METAPHYSICAL PROBLEMS OF BEHAVIOURIST THEORIES OF PSYCHOLOGY

A philosophical analysis of issues raised and concepts employed by psychological behaviourism, with particular reference to B.F. Skinner's and E.C. Tolman's theories of psychology.

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by

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INTRODUCTION

This thesis was written with the general purpose in mind of conducting a philosophical investigation into the discipline of psychology. The fundamental questions confronting this discipline, namely firstly, what constitutes the subject-matter of psychology, and secondly, what are the relevant methods or techniques of the discipline, are still matters of heated debate amongst philosophers and psychologists alike.

Basically two lines of thought and approach may be distinguished in this connections : -

1. The subject-matter of psychology is the mind, sometimes indicated as 'consciousness' or even 'awareness', and its specific method is introspection. The main aim of psychology is the understanding of human beings, and prediction and control of people are considered to be only incidental aims.

2. The subject-matter of psychology is human as well as animal behaviour and its methods are the usual scientific ones of observation, experiment and measurement. Its basic aims are the prediction and control of human and animal behaviour. To this effect description rather than understanding of behaviour is emphasised.

It is with the latter notion of psychology, which is usually called "psychological behaviourism" that this thesis is concerned, and two specific neo-behaviouristic theories of psychology, namely those of Burrhus Frederic Skinner and Edward Chace Tolman have been subjected to a more precise examination of some of the concepts employed, some of the assumptions made and some of the implications involved. Although some flaws and inconsistencies in Skinner's and Tolman's theories will be pointed out in the course of writing, the thesis is not in the first place aimed at attacking these two particular theories and their internal structures, but rather, by examining the original writings of Skinner and Tolman, at providing an attack on the broader philosophical issues related to psychological behaviourism.

The aim of this thesis is to show that in general behaviouristic theories of psychology are fundamentally unsound. One line of attack concerns the analysis and use of mental concepts by behaviourists. These concepts include colloquial ones such as 'intention', 'purpose', 'thinking', as well as more technical ones as used by mentalistic psychologists, such as 'introspection', 'cognition', 'consciousness'. It will be argued that behaviouristic analyses of mental concepts in colloquial use, as attempted mainly by Skinner, as well as the creation of behaviouristic "counter-concepts"[1] of colloquial and technical mentalistic notions, as

[1] The notion of 'counter-concept' is to be understood as constituting a behaviouristically defined - i.e. in terms of input and output - expression of mental concepts in colloquial and technical usage, which are ordinarily defined in an often rather loose and vague mentalistic manner.

provided by Tolman, are unsatisfactory and often lead to absurdities.

Another line of attack, connected with the above, deals with the validity and usefulness of behaviouristic explanations of human behaviour. It is maintained that certain useful explanatory distinctions concerning human behaviour, which are made in mentalistic psychology as well as in colloquial language, cannot be made any longer by behaviourists. In this connection the concepts of 'behaviour' and 'action' are subjected to a detailed analysis.

It will also be argued that behaviouristic analyses and explanations of the specifically human phenomenon of speech, whether functional as attempted by Skinner, or historical as tried by Tolman, are unsatisfactory.

Some other philosophically interesting puzzles in relation to psychological behaviourism, such as its presupposed determinism, problems of causality and the relevance or otherwise of the concept of a 'person' to a theory of psychology have also been given some attention in this thesis.

Thus this thesis is basically intended as an examination of the concepts central to molar behaviourism in particular, and an attempt to indicate some major criticisms to which molar behaviourist theories of psychology are open.

CHAPTER I

PSYCHOLOGICAL BEHAVIOURISM VERSUS PHILOSOPHICAL BEHAVIOURISM

The school of Psychological Behaviourism was founded by John Broadus Watson, professor at Johns Hopkins University, round about 1912. It arose out of the dissatisfaction on the part of many psychologists with the older schools of psychology such as Functionalism, Structuralism and Associationism, and the desire for the establishment of a psychology along purely scientific lines. An important influence towards this new direction was the success of animal psychologists in obtaining significant results in their observational and experimental work. To elucidate some of the drive, boldness, forcefulness and enthusiasm of the new school no better way can be employed than to quote Watson himself. He states : -

> " Behaviorism is the scientific study of human behavior. Its real goal is to provide the basis for the prediction and control of human beings : ..."[1]
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> " Behaviorism thus leaves out speculation. You'll find in it no references to the intangibles - the unknown and the unknowable "psychic entities". The behaviorist has nothing to say of "consciousness". How can he? Behaviorism is a natural science. He has neither seen, smelled nor tasted consciousness nor found it taking part in any human reactions."[2]

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[1] John B. Watson, The Ways of Behaviorism, p.2.

[2] Ibid., p.3.

" Behaviorism has been an independent study in the larger universities since about 1912. It represents what must be looked upon as the real renaissance in psychology. Up to that time the so-called subjective or introspective, psychology held complete sway. Subjective psychology was defined as a study of the mind - really your own mind, since no one else could look in on it and see what was going on there. And when you did look, what did you see? Since you were trained in the system and in the vernacular of James, Angell, Ludd, and Wundt, you said you saw consciousness."[1]

" Behaviorism's challenge to introspective psychology was: "You say there is such a thing as consciousness, that consciousness goes on in you - then prove it. You say that you have sensations, perceptions, and images - then demonstrate them as other sciences demonstrate their facts."[2]

" When a human being acts - does something with arms, legs or vocal cords - there must be an invariable group of antecedents serving as a "cause" of the act. ...
Psychology is thus confronted immediately with two problems - the one of predicting the probable causal situation or stimulus giving rise to the response; the other, given the situation, of predicting the probable response."[3]

" The psychologist likewise, having chosen human behavior as his material, feels that he makes progress only as he can manipulate or control it."[4]

From the above quotations it seems clear that the driving motive behind the dissatisfaction concerning the discipline of psychology was not a fundamentally philosophical or metaphysical one, but rather a dissatisfaction with respect to the elusiveness of the "mind" seen as the subject-matter of psychology, introspection

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[1] John B. Watson, The Ways of Behaviorism, p.6.

[2] Ibid., p.7.

[3] John B. Watson, Psychology from the Standpoint of a Behaviorist, p.5.

[4] Ibid., p.7.

as its basic method, and as a consequence the lack of "objective" reliable results obtained or even regarded as obtainable. The study of consciousness by the unique method of introspection was considered to be at best a very doubtful procedure, both scientifically and with regard to practical results. The notion of behaviour - human as well as animal - as constituting the subject-matter of psychology, seemed at least at face value to be rather clear cut and a great improvement on that of the older, more mysterious, because only directly privately accessible, arena of consciousness. Furthermore, the methods of observation, experiment and, if possible, measurement, had earned their respectability in virtue of their undeniable results of great importance in fields like physics, chemistry, biology, physiology, etc.

It must, therefore, be remembered that a psychological behaviourist does not necessarily have to deny the existence of a private arena, nor of particular "inner" mental states. What he does have to hold is that the examination of such a supposed "inner" arena or "inner" states through a method unique to the discipline, namely introspection, is of no scientific value.

Tolman, in support of such a methodological view of the discipline of psychology, makes the following statements : -

" The motives which lead to the assertion of a behaviorism are simple. All that can ever actually be observed in fellow human beings and in the lower animals is behavior. Another organism's private mind, if he have any, can never be got at. And even the supposed ease and obviousness of "looking within" and observing one's own mental processes, directly and at first hand, have proved, when subjected to laboratory control, in large part chimerical; the dictates of "introspection" have been shown over and over again to be artifacts of the particular laboratory in which they were obtained."[1]

" "Sensations," in so far as they have any cash value, are, for the purposes of science, merely readinesses to discriminate in ways relatively enduring, or relatively temporary and perspectively biassed. And no psychology, not even "introspectionism" itself, ever actually succeeded in "getting" anything else "across." If there be "raw feels" correlated with such discriminanda-expectations, these "raw feels" are by very definition "private" and not capable of scientific treatment. And we may leave the question as to whether they exist, and what to do about them, if they do exist, to other disciplines than psychology - e.g., to logic, epistemology, and metaphysics. And whatever the answers of these other disciplines, we, as mere psychologists, need not be concerned."[2]

" Whatever private and mentalistic characters - whatever "raw feels" - either sensations or images possess, these by definition never get across and do not enter into our science qua science. Sensations and images are for the purposes of science but certain unique, though quite objectively defined, immanent determinants of behaviors."[3]

It is also interesting to note from these passages that Tolman seems to have recognised certain problems related to the existential status of "raw feels" and our way of "getting at" these presumed

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.2.

[2] Ibid., p.253.

[3] Ibid., p.256.

private sensations, and perhaps anticipated a particular manner of handling these puzzles as was developed by the later Wittgenstein of the Philosophical Investigations. Wittgenstein, in an analysis of certain linguistic expressions supposedly denoting "private feels", came to the conclusion that such expressions could only get a foothold in linguistic communication through publicly observable behaviouristic criteria.

Skinner, defending the methodological approach of the discipline of psychology, states : -

> " The basic issue is not the nature of the stuff of which the world is made or whether it is made of one stuff or two but rather the dimensions of the things studied by psychology and the methods relevant to them."[1]

In contrast to psychological or methodological behaviourism, philosophical behaviourism is concerned with fundamental metaphysical questions in relation to the mind-body problem. It maintains that a dualistic position with regard to the concept of a person is untenable and leads to absurdities, and that all mental expressions are analysable in terms of actual or potential behaviour, usually overt, but sometines covert.

Gilbert Ryle in The Concept of Mind attempts to argue for such a position with regard to mental expressions, and is considered to

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[1] B.F. Skinner, "Behaviorism at Fifty", in Behaviorism and Phenomenology, ed. T.W. Wann, p.79.

be the most able and important defender of philosophical behaviourism[1], although he himself denies that his behaviourist analyses of mental expressions entails methodological behaviourism. He states in this respect : -

> " But it has not been a part of the object of this book to advance the methodology of psychology or to canvass the special hypotheses of this or that science. Its object has been to show that the two-worlds story is a philosophers' myth, though not a fable, and, by showing this, to begin to repair the damage that this myth has for some time been doing inside philosophy. I have tried to establish this point, not by adducing evidence from the troubles of psychologists, but by arguing that the cardinal mental concepts have been credited by philosophers themselves with the wrong sorts of logical behaviour. If my arguments have any force, then these concepts have been misallocated in the same general way, though in opposing particular ways, by both mechanists and para-mechanists, by Hobbes and by Descartes."[2]

Ryle sets out to prove that the Cartesian notion of a person as consisting of mind (stuff) and body (stuff) leads to logical inconsistencies, by arguing that mental expressions, if analysed in the Cartesian sense, involve category mistakes and consequently result in conceptual confusion. However, if such expressions are analysed with reference to behaviour, inconsistencies and absurdities disappear. The most important arguments advanced are meant to demonstrate why certain ways of dealing with mental concepts contravene logical rules. Ryle uses reductio ad absurdum arguments to prove his point. He exemplifies what he means by a category mistake in the following manner : -

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[1] Arnold S. Kaufman, "Behaviorism", in The Encyclopedia of Philosophy, Vol.I, pp.270, 271.

[2] Gilbert Ryle, The Concept of Mind, p.310.

