRAPH H (p. 50-51)

TEXT

That the meaning is relevant when a denoting phrase occurs in a proposition is formally proved by the puzzle about the author of *Waverley*. The proposition 'Scott was the author of *Waverley*' has a property not possessed by 'Scott was Scott', namely, the property that

George IV wished to know whether it was true.' Thus the two are not identical propositions; hence the meaning of 'the author of *Waverley*' must be relevant as well as the denotation, if we adhere to the point of view to which this distinction belongs. Yet as we have just seen so long as we adhere to this point of view, we are compelled to hold that only the denotation can be relevant. Thus the point of view in question must be abandoned.

Comments

This paragraph is quite self-explanatory. Russell is reminding us that it is not for *Freqe* to deny that meaning, as well as denotation, is relevant. The proposition expressed by the sentence "Scott was the author of *Waverley*" is different from the proposition expressed by "Scott was Scott", for, while George IV wanted to know whether the first was true, he did not want to know whether the second was. *Russell* can account for the difference between the two propositions without invoking meanings, without maintaining that the denoting phrase introduces meaning along with denotation, but Frege *cannot*.

Concluding Remarks

There is one last knot to be untied: what has happened to Russell's basic paradox which he formulated at the very outset? The paradox, as we shall recall, is that "we cannot succeed in *both* preserving the connection of meaning and denotation *and* preventing them from being one and the same". It is unfortunate that Russell says so little about this basic paradox in the concluding lines of his discussion. But we can try to see how it appeared inevitable to Russell. We try to do this by linking this paradox with what I have described as a dilemma: to preserve the connection between meaning and denotation we shall have to *use the same denoting phrase both to denote the denotation and to express meaning*. But we cannot do so. Every use of the denoting phrase *either* leads us astray by giving us something *other* than meaning, *or* gives us the meaning in a way which makes it impossible to tell *which* meaning is involved, *or finally* gives us *only the denotation*.

I have already said how I would evaluate Russell's argument. To repeat, if Russell has proved anything, he has proved that it is not possible to speak of meaning in the manner in which we speak of denotation. But he has also shown how difficult it is to give an account of *speaking of meaning*, at least in the sense in which to speak of meaning is to give meaning in a way in which it becomes *scrutable*.

Notes

1. See the Bibliography.
2. See Dummett 1981 (a), p. 368 in particular. He cites two passages from Frege's writings: "On Sense and Reference" (1952), p. 58, and Frege's letter to Edmund Husserl (24 May 1891) in Frege (1980), p. 63. The passages cited by Dummett are not, however, unambiguous on this point, i.e. between the interpretation that it is the sense which denotes and the interpretation that it is *by virtue of the sense* that the phrase denotes whatever it denotes.
3. Frege 1952. This, however, is not the only way in which Frege's notion of sense (meaning) can be understood. Another way of understanding, of which too there are some variants, is that the sense is a criterion for deciding whether or not an object is denoted by the denoting phrase.
4. We shall talk more about this idea of logical connection later.
5. It is to this picture that Dummett 1981 (a) calls our attention. It does seem that he was influenced by Russell's understanding of Frege's position.
6. I am indebted to Arindam Chakrabarti for his help with this point.

Bibliography

Ayer, A.J., *Russell and Moore: The Analytical Heritage*, Macmillan, London, 1971, pp. 30-32.
Basu, Dilip K. "Russell on Denoting", *Analysis*, vol. 43, no. 2, 1983, pp. 65-70.
Blackburn, Simon and Code, Alan, "The Power of Russell's Criticism of Frege", *Analysis*, vol. 38, no. 2, 1978, pp. 65-77.
Butler, R.J. "The Scaffolding of Russell's Theory of Descriptions", *Philosophical Review*, vol. lxiii, 1954, pp. 350-64.
Cassin, Chrystine E., "Russell's Discussion of Meaning and Denotation: A Re-examination" in E.D. Klemke (ed.), *Essays on Bertrand Russell*, University of Illinois Press, 1970, 256-72.
Church, Alonzo "Carnap's Introduction to Semantics", *Philosophical Review*, vol. lii, 1943, pp. 298-304.
Dummett, Michael, *Frege: Philosophy of Language* (2nd edn.), Duckworth, 1981(a).
——— , *The Interpretation of Frege's Philosophy*, Duckworth, London, 1981(b).
Frege, Gottlob, "On Sense and Reference", *Translations for the Philosophical Writings of Gottlob Frege*, (ed. P.T. Geach and Max Black), Basil Blackwell, Oxford, 1952.
——— ., *Philosophical and Mathematical Correspondence* (ed. G. Gabriel, H. Hermes, F. Kambartel, C. Thiel and A. Veraart; abr. Brian McGunnes for the English edn. and trans. Haans Kaal), Basil Blackwell, Oxford, 1980.
Geach, P.T., "Russell on Meaning and Denoting", *Analysis*, vol. xix, 1959, pp. 69-72.
Jager, R., "Russell's Denoting Complex", *Analysis*, vol. xx, 1959, pp. 53-62.
Russell, Bertrand, "On Denoting" in R.C. Marsh (ed.), *Logic and Knowledge*, George Allen and Unwin Ltd., London, 1956; reprinted from *Mind*, n.s., vol. xiv, 1905, pp. 479-93.
——— , *The Principles of Mathematics*, (2nd edn.), George Allen and Unwin Ltd., London, 1937; 1st edn. 1903.
Searle, J.R., "Russell's Objection to Frege's Theory of Sense and Reference", *Analysis*, vol. xviii, 1958, pp. 137-43.

Chomsky on competence*

KALYAN SENGUPTA
Jadavpur University, Calcutta

A fundamental theme of Noam Chomsky's gambit is the unmistakable accent on *competence*. According to him, the goal of the descriptive study of a language is the construction of a grammar, and a grammar purports to be a description of the ideal speaker-hearer's competence. Thus the notion of competence is central and crucial in the theorizing of Chomsky. But in spite of the frequent occurrence of the term *competence* in his writings, the term is not sufficiently illuminating. In fact, few notions in the transformationalists' repertoire are as difficult to understand as the notion of competence, and one must have to wade through the sea of great trouble if one tries to explore the proper implication of it. And in the long run one may even wonder whether the trouble is worth taking.

Anyway, if one attempts to understand what Chomsky strives to convey by his crucial concept, here are some of the clues:

(*a*) We thus make a fundamental distinction between *competence* (the speaker-hearer's knowledge of his language) and *performance* (the actual use of language in concrete situations).[1]
(*b*) The problem for the linguist...is to determine...the underlying system of rules that has been mastered by the speaker-hearer and that he puts to use in actual performance.[2]
(*c*) ...by a generative grammar I mean a system of rules that in some explicit and well-defined way assigns structural descriptions to sentences. Obviously, every speaker of a language has mastered and internalized a generative grammar that expresses his knowledge of his language.[3]
(*d*) ...it (generative grammar) attempts to characterize in the most neutral possible terms the knowledge of language that provides the basis for the actual use of language by a speaker-hearer.[4]

In short, competence is equated with the speaker-hearer's knowledge of language or his mastery; his internal representation of a system of rules; and as transformational grammar is a rigorous and formal explication of this system of rules, it is an account of the speaker-hearer's competence. But all this

*In this paper I owe particular debt to David E. Cooper. I have exploited some of his illuminating ideas as presented in the book *Knowledge of Language*, London, Prism Press, 1975. I am also grateful to Margaret Drach for utilizing her paper 'The Creative Aspect of Chomsky's Use of the Notion of Creativity' in *The Philosophical Review*, xc, no. 1, January 1981.

in itself yields little or nothing unless we attend to the following: Why this emphasis on competence as opposed to performance? Can there be pure knowledge of language that transformational grammar seeks to delineate? What does it mean that people have knowledge of language?

Competence, we know, is the speaker-hearer's knowledge of his language. And if someone doubts whether there can be pure knowledge of language without involving any non-linguistic dimension, that will by no means unsettle Chomsky's unwavering conviction. Surely one cannot hope to know the laws of physics unless one breathes. But from this it does not follow that the laws of physics cannot be distinguished from the laws of biology. Similarly, there may be non-linguistic preconditions for having knowledge of language. But from this it does not follow that knowledge of language cannot be purged of non-linguistic conditions. Well, assuming that people can have distilled knowledge of language, how to understand it? One can make judgements about the social or regional origins of others from their way of speaking—their accent, intonation, choice of words or syntactic construction. Or one can judge whether a particular sentence is appropriate to the context or acceptable among a certain community. Would it mean that one has knowledge of language? Chomsky's reply will be in the negative. Indeed, people can make/actually make such judgements, But these are governed by socio-cultural rules and principles and connected with one's non-linguistic behaviour. These belong to, what Chomsky would call, the level of performance and, therefore, would go in no way to provide evidence in favour of the knowledge of language that people have. Knowledge of language is the knowledge of rules and principles governing sentence construction and interpretation; it is the knowledge that enables the speaker-hearer to produce and identify grammatical sentences; it is the knowledge of grammar. People, indeed, can assess whether a sentence is grammatical or whether it is in keeping with the rules of sentence construction and interpretation as specified by transformational grammar. And this constitutes his competence or knowledge of language. Of course, they can also judge whether a sentence is acceptable, but that is connected with the actual occasion of utterance, its appropriateness to the situation. And all such things come into the realm of performance. It is in view of this that we can appreciate Chomsky's repeated insistence on the distinction between sentence and utterance. A sentence is an abstract object following from the rules and principles as presented in transformational grammar; it is untied to any context and occasion; it is produced and understood independent of its role in communication. But an utterance is always anchored in a particular context, always tied to a particular communicative situation. Thus a sentence may be grammatical even if we should not accept it, even if we should dismiss it as out of place or silly. On the other hand, an utterance may be acceptable but may not be grammatical. (Consider the sentences in the following conversation: MARY: John! Coming? JOHN: Yes dear, I was only—.)[5]

To put the above in a different way, transformational grammar is an account of competence. But this grammar is indifferent to many things that people know about his language, e.g. a host of socio-cultural factors that determine not whether a sentence is grammatical but whether it is appropriate to the context. In fact, this grammar overlooks the pragmatic dimension of speech and, therefore, ignores that people have knowledge of socio-cultural norms and the resulting expectencies that determine the appropriateness of an utterance on a given occasion.[6] Should we then conclude that there is more in competence than what is dealt with by transformational grammar and that transformational grammar formalizes only a part of what constitutes the speaker-hearer's competence ? Or should we restrict the notion of competence to only what is specified by transformational grammar? Obviously Chomsky would be inclined to the second. And his preference or claim would receive adequate confirmation from another realm, that of arithmetic. Knowledge of arithmetic involves not only knowledge of rules of arithmetic but also other kinds of knowledge like how to write digits or organize problems on a page, etc. But the latter kind of knowledge is actually a matter of performance, and does not in any way characterize what we shall call competence or knowledge of arithmetic. Similarly we can eliminate all socio-cultural reference from our knowledge of language, and formulate it in terms of rules and principles which are mentally represented, and which contribute to the well-formedness of sentences and structural descriptions assigned to them.

Now why this emphasis on competence? This becomes obvious especially when we consider the prevalent mode of dealing with language, the Bloomfieldian study of 'corpus' that grows out of actual utterances coming warm from peoples' mouth. But one cannot hope to give an adequate account of language by concentrating on what is given in the 'corpus' alone. For the 'corpus' may not include many interesting features of language. Even the most carefully collected and comprehensive sets of texts may have some gaps which come in the way of formulating an adequate description of language. Besides, the 'corpus' or 'record of natural speech', observes Chomsky, 'will show numerous false starts, deviations from rules, changes of plan in mid-course, and so on'.[7] Thus spoken utterances suffer from various deviations and are, therefore, ungrammatical. Hence we cannot take the 'corpus' at its face value. We must 'idealize' the raw data and eliminate from the corpus all the aspects of natural speech or actual utterances like slips and errors, dialectical differences that are not relevant to a description of standard linguistic usage, the social and cultural factors that are associated with *actual use* of language on a given occasion. Chomsky has put down all these things to performance factors and ruled out all of them in his description of language. Any grammar, according to him, should try to formulate a system of rules which the native speakers 'know', and which enables them to produce and identify grammatical sentences that are not infected with errors, personal idiosyncracies, sociological and contextual factors. This sort of standardization and idealization of linguistic data is a perfectly normal and acceptable move among the scientists. A scienti-

fic theory is formulated by ignoring all accidental factors. And Chomsky claims for linguistics the same right to disregard actual utterances of people that are often subject to various limitations and flexibilities. Of course, there are, as John Lyons rightly points out, serious problems involved in deciding what would constitute extraneous factors or linguistically irrelevant factors. And it may be that some normative consideration will step inevitably in one's attempt to identify what is linguistically irrelevant. But that does not affect the general principle that an adequate description of language demands a ruling.[8] Thus Chomsky's strategy is clear. He wants to undertake a descriptive study of language by ruling out all performance factors that contribute to ungrammaticality and by formulating a system of rules that projects all and only grammatical sentences, and that, as he claims, is part of the internal equipment of the speaker-hearer. It is in this sense that transformational grammar is an account of competence. And this grammar found an immediate response in those who had doubt in the manoeuvre of a performance model, who were always ready to rebuke its basic commitment to actual speech.

II

One of the reasons why some people would jump at the notion of competence is their reluctance against radical behaviourism with its pragmatic and methodological trivialities. They would be ill at ease with the idea that language is only a set of habits. They would feel that language is 'creative' and that behaviourists' panoply of scientific terminology and statistics, however impressive it might seem, would offer only a model of programmed language in terms of stimulus-response mechanism. They would not agree with Bloomfield: 'Man utters many kinds of vocal noise and make use of the variety; under certain types of stimuli he produces certain vocal sounds, and his fellows hearing the same sounds, make the appropriate response.'[9] Nor would they be inclined to Skinner's appeal to external factors consisting of present stimulation and the history of reinforcement for understanding the complexities of verbal behaviour. Thus they would welcome with joy the following comments of Chomsky against empiricist or behaviourist speculations, against the theory of reinforcement:

(*i*) ...empiricist speculations...have not provided any way to account for or even to express the fundamental fact about the language, viz. the speaker's ability to produce and understand instantly new sentances that are not similar to those previously heard in any physically defined sense...nor obtainable from them by any sort of 'generalization' known to psychology or philosophy.[10]

(*ii*) Man has a species-specific capacity...which manifests itself in what we may refer to as the 'creative aspect' of language use.[11]

(*iii*) A child may pick up a large part of his vocabulary and 'feel' for sentence structure from television, from reading, from listening to adults,

etc. Even a very young child who has not yet acquired a minimal repertoire from which to form new utterances may imitate a word quite well on an early try, with no attempt on the part of his parents to teach it to him. It is also perfectly obvious that, at a latter stage, a child will be able to construct and understand utterances which are quite new, and are, at the same time, acceptable sentences in his language. Every time an adult reads a newspaper, he undoubtedly comes upon countless new sentences which are not at all similar, in a simple physical sense, to any that he has heard before, and which he will recognize as sentences and understand; he will also be able to detect slight distortions and misprints. Talk of 'stimulus generalization' in such a case simply perpetuates the mystery under a new title. These abilities indicate that there must be fundamental processes at work quite independently of 'feedback' from the environment. I have been able to find no support whatsoever for the doctrine of Skinner and others that slow and careful shaping of verbal behaviour through differential reinforcement is an absolute necessity.[12]

(*iv*) ...the insights that have been achieved in the laboratories of the reinforcement theorists, though quite genuine, can be applied to complex human behaviour only in the most gross and superficial way, and that speculative attempts to discuss linguistic behaviour in these terms alone omit from consideration factors of fundamental importance that are no doubt amenable to scientific study.[13]

(*v*) ...a child is capable of construcing an extremely complex mechanism for generating a set of sentences, some of which he has heard, or that an adult can instantaneously determine whether (and if so, how) a particular item is generated by this mechanism, which has many of the properties of an abstract deductive theory. Yet this appears to be a fair description of the performance of the speaker, listener, and learner.[14]

Actually speaking there is a basic and revealing link between transformational grammar and creativity of language. Transformational grammar is a description of a system of rules and principles that the native speakers have internalized. In other words, this grammar specifies a speaker-listener's 'tacit knowledge'. Or a speaker has 'developed an internal representation of a system of rules'; he has 'developed and internally represented a generative grammar'.[15] And the internally represented rules of transformational grammar *involve* the ability to utter and understand sentences not encountered before. 'The limited data of experience suffices to set into operation processes that lead to the construction of a system of rules and principles that determine a full human language, a system that finally allows us, in Humboldt's phrase, to make infinite use of finite means.'[16] Incidentally, when Chomsky insists on the creative aspect of language, he acknowledges his

parallelism with Descartes who holds that all phenomena, including all human action, can be explained mechanically except:

> (Machines) could never use speech or otherwise use signs as we do when placing our thoughts or record for the benefit of others. For we can easily understand a machine's being constituted so that it can utter words, and even emit some responses to action on it of a corporeal kind.... But it never happens that it arranges its speech in various ways in order to reply appropriately to everything that may be said in its presence, as even the lowest type of man can do.[17]

And this creativity of language is what Chomsky repeatedly invokes in his unceasing campaign against behaviourism. Thus he who has unruffled conviction in the autonomy and dignity of man would find in transformational grammar a fulfilment of his need. Transformational grammar is based on the conviction that if creativity of language or man's ability to produce and understand new sentences is crucial, then behaviourism with its distinctive scientific terminologies and statistics is too poor to capture it. Behaviourism ends in providing only a highly mechanized version of language where a component of the situation and an overt linguistic behaviour are related to each other by smooth curves that ensure the predictability of the latter from the former.

Of course, there is a very well-known dodge by the behaviourist to accommodate creativity in language acquisition process. We are speaking of the celebrated strategy of arguing from analogy. Bloomfield, Quine and others would go on in the following way: 'It is evident how new sentences may be built from old materials and volunteered on appropriate occasions simply by virtue of the analogies.'[18]

The point is that at a certain point of time all of us learn a number of sentences. But after that we can produce and understand sentences that are quite unlike those we have learned. How is this possible? According to the behaviourists, we produce and understand new sentences by analogy with the old. We can understand a new sentence because it is *observably similar* to the sentences we were acquainted with in the past. We do so by inductive generalization from what we have learned in the past and applying the generalization to the new sentence. Thus one can identify the grammaticality of a new sentence, *He reads*, because it is observably similar to sentences, *He speaks*, *He rides*, etc.—sentences that one learned as grammatical. But the futility of this is brought out by Chomsky in the following way:

> Knowledge of language cannot arise by application of step-by-step inductive operations (segmentation, classification, substitution procedures, analogy, association, conditioning and so on) of any sort that have been developed within linguistics, psychology or philosophy.[19]

To explain his point, let us suppose that a child produces or understands a new sentence: *John is persuaded to leave*. Now, according to the behaviourists, he can do it because of its observable similarity with, say, sentences like *John is compelled to leave*, etc. which he learned in the past. But this sentence is also observably similar to sentences like *John is eager to leave*, etc. But he does not tag it with the latter. For in *John is persuaded to leave*, *John is* the *object*, while in *John is eager to leave*, *John* is the *subject*. That the child associates *John is persuaded to leave* with *John is compelled to leave* and not with *John is eager to leave* is a proof positive in favour of a knowledge of abstract grammar that he has internalized.

We can put this point in a different way by referring to arithmetic where we are able to give similar response to dissimilar stimuli as $2+2$, $20\div5$, 84-80. This reveals two things. First this brings out the inefficacy of the notion of similar response on the basis of observable similarity of the stimuli. Secondly, this shows that we can respond to dissimilar stimuli in a similar way only because we have knowledge of the rules of arithmetic. And the lesson we learn from these things is highly instructive for explaining language. Language is not a set of generalized stimulus-response connections: the ability we have to produce novel utterances not heard before is due to our internal possession of a set of rules and principles that transformational grammar proposes to explicate.