> " When two terms belong to the same category, it is proper to construct conjunctive propositions embodying them. Thus a purchaser may say that he bought a left-hand glove, a right-hand glove and a pair of gloves. 'She came home in a flood of tears and a sedan-chair' is a well-known joke based on the absurdity of conjoining terms of different types. It would have been equally ridiculous to construct the disjunction. 'She came home either in a flood of tears or else in a sedan-chair'."[1]

Ryle argues that the dogma of the Ghost in the Machine makes the same mistake, since it maintains that there exist both mind and body stuffs and mental and physical processes on the same logical level. He says : -

> " Doing long division is a mental process and so is making a joke. But I am saying that the phrase 'there occur mental processes' does not mean the same sort of thing as 'there occur physical processes', and, therefore, that it makes no sense to conjoin or disjoin the two."[2]

One of Ryle's famous arguments is that the postulation of at least some mental events which causally affect physical events commits us to the acceptance of an infinite series of mental events, which is obviously absurd. He argues this point in connection with the concept of acts of volition in the following way : -

> " Volitions were postulated to be that which makes actions voluntary, resolute, meritorious, and wicked. But predicates of these sorts are ascribed not only to bodily movements but also to operations which, according to the theory, are mental and not physical operations. ... Some mental processes then can, according to the theory, issue from volitions. So what of volitions themselves? Are they voluntary or involuntary acts of mind? Clearly either answer leads to

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[1] Gilbert Ryle, The Concept of Mind, p.23.

[2] Ibid., p.23.

> absurdities. If I cannot help willing to pull the trigger, it would be absurd to describe my pulling it as 'voluntary'. But if my volition to pull the trigger is voluntary, in the sense assumed by the theory, then it must issue from a prior volition and that from another ad infinitum. ...
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> In short, then, the doctrine of volitions is a causal hypothesis, adopted because it was wrongly supposed that the question, 'What makes a bodily movement voluntary?' was a causal question. This supposition is, in fact, only a special twist of the general supposition that the question, 'How are mental-conduct concepts applicable to human behaviour?' is a question about the causation of that behaviour."[1]

He goes on to argue that the postulation of acts of volition which is connected with the conventional philosophical problem of freedom of the will has resulted from the misunderstanding of terms such as 'voluntary', 'involuntary' etc.

> " The tangle of largely spurious problems, known as the problem of the Freedom of the Will, partly derives from this unconsciously stretched use of 'voluntary' and these consequential misapplications of different senses of 'could' and 'could have helped'.
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> The first task is to elucidate what is meant in their ordinary, undistorted use by 'voluntary', 'involuntary', 'responsible, 'could not have helped', and 'his fault', as these expressions are used in deciding concrete questions of guilt and innocence."[2]

One of Ryle's most well-known ways of dealing with some mental expressions is the introduction of the notion of "dispositional accounts" of such terms. He points out that many mental expressions are hypothetical. For instance, if we would claim that somebody 'knows' German, we are not referring to some inner mental state, but that the expression 'knowing German' should be interpreted hypothetically or dispositionally. We mean that if the person is in the appropriate

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[1] Gilbert Ryle, The Concept of Mind, pp.65, 66.

[2] Ibid., p.69.

situation, he would read German, translate into German or converse in that language. Ryle uses analogies of 'glass as brittle' and 'sugar as soluble' to make his point clear.

> " When we describe glass as brittle, or sugar as soluble, we are using dispositional concepts, the logical force of which is this. The brittleness of glass does not consist in the fact that it is at a given moment actually being shivered. It may be brittle without ever being shivered. To say that it is brittle is to say that if it ever is, or ever had been, struck or strained, it would fly, or have flown, into fragments. To say that sugar is soluble is to say that it would dissolve, or would have dissolved, if immersed in water."[1]

A tender point in Ryle's metaphysics is the problem of self-knowledge, which stated in linguistic terms, may be classified as the to many philosophers obvious asymmetry between first-person and third-person accounts of sensations, feelings and emotions. Since Ryle rejects the interpretation of the concepts of 'consciousness' and 'introspection' as referring to some inner private stage and some special non-sensuous private method of acquiring knowledge of what occurs on one's inner stage respectively, he is committed, as he indeed realises himself, to give a different account of self-knowledge. Ryle does this by maintaining that knowledge about ourselves is acquired in principle in the same manner as knowledge about other people.

> " A residual difference in the supplies of the requisite data makes some differences in degree between what I can know about myself and what I can know about you, but these

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[1] Gilbert Ryle, The Concept of Mind, p.43.

> differences are not all in favour of self-knowledge. In certain quite important respects it is easier for me to find out the same sorts of things about myself. In certain other important respects it is harder. But in principle, as distinct from practice, John Doe's ways of finding out about John Doe are the same as John Doe's ways of finding out about Richard Roe."[1]

In the above short exposition psychological behaviourism and philosophical behaviourism have been contrasted on the point that psychological behaviourism is fundamentally concerned with a more realistic method and procedure as relevant to the discipline of psychology, whilst philosophical behaviourism is engaged in the analysis and translation of ordinary mental terms into terms and expressions referring to (usually) overt behaviour.

The question may now be asked if there is anything which unites psychological behaviourism and philosophical behaviourism. It seems that an answer may be provided in the following way. Although the psychological behaviourist is mainly concerned with (scientific) method, in his formulation of a theory to which the scientific procedures of observation, experiment and measurement can apply, he has to deal with mental concepts and expressions, and characterise these, adapt these to or translate these into behaviouristic terminology. That at least some behaviourist psychologists were themselves aware of this facet of their theories is obvious from the following passages. Skinner remarks : -

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[1] Gilbert Ryle, The Concept of Mind, p.149.

" In approaching a field thus defined for purposes of scientific description we meet at the start the need for a set of terms. Most languages are well equipped in this respect but not to our advantage. In English, for example, we say that an organism sees or feels objects, hears sounds, tastes substances, smells odors, and likes or dislikes them; it wants, seeks, and finds; it has a purpose, tries and succeeds or fails; it learns and remembers or forgets; it is frightened, angry, happy, or depressed; asleep or awake; and so on. Most of these terms must be avoided in a scientific description of behavior, but not for the reasons usually given. It is not true that they cannot be defined. Granted that in their generally accepted usages they may not stand analysis, it is nevertheless possible to agree on what is to be meant by 'seeing an object' or 'wanting a drink' and to honor the agreement from that point forward."[1]

Tolman has the following to say in this connection : -

" And, if psychology could only be content with the lower animals, and preferably with rats, and not try to mess around with human beings, this whole question of consciousness and ideas might well have been omitted. But human beings insist upon being included in any psychological purview. And they insist that they are conscious and do have ideas - however improbable this latter may often appear. The shameful necessity, therefore, devolves upon us of having to invent some sort of an hypothesis as to these matters."[2]

" But, after all, we cannot really escape the old questions of sensation and image, of feeling and emotion. The good old psychologists in their laboratories, who introspected and filled innumerable pages of their Protokolls with accounts of these processes, were doing something and doing it ably. What, now, in our terms, was this that they were doing?"[3]

Thus it appears that both philosophical behaviourists and psychological behaviourists feel committed to give satisfactory

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[1] B.F. Skinner, The Behavior of Organisms, pp.6, 7.

[2] Edward C. Tolman, Purposive Behavior in Animals and Men, p.204.

[3] Ibid., p.234.

analyses of certain mental concepts, although for different reasons. In the case of philosophical behaviourists these analyses must confirm their metaphysical claim to the effect that the bifurcation of a person into mind and body is fallacious and absurd, and that mental expressions instead of referring to or presupposing some mysterious entity, the 'mind', refer to actual or dispositional, usually overt behaviour, since the postulation of an "inner entity" leads to logical absurdities.

In the case of psychological behaviourists the analyses of mental concepts must fit in with their particular theory as well as with their general view of psychology as a natural science. Skinner does this mainly by "translating" colloquial mental terms into behaviouristic terminology; his accounts of certain mental terms are at times very close to Ryle's, as shall be shown later in this thesis in connection with the concept of 'thinking'.[1] Tolman, however, tries to overcome the problem by creating his own behaviouristic counter-concepts of colloquial as well as technical mental expressions.

Although Skinner is the younger of the two psychologists considered in this thesis and his contribution to behaviourist psychology relatively more recent than Tolman's, it has been decided to deal with Skinner's theory and some metaphysical problems

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[1] See pp. 46-52 of this thesis.

connected with it first, for two main reasons. Firstly, because Skinner presents a form of radical behaviourism which is as such much closer to that formulated by the founder of the behaviourist school of psychology, John B. Watson. Secondly, because his theory is the simpler of the two. Tolman's theory is more involved, since it is heavily burdened with the concept of 'intervening variables'; it is also dependent on the concept of 'purpose' used in a teleological sense, and, moreover, has some affinity with Gestalt psychology.

CHAPTER II

SKINNER'S THEORY OF PSYCHOLOGY

(A) Short Exposition

Burrhus Frederic Skinner (1904-....) expounded his theory from the early 1930's onwards. His theory is set out in detail in his main theoretical works: The Behavior of Organisms, Science and Human Behavior, Verbal Behavior, Cumulative Record.

Skinner, as a psychologist, is mainly concerned with ordinary, easily publicly observable behaviour and not with any physiological or neurological investigations and explanations. Thus he basically takes a "molar"[1] view of behaviour. He states[2]: -

> " Eventually a science of the nervous system based upon direct observation rather than inference will describe the neural states and events which immediately precede instances of behavior. We shall know the precise neurological conditions which immediately precede, say the response, "No, thank you." These events in turn will be found to be preceded by other neurological events,

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[1] The distinction between "molar" and "molecular" behaviour was first made by C.D. Broad in The Mind and Its Place in Nature. According to Broad molar behaviourism is concerned with gross observable behaviour, whilst molecular behaviourism appeals to often hypothetical physiological processes.

[2] A much fuller treatment of the tension between psychology and neurology as disciplines has been given by Skinner in The Behavior of Organisms, Chap.12.

> and these in turn by others. This series will lead us back to events outside the nervous system and, eventually, outside the organism. ... We may note here that we do not have and may never have this sort of neurological information at the moment it is needed in order to predict a specific instance of behavior. It is even more unlikely that we shall be able to alter the nervous system directly in order to set up antecedent conditions of a particular instance. The causes to be sought in the nervous system are, therefore, of limited usefulness in the prediction and control of specific behavior."[1]

Skinner maintained that behaviour - animal as well as human - could be described and controlled, and eventually predicted by considering any "act of behaviour" as a stimulus-response unit, which in turn could be considered as a "reflex". Of course, Skinner uses the concept of 'reflex' in a much wider sense than it is employed by the ordinary man in the street. Skinner's position is that fundamentally all behaviour consists of reflexes, which, of course, include learned as well as so-called voluntary responses.

Skinner himself makes in this connection the following remarks : -

> " The extension of the principle of the reflex to include behavior involving more and more of the organism was made only in the face of vigorous opposition. The reflex nature of the spinal animal was challenged by proponents of a "spinal will." The evidence they offered in support of a residual inner cause consisted of behavior which apparently could not be explained wholly in terms of stimuli. When

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[1] B.F. Skinner, Science and Human Behavior, pp. 28, 29.

> higher parts of the nervous system were added, and when the principle was eventually extended to the intact organism, the same pattern of resistance was followed. But arguments for spontaneity, and for the explanatory entities which spontaneity seems to demand, are of such form that they must retreat before the accumulating facts. Spontaneity is negative evidence; it points to the weakness of a current scientific explanation, but does not in itself prove an alternative version. By its very nature, spontaneity must yield ground as a scientific analysis is able to advance. As more and more of the behavior of the organism has come to be explained in terms of stimuli, the territory held by inner explanations has been reduced. The "will" has retreated up the spinal cord, through the lower and then the higher parts of the brain, and finally, with the conditioned reflex, has escaped through the front of the head. At each stage, some part of the control of the organism has passed from a hypothetical inner entity to the external environment."[1]

Skinner considered it to be the task of the psychologist to find out how a response (R) is dependent on the stimulus (S) as well as on other experimental variables (A), which can all be controlled by the experimenter in accordance with the following formula : -

$$R = f(S,A)$$

Thus, up to this point the theory did not present anything new. However, a very significant innovation in radical behaviourist theory was the distinction which Skinner made between two types of "reflexes", namely respondents and operants. Those responses which are emitted by an organism after a known stimulus is presented to that organism, are called "respondents"; the consequent behaviour

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[1] B.F. Skinner, Science and Human Behavior, pp.48, 49.

is said to be elicited by the stimulus. "Operants" are behavioural responses in situations in which the stimulus is not known and the behaviour looks at least in some sense "spontaneous".

Skinner was concerned with the problem that for many types of behaviour no link could be found between a conditioned and eventually unconditioned stimulus, and thus it seemed very difficult and indeed sometimes impossible to formulate any scientific laws with regard to the behaviour under consideration. He states : -

> " There is a large body of behavior that does not seem to be elicited, in the sense in which a cinder in the eye elicits closure of the lid, although it may eventually stand in a different kind of relation to external stimuli. The original 'spontaneous' activity of the organism is chiefly of this sort, as is the greater part of the conditioned behavior of the adult organism, as I hope to show later. Merely to assert that there must be eliciting stimuli is an unsatisfactory appeal to ignorance."[1]

Skinner, however, argued - and here the great importance of his distinction can be found - that because sometimes no unconditioned or even conditioned stimuli can be discovered in the environment of the organism, it does not follow that we cannot deal scientifically with emitted behaviour and find functional relationships between dependent variables (emitted behaviour) and independent or control variables. Skinner writes : -

> " But an event may occur without any observed antecedent event and still be dealt with adequately in a descriptive science. I do not mean that there are no originating forces in spontaneous behavior but simply that they are

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[1] B.F. Skinner, The Behavior of Organisms, p.19.

> not located in the environment. We are not in a position to see them, and we have no need to. This kind of behaviour might be said to be emitted by the organism, and there are appropriate techniques for dealing with it in that form. One important independent variable is time. In making use of it I am simply recognizing that the observed datum is the appearance of a given identifiable sample of behavior at some more or less orderly rate."[1]

Skinner himself supplies the following definitions in connection with his distinction between respondent and operant behaviour : -

> " The kind of behavior that is correlated with specific eliciting stimuli may be called respondent behavior and a given correlation a respondent. The term is intended to carry the sense of a relation to a prior event. Such behavior as is not under this kind of control I shall call operant and any specific example an operant. The term refers to a posterior event, ..."[2]

In relation to the concept of 'an operant' Skinner explains : -

> " An operant is an identifiable part of behavior of which it may be said, not that no stimulus can be found that will elicit it (there may be a respondent the response of which has the same topography), but that no correlated stimulus can be detected upon occasions in which it is observed to occur. It is studied as an event appearing spontaneously with a given frequency. It has no static laws comparable with those of a respondent since in the absence of a stimulus the concepts of threshold, latency, after-discharge, and the R/S ratio are meaningless. Instead, appeal must be made to frequency of occurrence in order to establish the notion of strength. The strength of an operant is proportional to its frequence of occurrence, and the dynamic laws describe the changes in the rate of occurrence that are brought about by various operations performed upon the organism."[3]

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[1] B.F. Skinner, The Behavior of Organisms, p.20.

[2] Ibid., p.20.

[3] Ibid., p.21.

The term 'operant' was chosen by Skinner for the following reason : -

> " The term emphasizes the fact that the behavior operates upon the environment to generate consequences. The consequences define the properties with respect to which responses are called similar."[1]

Thus the before-mentioned formula $R = f(S,A)$ is for Skinner's operant behaviour simplified to the following formula : -

$$R = f(A)$$

since in operant behaviour the stimulus is beyond the psychologist's description and control, and therefore he can only be concerned with the other experimental conditions (A variables) which can be controlled. It is the psychologist's task to discover and formulate "functional relationships" or what we would more commonly call causal laws between behaviour and publicly observable conditions, mainly outside of the behaving organism. Skinner explains the use of the expression "functional relationship" and its connection to the more usual notion of 'cause' in the following way : -

> " The terms "cause" and "effect" are no longer widely used in science. They have been associated with so many theories of the structure and operation of the universe that they mean more than scientists want to say. The terms which replace them, however, refer to the same factual core. A "cause" becomes a "change in an independent variable" and an "effect" a "change in a dependent variable." The old "cause-and-effect connection" becomes a "functional relation." The new terms do not suggest how a cause causes its effect; they merely assert that different events tend to occur together in a certain order. There is no particular danger in using "cause" and "effect" in an informal discussion if we are always ready to substitute their more exact counter-parts.

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[1] B.F. Skinner, Science and Human Behavior, p.65.

> We are concerned, then with the causes of human behavior. We want to know why men behave as they do. Any condition or event which can be shown to have an effect upon behavior must be taken into account. By discovering and analyzing these causes we can predict behavior; to the extent that we can manipulate them, we can control behavior."[1]

Thus it appears that Skinner's "functional relation" is very similar to a Humean causal relation. It will be advanced in this thesis[2] that Skinner's concept of 'operant behaviour' may be interpreted as containing a paradox. Although laws of operant behaviour are meant to constitute Humean-type causal laws, the position in time of dependent and independent variables appears to be reversed, and hence it may be maintained that operant behaviour laws appear to be more like teleological-type laws. However, Skinner can well overcome this particular objection, as shall be demonstrated. A more serious flaw in the notion of operant behaviour seems to be the implicit use which he appears to make of a teleological principle of living organisms.[3]

A problem for Skinner and also many other behaviourist psychologists is the treatment of psychological concepts such as 'purpose', 'intention', 'thinking' in order to make these fit in with their systems and with behaviouristic psychology as a whole. In some of the following sections Skinner's analyses and translations of such concepts will be investigated and criticised.

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[1] B.F. Skinner, Science and Human Behavior, p.23.

[2] See pp. 26-28 of this thesis.

[3] See pp. 29-32 of this thesis.

Special attention will be given to Skinner's functional analysis of the phenomenon and structure of what we would ordinarily call "speech" or "language"; Skinner himself prefers the expression "verbal behaviour". Inadequacies of his analysis of speech, elaborated on by the use of some examples, will be pointed out.

Other notions, relevant to the discipline of psychology, namely those of 'action', 'person' and 'causation' will be considered in relation to Skinner's theory and behaviouristic theory as a whole.

It is, of course, obvious, that Skinner's, and for that matter, any other behaviouristic system of psychology, presuppose determinism and leave no room for what is conventionally called "freedom of the will", since human behaviour, according to behaviouristic psychology, is supposed to be at least in principle completely predictable and controllable. The "freedom of the will" problem will be touched upon within the discussion of Skinner's theory, although the short and rather inadequate treatment of this topic is much more general philosophical in nature.

(B) Philosophical Problems

(a) The Concept of 'Operant Behaviour'.

As has already been pointed out in the previous section of this thesis, a most significant and interesting innovation within radical (psychological) behaviourism is Skinner's concept of 'operant behaviour'. The importance of this contribution to behaviourist psychology lies in the fact that the introduction of this notion enables the behaviourist to formulate scientific laws in relation to behaviour in cases where previous stimuli were unknown or hard to get at. He can do this by connecting such apparently spontaneous behaviour and particularly the frequency and changes in the rate of occurrence of such behaviour with consequent events, and thus establishing and formulating functional relationships.

An example given by Skinner of operant behaviour and his method of dealing with it, is that of the pigeon which on raising its head above a certain, above average, height, is presented with food. Skinner explains : -

> " We select a relatively simple bit of behavior which may be freely and rapidly repeated, and which is easily observed and recorded. If our experimental subject is a pigeon, for example, the behavior of raising the head above a given height is convenient. This may be observed by sighting across the pigeon's head at a scale pinned on the far wall

> of the box. We first study the height at which the head is normally held and select some line on the scale which is reached only infrequently. Keeping our eye on the scale we then begin to open the food tray very quickly whenever the head rises above the line. If the experiment is conducted according to specifications, the result is invariable: we observe an immediate change in the frequency with which the head crosses the line. We also observe, and this is of some importance theoretically, that higher lines are now being crossed. We may advance almost immediately to a higher line in determining when food is to be presented. In a minute or two, the bird's posture has changed so that the top of the head seldom falls below the line which we first chose."[1]

Thus a functional relationship appears to have been established and is observed between the bird's posture and the opening of the food tray.

The next question which may well be asked is whether this type of relationship is what could be called a causal relationship in a Humean sense or perhaps signifies a more colloquial use of the notion of cause.[2] It seems, however, that when we consider a relationship between two events to be a causal one, whether strictly Humean or otherwise, the cause takes place in time before or possibly simultaneous with the effect, but never after it.

In view of this, could Skinner justly claim that operant functional relationships, i.e. relationships between (conditioned) behaviour and consequent events - presentation of food - constitute causal relationships? Already one would have to admit, as

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[1] B.F. Skinner, Science and Human Behavior, pp.63, 64.

[2] See pp. 87-94 of this thesis.

pointed out in the short exposition of Skinner's theory, that in operant relationships, in contrast to traditional Pavlovian relationships, the position in time of dependent and independent variables is reversed. In Pavlovian conditioning the stimulus - unconditioned as well as conditioned - which is the independent or control variable, takes place in time before the dependent variable - the overt behaviour of the animal. The presentation of food (unconditioned stimulus) and the sounding of the bell (conditioned stimulus) take place in time before the salivation of the dog (dependent variable).

In operant conditioning, however, the independent or control variable - the presentation of food to the pigeon - takes place in time after the dependent variable - the raising of the pigeon's head above a certain height. It seems, therefore, that a later event determines an earlier event, which appears odd if at the same time we wish to maintain that the established functional relationship is a causal one.

To state the position in more philosophical terms, the showing of food (unconditioned stimulus) coupled with the sounding of the bell (conditioned stimulus) and eventually the sounding of the bell alone in Pavlovian conditioning, can be said to constitute the sufficient condition for salivation to accur, although it does not appear to be a necessary condition, since the dog may salivate as

a result of other stimuli. However, in the pigeon's case we cannot claim that the lifting of the head above a certain height is the sufficient condition for the presentation of food, since the latter event does not follow from any empirical necessity. It cannot be said to constitute a necessary condition either, since food may be offered on other occasions, without the pigeon lifting its head to a certain height.