Thus the story of competence is the story of human creativity, the story of the speaker's ability to produce and understand indefinitely many new sentences. And we may refer to some observations of Chomsky in further evidence. Consider his remark in *Current Issues in Linguistic Theory* where competence or 'normal mastery of language' as represented in system of rules of transformational grammar 'involves' or 'encompasses' the creative aspect of language (or the creative aspect of language *use*), i.e. 'the ability to understand immediately an indefinite number entirely new sentences....[I] t is clear that a theory of language that neglects this "creative" aspect of language is of only marginal interest.'[20] Or consider his observation in *Topics in the Theory of Generative Grammar*: 'The most striking aspect of linguistic competence is what we may call the "creativity of language", that is, the speaker's ability to produce new sentences, sentences that are immediately understood by other speakers although they bear no physical resemblance to sentences which are familiar.[21]

But those who took all such observations of Chomsky at their face value and thought that transformational grammar had stood up against behaviourism and for human dignity and creativity soon noticed with utter disappointment the following passage of *Language and Mind*:

> When we study human language, we are approaching what some might call the 'human essence', the distinctive qualities of mind that are, so far as we know, unique to man and that are inseparable from any critical phase of

> human existence, personal or social. Hence the fascination of this study, and, no less, its frustration. The frustration arises from the fact that despite much progress, we remain as incapable as ever before of coming to grips with the core problem of human language, which I take to be this: Having mastered a language, one is able to understand an indefinite number of expressions that are new to one's experience, that bear no simple physical resemblance and are in no simple way analogous to the expressions that constitute one's linguistic experience; and one is able, with greater or less facility, to produce such expressions on an appropriate occasion, despite their novelty and independently of detectable stimulus configurations, and to be understood by others who share this still mysterious ability. The normal use of language is, in this sense, a creative activity. This creative aspect of normal language use is one fundamental factor that distinguishes human language from any known system of animal communication.[22]

And to make their misery full to the brim, the following remark of Chomsky: 'What I have called elsewhere "the creative aspect of language use" remains as much a mystery to us as it was to the Cartesians who discussed it, in part, in the context of the problem of "other minds".[23] This point should be made clear. *In Language and Mind*, as we have seen just before, two new features have been added to the creative aspect of language, viz. freedom from control from external stimuli and appropriateness to new and ever-changing situations. Thus one finds that creativity is now shifted to be a matter of performance; our ability to produce new sentences is now more closely related to behaviour and language use; and transformational grammar, as an account of competence, has nothing to say about it. Or does it confirm the observation of Sampson that creativity has some spontaneity or freedom associated with it and that transformational grammar with its rigoristic formal deductive system of rules can not capture it?[24] Of course creativity still belongs to the 'core problem of language', and we are still told by Chomsky that our ability to use language *appropriately* is what distinguishes 'the normal use of language from the ravings of a maniac or the output of a computer with a random element'.[25] But he has defined language and competence in such a way that creativity of language *use* passes beyond its grip. Transformational grammar is only a set of general generative rules which can not account for Halliday's linguistic options[26] available to a mother wanting her child not to play on a neighbourhood building. e.g. *Boys who are well-brought up play games in the park, Daddy doesn't like you to play rough games* or *I would like you to help meat home*, etc. All such utterances appropriate to a particular occasion would, on Chomsky's account, belong to performance realm involving different motivations or non-linguistic factors, like appeal to reason or authority, etc. That's why in *Reflection on Language* Chomsky includes creativity among 'mysteries' and not among 'problems'.[27] That's why he observes:

> How are we able to act creatively? How can we decide to say things that are new but not random, that are appropriate to situations yet not under the control of stimuli? When we ask these questions, we enter into a realm of mystery where human science, at least so far (and may be even in principle), does not reach.[25]

Thus though Chomsky intends to see language bathe in the aura of creativity, there is actually a profound and disquieting gap between transformational grammar and creativity of language. Language, as Chomsky formulates it via transformational grammar, now moves away from creativity: it now becomes a highly programmed affair; man is now only an 'automation which incorporates the principles of universal grammar and puts them to use to determine which of the possible languages is the one to which it is exposed'[29] Of course, transformational grammar with its system of rules may still be at least a necessary condition, if not a sufficient one, of the use of language in a creative way. One may say that we cannot behave creatively unless we know the rules of transformational grammar. But unfortunately this does not explain *appropriate* behaviour *adequately*.

Now a few words by way of digression. In spite of the poverty of transformational grammar to handle creativity of language, Chomsky's insight that language can not be placed within the causal framework of stimulus-response is quite rewarding. And we can exploit this profound insight in a more humdrum way by referring to what Austin would call illocutionary acts, viz. the several things we do with our language in our everyday life. When I say, *Close the door*, I perform the act of making a command or request. When I say, *I promise*, I undertake the obligation of doing the act. Thus only a being who has 'rights and responsibilities' can do such illocutionary acts. Since animals have no rights and responsibilities, their uses of signs are not illocutionary acts. A behaviourist who proposes to account for language only in causal terms ignores this moral dimension and regards man as higher animals only.[30]

Besides, in a way Chomsky is also right in holding that the empiricist's employment of the notions, 'similarity', 'analogy', is quite empty. For, as we learn from Wittgenstein, unless we show what people do when they encounter new sentences and how they respond to them, the claim that we understand new sentences by analogy with the old ones has no content. In other words, what we need is a criterion for 'similarity', 'analogy'. But this we can provide not by inventing abstract rules and principles of transformational grammar but by looking at the actual behaviour of people—how they interpret, paraphrase or respond. Thus one sentence is similar to another only when people interpret and para-phrase them similarly, and also respond to them in similar ways, etc.

III

Another reason why psychologists and linguists were drawn towards Chom-

sky's *competence* or *knowledge of language* is its prospect to provide a precise and explicit model of language behaviour. They found in it a healthy alternative to any pragmatic account of verbal behaviour. Obviously, the linguistic behaviour that Chomsky's competence model seeks to explain is one which is insulated from any performance factors.

> Linguistic theory [as Chomsky puts it] is concerned primarily with an ideal speaker-listener, in a completely homogenous speech community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance.[31]

He echoes the same contention in one page later: 'Only under the idealization set forth in the preceding paragraph is performance a direct reflection of competence.'[32] Or, 'A grammar of a language purports to be a description of the ideal speaker-hearer's competence'[33] In other words, transformational grammar is an account of competence that explains not the actual use of language in particular contexts but only linguistic behaviour under ideal conditions, i.e. one's ability to produce and identify grammatical sentences—the ability which is manifested only when one is not under the sway of such extraneous factors as distractions, shifts of attention, socio-cultural context, etc. Thus transformational grammar is 'mentalistic', since it is a description of knowledge or internal possession of a speaker-hearer which leads to what he produces and comprehends under idealized conditions. Obviously, competence shines forth in the intimate presence of performance; it is an ability to utter and understand sentences; it is a matter of *knowing how*. In fact, competence is like what Saussure would call *symphony*.[34] Just as a symphony is a set of instructions for playing a particular music, similarly competence refers to a set of rules and principles for performing speech, for playing language games.

But still the confidence of psychologists and linguists in competence model was thwarted by some threatening difficulties. For one who looks at our linguistic behaviour reasonably feels with Campbell and Wales that this competence model is not an ideal model of our speech production. It is not an adequate account of our verbal behaviour, since it is only a set of recursive rules which do not encompass our crucial ability to use language on the appropriate occasion. As Campbell and Wales observe:

> Although generative grammarians, in particular Chomsky, claim that their work is an attempt to characterize the nature of competence$_2$ (that is, the nature of those human abilities that are specific to language) their main effort has in fact been directed towards a more restricted sort of competence, which we will call *competence*$_3$, from which by far the most important linguistic ability has been omitted—the ability to produce or understand utterances which are not so much *grammatical* but, more important, *appropriate to the context in which they are made*.[35]

The above point may induce certain modifications regarding the role of competence as the model of linguistic behaviour. May be, competence model does not provide an adequate description of language, but none the less a reasonable model of language use must incorporate, as a basic component, the generative grammar that expresses the speaker-hearer's knowledge of language. And, in fact, this is the move that Chomsky has taken, this is the thought that is encapsulated in his following remark: 'To study actual linguistic performance, we must consider the interaction of a veriety of factors, of which the underlying competence is only one.'[36] Thus the point of Chomsky is that any theory of linguistic performance should be concerned with a model that includes the competence or internalized knowledge of the speaker = hearer. But what is this competence? Earlier Chomsky gave us the impression that this competence is a matter of *knowing how* to produce and comprehend grammatical sentences. But now perhaps we have a different picture. Competence is now a matter not of *knowing how* but of *knowing that*. For Chomsky has now introduced the term *unconscious* or *tacit knowledge*:

> Obviously every speaker of a language has mastered and internalized a generative grammar that expresses his knowledge of the language. This is not to say that he is aware of the rules of the grammar or even that he can become aware of them, or that his statements about his intuitive knowledge are necessarily accurate. Any interesting generative grammar will be dealing, for the most part, with mental processes that are far beyond the level of actual or even potential consciousness.[37]

And the introduction of *tacit knowledge* changes the direction of the story. Now the story is not that people know language or rules of grammar in the sense that they can speak correctly. Now knowledge of language or grammar is not equated with one's ability to speak properly under ideal conditions. Now competence or knowledge of language is a necessary condition for explaining our linguistic performance and, therefore, not equated with it. Now knowledge of language is unconscious and, therefore, it moves away from *know-how* of language behaviour where the application of the term, *unconscious*, seems to be devoid of any sense. Knowledge of language is now *knowledge that* there are rules and principles as projected by transformational grammar. And this knowledge is necessary for our linguistic performance.

But how to prove that people have unconscious knowledge of language? In response to this Chomsky would of course appeal to *intuition* of the speaker-hearer. The speaker-hearer has *intuition* about language, i.e. he can *judge*.

> that (1) some sentences are grammatical, while others are ungrammatical;

that (2) two sentences, though apparently different, are synonymous; or that (3) two sentences, though apparently similar, are really distinct from each other.

Now he cannot make such judgements unless he knows the rules of transformational grammar. In the words of Cooper: 'When the speaker comes to no longer regard the sentences as closely analogous, it does become clear to him that they have quite distinct structural analysis...the speaker can judge that...the blanks are filled by a theoretical description.'[38] Or in the words of Slobin, 'when the speaker judges that "the President makes the decisions" and "the decisions are made by the President" are synonymous, he judge that the logical propositions underlying sentences are identical.'[39]

But this dodge of employing intuition as evidence in favour of our knowledge of grammar does not seem to work very much for a number of reasons. First, even if we suppose that there are general generative principles at work behind our linguistic performance, behind the judgements we make about language, is there any guarantee that our linguistic behaviour is hooked only on the unique system of rules as proposed by transformational grammar? Perhaps there may be more than one system of rules to which our linguistic behaviour is mapped on. To take an example from D. Cooper:[40] one grammar may contain the following rules:

$$1.\ X \rightarrow Y$$
$$2.\ Z \rightarrow Y$$

while another grammar may have the following rules:

$$3.\ \left\{\begin{matrix} X \\ Z \end{matrix}\right\} \rightarrow Y$$

And obviously, any speech that is in tune with 1 and 2 will also be in tune with 3. Now if linguistic behaviour is the only clue wherefrom we can step into generative rules, then how to determine what system of rules are at work and further whether it be of Chomskeyan kind? To hold, under the circumstances, that there must be some criteria to single out the set of rules we follow is extremely unclear and unintelligible.

Secondly, there may be unknown rules in accord with which a native speaker performs his speech acts, but none the less they are not so much relevant to his actual verbal behaviour. I judge that the lady over there is my wife. And perhaps she is the heiress to the property of her bachelor uncle, but that is not very crucial to my judgement that she is my wife and my corresponding behaviour. Or following Harman:

> The cyclist must keep balanced on the bicycle. Exactly what he need to do in order to retain his balance will be dictated by certain principles of mechanics that he himself is unaware of. We might imagine that a model of a cyclist would contain representations of the relevant principles of mechanics and that it uses these principles in calculating what needs to be done so as to retain balance. Then following Chomsky's model, we might say that the cyclist has an internal representation of the principles of mechanics. Should we go on to say that every cyclist has an intuitive or tacit knowledge of the principles of mechanics? This does not seems an illuminating way of talking about cyclists: and Chomsky's remarks about tacit "competence" do not seem to provide an illuminating way of talking about speakers of a language.[41]

As a matter of fact, language is a practical ability just like our ability to ride, bike or scratch the right spot. To explain our riding ability, e.g. we do not need any theoretical postulate. What we need is only empirical investigation of how the practical skill works, of what is involved and presupposed in it. And there is no reason why a separate strategy should be invoked in case of language. To seek some theoretical rules and principles is only the favourite delight of a theoretician who thinks but does not look. But when we look at actual language and try to feel its throb, it does not look necessary to be seduced or hypnotized by any theoretical rules in order to account for the speaker-hearer's linguistic behaviour.

Last but not least, that we can exhibit *proper* linguistic behaviour, that we can identify the synonymity of two different sentences or the difference between two apparently synonymous sentences is no evidence in favour of our knowledge of languae. It does not require for us to have special knowledge of language in order to identify the difference between the famous John's *easiness* and *eagerness* in the sentences, *John is easy to please* and *John is eager to please*. A mere look at the words, *easy* and *eager*, is enough to do that. When Cooper's 'butler' brings 'eggs' and 'mails' in the same 'silver tray', we are not supposed to confuse the difference between the two only because they are in the same tray.[42] It may be that the notion of *tacit knowledge* is not illegitimate. But, at the same time, we require something to reveal that we have this tacit knowledge. If our correct discourse is all that shows this tacit knowledge, then the claim that we can produce grammatical sentences because of such tacit knowledge is quite circular, and perhaps vacuous too. Our actual speech does not show that we have this tacit knowledge of rules.

And is it the reason that leads ultimately to Chomsky's neutral definition of *competence:* '[Transformational grammar] is not a model for a speaker or a hearer'?[43] Competence is now only unconscious knowledge of rules away from the activities of actual speakers. But then the moral is quite disheartening. Transformational grammar is no longer a model of linguistic behaviour much to the dismay of those who were inclined to transformational grammar only for that reason.

But, again, how to confirm that we have this neutral unconscious knowl-

edge of rules? Can rules have any *apriori* validity except that they are produced and understood by the speakers? Further, is there really any reason in saying that we *know unconsciously* that such and such are the rules of grammar? In this context, the point of Thomas Nagel is quite illuminating.[44] Indeed, we can talk of unconscious knowledge of something or can grant the extension of the term, *know*, provided when someone formulates something explicitly before me I readily recognize that this was something I knew all the time. But when Chomsky holds that I know rules. like (*R*1) $X\text{-}NP_1\ \text{-}NP_2$—Copula-$A\text{-}Y \Rightarrow X\text{-}NP_1\ \text{-}wh\ NP_2$—Copula-$A\text{-}Y$, where NP_1—NP_2, I can show him only my bewildered face.

IV

In fact, the most profound inadequacy of *competence story* is its emphasis on the structure of language to the utter neglect of how it is *used*, thus providing an antithesis between structure and use. 'If one wants to find out something significant about the nature of language', observes Chomsky, 'I think it is important to look not at its uses which may be almost any imaginable, but rather at its structure.'[45] Thus he overlooks how language is used, the circumstances under which different utterances are produced, the purposes of the utterers or the effects on the hearers. He intends to make language an isolated set of symbols and, therefore, misses the most crucial fact about language so ably singled out by Bloomfield: '...language is the simplest and the most fundamental of our social activities.'[46] In other words, what we can by no means afford to forget is the important fact that language is fundamentally a social activity, and hence an adequate account of language needs a socially and functionally relevant explanation of linguistic structure. Actually speaking, if language is not, as we learn from Wittgenstein, a self-contained system of rules and structures independent of context and ways of life, the structure of language is always enunciated in terms of behavioural modalities: it is always correlated with what we intend to do with it. Thus active and passive sentences, e.g. are not merely syntactical derivations in accordance with transformational rules. In fact, they are linked up with our different functional motives. Thus we use an active sentence, *John has broken the window*, when we try to convey something about the doer of an action. But when we try to communicate exactly what has been done to the window and how it is affected by John's activity, we prefer the passive sentence, *The window is broken by John*. Similar things may be said about other aspects of linguistic structure. And all these reveal how the story of linguistic structure is interwoven with different behavioural strategies, with different communicative purposes.

It is in this context that we can appreciate Halliday's unwillingness for competence-performance dichotomy: 'The particular form taken by the grammatical system of language is closely related to the social and personal needs that language is required to serve.'[47] Or remember Searle's remark:

> I think that the most interesting questions about syntax have to do with how form and function interact—they have to do with the question: "What are these syntactical forms for?" Language, for me, is to talk with, and to write with, so I want to say that the study of the syntax will always be incomplete unless we get a study of linguistic use.[48]

And the moral is obvious. Chomsky overlooks the dialectical relation between structure and function.

V

But nonetheless it is still possible to make a case for knowledge that a native speaker has by being a fluent speaker of his language. It is possible to make a case for knowledge of language in a more humdrum sense which will perhaps iron out the wrinkles made by transformational grammar. And the credential for this knowledge of language should be found in the actual linguistic behaviour of the people or in what Wittgenstein would call 'practices of language'.

Indeed people know many things about their language. They believe that some uses of language are proper or grammatical, while some other uses are not. They are aware of the difference between following and violating the rule. But probably the ordinary speakers will not be convinced very much, if we try to explain their linguistic beliefs or practices with reference to some hypothetical rules as triggered by transformational grammar. Then how to justify a speaker's linguistic beliefs? Should we do so by appealing to some verificatory principle based on an empirical scrutiny or statistical survey of how other speakers of his community behave? Perhaps this will not do very much. For, as Searle and Lewis correctly observe, the justification lies not in any *external observation* but in our very *participation in language*, just as our knowledge about baseball is justified by our playing the game: 'The "justification" I have for my linguistic intuitions as expressed in my linguistic characterization is simply that I am a native speaker of a certain dialect of English...' Again:

> An analogy: I know that in baseball after hitting the ball fair, the batter runs in the direction of first base, and not in the direction, say, of third base or the left field grandstand. Now what sort of knowledge is this? On what is it based?...My knowledge is based on knowing how to play baseball, which is *inter alia* having internalized a set of rules. I wish to suggest that my knowledge of linguistic characteristics is of a similar kind."[49]

Perhaps we should not press the question of *justification* very seriously. People participate in a certain form of life, i.e. they are trained and engaged in certain modes of behaviour like informing, asking questions, giving orders, making requests or promises as parts of their social life. Since all this is done by speaking a language, they come to agree about various judgements they make about their language. Thus linguistic beliefs are shared linguistic res-

ponses of the people engaged in common practices within a society. It is only a general sense of common interest, only a shared background of behaviour which results in their linguistic beliefs and the corresponding behaviour, or which, on Lewis's account of convention via the theory of games of pure co-ordination, leads to the story of mutual expectations about the use of language. It is perhaps idle to ask why the humdrum linguistic beliefs of the ordinary speakers *are* as they *are*. It is idle to look for any justification of judgements they make about language via Chomsky's unconscious knowledge of grammar, just as it is idle to ask why a particular musical *raga* contains particular notes, why a *raga* is what it is. To understand a particular *raga* is to understand the history of a common cultural response and practice. Similarly, to understand our linguistic beliefs is to understand the history of actual *parole*, of common response within a common form of life or a common mode of behaviour. But nonetheless the linguistic beliefs of the ordinary speakers are so self-validating, they percolate so much into the very being of the native speakers that they count as *knowledge*.