But Skinner may counter the above argument in the following manner. He may well say - and this is what he most likely meant - that a certain accidental feature of behaviour repeatedly followed by or deliberately coupled with the presentation of food (in the case of the pigeon experiment) causally determines the increase of that particular behaviour. Thus the class of behaviour "lifting of the head above a certain height" coupled with the presentation of food on every occasion in the past can be said to constitute the sufficient condition for the increase in frequency of the lifting of the head above a certain height in the future. This indeed looks very much like a Humean type causal relationship. Skinner himself gave the following succinct formulation of the process of operant conditioning, which seems compatible with such an interpretation. He states : -

> " The barest possible statement is this: we make a given consequence contingent upon certain physical properties of behavior (the upward movement of the head), and the behavior is then observed to increase in frequency."[1]

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[1] B.F. Skinner, Science and Human Behavior, p.64.

Thus the process of conditioning itself seems to entail the establishment of a straight forward causal conjunction. It appears, however, that one facet is not mentioned and may have been overlooked, namely the question: Why does a certain type of behaviour followed by the presentation of food (in the case of the pigeon experiment) give rise to repeated behaviour of that type in the future? Would any type of consequent event instead of the presentation of food have served equally well to establish operant conditioning? If, for instance, the experimenter would have sounded a bell every time the pigeon lifted its head above a certain height, would then that particular type of behaviour have increased in frequency? This indeed seems extremely doubtful; there seems to be no evidence in the literature of psychological experiments to that effect. One becomes even more suspicious when one notices that Skinner himself seems to regard "consequences of behaviour" as roughly equivalent to what in ordinary language would be referred to as "rewards" and "punishments". He writes in this connection : -

> " The Consequences of Behavior.
>
> Reflexes, conditioned or otherwise, are mainly concerned with the internal physiology of the organism. We are most often interested, however, in behavior which has some effect upon the surrounding world. Such behavior raises most of the practical problems in human affairs and is also of particular theoretical interest because of its special characteristics. The consequences of behavior may "feed back" into the organism. When they do so, they may change the probability that the behavior which produced them will occur again. The English language contains many words, such as

> "reward" and "punishment," which refer to this effect, but we can get a clear picture of it only through experimental analysis."[1]

It seems, therefore, that Skinner would regard the presentation of food to the pigeon as a reward, using ordinary language. Yet the sounding of a bell instead of the presentation of food would hardly be expected to function as a reward, and not be called a reward in colloquial language. The words 'reward' and 'punishment' themselves seem to be teleological-like notions. Actually, it seems that these expressions, used mostly in the sphere of human behaviour in which the person himself would be aware of possible consequences of his behaviour in the form of reward or punishment, are by many psychologists extended in content in order to make them usable in the sphere of animal behaviour. This is, if course, in a sense also at times done in ordinary language, particularly in relation to "personalised" pets, where we would for instance maintain that a dog is punished for disobedience. Many psychologists, however, have used the notions of 'reward' and 'punishment' in a technical sense, whereby no fundamental distinction can be drawn between a human being rewarded or punished, and an animal, usually in an experimental situation, being presented with rewards or punishments as a consequence of a certain type of behaviour, in the form of, for example, presentation of food in the former case, or an electric shock in the latter.

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[1] B.F. Skinner, Science and Human Behavior, p.59.

In the case of human beings we would usually hold that in ordinary language the notion of punishment is only valid if the person being punished is aware of the fact that some kind of unpleasant treatment is being administed to him or will be administered to him as a consequence of a certain type of behaviour, and if such behaviour is not considered to be "compulsive" in the ordinary use of that word. Thus we would maintain that a thief is being punished by being locked up in goal, but hardly that a severely mentally defective man with homicidal tendencies, after committing an offence, is being "punished" by being locked up in a mental asylum.

However, the manner in which Skinner and other psychologists use the notions of reward and punishment certainly seems to entail that a teleological significance is attached to those terms, since in the cases in which these expressions are used, they are easily connectible with the universal goal of living organisms, namely the survival of the individual or species it belongs to. But this facet seems to be ignored or at least not mentioned by many psychologists, including Skinner.

Thus it appears to be the case that in order to establish a causal (or functional) relationship in operant conditioning, implicit use is made of a teleological principle of living organisms.

If we accept this criticism, yet another difficulty for Skinner's theory arises; the stimulus cannot be said to lie exclusively in the environment of the organism, but becomes part of the behaving organism itself, which is in conflict with Skinner's intentions of formulating scientific laws taking only input-output relations into account and avoiding reference to any "inherent" factors of the behaving organism.

Another doubtful question concerning the whole process of operant conditioning is whether such a principle provides as with a satisfactory explanation of all human behaviour. For example, if a person, placed in a similar experimental situation as the pigeon, knows or somehow finds out or suspects that he is going to be"rewarded" with something on behaving in a particular way, it seems conceivable that he may decide not to perform that type of behaviour any more just to foul up the experiment and spite the experimenter, or simply because he does not care to perform the particular behaviour despite the "reward", or because he does not like to be treated as a kind of determined organism or machine, and in this way attempts to be treated otherwise.[1]

In conclusion it may thus be said that it seems doubtful that Skinner's concept of operant behaviour conditioning can be regarded as constituting a purely causal relationship, because a teleological

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[1] See pp. 99-101 of this thesis, which are concerned with the problem of determinism.

principle appears to have been smuggled in and made use of. Moreover, if we accept this, the stimulus appears to be at least partly forced back into and becomes part of the organism, which conflicts with Skinner's basic aims in formulating his laws of operant conditioning. Also, doubt may be expressed as to the validity and applicability of the process of operant behaviour conditioning as a functional relationship and explanation of all types of human behaviour which cannot be accounted for and dealt with by Pavlovian principles of conditioning.

(b) The Appeal to "Covert Behaviour"

Skinner's appeal to the notion of 'covert behaviour', although obviously necessitated by the need to accommodate such phenomena as, for instance, human intentions and linguistic behaviour within his system, seems to indicate another flaw in the structure of his theory. In the previous section it has already been pointed out that part of the stimulus in operant conditioning appears to be forced back into the behaving organism, thus becoming inaccessible for molar behaviourist techniques. The introduction of the concept of 'covert behaviour' to perform a role in the explanation of some human behaviour also seems to constitute the involvement of processes of the behaving organism which are not or not easily publicly observable. Such processes appear to be non-molar, physiological in nature, but yet become a necessary part of the "input" in the "input-output" relationship, which serves as an explanation of certain types of behaviour. Thus again it appears that part of the stimulus is forced back into the behaving organism.

In an attempt to explain certain statements about intentions, or, as Skinner calls it,"unemitted behaviour", Skinner speculates as follows : -

> ".One important sort of stimulus to which the individual may possibly be responding when he describes unemitted behavior has no parallel among other forms of private stimulation. It arises from the fact that the behavior may actually occur but on such a reduced scale

> that it cannot be observed by others - at least without instrumentation. This is often expressed by saying that the behaviour is "covert".[1]

However, Skinner is aware that this kind of explanation is odd with respect to some statements about intentions. He writes : -

> " The appeal to covert or incipient behavior is easily misused. If the statement, "I was on the point of going home," is a response to stimuli generated by a covert or incipient response of actually going home, how may the response of going home be executed covertly?"[2]

Skinner thinks, that the notion of covert behaviour has particular application in relation to speech, or what he calls "verbal behaviour".

> " Verbal behavior, however, can occur at the covert level because it does not require the presence of a particular physical environment for its execution. Moreover, it may remain effective at the covert level because the speaker himself is also a listener and his verbal behavior may have private consequences. The covert form continues to be reinforced, even though it has been reduced in magnitude to the point at which it has no appreciable effect on the environment. Most people observe themselves talking privately. A characteristic report begins "I said to myself..." where the stimuli which control the response "I said" are presumably similar, except in magnitude, to those which in part control the response, "I said to him..."[3]

In general it is not very clear at all what kind of processes are included in Skinner's notion of covert behaviour. In connection with covert verbal behaviour he seems to equate this with slight movements of the vocal cords and voice box. He states : -

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1 B.F. Skinner, Science and Human Behavior, p.263.

2 Ibid., p.264.

3 Ibid., p.264.

> " Covert verbal behavior may be detected in slight movements of the speech apparatus. (...) There is no reason why covert behavior could not be amplified so that the individual himself could make use of the additional information - for example, in creative thinking."[1]

However, the appeal to covert behaviour processes becomes particularly mysterious in cases where self-knowledge is absent. Skinner writes in this respect : -

> " A man may not know that he has done something. He may have behaved in a given way, perhaps energetically, and nevertheless be unable to describe what he has done. Examples range all the way from the unnoticed verbal slip to extended amnesias in which large areas of earlier behavior cannot be described by the individual himself. The possibility that the behavior which cannot be described may be covert raises an interesting theoretical problem, since the existence of such behavior must be inferred, not only by the scientist, but by the individual himself. (...) It is not always necessary to infer that other behavior has actually occurred, but under certain circumstances this inference may be justified. Since authenticated overt behavior sometimes cannot be reported by the individual, we have no reason to question the possibility of a covert parallel."[2]

Again the question may be asked "What kind of processes are referred to when Skinner talks about covert behaviour?" It seems feasible that certain brain processes may qualify in this connection. It is possible that physiological events like changes in heart beat or pulse rate, in breathing, in moisture content of the skin, pupil contraction and dilation, etc. may also in some cases be said to constitute covert behaviour in a Skinnerian sense.

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1 B.F. Skinner, Science and Human Behavior, p.282.

2 Ibid., p.288.

It seems, thus, that in all cases where an appeal to covert behaviour is made, molecular, physiological processes appear to be involved, which are, moreover, no longer part of an environmental "input" into the behaving organism, but are instead part of the behaving organism itself, and as such beyond the precincts of Skinner's own system. Instead of strictly adhering to the method of observation, inference of covert behavioural processes becomes admissible, which brings Skinner uncomfortably close to a mentalist position. Also, since the covert processes are not specified or even considered to be specifiable, they cannot be manipulated, nor can resulting overt molar behaviour be predicted or even considered to be predictable in any practical sense.

Thus the necessity for Skinner to introduce the concept of covert behaviour in order to explain certain behavioural phenomena, entails the violation of the very system he intends to uphold by it.

(c) The Concepts of 'Purpose', 'Goal' and 'Intention'.

It seems that Skinner's treatment of "Goals, Purposes and Other Final Causes"[1] and his translation of these notions into behaviouristic terminology could serve as a paradigm case indicating a basic weakness of radical behaviourism.

Skinner, stressing his functional analysis of behaviour, states : -

> " Statements which use such words as "incentive" or "purpose" are usually reducible to statements about operant conditioning, and only a slight change is required to bring them within the framework of a natural science. Instead of saying that a man behaves because of the consequences which are to follow his behavior, we simply say that he behaves because of the consequences which have followed similar behavior in the past. This is, of course, the Law of Effect or operant conditioning."[2]

Subsequently Skinner elaborates on his analysis and translation of the concept of purpose by supplying an example, namely that of a man walking down the street with the purpose of posting a letter. He attempts to describe this event firstly from a third-person viewpoint and then from a first-person viewpoint : -

> " It is sometimes argued that a response is not fully described until its purpose is referred to as a current property. But what is meant by "describe"? If we observe someone walking down the street, we may report this event in the language of physical science. If we then add that "his purpose is to mail a letter," have we said anything which was not included in our

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[1] B.F. Skinner, Science and Human Behavior, pp.87-90.