And so we arrive at the following conclusion. People know many uncontroversial and humdrum things about their language. They know that the use of a certain word in a certain string is ungrammatical, e.g. The man *who* I know is walking along the street. They know that a certain word is used properly only under some relevant conditions. But all these beliefs are not rooted in a set of generative rules unconnected with their language behaviour. These beliefs are revealed in their proper linguistic behaviour, in their speaking a language within a common form of life. They do not and cannot justify why their linguistic beliefs and the corresponding behaviour are so as they are. But from this it does not follow that they do not *know*.

Notes

1. N. Chomsky, *Aspects of the Theory of Syntax*, The M.I.T. Press, Cambridge, Mass., 1965, p. 4.
2. *Ibid.*, p. 4.
3. *Ibid.*, p. 8.
4. *Ibid.*, p. 8.
5. Cf. F. Palmer, *Grammar*, Penguin Books, London, p. 72.
6. Cf. I.M. Schlesinger's paper, 'On Linguistic Competence' in Y. Bar-Hillel (ed.), *Pragmatics of Natural Language*, Reidel, Dordrecht.
7. N. Chomsky, *Aspects of the Theory of Syntax*, The M.I.T. Press, Cambridge, Mass., 1965, p. 4.
8. Cf. J. Lyons, *Chomsky*, Fontana, London, 1970, p. 39.
9. L. Bloomfield, *Language*, George Allen & Unwin, London, 1935.
10. J.P.B. Allen and P.V. Buren (eds.), *Chomsky: Selected Readings*, Oxford University Press, London, 1971, pp. 57-58.

11. N. Chomsky, *Cartesian Linguistics*, Harper & Row, New York and London, 1966, pp. 4-5.
12. J.P.B. Allen and P.V. Buren (eds.), *Chomsky: Selected Readings*, Oxford University Press, London, p. 137.
13. N. Chomsky, 'A Review of B.F. Skinner's Verbal Behaviour' in Fodor and Katz (eds.), *The Structure of Behaviour*, Englewood Cliffs, 1964, p. 576.
14. J.P.B. Allen and P.V. Buren (eds.), *Chomsky: Selected Readings*, Oxford, pp. 147-48.
15. N. Chomsky, *Aspects of the Theory of Syntax*, The M.I.T. Press, Cambridge, Mass., 1965, p. 25.
16. 'Chomsky's Dialogue with Bryan Magee in *Men of Ideas*, Oxford University Press, London, 1982, pp. 177-78.
17. Descartes, *Discourse*, pt. iv.
18. W.V. Quine, *Word and Object*, London, 1960, p. 9.
19. N. Chomsky, 'Recent Contributions to the Theory of Innate Ideas', *Synthese*, 17, 1967, p. 11.
20. Cf. *The Structure of Language*, pp. 50-51.
21. *Topics in the Theory of Generative Grammar*, The Hague, 1966, p. 11.
22. Chomsky, *Language and Mind*, Harcourt Brace, New York, 1968, p. 100.
23. ——— *Reflections on Language*, Fontana, London, 1976, p. 138.
24. G. Sampson, *Making Sense*, Oxford University Press, London, 1980.
25. N. Chomsky, *Language and Mind*, Harcourt Brace, New York, 1968, p. 12.
26. Cf. M.A.K. Halliday, *Explorations in the Functions of Language*, Arnold, London, 1973.
27. *Reflections on Language*, Fontana, London, 1979, p. 138.
28. See *Men of Ideas*, Oxford University Press, London, 1982, p. 148.
29. N. Chomsky, *Language and Mind*, Harcourt Brace, New York, 1980, p. 241.
30. Cf. N. Wolterstorff, *Works and Worlds of Art*, Clarendon Press, Oxford, 1980.
31. N. Chomsky, *Aspects of the Theory of Syntax*, The M.I.T. Press, Cambridge, Mass., 1965, p. 3.
32. *Ibid.*, p. 4.
33. *Ibid.*, p. 4.
34. Cf. Saussure, 'Language is comparable to a symphony in that what the symphony actually is stands completely apart from how it is performed; the mistakes that musicians make in playing the symphony do not comprise this fact'. Quoted from B.L. Derwing, *Transformational Grammar as a Theory of Language Acquisition*, Cambridge, 1973, p. 261.
35. 'The Study of Language Acquisition' in J. Lyons (ed.), *New Horizons in Linguistics*, Penguin Books, London, 1973, p. 247.
36. N. Chomsky, *Aspects of the Theory of Syntax*, The M.I.T. Press, Cambridge, Mass., 1965, p. 4.
37. *Ibid.*, p. 8.
38. *Ibid.*, p. 24 for an explication of this position.
39. D.I. Slobin, *Psycholinguistics*, Scott Foresman & Co., 1971, p. 5.
40. *Knowledge of Language*, 1975.
41. G. Harman, 'Psychological Aspects of the Theory of Syntax' in J.F. Rosenberg/C. Travis (eds.), *Readings in the Philosophy of Language*, Prentice-Hall, Englewood Cliffs, 1971, pp. 383-84.
42. Cf. D.E. Cooper, *Knowledge of Language*, 1975, ch. vi.
43. N. Chomsky, *Aspects of the Theory of Syntax*, The M.I.T. Press, Cambridge, Mass., 1965.
44. T. Nagel, 'Linguistics and Epistemology' in G. Harman (ed.), *On Noam Chomsky*, Anchor Books, New York, 1974.

45. Quoted from J. Bennet, *Linguistic Behaviour*, Cambride, 1976, p. 5.
46. *Language*, p. 38.
47. See J. Lyons (ed.), '*Language Structure and Language Function.*
48. See *Men of Ideas*, p. 171.
49. J.R. Searle, 'The Verification of Linguistic Characteristics', in C. Lyas (ed.), *Philosophy and Linguistics*, Macmillan, London, pp. 242-43.

An approach to a general theory of 'values': a biophysical viewpoint*

R.K. MISHRA
All India Institute of Medical Sciences, New Delhi

ABSTRACT. In our search for a unified theory of living state we were obliged to consider the problem of consciousness. However, there is even more important and perplexing aspect of living beings, especially higher living forms, particularly the man. These very special manifestations concern the ability to respond to music, art, poems, law, justice, sacrifice and 'great deeds'—all the ideas which are, to a varying degree, ingrained in man's nature. Whatever we attribute as causes as students of epistemology, of philosophy or religion, the physicist must explain at least the *physical counterpart* of such happenings.

In the following pages we describe an 'esthetogenic potential' by which we mean the ability to perceive all the above. Associated with this another important feature is the ability concomitantly to transcend immediate experience. We describe the mechanism as follows: the object has some kind of order either static or that of movement in a grown man. It interacts with similar set of 'image republic' in the so-called 'mind' and a variety of interactions based on resonance arise. Thus the object and the view are bound together by a common sharing of energy and experience, because the commonality established between the external object and the internal image republic transcends use. Extremely simple *esthetogenic objects*', catalogue, classification and some examples and a very elementary sketch of the resonance theory are given.

There is that something in the word 'value', the hidden hint that you would treasure it, when all is being lost. You would give your life to preserve your liberty. Through centuries the deeds of Rana Pratap or Tipu Sultan have dimmed the eyes of man with tears; places of their deeds bear the seal of hallowed eternity; and so are Thermopyle and Salamis and Stalingrad. The hero need not to be on your side—he could be Rommel–but the act of value washes away the banality of mechanics and who and against whom; so to say, it immaterializes matter. One says: I would give my right hand for you or that my life be added unto yours; effacement of self so that the object of value survives. Not that the person adored will so wish, the words that come forth barely express the wrench within. They are not meant to tittilate or comfort the person adored, they are there, weak expression of the Niagara of feelings one has stored within. And then there is compassion and forgiveness and defence of the fallen, the wronged ones, the weak. Why is one moved by these? What is the soul of "value"? You say: these affect you, they involve you; you and your ideas. True, these examples involve our being, our existence, our excusses to live. But what about music? Why should a melody haunt you, just as does a face or the way one drapes the shawl or the smile or somebody's sad eyes, rather

*Substance of this paper was presented at the Seminar on Values, Indian Institute of Advanced Study, Shimla, 1976.

sad-looking eyes? There comes the music wafting on the wings of airy nothingness, you lie as if in a warm bath when the snow is piling on the window sill outside. Life suddenly seems worth living. Why should music haunt you? You did not wish for it and yet you go on hearing it. Your feet throb to dance, your fingers are restless, the music adds a new dimension to existence; again, you transcend the confines of matter. It generates a mood, an expectation, a transmutation of self into something primal, something exotic. As if the World is not the consequence of a cerebral idea but that the sounds are the womb of matter. Some such ectasy must have brought us face a face with *Nādbrahman*, God as Sound. But in saying this we depart from the essence of our first set of values, involvement of the vary fabric of existence: ideas as the measure of value. Somewhere beyond existence, past ideas as the measure of value we churn forth phantasy. From abstract symbols affirming the sanctity of being and all its grace—sacrifice, compassion, tenderness—we go to the majesty of the contention, confrontation and yet the harmony of sounds, dualism in a singularity. And between cerebral or emotional ideas and flight of fancy lies the ornamentation of word pictures: poetry with its rhythm. Do not take it lightly, this is a form in which man bursts forth in the vortex of perception, feeling, emotion. It is a call from the essential nature of man. You want proof of this! It is the easiest form of diction to remember, as if man was by nature made to remember by the rhythm of incantation. That is proof. From poetry to prosaic poetry—poetic prose—one goes to the story—short story, long short story and the novel—where grammer alone chisels the meaning out from jargon, the redundancy of occurrences of actuality is abolished and the writer lays bare the anatomy of the 'soul', the innermost nature of object called man, shade and light, peace and wriggle. He dissects away the goodness from pride and the failure from tragedy. He tells you how the descent of a man really came to pass from Godhood to man. He gets past the value of actual beholder which is determined by his loss or gain. He is nature's witness of human weakness, of human sacrifice, of the hidden greatnesses of his little acts of slavery in his freedom; and indeed he tells us that the human being is worthy in spite of himself. He is the onlooker from eternity.

As in story, likewise in clay and brick and movement man cuts and synthesizes icons, and buildings and dance and drama. Dance like music stands apart as an expression of the eternal rhythm of man, a jewel implanted on the throb of *shrutis*. You interpret the music, what it means, what it means to *you*. Perfection of the consonance in gesture and expression and the measure of music gives dance its enthralling grace where *mudrā* and music bow to each other, in the same epoch and in the same instant of time.

The drama is the game of 'ifness', if I were a lover, or if you met a woman in silent tears as your tram rushes under the earth in Stockholm. You cannot converse but you think: what could that mean? From what anguish and tragedy did tears well up in the eyes of the woman? Remember silent tears flowed down the cheeks of Sati Behula as she carried the dead body of her husband

in the boat in Meghana or you cry with Paton for his country, for man, for the shame of century. How did it all happen? The experience of an act is followed by several questions like a child asking his grandmother, questions like—then?—and then?.... If you were a grown man, you come home to debate the wrongness and rightness of acts in time, in magnitude, in expression. Add to them the embellishments of an essential story, of statements. You have drama, a call for the audience to act in the confines of their imagination.

The objective of this essay is not to state the obvious as above but to examine if there is *anything common between all these activities so that the objects created have acquired value*. In addition, for the purpose of the theory proposed we shall need to dwell on an aspect of man's response to value, *compulsion* in the beholder to alter his behaviour. The beholder cries or smiles.

Apart from the two central problems of defining the essense of value and beauty, there is the privacy of response. Call something 'valuable' or 'beautiful' and then you have the cacophony of dissonance. What you find of value is trash for somebody else. This single factor has greatly retarded development of a unified theory. Indeed scientists and artists and experts on ethics would mostly contend that there can be *no scientific or analytic general theory of ethics or esthetics*. Such despair is uncalled for. If a proper understanding is obtained of (*a*) processes of perception and emotionality of the observer and (*b*) the structure of the object or act perceived, a theory of ethics or esthetics could be deduced in a rather straightforward manner. We have already proposed a hypothesis of mind-brain relationship.[9] It states, in essence, that the perception of an object leads to thousands, if not millions, of points in the brain of altered electrical states. They correspond to the object, they are the momentary seal of the object in 'brain' but not an ordinary seal, not a static carcass of geometry. It is an electric imprint as is, and when fixed it represents a mosaic of charges, three dimensional constellation of charges. Parts of the distributions are similar, parts dissimilar, a republic of images wherein identity means recognition and strengthening. Each image has a certain value of energy; and these images, similar or dissimilar, induced by radiated or propogated electrical fields, lead to their silent dialogue of agreement and disagreement, peace and war. I see myself by another set of images, another 'standpoint' and I can do again from third point of view and so on an ascending series of 'I's. Close your eyes. You dream or meditate, these images contend. Once some image dominates and has peace with all the rest, eureka! There is solution of the problem. Shorne of perturbation, now you are a fragment of eternity with its primal rhythm, the inherent dance of nature. Or take another case. You see an object, you scan it with eyes, projecting its image to this or to that area of the brain where it stores; some such image you thus identify, but then between the new image-traces, if similar, and the one in the brain may arise the resonant transfer of energy.[28] The basic idea, which I am suggesting, is that in a constellation of excited points in the brain impingement of near isomorphous or truly isomor-

phous excitation creates a long persistent memory, which harmonically waxes or wanes and suppresses all other excitation of the brain and of the parabrain (the rest of the body), thus causing the phenomenon of 'haunting' and subordination of awareness. An experience will not be universally judged to be of same value, *but we are asking as to what is required for an object to be regarded to have 'value' to any observer, even a single observer in the world*! The table appended below reveals the cause. What we require is the creation of 'order' in scientific parlance as pointed out by Lindsay,[3] the abolition or consumption of 'entropy'; a measure of disorder. Music from noise, sculpture from clay or earth, poem from prose, prose from jargon, drama from office-dialogue is distinguished only by this modality. A bibliography of some illustrative specimens of this point of views is presented in the Table I and more are mentioned in the notes at the end.

TABLE

Item with value potential	*The dimension in which order exists*	*Physical entity which is mainly ordered*	*Effect on emotions (Grade + to + + + +)*
(1)	(2)	(3)	(4)
Music	Composition of the sequence of acoustic notes	Frequency, pitch, loudness and intervals of notes and their evolute hierarchy	+ + + +
Poem	Composition of acoustic notes when read (rhythm) combined with order inherent in the word pictures conveyed.	Sequence and intervals of notes, vowel sounds and sequence of word pictures of objects and phenomena suggested	+ + +
Pictures	Shapes (curves and lines) colour, colour combinations, order inherent in word picture conveyed	Two dimensional area or projections of three dimensional objects	+ +
		Frequencies of colours and their compositions in two dimensional space	
		Correspondence between the images conveyed and the imagined or sensed reality	
		Symmetry and balance in the picture	
Sculptured icons	Three dimensional space	Symmetry and balance amongst components of the piece	+ +
		Correspondence between the icon and imagined or sensed reality	
Architecture	Three diemensional space	Symmetry and balance amongst components	+ +
Drama	Composition of acts in time and space around a central act	Correspondence between the acts in the drama and the imagined or sensed reality	+ + +
Dance	Acts of the performer and the accompanying musical notes	The acts of the performer in space and time as metered by music or by viewer	+ + + +
		Correspondence between the sensed and imagined reality	
Story	Sequence of word images of phenomena around a central act	Correspondence of the sequence to the imagined or sensed reality	+ + +
Knowledge and 'truth'	Sequence of objects, their transformations, forces and their magnitudes in the domain of space and time	Correspondence between the sequence described and verifiable reality	+ + +
Codes for conduct by the individual, society or larger groups	Patterns of behaviour of individual or the group	Correspondence between the behaviour and the codes adopted as psychosocial evolutes of the individual and the group	+ + +

In addition to this synthesis of order in some modality—sounds, lines curves, relief, and balance in architecture—there is the need for the other factor: a condition of resonance with a stored image, with all its conditioning of pleasure or displeasure, and the connection with the entire network of emotive pathways. These two factors—one in the object created and the other in the viewer—are the conditions necessary, sufficient and efficient for a feeling of 'value' (ethics) or beauty (esthetics). While the object may be made to acquire esthetogenic potential, it is on the interactions with the observer that it achieves its purpose.

It is of importance to point out an essential part of this experience, *generation of compulsion*—compulsion to be oblivious of normal experience and the normal cerebral traffic and the dominance of the essential, primal experience. Sometimes the interaction may be established with an plasticized image constellation, which may still be connected with emotive pathways in the brain.

Sometimes this interaction may be aided and abetted to become manifest by a suggestion, say. There are numerous examples specially, in 'art in science,' where the artistic quality can readily be suggested by a suitable caption, rendering an object or scientific meaning into art, see figures 1-5.

It was proposed by Lindsay that entropy consumption (generation of or orderliness out of chaos) was the basis of 'values' in physical sciences as well as in human behaviour and in social phenomena.[3] He considered it as a 'thermodynamic imperative' to create order. The orderliness was regarded as an essential and necessary aspect for an object to be considered valuable. However, there are serious inadequacies in such a view. Orderlinesses or entropy is a measurable quantity, but one is aware that not all people respond in the same way to equal amount of order in the perceived object. There is also a hierarchy in the development of perception and one is aware that he is aware that he is aware and so no. When one gives his 'reasons' for regarding someting as of 'value', this hierarchy is manifest but not in the object perceived. Higher evaluates of values like 'imagination', 'phantasy' cannot be explained on the basis of the simple postulate of Lindsay. Lastly, it is quite evident that both the time course of phenomena as well as description of objects in sapce as well as their colour spectrum are perceived differently by different viewers. If not, there would not be so mcuh debate as to whether a child takes after his father or his maternal uncle. We propose here that the essential process of the judgement of 'value' *takes place amongst the constellation of images in their loci in the brain.* This applies to each particular judgement with its nuances. It is different matter altogether that the statistical variation of man and his environment is not infinite and consequently the value judgements are not infinitely numerous; and values and artistic form fall in finite sets or classes. Indeed, though an image consetellation once created by perception is static for the time being, it cannot be considered truly crystalline or an equilibrium structure. In other words, they correspond to a closed set of complicated vectorially directed electric fields. Thus we have within the brain, situation where laws of non-equilibrium thermodynamics between energetically potent dissipative structure may be expected to exist. It may be imagined that the dissipative structure could not lead to increase of organization. Theoretical as well as experimental proof against this concept now exists.

We need search for a mechanism where the judgement of value in similar as well as in the opposite is POSSIBLE. We need explain also the higher order evolution of images, phantasy, new discoveries and problem solving, judicial comparison. Emotive counterparts could be readily explained. A quantitative theory must await measurement of gross physical data on rates, amounts of entropy of image constellation, affinities, of reaction and concentration of electro-chemical gradients at the *loci* of image constellation as well as means of securing permanence by biochemical synthesis. Virtually nothing definite is known about them. But it is possible to suggest a probable mechanism based on some modern theorems of irreversible thermodynamics fluctu-

FIGURE 1: Stein's ladders

Electron micrograph of the fossil marine plankton from the Atlantic Ocean.[4] ~ 30,000.

FIGURE 2: Nudes at toilet

Electron micrograph of nerve fibers.[5] ~ 19,000

FIGURE 3: The jealous cat

Electron micrograph of chromosome[6] ~ X 50,000

FIGURE 4: From ocean to sky

Electron micrograph of a red blood corpusle surface membrane split into two layers[7] ~ X 12,000

FIGURE 5: Nature's tantra

Electron micrograph of a section through spermatid[8] ~ X 48,000

NOTE: Captions are the artist's view. Invert to see the real description of the objects.

ations and dissipative structures. In case of a constellation of electrochemically active *loci*, a parameter can be defined. If A is transformed into a structural organization B, then Y is defined by the relation $B/A=1-Y$. This is a measure of the affinity of overall interaction amongst *loci* constituting the percept of the image, provided it is supposed that each point in the image interacts with another one because of differences in electrochemical activity. If a fresh look is given at the external image which may be in the dynamic state, then the new image imprint which may be set up, if far from equilibrium, will lead to B: Thus discrete *new varieties of images* giving a richer, varied appreciation and persistence of images arise. This may lead to appreciation of 'value' as ethical or esthetic proposition.

Conclusion

By the above we conclude as already said in the Abstract that every object, howsoever perfect or imperfect, has structure which can rosonate with at least somebody's image republic, and, given the conditions as described in notes 28 to 30 in bibliography, a variety of sharing of experience occurs which are felt as esthetic or ethical.

Bibliography and Notes

1. Evidences of organization and structurization (entropy consumption) in one, two or three dimensions of modalities—sound, areas, colour, space and time:

(a) *Vibration of notes Western and Indian*
C 240, D 270, E 300 (Ga 303 3/4) F 320, G 360, A 400 (DHA 405) B 450 (NI 455 578 and C or the next octave 480. Properly posited these exhibit entropy consumption.

(b) Grace, slide, liaison, tremolo, quaver, deflect of western music or *gamak* (19 varieties), meend, examplify the same point. *Ālāp, Jor, Laya, Jhālā, Vistār, Gat, Bandish* of Indian origin do the same, i.e. the orderly and repetitive juxtaposition of sounds.

(c) Presence of *intervallic* sound affording continuity and consistency makes India music have the same relation to Western music as water colour wash has to oil colour.

(d) It may be argued that *ālāp* has melodic purity and not rhythm. But the basic vibratory rhythm of the note is still there. Even so, *mandasaptak* note may occasionally graze into the *madhya spatak*. Also the *vādi, samvādi, anuvādis* and *vivādi* notes are properly structured in time and sequence.

(e) गीतम् वाक्यम् नृत्यम् त्रयम् संगीतमुच्यते

(f) गणावृत्त छंद (stanza of four padas) comprising लघु and गुरुवर्ण (syllable) यगण (bacchic), मगण (molossus), तगण (antibacchic), रगण (Cretic), जगण (amphibrac), भगण (dactyl), नगण (tribrac) सगण (anapaest), लघु (pyrrhic), लघुगुरु (iambus), गुरुलघु (trochee) गुरु गुरु (spondee). Many पद (metre) go to make the rhythmic poems शिरवरणी etc. मातृवृत्त permitted any arrrangement of लघु and गुरु वर्ण and thus was more popular. This is more easy to sing like आर्य्यगीति उपगीति and soon.

(g) Rhythmicity of ताल needs no description.

(h) Even the silent beat (खाली) is a measure of absence or शून्य between the concepts of साकार and निराकार.

(i) Pictures in which an organization or 'rhythm' (entropy consumption) is predominantly observable:

Hans Erni. His paintings (expressing rhythm, proportion, harmony and balance, ingredients of art) Designs on prehistoric ceramics

Vincent van Gogh, Side-walk Cafe. Note the pavement, contrasting colours—yellow, white, blue, red—a family of colour frequencies which live at peace.

Pierre August Renoir, Apples and Pomegranates. Note the combination of colour and the reflection. La Grenovilliere. Note blending of reflected light with shadows.

Henri Matisse, Figure with an ornamental background. Note the colour symmetry of environment and geometric pattern on the carpet, and the mood of the central figure. The mosaic on Galla Placidia at Ravenna (Italy) shows extraordinary organization with a second order reflected colour due to light.

Pieter Mondriaan, Victory Boogie Woogie. A perfect example of geometry giving rise to esthetic experience.

Vailili Kandinski. Composition 8, No. 260. Another example like that of Mondriaan above.

Rajrani Temple; Bhuwaneshwer temples at Khajuraho.

The Temple of the Sun at Konarak.

Māyan Temple Dedicated to Kukulcan.

U.N. Headquarters in N.Y.

The High Court, Chandigarh.

Colonnade of Amiens Cathedral.

Luigi Negris Hall in Turin.

Any example of Turkish, Persian or Indian carpets. Kathākali, bhāratnātyam with synchronizing of musical note, with gesture within the confines of an expressive symbolic theme.

Perhaps the best analogue of rhythm and meter of poetry is the geodesic design of Buckminister Fuller, in which the triangulation of various elements gives a full and rich experience of whole:

Broque, G., Theogonie

Klee, Paul, Subtropical Landscape

The Tibetan Cosmic Lotus

Gabo Naum, Construction in Space

Pevsner, A., Construction

Prince Hao Mayun. Princess in Gorden (Louvre).

Gates of Sanchi's Stupa

Toran Arch (Mathura Museum)

Pillars and Ceiling of Dilwara Temple

Window of Sidi Sayyidis Mosque, Ahmedabad

Marble Screen Around Cenotaph, Taj Mahal

Kaul Trilok, Autumn Aerial

Nandagopal, S. Deity as Serpant

Mukerjee, Shailoz, Bushes

Basu Roy Chowdhry, S., Bhubandshwar Temple

Sharma, Mohan, Cosmic Crystal

Bendre, N.S., Bridge and the Bridegroom

De, Biren, August 1971

Khastigir, S, Hunger (Sculpture)

Bhat, Mandhukar, Horizon

Nareendra, Om

Reddy, Krishna, Maternity

Bose, Arun, Birth of Planets

Harbhajan, S. Harvest

Roy Chowdhury, D.P., Suspicion

Dave, Shanti, Group

Winarski, R., Statistical Area

Aridereie, Jiri, Perspective

Parekh, Manu, Navmi

Sanyal, B., most of his works

(j) Pictures of Representation (*Similitude*):

Prephisoric cave painting (Lascauz, France); Horses Shot by Arrows; Game of Polo (Persian miniature), *Louvre*; Prehistoric rock paintings; Bheempetaka, M.P.

Rubens, Peter Paul Mandonna Adored by Saints; Peace and War

Raphael, Miracle of Man (Vatican Fresco)

Ribera, J., The Martyrdom of St. Bartholomew

Tuner, N.W., The Shipwreck

Cezanne, P., Lelack d Annecy

Delaunay, R., Simultaneous Composition, The Sun Disk

Bernini, G.L., Nepture Commands the Sea (sculpture), Laccöon

Courbet, G., Burial at Ornans

Constable, J., Barges on the Stour

Klint, G., The Park

Vuillard, E., Under the Trees

Prajna, Paramita (Java) (Icon)

Roy Chowdhury, D.P. Dignity of Labour

Chandra Shekhar, Sex—Vulture Style

Tagore, Abanindranath, Portrait of Professor De; Portrait of Mrs. Mukul De

Haldenkar, Divine Flames

Roerich, Nicholas, Himalayan Landscape

Gill, R.S., Ahir Bhairav

Dabien, Thomas, Fakir Rock Sultanganj; Hindu Math in Chitpur Bazar; Lucknow on Gomti.

Vaiz, Ram Kinker, Abanindranath Tagore.

Majumdar, Hemendra, Toilet.

Singh, Jaswant, Rag Bhairaw.

(k) Pictures and forms which tell time, space and tale:

Leonardo da Vinci, The last supper.

Picasso, P. Guernica; The Old Jew.

Velazqez, D., Surrender at Bredal.

Goya, Fendinand VII; The Disaster of War.
Tintroretto, Christ Before the Pilate.
Bellini, G., The Flight into Egypt.
David, J.L., Oath of the Horatii.
Dali, S. Apparition on a Beach. Winged Victory of Samothrace.
Michelangelo, Dying Captive the Tomb of Julius II.
Bhagvata Puranna, Kangra School
Shergil, A., Bride's Toilet.
Tagore, Abanindranath, The Exiled Yaksha.
Mukherjee, B.R., Restaurant.
Sabvala, J., Silence Deep; Tinged with Green.
Chughatai, M.A.R., Natraj.
Das, A. Agony.
Majumdar, K.N., Raslila; Apsara Dancing in Cloud; Kaikeyi and Dashrath.
Bose, N., Ritu Samha; Going to Father-in-Law's House.
Tagore, A., Journey's End.
Cow, A.C., Sophy Baddley at the Pantheon.
Jovanovich, P., Her Debut.
Smith, C.A., Fisher Folk.
Venkatappa, K., Ram Sita.
Ukil, S., Rama and Sita
Roy Chowdhury, D.P., When Rains Came.
See notes 23 and 24 below.

2. The matter of art, or esthetics has been approached from the point of view of its technique, its materials, the psychology of the aesthete, relation between object and connoisseur. Mental states constructed with these and operative at empirical experience, and their transcendence have been discussed The logical point of view examines the right and wrong, believe-worthiness and illusoriness, of empirical and aesthetic experience. As is shown by the ideas discussed in this article the present author's approach is aimed at discussing the object, physico-psychological happenings, variety and privacy of experience and eventual transcendence from secular state. Thus the above theories of esthetics in India do not have to be discussed in the present connection. Theories of drama or *Nātya Shāstra of Bharat* up to those of *Bhatta Lollata* as dramatization of experience (14, 15, 17, 18, 19, 20) are similarly irrelevant. *Samarangana Sutradhar* by Raja Bhoja discussing iconography (31), Rasa (विभाव, अनुभाव, व्यभिचारी, स्थायीभाव) as well as the aesthetics from the point of *Nyāya* (limitation inference theory) or of *Sāmkhya*, which postulates identification as to सूक्ष्म एवं स्थल as the basic reason of aesthetic experience of drama again, are not relevant in the present context. Vedantic view of Bhatta Nāyak attempts to expose the transcendence of philosophical grounds. It is true that the process of enjoying drama from the level of identification to imagination, to emotion, to cathersis and to transcendence looks attractive, but the psychophysical basis, being discussed here, is not discussed at all. Perhaps rudiment of current theory could be seen in the basic aesthetic of music, the presence of universal *Nādas* (fluctuation), or sphota in philosophy of grammer the *anāhata nāda* and *āhata nāda*, hint the rudiments from which the present suggestion could be constructed.

Modern theories of aesthetics like those by Plato, Kant, Croce, Collingworth Fechner, Legowski, Yokohama, Von Allesch Weber, Buhler, Wertheimer, Mardhekar (22) or Padhye are all of a nature quite different for the one expo unded here and hence none of the above have been discussed at length.

3. Lindsay, R.B., 1959. American Scientist, *47*, 376.
4. Mishra, R.K. and S.A. Zafar, 1966. Unpublished observations.
5. Barajas, L. and Mueller, J. 1973. J. Ulitrastructural Res. 43, 107.132.
6. Kihlima, B.A. 1971. Molecular Mechanism of Chromosome Breakage and Rejoining. Adv. Cell and Molecular Biol. vol. 1. *59*.
7. Finean, B.A. 1973 Association between Endoplasma Reticulum and Vacuoles in Frozen Root Tips. J. Ultrastructure Res. *43*, 75, 107-132.
8. Bacceti B., A.G. Barrini, R. Dallar, V. Pallini, P. Periti F. Piantelli. 1973. J. Ultrastructural Res. *44*, 25.
9. Mishra R.K., 1965 I.J. Psychiat, *7*, 165.
10. Prigogine, I. Thermodynamics of Irreversible Processes, 1967. Interscience. N.Y. p. 117.
11. Thorpe, W.H., 1954. Nature, 173, 465.
12. Thorpe, W.H., 1954. *Ibid.*, *97*, 247.
13. Sharman, Gopal, 1970 *Filigree in Sound*. Vikas, Delhi. 51.
14. Roy, R.L., *Aesthetic Philosophy of Peace* Dr. Chowdhury, Delhi, 1964, 100.
15. Erni, Hans in G., Barry J. Bronowshy, J. Fisher and J. Huxley, 1964, Man *the Artist*, MacDonald, London. 18-19.
16. Lowry, B. 1965 *The Visual Experience*, Prentice Hall, Englewood Cliffs, N.J. 40.
17. Zimmer, H., 1946, Myths and Symbols in *Indian Art and Civilisation*. J. Campbell. (Ed.) See plate 37.
18. Read, H., *The Philosophy of Modern Art*. Faber and Faber, London. 1952-41.
19. Bazin G., 1958 *A Concise History of Art*. Thames and Hudson, London.
20. Smith V.A., *A History of Fine Art in India and Ceylone* (3rd ed.). K. Khandalawala, Taraporevala, Bombay, plate 37.
21. Pandey, K.C. 1952 *Indian Aesthetics* in *The History of Philosophy: Eastern and Western*, Vol. I. S.A.R. Radhakrishnan, Wadia, D.M. Datta, H. Kabir (ed.) Allen and Unwin, London. 472-87.
22. Mardhekar, B.S., 1960, *Arts and Man*. Popular Book Depot, Bombay. 185-216.
23. *Source of regarding Modern Indian Art: Museum of Modern Art*, New Delhi.
24. Note: Art figures are not reproduced due to the absence of information on copyright.
25. Lotka, A.J., 1922, P:N:A:S: USA 8, 146.
26. Lotka, A.J., 1948, Bull. Math. Biophy. *10*, 103.
27. Turing A.M., 1952, Phil. Trans. Roy. Soc. London, *B. 237*, 37.
28. The situation of resonance and energy transfer can be described mathematically both in classical as well as quantum mechanical sense.
In the classical sense we consider two pendulums which are identical and are connected by spring so that motion of one can be conveyed to the other. We could consider four such cases.

Case I

One pendulum is kept stationary, the other pulls, frequency of the other pendulum is ν_0

Case II

Both in phase in the same sense. Frequency of oscillation
ν_1 is greater than ν_0
ν_1 is the frequency of normal mode
Displacement of (I) $\alpha = A \cos 2\pi \nu_1 t$
$\beta = A \cos 2\pi \nu_1 t$

where A is amplitude at full motion.

$$\xi=\alpha+\beta=2\,A\,\text{Cos}\,2\pi\,\nu_1 t$$
$$\eta=0$$

Case III

Both antiphase, move opposite to each other.

ν_2 is the frequency of this normal mode.

$$\alpha=A\,\text{Cos}\,2\pi\,\nu_2 t$$
$$\beta=-A\,\text{Cos}\,2\pi\,\nu_2 t$$
$$\xi=0,\ \eta=\alpha-\beta=2A\,(\text{Cos}\,2\alpha\,\nu_2 t)$$

Case IV

One pendulum starts at rest and the other one with shift A. Result is a combination of normal modes with equal amplitudes

$$\alpha=A\,[\tfrac{1}{2}\,\text{Cos}\,2\pi\,\nu_1 t+\tfrac{1}{2}\,\text{Cos}\,2\pi\,\nu_2 t]$$
$$\beta=A\,[\tfrac{1}{2}\,\text{Cos}\,2\pi\,\nu_1 t-\tfrac{1}{2}\,\text{Cos}\,2\pi\,\nu_2 t]$$

The pendulum moves transfering the energy of one to the other, when it comes to rest and then second drives the other one and then comes to rest and so on until friction or other factors stop the motion

$$\alpha=A\,\text{Cos}\,(\nu_2-\nu_1)t\,\text{Cos}\,\pi\,(\nu_1+\nu_2)t$$
$$=A\,\text{Cos}\,2\pi\,\rho\cdot t\,\text{Cos}\,2\pi\,\nu_0 t$$
$$\beta=A\,\text{Sin}\,\pi\,(\nu_2-\nu_1)t\,\text{Cos}\,\pi\,(\nu_1+\nu_2)t$$
$$=A\,\text{Sin}\,2\pi\,\rho.t\,\text{Sin}\,2\pi\,\nu_0 t$$
$$\text{Where}\ \ 2\rho=\nu_2-\nu_1\quad 2\nu_0=\nu_1+\nu_2$$

29. *In the quantum chemical case,* which may be more relevant and possibly actually present in the present example one visualizes as follows: an atom or collection of atoms (a molecule) at given site of the constellation of excitory points in the brain is to be regarded as a set of quantum mechanical states with nearly equal energy eigenvalues. In case of fresh input of electrical energy the states are made non-stationary by interaction with reference to energy of right kind. The probability distribution of electron positions and conformational changes cause electron position oscillations in this non stationary state and act as radiation or excitation source. If the points of image are considered as a repetitive or a non-repetitive lattice we could see that the lattice 'comes alive'. If the excitation is sufficiently strong it dominates over the activities of the entire brain and may reach directly or by radiative transfer the emotive areas of the brain, prefrontal cortex, the thalamus and the hypothalamus.

30. The latter case, i.e. appearance of the discrete new structures, could not have been anticipated by classical thermodynamics, but non-linear irreversible thermodynamics offers proof in this regard. In a case of new structures that may be stable one usually invoked the principle of minimum free energy. In the present case the formation of a more or less permanent image would be that which is stable with respect to fluctuation. If there is any initial electrochemical potential Xi and x is a small peturbation then the statement can be described ss follows:

$$X_1+x \text{ for } t=0$$
$$x\to 0 \text{ when } t=\infty$$

Or in other words, the perturbation dies out sufficiently quickly. In case of reaction of a sequence of electro-chemical local potentials it can be shown that with sufficiently large value of affinities associated with the steady state an instability occurs leadning to a new steady state. The peculiar aspect of their new steady state relevant for our purposes is that it varies in space, it is not homogeneous in space. *The order varies now from point to point and initial symmetry of the interacting species is abolished, a hitherto unperceived form is generated.*

It is a well-known physiological fact that eye movements following a line or a contour of a shape are oscillatory. The points on which fractions of such lines are projected must need follow and traverse a sequence of field equations. In solving the equation of small perturbations from steady state

$$X=X_0+\text{x}\,(t)$$
$$Y=\text{Y}_0+\text{y}\,(t)$$

and solving for variation in X and Y, we get linear homogeneous equation which are of the form

$$x=x_0\,e^{i\omega t}$$
$$y=y_0\,e^{i\omega t}$$

If A is from the following dispersion equation:

$$\omega^2+(1-\text{A}-X_0+Y_0+2\text{k}Y_0+2\text{k}Y_0)\,\omega+\text{A}X_0-\text{z}^2\text{k}Y_0{}^2-2\text{k}\text{A}Y_0+4\text{k}^2X_0Y_0-\text{A}+Y_0+2\text{k}Y_0=0$$

Where A is the state proceeding to B via X and Y

ω has two roots ω_1 and ω_2 and if both have real negative parts the solution Xo, Yo will be stable. Several special cases of k, the rate constant, can be considered. We now examined $k=o$, as studied in other situation by Lotka (35,36) and we get

$Xo=1$, $Yo=A$.

And the above equation gives the purely imaginary roots. This shows rotation around the steady state. This fluctuation is undamped and we have a system which *cannot forget the initial state.* In a the above case $k=$o, then we have infinite affinity no matter what is the concentration, potential at A and B. We have now a *phenomenon of fluctuation which is an aspect of situation far from equilibrium and is undamped at a macroscopic scale.*

Another object of new structure formation is connected with dissipation of energy leading to dissipative structures. In this case the loss of entropy or (gain of organisation) over average energy is given by

$$\bigtriangledown\ \text{S}=\frac{\text{E}_{\text{kin}}}{\text{T}}$$

where S stands for the entrophy, E_{kin} for total kinetic energy of the entire system and T is the average temperature of the system.

When it comes to stablity in a Turing set 37 of sequence of chemical reactions we may examine a variation of entropy production due to a fluctuation. This is always positive and hence the states are stable, both in homogenous form and as well over space.

$$X-X_0=x_0\ \exp\ (\omega t=i\ \frac{\text{r}}{\lambda})$$

λ is the wavelength and r is a geometrical coordinate. Upon proper mathematical examination we find that the characteristic frequencies are negative and the system becomes stable and *homogenous when the steady state is far from equilibrium, the steady homogenous solution become unstable and space-dependent steady state is created, a new form is generated.*

Thus perturbation due to original experience generated new hitherto unknown forms. It can be shown in the Turing case that reaction rates at centre of the system and the periphery are different and the overall gain in efficiency or in other words a more efficient, more 'meaningful' and deeper understanding of external environment or problems results. Low entropy state whether resonance stabilized or due to space dependent fluctuation leads to original solution, flight of fancy due to similitude as well as due to 'opposed' images. One is constrained to ask if there is really any evidence of persistence of traces of images.