[2] Ibid., p.87.

> first report? Evidently so, since a man may walk down the street "for many purposes" and in the same physical way in each case. But the distinction which needs to be made is not between instances of behavior; it is between variables of which behavior is a function. Purpose is not a property of the behavior itself; it is a way of referring to controlling variables. If we make our report after we have seen our subject mail his letter and turn back, we attribute "purpose" to him from the event which brought the behavior of walking down the street to an end. This event "gives meaning" to his performance, not by amplifying a description of the behavior as such, but by indicating an independent variable of which it may have been a function. We cannot see his "purpose" before seeing that he mails a letter, unless we have observed similar behavior and similar consequences before. Where we have done this, we use the term simply to predict that we will mail a letter upon this occasion.
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> Nor can our subject see his own purpose without reference to similar events. If we ask him why he is going down the street or what his purpose is and he says, "I am going to mail a letter," we have not learned anything new about his behavior but only about some of its possible causes. The subject himself, of course, may be in an advantageous position in describing these variables because he has had an extended contact with his own behavior for many years. But his statement is not therefore in a different class from similar statements made by others who have observed his behavior upon fewer occasions."[1]

Skinner interprets the notion of 'looking for something by somebody', which appears to imply the concept of 'purpose', in a similar way. Thus he says : -

> " When we see a man moving about a room opening drawers, looking under magazines, and so on, we may describe his behavior in fully objective terms: "Now he is in a certain part of the room, he has grasped a book between the thumb and forefinger of his right hand, he is lifting the book and bending his head so that any object under the book can be seen." We may also "interpret" his behavior or "read a meaning into it" by saying that "he is looking for something"

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[1] B.F. Skinner, Science and Human Behavior, pp.87, 88.

> or, more specifically, that "he is looking for his glasses." What we have added is not a further description of his behavior but an inference about some of the variables responsible for it. There is no current goal, incentive, purpose, or meaning to be taken into account. This is so even if we ask him what he is doing and he says, "I am looking for my glasses." This is not a further description of his behavior but of the variables of which his behavior is a function; it is equivalent to "I have lost my glasses," "I shall stop what I am doing when I find my glasses," or "When I have done this in the past, I have found my glasses." These translations may seem unnecessarily roundabout, but only because expressions involving goals and purposes are abbreviations."[1]

In a later chapter Skinner offers two possible explanations to account for the apparent "privileged status"[2] of first-person statements such as "I was on the point of going home at three o'clock," "I'm strongly inclined to go home" and "I shall go home in half an hour".[3] His first possible explanation runs as follows : -

> " A possible explanation is that the terms are established as part of a repertoire when the individual is behaving publicly. Private stimuli, generated in addition to the public manifestations, then gain the necessary degree of control. Later when these private stimuli occur alone, the individual may respond to them. "I was on the point of going home" may be regarded as the equivalent of "I observed events in myself which characteristically precede or accompany my going home." What these events are, such an explanation does not say."[4]

From a later paper it is obvious that Skinner considers such events to be physical in nature. He says : -

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[1] B.F. Skinner, Science and Human Behavior, pp.89, 90.

[2] By the expression "privileged status" it is meant that we seem to be in some way directly aware of our own intentions.

[3] B.F. Skinner, Science and Human Behavior, p.262.

[4] Ibid., p.262.

> " It is particularly important that a science of behavior face the problem of privacy. It may do so without abandoning the basic position of behaviorism. ... An adequate science of behavior must consider events taking place within the skin of the organism, not as physiological mediators of behavior, but as part of behavior itself. It can deal with these events without assuming that they have any special nature or must be known in any special way. The skin is not that important as a boundary. Private and public events have the same kinds of physical dimensions. ... The problem of privacy may be approached in a fresh direction by starting with behavior rather than with immediate experience."[1]

It seems that here Skinner leaves the confines of "molar"[2] behaviourism, because obviously such events are not describable in gross behavioural terms, since they are not or not easily observed by other people. It is even very doubtful whether some physiological events such as sweating of the hands when we are afraid or changes in facial colouring when we are angry, are easily observable by ourselves. It is also difficult to visualise at this stage how a functional analysis of behaviour is feasible unless these "private" physical events within the organism's skin are observable from a third-person viewpoint, although Skinner must hold that such events are at least in principle observable by other people, since they are physical events.

Skinner's second attempt at explaining the apparent privileged status of first-person statements takes the following form : -

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[1] B.F. Skinner, "Behaviorism at Fifty", in Behaviorism and Phenomenology, ed. T.W. Wann, p.84.

[2] See p.17 of this thesis.

> " Another possibility is that when an individual appears to describe unemitted behavior, he is actually describing a history of variables which would enable an independent observer to describe the behavior in the same way if a knowledge of the variables were available to him. ... The statement, "I shall probably go abroad next summer," may be due to variables of a wholly public nature which make it equivalent to the statement, "Circumstances have arisen which make it highly probable that I shall go abroad." This is not a description of behavior-to-be-emitted but of the conditions of which that behavior is a function. The individual himself is, of course, often in an advantageous position for observing his own history."[1]

It seems to me that when Skinner argues that in describing a particular set of behavioural movements from a third-person viewpoint in terms of purposes or intentions we make an inference, he is correct. However, from there he wishes to argue that we ourselves concerning our own intentions are basically in no different position from any third person. To find out our own intentions we seem to have to observe our present behaviour (within our skin!) or remember our (molar) self-observed behaviour under similar conditions in the past and make a prediction of an inferential nature based on present or past sense- observation of our own behaviour. As we are in a position to know more about our own behaviour than other people, probably since we "cannot escape ourselves", our predictions concerning our own purposes are likely to be more accurate.

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[1] B.F. Skinner, Science and Human Behavior, p.263.

Such an account of first-person statements seems to amount to an absurdity in radical behaviourism. No reasonable person would claim he would find out or know his own purposes or intentions from a consideration of his own past behaviour or his own internal physical processes and then draw a certain conclusion, i.e. make a prediction from these concerning our purposes. In fact, on pressing a person, he would far more likely claim that none of his sense organs were involved in him knowing the purpose of his behaviour. Neither would he claim that his knowing the purpose of his behaviour would be a prediction of an inferential nature made on the basis of some empirical facts. He just knows, and that is that.

Thus it appears that Skinner's translation of the notions of 'goal', 'purpose' and 'intention' into a more elaborate behaviouristic terminology and his explanations of the problem of privacy are faulty, because these involve the treatment of third-person and first-person statements about goals, purposes and intentions on the same logical level. Skinner namely suggests that we "find out" about our own goals, purposes and intentions either from a consideration of past events which characteristically preceded the type of behaviour under consideration, or from observation of certain "molecular" or "semi-molecular" physical

events within our body and making a prediction on the basis of these. Both explanations seem to be absurd, since we do not "discover" and/or predict our own goals, purposes and intentions on the basis of any empirical data obtained by the use of our sense organs, as any third person would have to, but are in some way directly aware of these.

(d) The Concept of 'Thinking'.

One of the great problems for radical behaviourism is to give an adequate account of what we ordinarily would call "thinking". Skinner attempts to deal with the concept of 'thinking' in the last chapter of his book Verbal Behavior, and thus implies that he considers thinking to be at least sometimes a form of verbal behaviour. This he tries to justify not so much by an appeal to covert behaviour as may have been inferred from a previous section of this thesis and particularly from the quoted passages from Skinner's Science and Human Behavior on page 35, and identifying 'thinking' with 'sub-audible' or 'inaudible speech', but by analysing 'thinking' simply by reference to the notion of 'talking to oneself'.

Skinner apparently did not even consider thought to be necessarily a verbal process. He states : -

> " The simplest and most satisfactory view is that thought is simply behavior - verbal or nonverbal, covert or overt. It is not some mysterious process responsible for behavior but the very behavior itself in all the complexity of its controlling relations, with respect to both man the behaver and the environment in which he lives. The concepts and methods which have emerged from the analysis of behavior, verbal or otherwise, are most appropriate to the study of what has traditionally been called the human mind."[1]

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[1] B.F. Skinner, Verbal Behavior, p.449.

However, as is obvious from the passages which are quoted below, when Skinner talks about "thinking" he usually considers the type of situation which involves a speaker and a listener combined in the one person, although the "talker" does not necessarily have to use audible or inaudible speech, but may also signal "nonverbally"[1].

Skinner had much sympathy for the earlier Watsonian attempt of identifying thinking with sub-audible speech. However, he thought that such an analysis was too narrow and the distinction between audible and sub-audible speech, or, more generally, between overt and covert behaviour did not satisfactorily elucidate the concept of thinking. He remarks in this connection : -

> " The theory that thinking was merely subaudible speech had at least the favorable effect of identifying thinking with behaving. But speech is only a special case of behavior and subaudible speech a further subdivision. The range of verbal behavior is roughly suggested in descending order of energy, by shouting, loud talking, quiet talking, whispering, muttering "under one's breath," subaudible speech with detectable muscular action, subaudible speech of unclear dimensions, and perhaps even the "unconscious thinking" sometimes inferred in instances of problem solving. There is no point at which it is profitable to draw a line distinguishing thinking from acting on this continuum. So far as we know, the events at the covert end have no special properties, observe no special laws, and can be credited with no special achievements."[2]

Gilbert Ryle makes practically the same point when he remarks : -

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[1] B.F. Skinner, Verbal Behavior, p.449.

[2] Ibid., p.438.

> " ... many theorists have supposed that the silence in which most of us have learned to think is a defining property of thought. Plato said that in thinking the soul is talking to itself. But silence, though often convenient, is inessential, as is the restriction of the audience to one recipient."[1]

It must be noticed that Ryle is much more aware than Skinner of the ambiguity and vagueness of the concept of thinking as used in ordinary language. In connection with the concept of the intellect he writes : -

> " Nor are the boundaries between what is and what is not intellectual made much clearer by referring to the notion of thinking, since 'thinking' is not only just as vague as 'intellectual', but also has extra ambiguities of its own. In one sense, the English verb 'think' is a synonym of 'believe' and 'suppose'; so it is possible for a person in this sense, to think a great number of silly things, but, in another sense, to think very little. Such a person is both credulous and intellectually idle. There is yet another sense in which a person may be said to be 'thinking hard what he is doing', when he is paying close heed to, say, playing the piano; but he is not pondering or being in any way pensive. If asked what premisses he had considered, what conclusions he had drawn or, in a word, what thoughts he had had, his proper answer might well be, 'none. I had neither the time nor the interest to construct or manipulate any propositions at all. I was applying my mind to playing, not to speculating on problems, or even to lecturing to myself on how to play.'
>
> It is sometimes said that by an 'intellectual process' or by 'thinking', in the special sense required, is meant an operation with symbols such as, par excellence, words and sentences. 'In thinking the soul is talking to itself'. But this is both too wide and too narrow ..."[2]

However, when Ryle discusses the notion of 'talking to oneself' as at least one of the senses in which the word 'thinking' is applied,

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[1] Gilbert Ryle, The Concept of Mind, p. 28.