The memory traces after auralstimuli are perhaps dramatically emphasized by work of Thorpe on song learning in chaffinch. Simplicity of song results in those birds which have been actally and visibly isolated. In some other experimental situations abnormal phrases occur and almost identical phrases may be learnt.

Catastrophe theory : a critique

D.K. SINHA
Jadavpur University, Calcutta

Introduction

Of all theories that have raked up, of late, many of our attitudes and outlook and have wielded an influence in shaping our thought processes in many of our pursuits and studies, catastrophe theory (C. t.) is, perhaps, one for which a lurking scepticism still persists. Certainly not that its mathematical content, at the centre of which is topology, is being questioned (this was, indeed, an achievement in the annals of mathematics that won in 1958 for its father Réné Thom, the distinguished Field's medal, taken as equivalent to Nobel's prize in mathematics); but once such pursuits step out of strictly mathematical periphery or, in other words, move into the realm of its applications and applicable areas, either these are welcome (some with a pinch of salt) or these become vulnerable to criticism. It is the catchy connotation of the word 'catastrophe' that has tempted many researchers in discontinuities, chaos and the like to look for tractability of their problems concerned in the light of extant catastrophe-theoretic studies; yet some of them often stand disillusioned. Purists in applied mathematics and other theoretical sciences, in their bid to get predictive content, using C.t., often become frustrated. Consequently, the credibility and applicability of C. t. are in suspect. On the other hand, one witnesses a plethora of literature spearheaded by Réné Thom and Christopher Zeeman and many others, covering a wide spectrum of fields of human endeavour such as biological sciences, social and behavioural sciences,(including anthropology, archaeology) medical sciences, linguistics, engineering sciences, over and above its mathematical part *per se*. Even though Réné Thom has taken pains to couch C.t. with the parlance of philosophy, one does not find the theory immune from criticism on that score. Any honest state of the art on C.t. has to reckon what its equally increasing number of adherents and detractors say about it. The main purpose of this critique is to present a synoptic overview of what C.t. is all about. The historical perspective is also brought to the fore; its applications and applicable areas are touched upon briefly. Its standing as a scientific theory *vis-a-vis* some of its methodological questions and philosophical aspects is also discussed.

Genesis: Historical Perspective

Even if we trace back chronologically, it seems difficult to assert in definitive terms whether the initial motivation to C.t. was purely mathematical or other-

wise. Henri Poincare [1885], the French mathematician, got stuck up with the mathematics which could not cope up with his pressing problem on the stability of rotating planetary masses. Indeed, the concept of stability has been one of a dominating concern in the study of physical sciences since the days of Newton. There is no difficulty in having an intuitive feel of what stability is all about. In the context of physical sciences, we are wedded to the notion of stability of equilibrium, for example, a particle resting on a potential basin (instability of equilibrium can occur for a particle on a potential hill-saddle-point). Analytically, one is used, through the classical works of Newton, Euler and Lagrange, to treat of stability by performing what is called a linear vibration analysis about a state of equilibrium of a dynamical system. By a dynamical system, we must hasten to mean a system capable of description in terms of some dynamical variables (also called state variables) and some (external) parameters. In particular, in the dynamical system concerning the rotation of planetary masses, Poincare [1885], [1892-99] could observe a sudden loss of the stability of the system evolving under slow variation of parameters. Thus we get at the concept of evolutionary stability, in which a basic issue is to look for conditions leading to loss of stability of an initially stable equilibrium state. Poincare had to invoke what is called 'bifurcation theory' which really explores and classifies the ways in which stable equilibrium can acquire instabilities and also investigates the stability of the entire gamut of evolutionary processes against small perturbations of the environment (measured by some parameters). One can do so, in the parlance of mathematics, by examining what are called 'singularities' that occur in the course of states of equilibrium of evolutionary processes. The mathematical theory, which delves deep into 'singularities', goes well beyond the study of local maxima and minima behaviour of the system. The mid-fifties of this century saw the emergence of a formal theory in this direction by the American mathematician Hassler Whitney. Without going into this theory, one can say, without any hesitation, that Whitney's work on singularity as well as those of Poincare and Russian mathematician Andronov were the precursors of Thom's work on C.t. It would be a travesty of historical truth if we do not mention in this regard the motivating and brilliant work on the theme by Smale and Arnold *vide* Arnold. [1984]

Let us return to the general notion of 'stability'. Stability is inextricably bound up with 'form'. Even though 'form' has a variety of connotations in a variety of contexts *vide* Arcy and Thompson [1942), we can hardly think of a form without assigning its stability which is necessitated for its perception and recognition. But if forms undergo alteration and disintegration and if amalgamation is affected by chaos, one cannot draw upon concepts and techniques of calculus or, properly speaking, differential equations. How can we then ensure stability of forms? How can we go about for stable forms or stable systems? A possible way to conceive of stable systems ought to reckon persistence of forms in the context of perturbations. Hence the need to be on the look out for systems that are, in some sense, robust against small perturbations in the

system as a whole. One has reasons to be hopeful about this for a limited brand of systems because of the outstanding work of Peixoto in 1962, who drew upon the work of Andronov and Pontryagin *vide* Sinha [1981]. One can logically push this trend of argument to sophisticated mathematical results that again provide the motivational background to the work of Thom on C.t. Thom's *tour de force* was to cull two domineering ideas of erstwhile studies on bifurcation (or branching) theory, namely, geometrical aspects and local behaviour. Topology, (naively speaking, the general form of geometry) provides Thom with armoury which he sharpens by having recourse to differential topology in lieu of differential calculus (or equations). The concept of 'structural stability' obtained from differential topology comes in not only as a panacea to ensure stability against small perturbations but also treats of stability in a wider context; in other words, the exact terms used in this context are 'global form' which by virtue of structural stability is not destroyed by small changes of parameters about equilibrium states; Thom could thereby move out of the ruts of narrower bifurcational standpoint. Koiter [1967] did a similar but remarkable work on stability of elastic *continua* in mid-fifties. Once structural stability is well assured, one can afford to have sufficiently small changes in a dynamical system so as to yield behaviour which is, in some sense, qualitatively similar to the original behaviour of the system in question.

To sum up, the study of phenomena that exhibit behaviour which are far from being smooth and was held up on account of the inadequacy of principles of calculus was left to Réné Thom who could succeed in developing certain very general kinds of discontinuous processes (opposed to smooth processes), which, in turn, fall into only seven basic types. Thom talks about the system, of its catastrophes so as to convey the idea of sudden change(s). Thom [1975] has studiedly chosen the word 'catastrophe', even though it may be bit startling. The French word 'catastrophe', it may be noted, meaning disaster, does convey the proper spirit in which it was meant by Thom, contrary to the over-dramatic connotation of English variant 'catastrophe'; another French variant of 'catastrophe' is 'denouement'. Each of these archetypes, Thom goes on to say, corresponds to a mode of sudden change: a continuously varying cause giving rise to a sudden discontinuity of effect. To put it succinctly, in the words of Christopher Zeeman, than whom we are yet to find a better exponent of Thom's C.t., catastrophes occur when continuous inputs lead to discontinuous outputs. The basis of C.t. is well-known which often goes by title, 'Thom's Theorem of Seven' or simply 'Thom's Classification Theorem' which we take up in somewhat greater details in the next section.

Thom's Theorem of Seven

Thom considers a very general situation by taking a dynamical system whose behaviour can be described by a finite set of (state) variables $x,y,z,\ldots$and also controlled by another finite set of (control) variables $a,b,c,\ldots$under a potential

(energy) function V which varies with $a,b,c...$and $x,y,z....$ For given (or fixed) $a.b.c...$the system takes up equilibrium values of $x,y,z...$corresponding to stationary values of V. Thom now poses the question: if we now vary $a,b,c...$ what kinds of (jump) behaviour in equilibrium positions can the system exhibit? Thom answers the question through a theorem which states, in essential terms, that it is always possible to effect a smooth variation of (behaviour or state) variables in such a way that the system exhibits in the neighbourhood of a given point, one of seven types of discontinuities, which are called catastrophes by Réné Thom. The complete list of seven catastrophes is given below along with the list of state and control variables for each catastrophe as well as the (potential) functions whose stationary character is envisaged:

THOM'S TABLE

State variables	*Control variables*	*Function whose stationary character is envisaged*	*Name of the catastrophe*
x	a	$\frac{1}{3}x^3+ax$	Fold
x	a, b	$\frac{1}{4}x^4+\frac{1}{2}ax^2+bx$	Cusp
x	a,b,c	$\frac{1}{5}x^5+\frac{1}{3}ax^3+\frac{1}{2}bx^2+cx$	Swallow Tail
x	a,b,c,d	$\frac{1}{6}x^4+\frac{1}{4}ax^4+\frac{1}{3}bx^3+\frac{1}{2}cx^2+dx$	Butterfly
x,y	a,b,c,d	$x^3+y^3+ax+by+cxy$	Hyperbolic Umbilic
x,y	a,b,c	$x^2+3xy^2+ax+by+c(x^2+y^2)$	Elliptic Umbilic
x,y	a,b,c,d	$x^2y+y^4+ax+by+cx^2+dy^2$	Parabolic Umbilic

Obviously the names are highly exotic, but these are partly due to their appearances and partly from other mathematical ideas related to them. Thom [1975b] also calls the cusp catastrophe as Riemann-Hugoniot catastrophe. Thom's [1975b] book is full of examples of such geometric forms which correspond remarkably closely to those of the seven catastrophes. For example, hair is seen as a manifestation of elliptic umbilic catastrophe and a mushroom is produced by a parabolic catastrophe. The treatise produced by Woodcock and Poston [1974] is one of the few monographs that has taken up geometrical questions of catastrophes in right earnest. Of course, a systematic study of catastrophes forms the subject matter of Thom's [1975b] book entitled *Stabilite Structurelle et Morphogenese* which was written in 1964-66 but came out in 1972. The British mathematician D.H. Fowler did yeoman's service by translating Thom's book into English from the original French under the name of *Structural Stability and Morphogenesis*. It was in this book that Thom stated his famous classification theorem, known as the Theorem of the Seven.

A formal statement of this theorem is as follows:

Theorem. For systems governed by smooth functions with at most four parameters (but any number of variables), there are essentially only seven possible types of local geometric structure for stable catastrophe sets. Evidently,

there are many terms that have mathematical meanings to which we need not go at present for reasons of simplicity and brevity. But we cannot help stating, as a cue from the above theorem, that Thom provides a list of seven explicit functions (catastrophe models) with the property that any other function $V_c(x)$ which has (*i*) at least four parameters and (*ii*) a catastrophe set K which is stable, can, in a neighbourhood of any point C in K, be converted essentially into one of these seven catastrophe models by means of a smooth changes of co-ordinates which converts K essentially into the catastrophe set of the model *vide* Chillingworth [1975] [1976a]. The theorems in C.t. are obviously are not always easy to follow but some of the geometrical shapes are easy to visualize. Let us now, therefore, take up as an illustration geometrical description of a catastrophe jump. Let for the equation of the catastrophe set K which is a cusp in (a,b) plane as shown below:

(1) $V_{(a,b)}(x)=\frac{1}{4}x^4+\frac{1}{2}ax^2+bx$

Stationary points occur where $V'_{(a,b)}(x)=0$ i.e.

(2) $x^3+ax+b=0$

and they coalesce where $V''(a,b)(x)=0$ i.e.

(3) $3x^2+a=0$

Eliminating x between (2) and (3) we get

(4) $27b^2+4a^3=0$

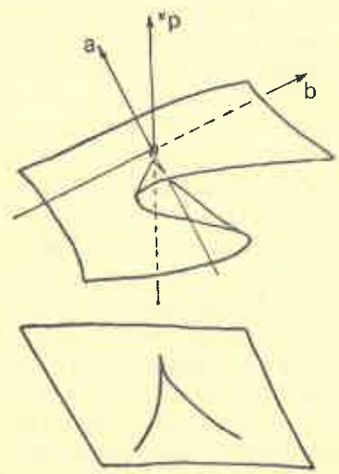


Figure 1

For $27b^2+4a^3>0$, there is just one stationary point (a minimum) for $V(a,b)(x)$ and for $27b^2+4a^3<0$ there are two minima and one maximum.

We close this section by saying that the theorem of the seven was not fully proved by Thom; Malgrange and Mather did it partially but the final proof was by Zeeman (1969-74). While the complete proof came out in 1974, extensions proved with increase of control variables were well afoot. All these ought not to lead to an impression that all that have been written on C.t. relate to its mathematical content. On the other hand, extant studies on C.t. have gone well beyond the exclusive domain of mathematics. Whatever the reasons one may attribute, the fact remains that the literature on C.t. is, to say the least, fairly massive and is vastly proliferating. A sort of appraisal, if possible, critically of the literature is thus a necessity and this is what we propose to do in the following section.

A BRIEF RESUME OF LITERATURE ON CATASTROPHE THEORY (C.t).

The literature, since the inception of study and research in this direction, covers a wide spectrum from excellent, somewhat popular, expositions at fairly low key (often to the extent of being purposely non-mathematical) to abstruse treatises, papers, monographs, etc.; a mix-up of two kinds is not that uncommon. Even though Thom's [1975b] book is of cardinal importance, there do exist in an abundant measure reservations about its use as a vademecum for studies on C.t. This should not in any way be misconstrued to denigrate the outstanding character of the book. It is an imperative to orient oneself to a certain frame of approach, attitude and mind before one decides to move through the pages of this book as an assiduous reader. It is perhaps because of the enormity, complexity and subtlety of the content of this book that it has brought in its trail a vast amount of literature expounding Thom's C.t. This has happened to many classic works, and one can cite a host of them that had to have annotated interpretative versions, editions, but for which the basic ideas in such books should have gone into oblivion. It is in this context, that one can say without any chance of being contested that it is chiefly because mainly of works of Zeeman [1977], Poston and Stewart [1976], Woodcock and Poston [1974], Chillingworth [1976b], Thompson [1982] that Thom's celebrated work on C.t. has come to stay. Numerous expository articles/papers on C.t. add to the expanding interest in it *vide* Stewart [1975], Walgate [1975], Zeeman [1971], [1976] Chilver [1975], Panati [1976], Dale [1976].

Reviews of Thom's book have helped a good deal in veering many readers to C.t. *vide*, Guekenheimer [1973], Rosen [1977], Kilmister [1973]. A bit popular but certainly enlightening and informative articles in journals such as *Times Literary Supplement*, *Times Educational Supplement*, etc. *vide* Zeeman, (1971) (1976), reports of interviews, dialogues with Réné Thom (1974) (1975a) and/or Christopher Zeeman *vide* Sinha [1981] keep on attracting a wide variety of readers. Applied mathematicians and theoretical scientists keep on gleaning through the brilliant works of Thom and Zeeman that have an applicable flavour. Applications of C.t. are galore *vide*, Sewell [1975], [1976], Dodson and

Dodson [1977], Zeeman [1977], [1979], [1982], Thompson [1982], Sinha [1981]. Chillingworth [1975], [1976a], [1976b] and Deakin [1977] [1978], [1980a] [1980b], [1984] [1984] have excelled themselves in their lucid exposé, besides their singular contributions to C.t. *per se*. From a purely mathematical point of view, one ought to refer to the Springer Verlag monographs, lecture notes on Dynamical Systems at ICTP, Trieste in 1983, Arnold's [1984] small but beautiful book that has come out recently. The bibliography containg works of T. Poston and I. Stewart given in the book edited by Sinha [1981] (see the lectures notes by Sinha [1976]) is also worthwhile.

SOME ASPECTS OF APPLICABLE C.t.

'Applicable' is a word that is meant not merely for possible applications in different areas but also for the areas covered by mathematics. For obviously simple reasons, this section is set apart to consider some leading applications of C.t. in certain fields of human endeavour with special emphasis on applications to social sciences.

In all fairness, we need to begin in a historical sequence. Réné Thom in late sixties was obsessed with Waddington's ideas on developmental biology. Waddington, the distinguished biologist and author of the monumental volumes on *Towards Theoretical Biology*, talked about epigenetic landscape as a metaphor for description of the processes of development of biological organisms. Thom evinced his interests in embryology in 1963-64 which, in a way, reinforced his idea about application of his Theorem of Seven; in fact, he spelt out this in 1968 in the Serbelloni conference on Theoretical Biology. The changing form of things or, in other words, morphogenesis, is an area of concern in developmental biology, and Thom sought to model such morphogenetic processes using his C.t. In his bid to graft in C.t. he pleads for a qualitative approach rather than a quantitative approach so as to get at a comprehensive theory for explaining main aspects of hitherto unexplained experimental findings in developmental biology. This is perhaps the first of such attempts to extend the idea of 'metaphor'. In his seminal book Thom [1975b] has sought to prevail upon its readers with the explanation that organisms through vicissitudes of development pass through elementary catastrophes mentioned above. What makes Thom's theory on embryological phenomena stand out from others is that his is an assertion on the priority of qualitative understanding of phenomena over the quantitative counterparts. Thom is not alone in bringing biological studies within the ambit of C.t. Zeeman [1977] also addressed to himself some questions of embryological development. In the main, his problem was about a differentiation of essentially identical cells into, say, bone and muscle in the course of development of embryo. The cells are taken as an aggregate of identical systems controlled by the local concentration of a number of chemicals. Zeeman [1977] makes four hypotheses of homeostasis, continuity, differentiation and repeatability and sets up what is shown below so as to represent the process of differentiation:

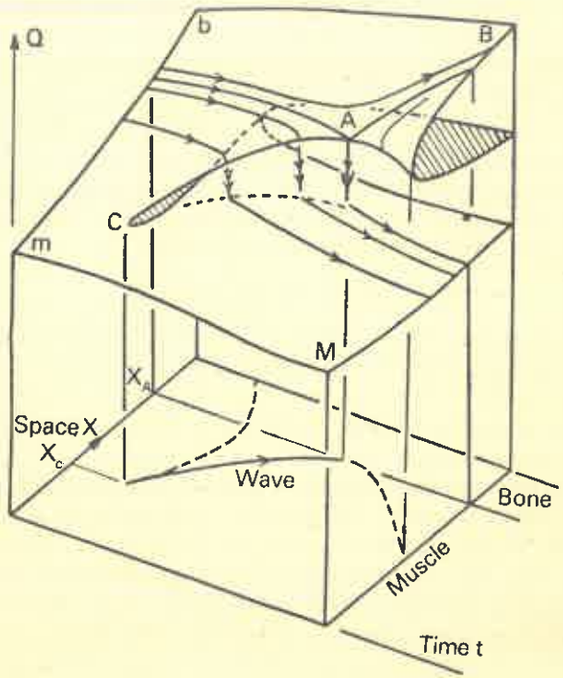


Figure 2

We take, as in Thompson [1982], a one-dimensional region of an organism with cells distributed along the axis Ox; concentrations vary with x, two control parameters such as concentration and time. The state variable Q stands for the continuously varying degree of differentiation of the cell. Q varies continuously with x from the pre-muscle cells at m on to the pre-bone cells at b, while at the end of time interval when differentiation is complete there occurs a discontinuity in Q between muscle at M and the bone at B. Zeeman draws a cusp catastrophe between two time sections. Structural stability and so, repeatability is well assured. For greater details, the reader is referred to the paper of Zeeman [1977] whose another work on heart beat and nerve impulse, using C.t. has become a legend. His recent paper on evolution of animal conflicts is of remarkable distinction. Seif's model on hypothyroidism and hyperthroidism has been wonderfully brought to focus by Zeeman [1977]. If study in biological morphogenesis becomes amenable to C.t., there can as well be attempts to explore if mechanical morphogenesis can be investigated likewise. Zeeman's well-known catastrophe machine [1977], buckling problems on structural mechanics *vide* Sewell [1976]—all afford examples of casting mechanical situations in the mould of C.t.

Like biological sciences, social sciences are replete with situations where

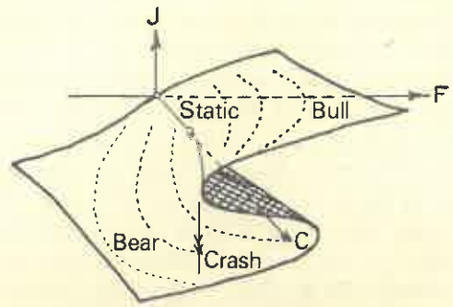


Figure 3

the enormously large number variables involved come in the way of mathematization. In many areas of social sciences, the concern is not necessarily of predictions in terms of numbers; in otherwords, qualitative understanding of phenomena is a necessity prior to the quantitative counterpart, if at all. Hence use of C.t., because of its accent on qualitative character, ought to pay dividends for modelling of problems of social sciences. Christopher Zeeman is perhaps most prolific in this direction. His two studies obviously stand out among his early efforts to make problems of social sciences amenable to C.t. The first of these is the oft-quoted one, dealing with the unstable behaviour of stock exchanges *vide* Zeeman [1977], in which rate of change of a price index is the state variable while excess demand and speculation are control variables. This is shown as an example of cusp, catastrophe (Fig. 3). This kind of modelling, even though qualitative in character, has not escaped criticism *vide* Sussman and Zahler [1977], Deakin [1980a], as it leads to what has been called

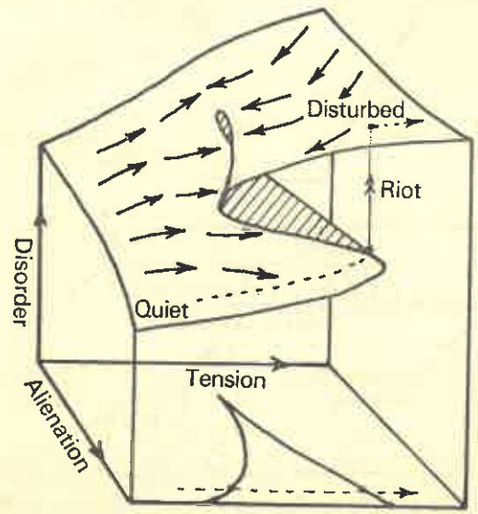
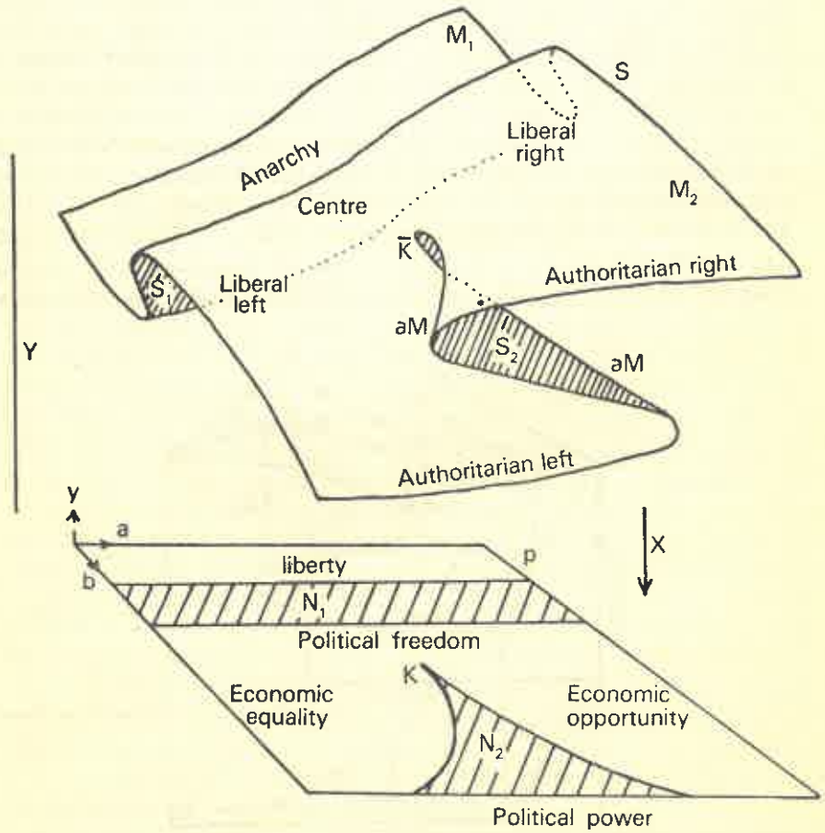


Figure 4

on 'anti-crash phenomenon' while allowing crashes (a crash is a drop in the rate of change of the index rather than a drop in the value of the index). The other work is about prison riots in which 'tension' and 'alienation' are taken as control variables, and 'state of disorder' as the state variable. This also turns out to be an example of a cusp catastrophe *vide* Zeeman [1977] (Fig. 4). Isnard and Zeeman [1977] have dwelt at length on some other models from catastrophe theory in the social sciences, e.g. case of a nation deciding its course of action in war which may be either hot or cold. This is an excellent paper where the behaviour and control variables are realistically identified and lucidly spelt out; catastrophe-theoretic analyses are interwoven with sociological hypotheses starting at a very low key, intelligible to social scientists. Interesting parts of this paper are digressions on some useful aspects, e.g. on the meaning and importance of 'qualitative' in the context of social sciences.

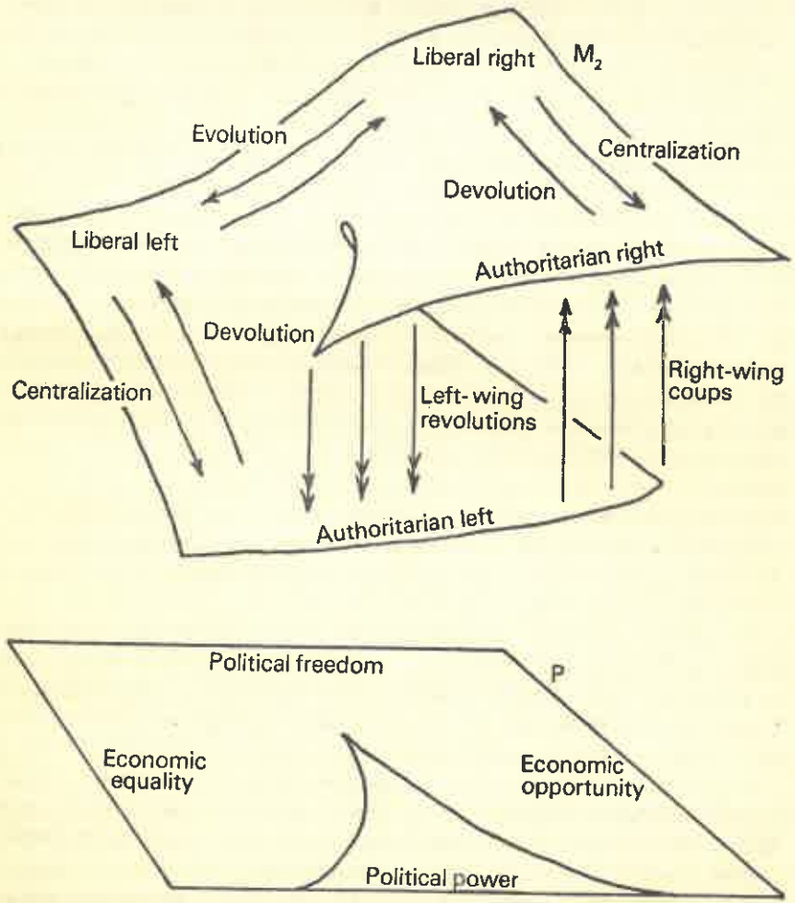
Among his recent publications, we take up first two of them. The first is about a geometrical model of ideologies *vide* Zeeman [1979]. The basic ingredi-



The surface of ideologies.

Figure 5

ents of all the ideologies are taken as liberty, equality, fraternity and opportunity. Zeeman constructs the parameter space $P(a,b)$ where (a,b) are two independent continuous parameters, a being the economic parameter measuring the relative emphasis placed as opportunity versus equality and b, parameter being the political parameter measuring relative emphasis placed on fraternity versus liberty, on political power as opposed to political freedom. Next he brings in mathematical concepts to represent the additional idea of sociological conflict between these aims; the next step is to set up the opinion space X based on the opinions of individuals of a society. That the surface S of ideologies has a cusp catastrophe is shown in Fig. 5.



Dynamics of ideologies.

Figure 6

This figure speaks for itself. Zeeman has given a wonderful interpretation of the surface of ideologies. The consideration of dynamics of ideologies, i.e. ideologies within a society and transcending several different societies or countries is another salient feature of the paper of Zeeman [1979]. It is marvellously brought out in the Fig. 6. He quotes *The Communist Manifesto* by Marx and Engels and also from other works of Engels to buttress his conclusive statement that 'authoritarian ideology appears to survive beyond the class structure' and so 'Marxism continues to embrace the revolution as a natural method of securing power, in contrast to the preference for evolution shown by most liberal ideologies'. Zeeman [1979] concludes, on the basis of his catastrophe-theoretic analysis, by saying that the last two figures represent nothing but sociological invariants of human society, and that changing perceptions of populations and resources may induce shifts of a emphasis favouring particular ideologies at different times, but 'there is no historical law specifying some particular evolutionary sequence of ideologies to be more likely than any other.'

Smith, Harrison, and Zeeman [1977] in early eighties sought to apply C.t. to a Bayesian decision theory which is one of the standard planning tools used in industry and government. In a recent paper, Zeeman [1982] seeks to apply these ideas to the case of social evolution. The basic assumption is that the structure of society is sometimes changed by decision makers but at other times seems to adapt to socio-economic pressures. Six exemplars are taken up; of these two are appropriate for mentioning here. The first is a model in which the concern is about evolution of roles within a society with changes in the resources and technology causing the evolution of specialist roles filling sociological niches and general purpose roles suited to a variety of activities *vide* Zeeman [1982]. Here social evolution is found to reflect simultaneously aspects of both decision and anologous biological evolution. In the second case, the evolution of society is the theme of concern. The conclusion here is that individuals cannot escape an anachronous structure necessitating the device of a global mechanism to eliminate it. Cusp catastrophe still holdsway in this kind of modelling.

Linguistics is another area of social sciences which has witnessed applications of C.t. since early seventies. Thom [1975b] could show using elementary C.t., existence of universal deep linguistic structures from which he has backed out in a later paper [1976] which talks about general aspects of C.t. capable of asserting his earlier stand. In his seminal book, Thom [1975b] has attempted to classify verbs from the premise that a verb describes a relationship between atmost four subjects or objects, and to back up these Thom has drawn a set of graphs so as to classify the types of verbs into different morphological categories. Thom assumes a correspondence between simple sentences and single thoughts, and a single view is thought of as a bifurcation in a system describing neurological activity. The structure of the grammar is modelled by the geometry of the model. It may be mentioned that both Thom [1975b] and Zeeman [1977] have suggested models relating linguistic forms to neurological models of the brain. Deakin's [1977] [1984b] rehash of Thom's work on linguistics, language *vis-à-vis* catastrophe theory ought to be read with priority by interested readers. Sinha and Das [1982], Das's [1981] papers may be cited now *vide* Sinha [1981].

Some methodological questions

The foregoing lines give an inkling of some applications mainly in the area of socio-biological sciences which, although began with the work of Réné Thom, found in Zeeman an ardent believer in C.t. as a branch of mathematics, preeminently suited for use of socio-biological sciences and hence the spurt in mathematical models in the light of catastrophe-theoretic approaches. Zeeman is of the view that C.t. offers the promise of new methodology in socio-biological sciences and a mathematical theory too. This has been questioned, often fiercely, not merely on the score of methodological principles but also on the validity of the modelling concerned. Inevitably, Thom and Zeeman have often come out with defensive rejoinders, replies, etc. Some of these polemics are worth mentioning. Whether C.t. is to be regarded as a mathematical theory, on the lines of quantum theory, relativity theory, etc. is still a matter of opinion. But there is nothing to prevent this from being given the status of group theory, lattice theory, etc. in mathematics. C.t. is, doubtless, a branch of mathematics and it is, indeed, one of the exciting areas of what is called 'singularity' theory. Debate ensues mostly when one steps out of the realm of mathematics *per se* and one seeks to extend C.t. in applications. Thom would like us to look upon C.t. as something more than mathematics; it is, according to Thom, a philosophy and, therefore, a way of looking at situations whether within or without the domain of mathematics. Thom even goes to the extent of saying that C.t. 'is not a mathematical theory but it deals with mathematics' *vide* Thom [1979]. Precisely speaking, Thom has pleaded for C.t. as an attitude of mind rather than a mathematical theory in its banal sense. That 'nature is almost always well-behaved' is a pre-requisite for understanding of C.t. 'Morphology' which is omnipresent in the sense of containing every thing in the universe is another necessary concomitant for the appreciation of C.t. and more so, when Thom [1976] expresses the methodological principle as a 'genericity assumption'. '[Nature] realises the local morphology which is the least complex possible with respect to the given local initial data.' But one should be sure of this methodology to yield results, for, according to Thom [1976]:

> In no case has mathematics any right to dictate to reality. The only thing one might say is that, due to such a theorem one has to expect that the empirical morphology will take such and such a form. If reality does not obey the theorem—that may happen—this proves that some unexpected constraints cause some lack of [genericity], which makes the situation all the more interesting.

But Thom [1975] is not that defensively aggressive when he replies to the charge of using 'mathematical metaphors' in the name of applications: 'When narrow-minded scientists object to (C.t.) that it gives no more than analogies or metaphors, they do not realise that they are stating the proper aim of (C.t.) which is to classify all possible types of analogous situations'. Indeed, Thom [1975b] [1979] seeks to project his C.t. as constituting a precise theory of analogy which he claims to be the first advance in this area since Aristotle: '(C.t.) is—quite likely—the first coherent attempt (since Aristotelian logic) to give a theory on analogy'. Among those, who have joined the fray of criticisms and counter-criticisms of C.t. from philosophical and methodological standpoints, one has to reckon, besides those of Sussman-Zahler, the contentions of Poston [1978]. His is one of striking a balance; in fact, his view of a scientific theory is somewhat in between what Thom holds and what Popper sets out as a criterion. The work of Poston [1978] along with Deakin's [1980b] commentary ought to provide more details in this direction.

Conclusive Remarks

It must be clear by now that C.t. is not yet fully out of the woods. Furore and polemics over it continue. Despite all these, there are visible efforts seeking wider and wider areas of application. There is no dearth of efforts for putting C.t. on firm foundations, so that it may become less vulnerable to criticisms of its being accepted as a theory. While it would be too early to say about a possible and acceptable dimension of C.t. as a theory *per se*, attempts are on the increase to obtain qualitative understanding of many known phenomena, whatever be the nature. That the qualitative modelling is a spin-off of C.t. is borne by the proliferating literature on it *vide* Sinha [1982]. Studies on bifurcation have given (and are going to give) a face-lift to catastrophe-theoretic studies *vide* Chillingworth [1976b], Thompson [1982]. Studies on chaos may benefit the counterparts in C.t. but not certainly in the traditional way *vide* Deakin [1977]. If cybernetic models are no more than metaphors, there is no reason why C.t. will have no impact on study of cybernetics; in fact, study on this theme has been carried out by Jumarie [1979] who is yet alone in his field. That C.t. has not yet been able to come up to expectations so far as prediction is concerned is a continuing bane of the theory. This might be dispelled if advanced catastrophes, as envisaged by Thom, come up hopefully in future. Foundational studies on C.t. and those with a philosophical tinge are yet to make substantial strides. Its standing as a scientific theory is still in suspect. Philosophers of science can make a dent, possibly at a deeper level than what it is now. The relevant extant literature is rich and challenging so as to merit research pursuits through the interaction between philosophers and mathematicians (may be, some theoretical scientists too).

References

Arnold, V.I., *Catastrophe Theory*, (1984.) Springer Verlag, New York

Berry, M.V., Waves and Thom's Therorem. (1976), Adv. Phys. *25*, 1-25.

Chilver, H., Wider Implications of Catastrophe Thoeory, *Nature* (1975), 259, no. 3, April, 381.

Chillingworth, D.R.J. Elementary Catastrophe Theory. Bull. Inst. Math. Appl. (1975), 11, 155-59.

Chillingworth, D.R.J., *Structural Stability of Mathematical Models: The Role of Catastrophe Method in Mathematical Modelling*, (Edited by J.G. Andrew and R.R. McLone), Butter Worths (1976a), 231-58.

———, *Differential Topology with a View to Applications. Research Notes in Mathematics*, (9), Pittman, 1976b, London.

Dale, D., A Theory That May Predict West Gate and Other Disasters, *National Times*, 1976, pp. 26-31J.

Deakin, M.A.B., Catastrophe Theory and Its Applications. Mathl. Scientist (1977), 2, 93-94.

———, An Elementary Approach to Catastrophe Theory. Bull Math. Biol (1978), *40*, 429-50.

———, Applied Catastrophe Theory with Social and Biological Sciences. Bull. Math. Biol (1980a), 42, 647-77.

———, The Impact of Catastrophe Theory on the Philosophy of Science, Nature and System (1980b), 2, 173-88.

———, Elementary Catastrophe Theory: Introduction and Overview. Lecture Notes, Jadavpur University Calcutta, 1984a (in press).

———, Catastrophe Theory and Language in 'Proc. of the Seminar on *Workshop* on *Mathematical Linguistics*, Mathematical Language and Interaction with Mathematical Education'. (1984b), Jadavpur University, Calcutta.

Dodson, J. and Dodson, M.M., Bull. Inst. Math. Appl. (1977) 13, 77-85.

Guckenheimer, J. Review of Thom's Book'. Bull. Amer. Math. Soc. (1973), 79, 878-90.

Hilton p. (ed.), *Symposium on Catastrophe Theory*, Seattle, (1975); Springer Lecture Notes in Mathematics, 525, Berlin, (1976).

———, Structural Stability, the Theory of Catastrophe and Application in Sciences. Lecture Notes in Mathematics (1976), vol. 525, Berlin, Springer Verlag.

Hughes, A., The Math. Gaz. (1977), *61*, 15-20.

Jumaire, G., Relativity, Information Theory, Catastrophes and Subjectivity: A Unified Approach to General Systems I. Cybernetica (1979), vol. 4, 267-08.

Kolata, G.B., Catastrophe Theory: The Emperor Has No Clothes. Science (1977), 196, 289, 360-61.

Koiter, W.T., On the Stability of Elastic Equilbrium NASA, Tech. Trasl. FIO, 833 (1967).

Kilmister, C.W., The Concept of Catastrophe. Times High Edl. S (1973), 973-15.

Lewis, M., Catastrophe Theory. Science (1977), vol. 196, 1271.

Lu, Y.C., *Singularity Theory and an Introduction to Catastrophe Theory*, (1976). Springer Verlag, Berlin.

Manning, A. (ed.), Dynamical Systems. Lecture Notes in Mathematics, (1975), 468, Springer Verlag, Berlin.

Panati, C., Catastrophe Theory. Newsweek (1976), 19 Jan.

Patterson, E.M., Review of Thom's Book. Bull. Inst. Math. Appl. (1977), 13, 173-74.