[2] Ibid., pp. 265, 266.

his account and explanations are remarkably close to Skinner's, as is obvious from a comparison of the following quotes of both authors.

Since to Skinner sub-audible speech is not essential to the concept of thinking, he explains the usual silence of our thinking processes firstly by reference to the notion of convenience : -

> " One important consequence of our definition is that, when talking to oneself, it is unnecessary to speak aloud and easier not to."[1]

The second, and to him much more important reason, is stated as follows : -

> " Covert speech is not, however, wholly or perhaps even primarily a labor-saving practice. As we have seen, verbal behavior is frequently punished. Audible behavior in the child is reinforced and tolerated up to a point; then it becomes annoying, and the child is punished for speaking. Comparable aversive consequences continue into the adult years. Punishment is not always in the nature of reproof, for speech which is overheard may have other kinds of undesirable effects, such as giving away a secret. The privacy of covert behavior has a practical value. So long as a verbal response is emitted primarily for its effect upon the speaker himself, it is best confined to that audience."[2]

Ryle gives the same reasons as Skinner. He refers, however, to auditory word-images rather than sub-audible speech.

> " The technical trick of conducting our thinking in auditory word-images, instead of in spoken words, does indeed secure secrecy for our thinking, since the auditory imaginings of one person are not seen or heard by another (or, as we shall

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[1] B.F. Skinner, Verbal Behavior, p.436.

[2] Ibid., p.436.

> see, by their owner either). But this secrecy is not the secrecy ascribed to the postulated episodes of the ghostly shadow-world. It is merely the convenient privacy which characterizes the tunes that run in my head and the things that I see in my mind's eye."[1]
>
> " Silent argumentation has the practical advantage of being relatively speedy, socially undisturbing and secret;..."[2]

Skinner tries to make a case for regarding one of the main functions of thinking to be self-stimulative behaviour : -

> " A better case can be made for identifying thinking with behaving which automatically affects the behaver and is reinforcing because it does so. This can be either covert or overt. We can explain the tendency to identify thinking with covert behavior by pointing out that the reinforcing effects of covert behavior must arise from self-stimulation. But self-stimulation is possible, and indeed more effective, at the overt level.
>
> When a man talks to himself, aloud or silently, he is an excellent listener ... . He speaks the same language or languages as his listener. He is subject to the same deprivations and aversive stimulations, and these vary from day to day or from moment to moment in the same way. As listener he is ready for his own behavior as speaker at just the right time and is optimally prepared to "understand" what he has said. Very little time is lost in transmission and the behavior may acquire subtle dimensions. It is not surprising, then, that verbal self-stimulation has been regarded as possessing special properties and has even been identified with thinking."[3]

Thus Skinner develops the theory that thinking is the (usually) verbal behaviour situation in which speaker and listener are combined into the one person. He states further : -

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[1] Gilbert Ryle, The Concept of Mind, p.35.

[2] Ibid., p.46.

[3] B.F. Skinner, Verbal Behavior, pp.438, 439.

" The possibility that the speaker may respond to his own verbal stimuli in echoing himself or reading notes he has written has already been pointed out. He may also respond to his own intraverbal stimuli, as in opening a combination lock by following the directions he gives himself by reciting the combination as an intraverbal chain.

A man may usefully "speak to himself" or "write to himself" in the form of tacts. Thus, from some momentary point of vantage he may compose a text which he then responds to as a reader at a later date."[1]

" Thus, in solving a detective-story crime we may find ourselves insisting that a character is guilty in spite of a small but conclusive bit of evidence to the contrary. As we drift again and again toward the wrong conclusion, we may re-instruct ourselves: No! No! It CAN'T be Billingsly. Billingsly was in the conservatory talking to the gardener. We are not telling ourselves anything we did not know, but we are altering the extent to which we know it, and we make it less likely that we shall emit other responses placing Billingsly at the scene of the crime."[2]

Here Skinner seems to suggest that knowledge of a fact is a matter of degree, which is rather absurd. It does not make sense to say that we know a single fact better than we did before; such a statement only makes sense in relation to a combination or series of facts. Thus we may, after studying a history book about the second world war, know more about that war and thus have better knowledge of that war. However, it does not make sense to say that we know any single fact more or better, although we may know more single facts than we did before. We may possibly give a

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[1] B.F. Skinner, Verbal Behavior, pp.440, 441.
For Skinner's definition of the notion of 'tact' see p.68 of this thesis.

[2] Ibid., p.441.

fairer interpretation of the relevant passage by saying that by 'knowing' Skinner could have meant something likw 'memorising' or even 'ability to memorise' in which case the absurdity largely disappears.

Skinner tries to give an explanation for the supposed "necessary connection" between verbal thinking and self-stimulation in the following way : -

> " There are good reasons, then why a speaker also conditioned by the verbal community as a listener should turn his verbal behavior upon himself. The result is close to "thinking" in many traditional senses of the term. Such behavior can, of course, be subtle and swift, especially because the speaker is optimally prepared for his own speech as listener. But all the important properties of the behavior are to be found in verbal systems composed of separate speakers and listeners. A necessary connection between verbal thinking and self-stimulation might be said to arise from the fact that, in the strictest sense of our definition, any behavior which is reinforced because it modifies subsequent behavior in the same individual is necessarily verbal regardless of its dimensions. The reinforcement is "mediated by an organism," if not strictly another organism, and responses which do not have the usual dimensions of vocal, written or gestured behavior may acquire some of the characteristics of verbal behavior."[1]

The combination of speaker and listener into the one "thinking" person, necessary for Skinner's account of the concept of thinking, is also stressed by Ryle, who writes in relation to 'self-knowledge': -

> " One of the things often signified by "self-consciousness' is the notice we take of our own unstudied utterances, including our explicit avowals, whether these are spoken aloud,

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[1] B.F. Skinner, Verbal Behavior, pp.445, 446.

> muttered, or said in our heads. We eavesdrop on our own voiced utterances and our own silent monologues. In noticing these we are preparing ourselves to do something new; namely to describe the frames of mind which these utterances disclose. But there is nothing intrinsically proprietary about this activity. I can pay heed to what I overhear you saying as well as to what I overhear myself saying, though I cannot overhear your silent colloquies with yourself."[1]

The interesting point which appears to unite Skinner and Ryle is the assumption that essentially we find out about our own thoughts in a kind of third-person way. Although thoughts are often private in the sense of being inaudible and as a consequence secret, we are not in a privileged position with regard to the acquisition of knowledge about our own thoughts.

To both Skinner and Ryle it seems to be just a matter of actual fact that we usually are not aware of someone else's thoughts because we cannot listen to somebody else's silent verbal conversations or see somebody's image conversations with himself. We are only aware of our own thoughts because of the combination of the speaker and listener or image producer and viewer within the one person; however, the manner in which we acquire knowledge of our own thoughts is essentially the same which we use to get knowledge of somebody else's thoughts.

I shall now try to argue that such an analysis is basically incorrect and cannot give an adequate explanation of thinking,

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[1] Gilbert Ryle, The Concept of Mind, p.176.

since an account of thinking which is dependent upon a combination of speaker and listener into the one person, so important for Skinner's position and also to some extent to Ryle's, leads to the following absurdities.

1. If Skinner is right in that thought is behaviour like any other type of behaviour, and can be covert as well as overt, then in principle we can find out somebody else's thoughts by the ordinary scientific means of observation, given the appropriate instruments. Thinking to Skinner would be something like a conversation going on in a heavily insulated box which can, however, in principle be penetrated. I think the same criticism would apply to Ryle's account of the use of the word 'thinking' as 'talking to oneself'. Skinner's and Ryle's accounts imply that there is no "privileged" first-person knowledge concerning one's own thoughts or for that matter concerning anything else, i.e. that we are not in some way directly aware of our own thoughts nor presumably of such "items" as our own pains, emotions and perhaps perceptions. Thus it seems that we would have to listen to what we are thinking, i.e. overtly or covertly saying to ourselves, before we could have knowledge about what we are thinking, which seems absurd.

2. If thinking implies a combination of speaker and listener in the one person and as such constitutes a normal conversation situation, one would expect that the listener at least at times would be surprised about something the speaker told him. Yet it usually seems very odd indeed to say that we are surprised about our own thoughts. It may be pointed out that at times we do in fact register some kind of surprise about our own thoughts; however, I would like to argue that this kind of surprise is then often not related to the content but to the emotional strength of our thoughts. It seems odd to say to ourselves something like: "I am not going on holiday to Sydney this year as usual, but I am going to Europe." and register surprise at such a statement. However, if I would make the statement to somebody else, he would probably be most surprised. It may, however, be argued, that we might very well register surprise at saying to ourselves something like: "Although I drank a lot last evening and did not sleep during the night, I feel particularly well this morning." However, if we would be surprised at all, we would be so already before or at least during the utterance of the statement to ourselves. But, if somebody else would utter the same statement, we would probably be most surprised, but register this surprise only after the statement had been completed.

3. In connection with the previous point, if thinking is something like talking to or in some way communicating with ourselves, we could only as a listener be said to have knowledge of our overt or covert talk (communication) after our audible or inaudible sentence had been completed. Yet we seem to know what we are thinking before or during any overt or covert utterance of a relevant sentence; we do not have to wait till the sentence has been completed before we can acquire knowledge of its contents.

The concept of thinking seems to imply, firstly, that we are thinking of something, and secondly, that we know what that something is; it does not make sense to state that one is thinking and then to deny that one is thinking of anything or express ignorance of the subject matter of one's thoughts. Thus at any moment of a thinking process we must necessarily know what we are thinking of if the concept of thinking is to be applicable. Hence it does not make sense to say: "I must finish this bit of thought...", or, in a Skinnerian translation, "I must wait till I have finished this sentence (communication) to myself before I am in a position to know what my thinking is about."

4. Furthermore, and this again in connection with the previous points, we cannot say that in a thinking situation we can acquire

extra information concerning the world through the use of language or images. We do not seem to be able to tell ourselves anything new about the world which we did not already know before. Hence in that sense we cannot register surprise. We cannot say to ourselves something like "Holland has twelve million inhabitants" and be said to have acquired new knowledge. In fact, we cannot even give such information either to ourselves or anybody else if we did not know this fact before we uttered the relevant statement, overtly or covertly.

5. If thinking involves the notion of two people - speaker and listener - in the one body, it would make sense to maintain that we could tell ourselves a lie. Yet the very concept of lying seems to exclude the notion of 'lying to ourselves', since it is inapplicable in that situation. To be able to lie we must have the intention of doing so, but how can we lie or attempt to lie to ourselves, if we ourselves are aware of such an intention? It does not make sense at all to say to ourselves (overtly or covertly) that we are not in pain, when we really are, thus intentionally utter a false statement in order to deceive ourselves, because we obviously would disregard the false statement, since we are directly aware of our pain as well as of our intention to deceive by uttering a false statement concerning the pain.

6. Another consequence of Skinner's theory is that if thinking is something like 'talking to ourselves' it would make sense to maintain at times that we did not understand or comprehend ourselves. This does not just mean that our thinking or (overt or covert) speech is confused, but much stronger, namely that we could maintain that we do not have the faintest clue what on earth our overt or covert talk is all about. This thus brings us back to point three where it was maintained that the concept of thinking has no application if the thinker cannot claim knowledge as to what he is thinking of. If we would not adhere to this, a statement such as "I am thinking very seriously at the moment, but I do not have the slightest idea what I am thinking of." would be one that makes sense.