Popper, K., The Logic of Scientific Discovery (English translation edn.), Basic Books, New York, 1959.

Poston, T. and Stwart, I.N., Taylor Expansions and Catastrophes. Research Notes in Mathematics (1976), 7, Pittman.

———, *Catastrophe Theory and Its Applications* (1978) Pittman.

Poston, T., The Elements of Catastrophe Theory of the Honing of Ocean's Razor in *Transformation: Mathematical Approaches to Cultural Change* (1978) (ed. K. Cooke and C. Renfrew), Academic Press, New York.

Poincare, H., *Leo Methodes Nouvelles de la recamque Celeste*, vols 1-3, Ganthier Villa, Paris, 1892-99.

———, Sur l' equilibria d' ume masse fluide animee d'un movement de rotation. Acta Math. (1885), 1, 259.

Rosen, R., Review of Thom's Book. Bull Math. Biol. (1977), *39*, 629-32.

Stewart, I.N., The Seven Elementary Catastrophes. New Scientist, 1975, Nov. 20.

Sinha, D.K. (ed.), *Catastrophe Theory and Applications* John. Wiley & Sons, 1981.

———, Lecture Notes on Catastrophe Theory, 1980 Indian Institute of Technology, Kanpur.

———, 'Catastrophe—Theoretic Modelling in *Philosophy and Language of Mathematical Modelling* (ed.) P.K. Sen, J. Chakraborty and D.K. Sinha, Jadavpur University, Calcutta, 1982.

Sewell, M.J., Kitchen Catastrophe. Mathl. Gaz. (1975), 59, 246-49.

———, Some Mechanical Examples of Catastrophe Theory, Bull. Inst. Math. Appl. (1976), *12*, 163-72, Synthese, 1975.

Sussman, H.J., Catastrophe Theory, *31*, pp. 229-70.

———, 'Catastrophe Theory—A Preliminary Critical Study' in *PSA* 1976: *Proc.* 1976 *Biennial Meeting of the Philosophy of Science Association*, ed. F. Suppes and P. Asquith), East Lansung; Phil. Sci. Am.

———, Catastrophe Theory: A Skeptic Letter to the Editor. Science (1977), 197, 820-21.

———, Review of Catastrophe Theory: Selected Papers 1972-77 (by E.C. Zeeman), SIAM Review (1979), *21* 168-276.

———, and Zahler, R.S., Catastrophe Theory: Mathematics Misused. The Sciences (1977), *17* (G), 20-23.

———, A Critique of Applied Catastrophe Theory in the Social Sciences. Behav. Scs. (1978), 23, 383-89.

Thompson, d'Arcy, *On Growth and Form*, Cambridge University Press, (2nd edn., Cambridge, 1982a.

Thompson, J.M.T., *Instabilities and Catastrophes in Science and Engineering*, John Wiley & Sons, 1982.

Thom, R., Interview in *Times Higher Education Supplement* (1975a), 5 December.

———, *Structural Stability and Morphogenesis*. (English Trans. D.H. Fowler of the French original *Stabilite Structurelle et Morphogenese*), W.A. Benjamin, Inc. (1975b).

———, 'Structuralism and Biology', in *Towards a Theoretical Biology* (Vol. 4): *Essays*, ed. C.H. Waddington, Edinburgh University Press, (1972).

———, Structural Stability, Catastrophe Theory and Applied Mathematics (The John Von Neumann Lecture, 1976). SIAM Rev. (1979), *19*, 189-220.

———, 'Answer to Christopher Zeeman's Reply' in *Dynamical Systems*, Warwick, 1975. Lecture Notes in Mathematics (Ed. A. Manning), vol. 468, Berlin, Springer.

———, Applications of Catastrophe Theory—(compiled from notes taken by A.W.C. Lun and edited by M.A.B. Deakin in 1976), Mathematics Dept, Monash University, Australia.

———, A Mathematical Scheme for Morphogenesis, Structural Stability and Catastrophe in Mathematical Models in Biology and Medicine edited by NIJ Bailey and B.L. Sedov., Academic Press, North Holland, Elsevier, 1975, 93-101.

Walgate, R., Rane Thom Clears Up Catastrophe. New Scientist, vol. 68, 4 December 1975; no. 9781 (1975).

Wood Cock, A.E.R. and Poston, T., A Geometrical Study of the Elementary Catastrophes, Springer Lecture Notes in Mathematics, (1974), 373, Berlin.

———, and M. Davis, *Catastrophe Theory*, Dutton, 1978.

Zeeman, E.C., *Catastrophe Theory: Selected Papers*, Addison Wesley Publishing Co., Reading, (1977).

———, Catastrophe Theory, Scientific American, (1976).

———, The Geometry of Catastrophe, *Times Literary* Supplement 10 December 1971, pp. 1556-57.

———, *A Geometrical Model of Ideologies in Transformations: Mathematical Approaches to Cultural Change* edited by C. Renfrew and K.L. Cooke), Academic Press, New York, 1979, pp. 463-79.

———, Birfurcation, Catastrophe and Turbulence in *New Directions in Applied Mathematics* edited by P.J. Hilton and G.S. Young, Springer Verlag, 1981, pp. 109-53.

———, Decision Making and Evolution in Theory Explanation in Archaeology: The Southampton Conference edited by C. Renfrew, Rowlands M.J. and Segrary-Whallon B.D., Academic Press, 1982.

———, R. Bellaris, I. Stewart, M. Berry, J. Guckenheimer, A.E.R. Woodcock (separables), 'In Support of Catastrophe Theory' (Letters to the Editor) in *Nature* (1977), 270, 381-84.

Zahler, R.S., 'Catastrophe Therory Reply' (Letter to the Editor), *Nature* 1978, 271, 01.

———, and H.J. Sussman, Claims and Accomplishments of Applied Catastrophe Theory, *Nature*, 1977, 269, 759-763.

Notes and discussions

SOME REFLECTIONS REGARDING SARTRE'S VIEW ON CONSCIOUSNESS

The more we penetrate into Sartre's 'existential theory of consciousness', the more we become aware of the depth of his ideas, the richness of its varied implications. But such a deep perusal in Sartre's thought also makes us conscious about certain 'ambiguities'—which may appear to the critics as some 'incongruities'—that need to be clarified in order to reveal the complete significance of the Sartrean view. The present discussion does not attempt at a full-length analysis of Sartre's view on consciousness.[1] It only seeks to explore some tacit notions of Sartre's theory of consciousness, so that their proper meaning may be better understood.

Sartre's ideas, it is well known, are often influenced by both Cartesianism and Husserl's phenomenology. Yet the proper range of such influence is not beyond controversy.

We all know that Sartre accepts the notion of intentionality from Husserl and developed some further implications of this notion. In order to comprehend the full significance of the notion of intentionality—it is necessary to trace the development of the concept from Brentano to Sartre.

Being interested in descriptive psychology, Brentano was very much interested in distinguishing the realm of the psychological or mental from the realm of the physical events. All mental phenomena, according to Brentano, are characterized, firstly, by the 'intentional inexistence' of an object; secondly, they are perceived in inner awareness and thirdly, they possess a special unity which is not to be found in the physical events. Thus, intentionality, reflexivity and unity distinguish all psychical phenomena from all non-mental phenomena.

Unlike Brentano, Husserl was not interested in demarcating the realm of psychology from the realm of physics. Yet he became fascinated by the notion of intentionality and sought to develop its various aspects. By consciousness Husserl refers to the acts of consciousness, which are intentional and not to passive reception of sensory data. Every conscious act, contains—of course not in the same way—something as object in itself; a *Cogito* bears within itself its *Cogitatum*. Such intentiveness, to Sartre, is not merely a characteristic of consciousness; it is its very being. Consciousness without intentionality, without directedness, is not fruitful and active. Both in his '*The Transcendence of the Ego*' and in the essay on 'Intentionality', Sartre points out the various significations of the concept. To Sartre, Husserl appears as a revolutionary, almost as a saviour, who has freed us from the 'ailmentary' or 'digestive' philosophy of the French academic tradition, which tried to assimi-

late experience into consciousness. 'Against the digestive philosophy of the empirico-criticism, of neo-Kantianism, against all "psychologism", Husserl persistently affirmed that one cannot dissolve things in consciousness.'[2]

It is Husserl who further suggested that objects are what they are, over against consciousness, in their concrete individuality. Through this notion of intentionality, Sartre feels assured that consciousness and world are given at one stroke; essentially external to consciousness, the world is nevertheless essentially relative to consciousness. Intentionality thus explains the directedness of consciousness towards objects, of course without blurring their distinctness. Hence, Sartre realizes that intentionality shows us how 'I am beyond it; it is beyond me'.[3]

Sartre suggests that with this notion of intentionality one can thoroughly dispose of the 'effiminate philosophy of immanence where everything happens by compromise, by protoplasmic transformations, by a tepid cellular chemistry'.[4] This principle has helped Sartre to suggest that such 'transcendence is the constitutive character of consciousness'. Such transcendence, Sartre recognizes, have some further implications which may not have been explored by the phenomenologist. This notion of intentionality, by itself, is quite sufficient to explain the unity and the individuality of our experience, and Sartre does not support, like Husserl, the requirment of any transcendental ego for that. In his *The Transcendence of the Ego* Sartre suggests that by intentionality consciousness transcends itself. While grasping the objects which are transcendent, consciousness unifies itself and as such there is no further need of presupposing any transcendental ego.

Although Sartre's denial of the transcendental ego has been described as a 'family quarrel within phenomenology', it is really his first turning point towards existential, non-egological conception of consciousness. While criticizing the phenomenological *Ego Cogito*, Sartre in his *The Transcendence of the Ego* suggests that it is superfluous, 'has no *raison d'etre*'. He further insists that such an ego or I is definitely a hindrance to the proper nature of consciousness. 'If it existed, it would tear consciousness from itself; it would divide consciousness, it would slide into every consciousness like an opaque blade.'[5]

It clearly shows that the nature of the Sartrean consciousness is such that it does not require any ego in it. Consciousness is spontaneous and non-egological; it is clear and lucid.

It may not be out of place here to note that Sartre has described consciousness sometimes as transparent and sometimes as translucent. Ordinarily, we make a distinction between that which is transparent and that which is translucent. Hence it may appear incongruous as to how consciousness can be both transparent and translucent.

As an example of Sartre's description of consciousness as transparent we may mention that, in his *The Transcendence of the Ego*, we find him saying: 'The Transcendental Field, purified of all egological structure, recovers its primary transparency.'[6] In some other place he remarks that 'consciousness is wholly transparent, with nothing opaque in it.'[7]

On the other hand, consciousness to Sartre is also translucent. 'Consciousness is all lightness, all translucence.'[8] Further, in his *Being and Nothingness*, Sartre says 'to introduce into the unity of a pre-reflective *Cogito* a qualified element external to this *Cogito* would be to shatter its unity, to destroy its translucency'.[9]

It appears that by describing consciousness as translucent and transparent, Sartre possibly intends to express different things at different cases:

(*a*) His description of consciousness as 'all lightness, all translucence' may imply that consciousness is self-luminous spontaneity. By translucency we are to recognize that consciousness reveals and does not hide reality.

(b) Since there is no 'law' or 'nature' of consciousness, it would not colour or condition its object. It also suggests that consciousness is something non-substantial, otherwise its self-identity would have prevented the the perfect clarity needed by consciousness to be the pure revelation of a being.

(*c*) By 'transparency' of consciousness we may understand its contentless nature; though it is directed towards objects, consciousness by itself is devoid of all contents. Being totally distinct from Being-in-itself, consciousness is For-itself; it is, to Sartre, nothingness. It is mere existence, having no essence.

(*d*) Consciousness is transparent, for though it is immaterial, it is real, though it is obscure, it is undeniable.

(*e*) One can distinguish between the acts of seeing, desiring, loving, etc. from the reflective states that one is seeing, desiring or loving. These pre-reflective states are not unconscious; they are, to Sartre, transparent. Prof. J.N. Mohanty writes, in this context: '...it is this pre-reflective transparency which is designated here as "reflexivity", it is both different from and yet the condition of the possibility of reflective consciousness.'[10]

The consciousness of a conscious act is transparent in the sense that it includes self-consciousness as a constituting part.

(*f*) Sartre uses the metaphors of transparency and translucency often to explain various questions related with human reality. In contrast to the visual metaphor of opacity, he describes pure consciousness to be transparent and consciousness 'regarded as situated in a world and as structured by a human body' to be translucent.[11]

In his *Being and Nothingness*, Sartre discusses the consciousness of pain with the help of this metaphor of translucency. While answering the question regarding the very existence or being of pain, Sartre feels that pain is 'simply the translucent matter of consciousness, its being-there, its attachment to the world. ...it is a non-thetic project of the For-itself; we apprehend it only through the world'.[12]

It appears from the above that to Sartre pure consciousness is transparent (for which it can be intentional). But, at the same time, it is equally true that 'to be conscious is always to be conscious of the world and the world and body, are always present to my consciousness although in different ways'.[13]

This consciousness, as structured by the body and in its involvement with the world, loses its transparency and becomes translucent gradually.

It appears that Sartre's use of the metaphors of transparency and translucency has much significance in his philosophy; and had he described consciousness only as transparent or only as translucent that would have affected his major philosophical views to a large extent.

(*a*) If Sartre described consciousness always as translucent and never as transparent, that would have been inconsistent with the views of his earlier period where he described consciousness, in itself as pure inwardness. In some of his early writings, e.g. in his *The Transcendence of the Ego* and in *Being and Nothingness*, we find consciousness as non-egological spontaneity. Such consciousness, even though intentional, is unhampered by any objectivity. Though such consciousness is referential—'of' or 'about' some object—yet consciousness is not one with the object. Consciousness, in itself, is transparent and as such has been described as 'lack', as Nothingness.

(*b*) If, on the other hand, we take Sartrean consciousness always as transparent (and never to be translucent) then such conception would not have been in conformity with some of his later views. It is true that Sartrean For-itself may remind us often about the Cartesian pure subjectivity which is totally distinct from objectivity; yet Sartre was un-Cartesian in the sense that he was not in favour of such total seclusion of subjectivity from objectivity. Rather, he wants to conjoin the realm of consciousness with the realm of objects, and that is why Sartre wholeheartedly supported Husserl's notion of intentionality. As a culmination of this project of connecting the realms of subjectivity and objectivity, Sartre gradually develops the notion of involved consciousness, which gradually becomes translucent in its contact with the ego, the body and the world. Hence, in his *Being and Nothingness*, Sartre says: 'We know that there is not a For-itself on the one hand and a world on the other as two closed entities for which we must subsequently seek some explanation as to how they communicate. The For-itself is a relation to the world.'[14]

We may conclude by saying then that, from the perspective of the being of consciousness, consciousness is not an object, not an ego, or a phenomenon; it is pure nothingness, pure transparency, a lack. But, from the point of view of the object known, consciousness is identified with its 'object'; since it has no nature of its own, consciousness activates itself as the awareness of a particular aspect of reality and as such becomes translucent.

NOTES

1. A detailed account of the Sartrean consciousness has already been given in my acticle entitled 'Sartre and Cartesian Cogito' in *Jadavpur Studies in Philosophy*, vol. 3, Macmillan India, 1981.
2. J.P. Sartre, 'Intentionality: A Fundamental Idea of Husserl's Phenomenology' (trans. J.P. Fell) in *Journal of the British Society for Phenomenology*, vol. 1, no. 2, May 1970, p. 4.
3. *Ibid.*, p. 4.
4. *Ibid.*, p. 5.
5. J.P. Sartre, *The Transcendence of the Ego*, (trans. by F. Williams and R. Kerk Patrick), Noonday Press, New York, 1957, p. 40.
6. *Ibid.*, p. 93.
7. Quoted by J.N. Mohanty in *The Concept of Intentionality*, Warren H. Green, Inc., St. Louis, Missouri, U.S.A., 1972, p. 135.
8. Op. cit., p. 42.
9. J.P. Sartre, *Being and Nothingness: An Essay on Phenomenological Ontology* (trans. H.E. Barnes), Methuen & Co. Ltd., London, 1957, p. 77.
10. Op. cit., p. 164.
11. G.A. Schrader (ed.), *Existential Philosophers: Kierkegaard to Merleau-Ponty*, McGraw-Hill, U.S.A., 1967, p. 268.
12. *Being and Nothingness*, p. 333.
13. *Ibid.*, p. 334.
14. *Ibid.*, p. 306.

Jadavpur University, Calcutta KRISHNA ROY

ARNOLD TOYNBEE: A GREAT HISTORIAN WITH A VISION OF THE FUTURE

Arnold Toynbee was a great historian, a life-long student of human affairs of all civilizations that have existed, a large and a comprehensive inquirer into the past of human life as a whole and an interpreter of the same. And he did this with courage faithfully following his sincere thought and feeling. His writing is so fresh and original. But his study of the past impelled him to peep into the future too, and he ventured to prophesy a good deal.

His magnum opus is *A Study of History* rather modestly named, running into 12 volumes, a grand narration of world history, which brings to the reader the entire human life of the past, in all its variegated strands, which he begins to enjoy with deep sympathy. It brings a wonderful sense of wideness and large identification.

But there are other writings too, where the author, as it were, gives the conclusions, the lessons he has learned from his long pursuit of world history.

These writings reveal Toynbee's more mature personality in a greater detail.

Toynbee sees beyond exclusive nationalisms 'a unified world' and insists on a holistic view in history. He says history must be an account of the human affairs of the past as a whole, political, economic, social, literary, artistic, etc. Human life must be taken as a whole and the human society is also to be taken as a whole; and the various individual trends are to be seen in this larger context.

But may not this holistic emphasis be pressed further? Is not the 'past', to which history limits itself, a part of the infinite time-process and continuous with the present and the future? And if the world is evolutionary, then how can we understand and interpret the past without having to inquire and know what it is tending to become by its inherent evolutionary movement and goal? The present bears the stamp of the past, no doubt; but it is prospective, moving ahead and looking to the future. And the clearer we see the future, the better we act in the present and more usefully we avail ourselves of the past.

Would not this view of history be holistic in a fuller sense?

Further, 'time' needs 'eternity' as its complement. Eternity alone commands 'time' effectively. Time is an infinite succession, eternity renders it all into a simultaneity, an 'Eternal Now'. Seeing the two together in due mutual relationship would give the true basic whole and the full context to past and to history. Without that how can the true valuation be found? This may be difficult, may be impossible, but the truth of the position can be appreciated.

Spiritual experience can certainly facilitate the understanding of this position to some extent. Our ordinary consciousness is much externalist, turned to the external apparent reality, and is antecedent-and-past-minded. But when we get into a deep inmost stand of consciousness and feel a relative self-existence, more or less independent of the external situation, the future dominates our consciousness and the present and the past become subordinate factors.

Now this fact of spiritual experience, if duly inquired into and appreciated, can give a new orientation to history and its handling of the past.

These reflections had somehow been evoked as further possibilities of the spirit of holism which Toynbee so strongly represents and embodies.

Something about Toynbee himself and his daring anticipation of the new successor species to *Homo sapiens* are recorded in *Arnold Toynbee: A Selection from His Works* which has been edited by E.W.F. Tomlin and published by Oxford University Press. In the words of Toynbee:

> If mankind did evolve from some pre-human species at a date that is recent in terms of longer time-scales than mankind's own, it is conceivable that eventually some past-human species might evolve out of mankind.
>
> * * *
>
> If biologists were to achieve this power (the power of mutation in the genes through some manipulation) that would mark a new departure in the operation of the process of evolution. For the first time, an existing species of living creatures would have created a new species out of itself on its own initiative, by a conscious and purposeful act of planning.
>
> * * *
>
> This power to direct our own evolution would have greater effects on mankind's future than any power that we have acquired so far.