7. If thinking is 'talking to ourselves' in some way or another, and is essentially behaviour on the same level as overtly talking to soneone else, then the listener, whether this be ourselves or someone else, would be in a position, at least at times, of not being aware of what the speaker said. One could block one's ears or one could strongly concentrate on something else. As a matter of fact, we do not always hear or notice what somebody standing next to us is saying, because we are engrossed in a book or even in our own thoughts. Yet again, it does not make sense to claim that we

are thinking ('talking to ourselves') and at the same time maintain that we are not aware that we are thinking. If this were so, it would make sense to claim "I am thinking, but am not aware I am doing so."since it seems that to Skinner such a statement would be of the same type as "John is talking to Peter, but Peter is not aware John is doing so." Yet the former statement is obviously absurd, because it involves us in a logical contradiction, since the concept of thinking seems to imply conscious awareness on the part of the thinker.

8. Finally, if we accept Skinner's account of thinking as 'talking to ourselves', we could make "mis-statements". Yet we could not, after overtly or covertly making a statement, say something like "But this is not what I meant at all.", either to ourselves or anybody else, since by admitting we could do so, we would have to admit that there is after all a distinction between thinking and 'saying to ourselves' (or anybody else), either overtly or covertly.

All the foregoing points appear to throw considerable doubt on the correctness of Skinner's account of thinking and also on Ryle's account of thinking as 'talking to ourselves'. What these points clearly indicate is that the translation of the concept of thinking into overtly or covertly talking to ourselves, whether

literally or in some other sense such as in images - leads to the basic absurdity that our own thoughts are objects of empirical observation and knowledge of our own thoughts is simply empirical knowledge.

In contrast to this consequence of Skinner's account of thinking, it appears obvious that we are with regard to knowledge of our own thoughts in a "privileged position". By this it is meant firstly, what we alone can know what we are thinking in some way directly and not by making an empirical observation which we would have to carry out with regard to ourselves from a third-person viewpoint, and secondly, that such knowledge cannot be tested empirically. Such knowledge cannot be said to be acquired either directly or indirectly through any of our sense organs, the use of which is logically necessary in order to acquire empirical knowledge. Yet we know what we are thinking directly and not by empirical observation involving any of our sense organs. It may even be argued that (conscious!) thinking itself logically implies knowledge, i.e. that it does not make sense to say that one is thinking and at the same time deny knowledge of what one is thinking about, whilst overtly or covertly 'talking to oneself' does not necessarily appear to imply knowledge on the part of the listener of what the speaker is saying.

(e) The Analysis of "Verbal Behaviour"

Perhaps the most difficult problem for the behaviourist psychologist is to give an adequate account of language and linguistic behaviour in line with his methods of investigation and underlying philosophy. It has been stated by many philosophers, psychologists and biologists that the major distinction between human beings and animals is that human beings can and do develop language, in contra-distinction to animals, who, although capable of uttering certain sounds which often appear to have an emotive significance, nevertheless cannot be said to have developed a language. Norman Malcolm remarks in this connection : -

> " If a study of mankind does not regard man's possession of language as an essential difference between man and the lower animals, then I should not know what was meant by "essential".[1]

Behaviourist psychologists, however, attempt to argue that the difference between men and animals in respect to language is not a fundamental or "essential" one, but rather one of degree, in that human "verbal behaviour" is behaviour of far greater complexity, but can in principle be analysed and predicted by the use of the same methods and tools employed to describe, explain and predict all other types of animal as well as human behaviour.

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[1] Norman Malcolm, "Behaviorism as a Philosophy" in Behaviorism and Phenomenology, p.153.

We have already noticed that Skinner, in order to accommodate speech or "verbal behaviour" into his system, makes use of the concept of 'covert behaviour'. It has been argued in a previous section that the introduction of the notion of covert behaviour violates the rules of Skinner's own system; physiological (molecular!) processes become a necessary part of his system and part of the stimulus appears to be forced back into the behaving organism.[1]

In his book Verbal Behavior Skinner attempts to analyse and accommodate the phenomenon of speech or language in much greater detail. He writes here : -

> " Our subject matter is verbal behavior, and we must accept this in the crude form in which it is observed. In studying speech, we have to account for a series of complex muscular activities which produce noises. In studying writing or gesturing, we deal with other sorts of muscular responses. It has long been recognised that this is the stuff of which languages are made, but the acknowledgement has usually been qualified in such a way as to destroy the main point."[2]

The aim of Verbal Behavior is to give what Skinner calls a "functional analysis" of speech or language, using the type of analysis he has employed in relation to all other human as well as animal behaviour. Skinner means by "functional analysis" an analysis of the variables themselves which control verbal behaviour as well as their interaction which determines particular verbal responses.

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1 See pp. 34-37 of this thesis.

2 B.F. Skinner, Verbal Behavior, p.13.

Skinner appears to prefer the expression 'verbal behaviour' to 'language' and 'linguistic behaviour' for the following reasons : -

> " Language" is now satisfactorily remote from its original commitment to vocal behavior, but it has come to refer to the practices of a linguistic community rather than the behavior of any one member. The adjective "linguistic" suffers from the same disadvantage. The term "verbal behavior" has much to recommend it. Its etymological sanction is not too powerful, but it emphasizes the individual speaker, and whether recognized by the user or not, specifies behavior shaped and maintained by mediated consequences. It also has the advantage of being relatively unfamiliar in traditional modes of explanation."[1]

Noam Chomsky is obviously not very happy with Skinner's definition of 'verbal behaviour'. He writes : -

> " Consider first the term 'verbal behavior' itself. This is defined as 'behavior reinforced through the mediation of other persons! The definition is clearly much too broad. It would include as 'verbal behavior', for example, a rat pressing the bar in a Skinner-box, a child brushing his teeth, a boxer retreating before an opponent, and a mechanic repairing an automobile. Exactly how much of ordinary linguistic behavior is 'verbal' in this sense, however, is something of a question: perhaps, as I have pointed out above, a fairly small fraction of it, if any substantive meaning is assigned to the term 'reinforced'."[2]

Thus, clearly, Chomsky considers Skinner's definition of 'verbal behaviour' too wide, and, I think, would prefer to use the expression 'linguistic behaviour'. However, for the purposes of this discussion the terms 'verbal' and 'linguistic' are used synonymously.

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1 B.F. Skinner, Verbal Behavior, p.2.

2 Noam Chomsky, Review of Skinner's Verbal Behavior, in Language, XXXV (1959), pp.44,45.

It appears that Skinner's functional analysis is basically a causal one. Skinner states : -

> " The extent to which we understand verbal behavior in a "causal" analysis is to be assessed from the extent to which we can predict the occurrence of specific instances and, eventually, from the extent to which we can produce or control such behavior by altering the conditions under which it occurs."[1]

A limitation of Skinner's approach in Verbal Behavior is that the causal factors he appears to take into account are mostly those of the external environment; he pays little attention to the internal structure and the possible causal (physiological!) factors of the behaving organism itself. Skinner's main attention is focussed on stimulation in the present, and past sequences of reinforcement, by reference to which he tries to explain and control verbal behaviour. His basic concepts are those of 'stimulus', 'response' and 'reinforcement'.

Noam Chomsky analyses Skinner's use of these terms in detail. In relation to Skinner's use of the notion of 'stimulus' Chomsky maintains that the word 'stimulus' has lost all objectivity in its wider usage, and as a result stimuli are no longer objectively identifiable independent of the resulting behaviour, nor can they be manipulated. Chomsky argues as follows : -

> " If we look at a red chair and say red, the response is under the control of the stimulus 'redness'; if we say chair, it is under the control of the collection of properties (for Skinner, the

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[1] B.F. Skinner, Verbal Behavior, p.3.

> object) 'chairness' , and similarly for any other response. This device is as simple as it is empty. Since properties are free for the asking (we have as many of them as we have nonsynonymous descriptive expressions in our language, whatever this means exactly), we can account for a wide class of responses in terms of Skinnerian functional analysis by identifying the 'controlling stimuli'. But the word 'stimulus' has lost all objectivity in this usage. Stimuli are no longer part of the outside physical world; they are driven back into the organism. We identify the stimulus when we hear the response. It is clear from such examples, which abound, that the talk of 'stimulus control' simply disguises a complete retreat to mentalistic psychology."[1]

Chomsky suggests that the Skinnerian notion of stimulus control is just a misleading paraphrase for the more traditional notions of 'denote' or 'refer'. Skinner, for instance, claims that a proper noun is a response to a specific person or thing as a controlling stimulus. Chomsky objects to such an account and argues that proper nouns may be uttered without being stimulated by the corresponding object, and also, that one's own name can hardly be considered a proper noun in this sense.

One of the problems of Skinner's use of the notion of 'response' is that of identifying units of verbal behaviour - the verbal operant. Chomsky objects in this respect : -

> " No method is suggested for determining in a particular instance what are the controlling variables, how many such units have occurred, or where their boundaries are in the total response. Nor is any attempt made to specify how much or what kind of similarity in form or 'control' is required for two physical events to be considered instances of the same operant. In short, no answers are suggested for the most elementary questions that must be asked of anyone proposing a method for description of behavior."[2]

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1 Noam Chomsky, Review of Skinner's Verbal Behavior, in Language, XXXV (1959), pp.31,32.

2 Ibid., p.33.

The notion of 'response strength' is to Skinner the basic dependent variable in his functional analysis. In Verbal Behavior 'response strength' is defined as 'probability of emission'.[1] Chomsky maintains that the seeming objectivity of the notion of 'probability' is chimerical. He argues that Skinner seems to connect the notion of 'probability' with that of 'frequency of occurrence of response' only. Yet Skinner also indicates that the notion of 'strength' is related to several other factors such as emission of response, energy level (stress), pitch level, speed and delay of emission, etc.[2] For example, he states that if we are shown a work of art and exclaim Beautiful!, the speed and energy of such a response will be obvious to the owner. Chomsky critically remarks in this connection : -

> " It does not appear totally obvious that in this case the way to impress the owner is to shriek Beautiful in a loud, high-pitched voice, repeatedly, and with no delay (high response strength). It may be equally effective to look at the picture silently (long delay), and then to murmur Beautiful in a soft, low-pitched voice (by definition, very low response strength)."[3]

Chomsky draws the conclusion that from Skinner's analysis of 'response strength' as the basic datum, and its connection with the notion of 'probability', the word 'probability' can be best interpreted as a cover term for the paraphrasing of ordinary mentalistic concepts such as 'interest', 'intention', 'belief', etc.

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1 B.F. Skinner, Verbal Behavior, p.22.

2 Noam Chomsky, Review of Skinner's Verbal Behavior, in Language, XXXV (1959), p.34.

3 Ibid., p.35.

Chomsky criticises Skinner strongly on the latter's use of the notion of 'reinforcement' in Verbal Behavior, by maintaining that the term is employed in such a loose manner that -

> " (...) we find that not even the requirement that a reinforcer be an identifiable stimulus is taken seriously. In fact, the term is used in such a way that the assertion that reinforcement is necessary for learning and continued availability of behavior is likewise empty."[1]

Chomsky argues his case by considering some examples of reinforcement as given by Skinner. He notices a heavy reliance on the concept of 'automatic self-reinforcement'.