Toynbee's observation regarding the possibility a new species, which constitutes the 'Epilogue' of *Arnold Toynbee: A Selection from His Works*, is of special importance. Tomlin sums it up as 'his [Toynbee's] ultimate belief on the nature of man'. To quote Toynbee:

> Man is a spiritual being besides being a psychosomatic organism and part of the material universe. But it's ludicrous to suppose that he's the highest form of spiritual life in existence or conceivable. He is so imperfect and is such a tragic mixture of the lofty and the obscene that it is absurd to think of him as being the highest thing in creation.

Indeed, it is necessary and useful to look ahead and foresee the possibility of a new species in the future. Equally necessary and useful is to be conscious of our present imperfect nature. All this can be helpful in giving a direction to our present human endeavour.

But will this not stimulate in us the curiosity to know what is likely to be the quality and the character of the future development? Do our present imperfections indicate what we as conscious beings are consciously and unconsciously seeking? What fulfilments or completeness is our nature pressing for? Will this knowledge not give greater purposiveness to human life and action and the future course of history?

The challenge of these questions was exactly the quest of Sri Aurobindo and the answers he found constitute his constribution to life. Man is a spiritual being besides being a psychosomatic organism. True, but dynamically, at the present, he is the latter. As such, he consciously lives and acts. A spiritual being he is but secretly, unknown, unfelt inoperative. Now, spirit is wholeness, unity, peace and harmony. Sri Aurobindo says that is what man has to become. In his own words:

> That which thou hast to transcend is the self that thou appearest to be, and that is man as thou knowest him, the apparent Purusha. And what is this man? He is a mental being enslaved to life and matter; and where he is not enslaved to life and matter, he is the slave of his mind. But this is a great and heavy servitude; for to be the slave of mind is to be the slave of the false, the limited and the apparent.
>
> The self that thou hast to become is that self that thou art within behind

the veil of mind and life and matter. It is to be the spiritual, the divine, the superman, the real Purusha. For that which is above the mental being is the superman. It is to be the master of thy mind, thy life and thy body; it is to be a king over Nature of whom thou art the tool, lifted above her who now has thee under her feet. It is to be free and not a slave, to be one and not divided, to be immortal and not obscured by death, to be full of light and not darkened, to be full of bliss and not the sport of grief and suffering, to be uplifted into power and not cast down into weakness. It is to live in the Infinite and possess the finite. It is to live in God and be one with him in his being. To become thyself is to be this and all that flows from it.

Do these words not complete the sense of Toynbee's profoundest observations regarding human nature and its future possibilities? And does that not give a clear purposiveness and direction to the future course of history?

Sri Aurobindo Ashram, Pondicherry INDRA SEN

Book reviews

HSUEH-LI CHENG: *Nāgārjuna's Twelve Gate Treatise*, translated with introductory essays, comments and notes. Dordrecht: D. Reidel Publishing Company, 1982, pp. xv+142+indexes, Cloth, Dfl. 85.00.

The book under review is a welcome addition to works on Mādhyamika Buddhism that are principally based on Chinese sources. Till date we have had two important books in this area, viz. K. Venkata Ramanan's *Nāgārjuna's Philosophy* and Richard Robinson's *Early Mādhyamika in India and China*. Venkata Ramanan's book made extensive use of Nāgārjuna's *Mahāprajñāpāramitāśāstra* (*MPS*), a commentary on *Śatasāhasrikāprajñāpāramitā*. *MPS* survives only in a Chinese translation, and it was ignored in the earlier works on Mādhyamika philosophy like T.R.V. Murti's *The Central Philosophy of Buddhism* or Th. Stcherbatsky's *The Conception of Buddhist Nirvāṇa*. Venkata Ramanan showed that such accounts of Mādhyamika philosophy, being primarily based on works like Nāgārjuna's *Mūlamādhyamikakārikā* (*MK*) and *Vigrahavyāvartanī* (*VV*), emphasized only the critical spirit of Mādhyamika philosophy, and overlooked its constructive aspect, which one comes across in *MPS*. *MPS* thus complements *MK* and *VV* in many ways. Thanks to the laudable efforts of Dr Cheng, readers unfamiliar with Chinese may now have access to *Dvādaśa-dvāra-śāstra* (*DDS*), which survives only in a Chinese translation known as *Shih-erh-men-lun*, and is ascribed by Chinese tradition to Nāgārjuna. Like *MPS*, *DDS* is also closely related to *MK*, and supplements it in a significant way.

The 'Introductory Essays' contain an instructive editorial introduction by Professor B.K. Matilal, and a long Preface (in these chapters) by Dr Cheng. The first chapter in this Preface deals with the life and works of Nāgārjuna and the spread of his teachings in China. Due to the paucity of reliable material, it is difficult to arrive at an accurate biography of Nāgārjuna, and while a large number of works are ascribed to him, the correctness of many such ascriptions can never be established beyond doubt. Dr Cheng adopts here a rather non-commital stance:

> ...if we accept the *Mūlamadhyamakakārikā* as authentic, we can accept the authenticity of *Dvādaśa-dvāra-śāstra* (the *Twelve Gate Treatise*), *Vigrahavyāvartanī* and *Yukti-ṣaṣṭikā*, for the contents of these are similar and exhibit the essentials of Nāgārjuna's philosophy (p. 5).

One wonders why Dr Cheng has not mentioned in this connection important works like *Ratnāvalī*, *Vaidalya-prakaraṇa*, *Suhṛllekha* and *Catuḥstava*. Some

comments about their contents and authenticity/spuriousness would have been most welcome. It is not known whether Dr Cheng was constrained by limitations of space.

After a brief account of Nāgārjuna's life and works, the first chapter proceeds to describe the development of the Mādhyamika school through powerful exponents like Āryadeva, Bhāvaviveka and Candrakīrti. The principal difference between the two schools of Mādhyamika Buddhism, viz. Prāsaṅgika and Svātantrika has been indicated in this connection. Then follows an instructive account of the spread of Mādhyamika philosophy in China through Kumārajīva, who started the San-lun Tsung (Three Treatise School), which was further developed by Chinese masters like Seng-chao and Chi-tsang. The San-lun School derived its name from the emphasis it put on Nāgārjuna's *MK* and *DDS* as also on Aryadeva's *Catuḥśataka* (*CS*). The rest of the first chapter traces the development of various philosophical and religious movements like the T'ien-t'ai School founded by Hui-wen, the Hua-yen School founded by Fa-tsang, Pure Land Budddism and the nihilist Cheng-shih School based upon *Satyasiddhiśāstra*. All these schools seized upon some aspect or other of Nāgārjuna's teaching. Among these latter schools, Hua-yen Buddhism also laid a lot of emphasis on *DDS*. The second chapter, enitled "San-lun Approaches to Emptiness", deals with the multiple usages and multiple meanings associated with the Chinese word *k'ung* (empty or emptiness) as employed in San-lun literature; and it shows how the teachings of Nāgārjuna and his followers were understood and expounded by Seng-chaos and Chi-tsang. The discussion of concepts like *yu* (Being) and *wu* (Non-Being) and their rejection in the San-lun School through the application of the dialectical method in this chapter is instructive.

The third chapter, entitled "The Nature and Value of the Text" concentrates on the distinctive features of *DDS*. In the very first paragraph of this chapter, Dr Cheng states that recently, doubts have been expressed about the genuineness of *DDS* and even *CS*, and then he tries to obviate such doubts by arguing that if the *Prasannapadā* of Candrakīrti is genuine, then so is *MK*, and if *MK* is genuine, one can also accept the genuineness of *DDS*, because *MK* and *DDS* bear a close resemblance to each other in respect of philosophical reasoning, religious assertion and literary style.

Dr Cheng now proceeds to determine the relative chronology of *MK* and *DDS*. *MK* is evidently the earlier work, since it has been referred to twice in *DDS*.

DDS is, however, much shorter than *MK*. *MK* has 27 chapters, and contains more than 440 verses. On the other hand, *DDS*, which has 12 chapters, contains only 26 verses. These two works have some verses that are indentical, or at least very similar. Under such circumstances, the need for writing or studying *DDS* may be called into question. According to Dr Cheng, there are at least four good reasons for this, and they are as follows:

(i) Since *DDS* is a brief and concise work, it is more suitable for ordinary laymen,
(*ii*) *MK* primarily aims at criticizing Hīnāyana doctrines, but this is not the case with *DDS*,
(iii) *DDS* discusses some religious and philosophical issues that are not raised in *MK*,
(*iv*) *DDS* supplements *MK* in the discussion of some important problems.

As examples of (*iii*) and (*iv*), we can choose two examples. *DDS* explicitly rejects God as the creator of the universe and the saviour of mankind, but such antitheistic arguments are not found in *MK*. Likewise, *MK* does not indicate Nāgārjuna's inclination towards Mahāyāna Buddhism, and there is no mention of *Prajñāpāramitā* texts in it (which has led Warder to cast doubt on the common belief that Nāgārjuna subscribes to Mahāyāna)—whereas the very opening paragraph of *DDS* seeks to establish the superiority of Mahāyāna, and bases this claim on *Prajñā-sūtra*.

Next follows the English translation of *DDS*, and of a table of contents as well as of a preface that were added to *DDS* by Seng-jui. The translation is lucid and idiomatic, and is accompanied by copious notes. The present reviewer is not in a position to give any opinion about the correctness of the translation.

There are some minor blemishes in this otherwise painstaking and scholarly work. A few of them are stated here with the hope that they will be removed in the next edition.

(1) While trying to prove that *DDS* is a genuine work of Nāgārjuna, Dr Cheng has argued in the following way:

> "...Recently a few have questioned the authenticity of the three treatise (i.e. *MK*, *DDS* and *CS*), and doubted if they are Nāgārjuna's and Āryadeva's work.
> Contemporary Mādhyamika scholars accept the *Prasannapadā* of Chandrakīrti as the authentic *Mūlamadhyamakakārikā* of Nāgārjuna. It seems that if the *Prasannapadā* is genuine, then the *Middle Treatise* is also authentic, because the two are almost identical." (p. 27).

The argument is bound to take the reader by surprise, because *Prasannapadā* is a commentary on *Mūlamadhyamakakārikā*, and Dr Cheng admits this on p. 6. The two different works written by two different persons could not be the same by any stretch of imagination, and consequently, the argument does not go through.

(2) On p. 35, negation has been expressed by both the symbols '~' and '—' in the same line. This may, however, be a case of misprint.

(3) In the entire book, the Sanskrit original of the *Twelve Gate Treatise* is given as *Dvādaśa-dvāra-śāstra*, but on p. iv (facing the title page), we find the expression *Dvādaśanikāyaśāstra*.

(4) There are a large number of misprints, most of them being in the Bibliography. Thus, we have queer expressions like 'distinquished' (p. 11), 'Saṁṛti' (p. 37), 'Mahiśaska' (p. 41), 'Herampanath' (p. 136) and 'Sunitkumar Patkok' (p. 139). Expressions like 'Brāhmanist' (p. 5) and 'Ābhidharmakosa school' also pose some problems.

University of Calcutta, Calcutta PRABAL KUMAR SEN

MARGARET CHATTERJEE, *The Religious Spectrum: Studies in the Indian Context*, Allied Publishers, New Delhi, 1984, 196pp (Hard cover), Rs. 125

The book under review is a collection of articles written at different times. Though there is some thematic unity the articles could be read separately or serially. All the articles are addressed to a neglect territory in religion, the territory which focuses on philosophical problems as situated in their respective social contexts. Such a focus requires competence in philosophy as well as in the social sciences. While approaching old problems from a new perspective the author feels the need for improvization of methodology. The lack of an integrating methodology is not a mere historical accident. A distance between religion and society has been fostered by religion itself, by scrupulously separating the sacred from the mundane. In order to understand the problems in their proper perspective one has to appreciate the inextricability of philosophical questions from hard data.

Most of the articles concentrate on two main issues, communication and pluralism. Communication in a very broad sense of the term is of primary concern to the author, the theme occurs repeatedly in various forms in all the articles like a *leitmotiv*. In this context she has discussed in detail the role of language in religion and has tried to assess the influences of later Wittgenstein's contributions to the study of language, especially his concept of 'form of life'. She thinks the expression 'form of life' is suggestive but also thinks that it is an essentially ambiguous phrase. In the context of language Bultmann's programme of trying to demythologize language has also been discussed. The author feels this programme does not appeal to the Indian mind since Indians live myths as a culture pattern re-enacted. Both Wittgenstein and Bultmann think that the major task is to make religious language respectable whether by the method of clarification or by re-thinking. Whereas the author thinks the emphasis should be on understanding religious language rather than on correcting religious language. She thinks it would be wrong to identify religious language with theological discourse since a large part of it is devotional and invocational. She also thinks that there is no tight fit between beliefs and expressions. Continuing the communication theme the author has discussed aspects of interreligious communication, the role of a guru as a pathfinder and the concept of seva. The concept of guru and the concept of seva are seen as uniquely Indian contributions to the religious scene. While appreciating the use of these concepts she feels that the concepts need to be modified according to contemporary needs. In a welfare society the interest to serve others without consideration of acquisition is diminishing. Therefore, we need a new concept of seva in the sense of a mutual bond between individuals. The chapter on demythologization and re-mythologization are also closely related to the communication theme.

The second pervasive theme of the book is pluralism, a phenomenon found abundantly in India. Not only does one find many religions in India but one can also find various stages of development. Problems engendered by religious pluralism are often fascinating but there are also problems that are brain teasing, problems that philosophers would rather avoid than face, and when faced, generally a simplistic solution is offered. The author boldly faces some of these problems, e.g. problems relating to religious tolerance, multiple allegiance, convergence, integration and universalization. While dealing with these problems the spectrum of alternative solutions has not been narrowed down to the familiar limits of Hinduism, Christianity and Islam. The author's spectrum of discussion spans accross northern and southern India, eastern and western India with equal emphasis, insight and sympathy. She also carries her reader from the ancient period to the contemporary arena. While the catholicity of her attitude is commendable she often moves at a superficial level touching and leaving sensitive issues almost simultaneously, whetting her audience's interest and then leaving them to fend for themselves. At times on the other hand she goes very deep into the issues and then is by no means perfunctory. Problems are not arranged and pruned to fit neatly labelled boxes. The author does not have the intent of leading the reader to some preformulated conclusion. On the contrary all attempts at simplification are questioned.

The book, however, is not a glossary of comparative concepts and explanations. The author has some definite views and gives reasons for holding them. She thinks for instance that religious communication takes place between persons and not societies. For this she prescribes a transcendental framework which is attitudinal in character. She feels the normative component of the Hindu form of life is open-ended and may be treated as a structural-functional mix. The Indian religious landscape is many-levelled and many-structured. The author also speaks of the spiritual landscape and holds that the mythical is the most colourful part of it. Myths represent an element of religion which is essential. That perhaps explains why attempts to demythologize religion in India have ended in high poetry—poetry and myth both spring from the mythopoeic.

The author thinks religion should not be used by the State, though spiri-

tual resources in man lead to ever widening unities. While writing on the problem of unification of religions the author points out the difference between unification and eclecticism. She finds it difficult to find a unity of essentials between all religions. She strongly believes that all that can be hoped for is a concordant discord. These observations are brief and cryptic and need further elaboration. But this is perhaps the author's style, she is imaginative and suggestive, but often leaves questions dangling like tantalizing baits.

Much of the social data used will be more informative for the reader with a foreign background. But there is also a host of information for the Indian scholar with a formal training in philosophy or religion. They will certainly be enlightened by information regarding Sikhism, the Sufi tradition, Visnubava Brahmacari of Maharashtra and even by aspects of Judaism. Certainly many will be surprised to know about the existence of Christian ashramas in India and the conscious efforts made by Indian Christian communities towards inculturization. All of which goes to show how far religions have travelled from *encounter* to *dialogue* in communication.

Before ending, a suggestion may be made regarding the chapter on flowers. This chapter does not fit very snugly with the others and could have gone in an appendix.

Jadavpur University, Calcutta SHEFALI MOITRA

Information for contributors

Typed contributions are to be submitted in original with one spare copy. They should be typed in double space on one side only with a two-inch left margin.

Each paper must be accompanied by an abstract (approx. 200 words) by the author.

All line-drawings and diagrams should be done in Indian ink and should be properly numbered, e.g., Fig. 1, Fig. 2, Fig. 2 (a), etc.

The length of the article should not ordinarily exceed 10,000 words and that of a discussion-note may be restricted to 1,500 words.

Regarding the publication/non-publication of any material in the journal, the decision of the editorial board will be final and binding and this applies to invited articles too.

All contributions to the journal should be sent to the following address:

The Editor
Journal of Indian Council of Philosophical Research
Guru Nanak Foundation Building, New Mehrauli Road
New Delhi 110 067, India.

An article will be considered for publication on the assumption that it has not been published or submitted for publication in any other journal. Each author will get 25 offprints free of charge. Extra copies may be had on payment as may be fixed. A contributor who wants to have extra offprints should send his/her request to the Editor within one month of receiving the official intimation that his/her contribution has been accepted for publication in the Journal. The prescribed forms for this purpose will be sent to each contributor along with the intimation of acceptance.

In case a manuscript is sent back to the author with suggestions for necessary additions/alterations/clarifications/deletion/change of style, etc., and is not returned by the author within a stipulated date with all the suggested modifications/corrections, etc. duly made the editor will have the option either not to publish the paper at all, or to publish it after due editing in the way he deems fit. In such cases no objection raised by the author, after the paper has been published, will be entertained.

Papers not found suitable for publication will not be returned unless specifically requested and if accompanied by a properly stamped self-addressed envelope. However, an appropriate letter of intimation will be sent to each contributor.

Papers published in the journal may be reprinted elsewhere only after obtaining prior permission in writing from the Editor.

All notes, references and bibliographies should strictly conform to the manual of style as illustrated below:

(a) All illustrations, line diagrams, graphs and charts should be submitted in duplicate. The amount of lettering on a drawing should be minimized as far as possible by transferring it to the legend. Each illustration must be numbered on the reverse side using Arabic numerals corresponding to those in the text.

(b) References to published works are to be made in the body of the paper and *not* in footnotes. The references, written in parentheses, should include the name of the author and the year of publication, e.g., (Thinès 1977); where necessary the page(s) referred to can be made part of the reference as follows: (Thinès 1977: 50-51). When a citation refers to two or more works written by an author in the same year, letters 'a', 'b', etc. are to be added, e.g. (Thinès 1977a, 1977b). The first reference to a work written by two or more authors should include all names, e.g., (Whyte, Wilson, Wilson 1969) in the subsequent citations to the same work 'et al.' should be added to the first name, e.g., (Whyte et al. 1969). If a citation at a particular point in the text alludes to separate works the latter should be put in a single pair of parentheses; works by the same author are to be put together separated by commas and are to be separated from others by semicolons, e.g., (Elsasser 1958, 1966; Eccles 1970; Centore 1966).

(c) All works cited in the paper are to be listed at the end of the paper in alphabetical order. Here is an example, with punctuation marks, to show the listing of references at the end of the paper. Journal titles must *not* be abbreviated.

Thinès, G. 1977.
Phenomenology and the science of behaviour. London: George Allen & Unwin.

Whyte, L. L., Wilson, D. 1969 (eds.)
Hierarchical structures. New York: American Elsevier Press.

Whyte, J., Krippner, S. (eds.) 1977
Future science. New York: Doubleday & Co.

Russell, E. W. *The fields of life*. In Whyte, Krippner (eds.) 1977.

(d) For Book Reviews, the title page should contain the title of the book under review with the sub-title, if any, and the name of the publisher along with the year of publication, number of pages, price, e.g.,

GEORGE THINES, *Phenomenology and the science of behaviour: an historical and epistemological approach*. London: George Allen & Unwin, 1977, 174 pp, £ 8.95.

The name of the reviewer with his affiliation is to appear at the end of the review article.