> " Thus, 'a man talks to himself ... because of the reinforcement he receives'; 'the child is reinforced automatically when he duplicates the sounds of airplanes, streetcars ...'; (...) 'the speaker who is also an accomplished listener "knows when he has correctly echoed a response" and is reinforced thereby'; thinking is 'behaving which automatically affects the behaver and is reinforcing because it does so'; (...) care in problem solving, and rationalization, are automatically self-reinforcing."[2]

Then it is noted that we can reinforce someone "by emitting verbal behavior", "by not emitting verbal behavior", or "by acting appropriately on some future occasion".[3]

The following situations may, according to Skinner, be reinforcing : -

> " An individual may also find it reinforcing to injure someone by criticism or by bringing bad news, or to publish an experimental result which upsets the theory of a rival, to describe circumstances which would be reinforcing if they were to occur, to avoid repetition, to 'hear' his own name though in fact it was

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1 Noam Chomsky, Review of Skinner's Verbal Behavior, in Language, XXXV (1959), p.37.

2 Ibid., p.37.

3 Ibid., p.37.

not mentioned or to hear nonexistent words in his child's babbling, to clarify or otherwise intensify the effect of a stimulus which serves an important discriminative function, etc."[1]

Chomsky concludes : -

" From this sample, it can be seen that the notion of reinforcement has totally lost whatever objective meaning it may ever have had. (...) The phrase 'X is reinforced by Y (stimulus, state of affairs, event, etc.)' is being used as a cover term for 'X wants Y', 'X likes Y', 'X wishes that Y were the case', etc. Invoking the term 'reinforcement' has no explanatory force, and any idea that this paraphrase introduces any new clarity or objectivity into the description of wishing, liking, etc., is a serious delusion."[2]

As a general comment on Skinner's use of the notions of 'stimulus', 'response' and 'reinforcement', Chomsky writes : -

" What has been hoped for from the psychologist is some indication how the casual and informal description of everyday behavior in the popular vocabulary can be explained or clarified in terms of the notions developed in careful experiment and observation, or perhaps replaced in terms of a better scheme. A mere terminological revision, in which a term borrowed from the laboratory is used with the full vagueness of the ordinary vocabulary, is of no conceivable interest."[3]

As in the case of other types of behaviour, Skinner, with regard to verbal behaviour, distinguishes between respondent and operant behaviour, and is here again mainly concerned with 'operants'.[4]

The first verbal operant which Skinner treats is the 'mand', which he defines as -

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1 Noam Chomsky, Review of Skinner's Verbal Behavior, in Language, XXXV (1959), p.37.

2 Ibid., pp.37,38.

3 Ibid., p.38.

4 See pp.19-22 of this thesis.

> " (...) a verbal operant in which the response is reinforced by a characteristic consequence and is therefore under the functional control of relevant conditions of deprivation or aversive stimulation."[1]

He explains further : -

> " In particular, and in contrast with other types of verbal operants to be discussed later, the response has no specified relation to a prior stimulus."[2]

The 'mand' includes commands, demands, questions, advices, etc.

The second verbal operant is the 'tact', which is defined as follows : -

> " A tact may be defined as a verbal operant in which a response of given form is evoked (or at least strengthened) by a particular object or event or property of an object or event. We account for the strength by showing that in the presence of the object or event a response of that form is characteristically reinforced in a given verbal community."[3]

The 'tact' is by Skinner considered to be the most important verbal operant. Skinner, by introducing the tact, hopes to avoid some of the difficulties posed by the traditional analysis of language in terms of reference and meaning. Chomsky argues that Skinner has in no way succeeded. He writes : -

> " Skinner remarks several times that his analysis of the tact in terms of stimulus control is an improvement over the traditional formulations in terms of reference and meaning. This is simply not true. His analysis is fundamentally the same as the traditional one, though much less carefully phrased. In particular, it differs only by indiscriminate paraphrase of such

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1 B.F. Skinner, Verbal Behavior, pp.35,36.

2 Ibid., p.36.

3 Ibid., pp.81,82.

> notions as denotation (reference) and connotation (meaning), which have been kept clearly apart in traditional formulations, in terms of the vague concept 'stimulus control'."[1]

A third and final class of verbal operants is constituted by what Skinner calls the 'autoclitics'. Skinner comments : -

> " Such "proposition attitudes" as assertion, negation, and quantification, the design achieved through reviewing and rejecting or emitting responses, the generation of quantities of verbal behavior merely as such, and the highly complex manipulations of verbal thinking can all, as we shall see, be analyzed in terms of behavior which is evoked by or acts upon other behavior of the speaker."[2]

'Autoclitics' mentioned are "I recall", "I declare", "I observe", "I guess", "I suggest", "I think", the terms of negation, and words like "if", "that", "as", "therefore", "some".[3] Grammar and syntax are accounted for as constituting autoclitic processes.[4]

Chomsky states his general conclusion about Skinner's book in the following way : -

> " The preceding discussion covers all the major notions that Skinner introduces in his descriptive system. My purpose in discussing the concepts one by one was to show that in each case, if we take his terms in their literal meaning, the description covers almost no aspect of verbal behavior, and if we take them metaphorically, the description offers no improvement over traditional formulations. The terms borrowed from experimental psychology simply lose their objective meaning with this extention, and take over the full vagueness of ordinary language. Since Skinner limits himself to

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1 Noam Chomsky, Review of Skinner's Verbal Behavior, in Language, XXXV (1959), p.48.

2 B.F. Skinner, Verbal Behavior, p.313.

3 Ibid., pp.313,315.

4 Ibid., pp.331 ff.

> such a small set of terms for paraphrase, many important distinctions are obscured. I think that this analysis supports the view (...), that elimination of the independent contribution of the speaker and learner (a result which Skinner considers of great importance,) can be achieved only at the cost of eliminating all significance from the descriptive system, which then operates at a level so gross and crude that no answers are suggested to the most elementary questions. The questions to which Skinner has addressed his speculations are hopelessly premature. It is futile to inquire into the causation of verbal behavior until much more is known about the specific character of this behavior; and there is little point in speculating about the process of acquisition without much better understanding of what is acquired."[1]

From the foregoing it is interesting to note that although Chomsky is highly critical of Skinner's efforts on the grounds that the examples given are not representative of the full range of linguistic behaviour, the methodology is too limited, the concepts used are vague and faulty, and verbal operants like the 'mand' and the 'tact' do not overcome problems raised by more traditional approaches to language, he does not seem to object in principle to the possibility of a completely causal analysis of verbal behaviour, though at this stage he considers this to be a "futile inquiry". It seems, therefore, that a closer examination of the adequacy or otherwise of a causal analysis of verbal behaviour, particularly of the Skinnerian type, is warranted and will be attempted in the following pages.

A major problem which can be said to arise in relation with a causal analysis of verbal behaviour is that of the connection between

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[1] Noam Chomsky, Review of Skinner's Verbal Behavior, in Language, XXXV (1959), pp.54,55.

at least a certain part of linguistic behaviour and the notion of 'intentionality'.[1]

When Skinner is aiming at providing a causal analysis of verbal behaviour, the causal factors involved are, of course, physical factors, although he sometimes admits some (probably physiological) factors "within the organism's skin".[2] Such factors are, at least in principle, and usually in fact, publicly observable. However, some verbal behaviour may carry an 'intentional' description. For instance, commands may be described and explained with reference to the intention of the person giving the command. The radical behaviourist may, however, argue that commands can be understood and even predicted by referring to causal factors only. He may, for example, argue that some animal cries have the appearance of and can be regarded as commands, yet can be adequately described, explained and predicted in a behaviouristic fashion.

Another example could be that we may intentionally make statements about the external world or our own feelings and perceptions. Again the behaviourist may argue that other explanations are possible and adequate. The intentional statement could be interpreted as being

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[1] The term 'intentionality' is used throughout this thesis in relation to the concept of 'a person having a certain intention', and not as connected with the notion of an 'intentional object of consciousness', as employed by Franz Brentano in "The Distinction between Mental and Physical Phenomena" in Realism and the Background of Phenomenology.

[2] See p. 41 of this thesis.

simply a response (as opposed to an intentional report) to external or perhaps even internal stimuli. A statement such as "I am in pain" may be regarded not as an intentional report, but simply as a response to certain external and internal stimuli, and basically on the same level as our screams, groans and moans of pain.[1]

The problem of intentional verbal behaviour is implicit in Skinner's reported discussion with Professor A.N. Whitehead[2], when Professor Whitehead challenged Skinner by saying: "Let me see you (...) account for my behavior as I sit here saying 'No black scorpion is falling upon this table.'"[3] which Skinner apparently regarded to be a rather unfair demand.

In connection with the problem of our apparent intentional use of language I would like to argue that many types of linguistic behaviour cannot be logically divorced from the notion of 'intentionality' nor from that of a desired 'goal', and that any attempt to analyse concepts such as 'promising', 'warning', 'commanding', 'welcoming', 'apologising', etc., without reference to the intention of the person uttering a certain sentence which constitutes the 'promise', 'warning', 'command', 'welcome', 'apology', etc., nor to the goal of such a speech act, is necessarily bound to fail.

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1 See pp.153-155 of this thesis.

2 B.F. Skinner, Verbal Behavior, pp.456-460.

3 Ibid., p.457.

As we have seen before, Skinner already found himself in deep waters with regard to the expression of intentions such as "I was on the point of going home at three o'clock", "I'm strongly inclined to go home" or "I shall go home in half an hour".[1]

The interesting point I would like to stress is, that the verbal behaviour of, for instance, 'warning' or 'promising' does not necessarily express an intention to act bodily, but is itself 'intentional' and as such not easily amenable to an adequate third-person causal description of that particular type of behaviour. Only we ourselves are in a privileged position to affirm or deny that a certain statement we made was in fact meant to be a warning, a promise, a command, etc. We may, for example, make the statement "There is a dog behind you" to a friend. Such a statement could be meant as just a description of a certain state of affairs, an exclamation of surprise, a warning, or possibly carry a few other descriptions. Only we ourselves are in a privileged position to know whether we meant the expression of the statement to be a description, or whether it was some kind of expression of surprise, or whether we wanted to warn our friend by making the statement. If we make the statement "I shall be home at four o'clock this afternoon", we may express a prediction ("I expect to have my shopping done by that time"), or an intention to be home at that time ("I shall make sure to be home at that time"), or a

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[1] See pp. 40-42 of this thesis.

promise ("I hereby claim to you (sincerely or insincerely) that I shall take the responsibility to be home at four o'clock"). Again, only we ourselves are in a privileged position to affirm or deny whether our statement was a prediction, or an expression of intention, or a promise. Any third person can only make an inference in this respect, based on behavioural criteria.

(i) The Concept of 'Lying'

As an example to illustrate the above points, the concept of lying is subjected to a more detailed analysis. The concept of lying is chosen, firstly, because lying constitutes specifically human behaviour - it does not make sense to maintain that animals lie, although a case could perhaps be made to defend that they warn or command - and secondly, because it is logically connected to the notion of language. It could be argued that we may lie by a nod of our head or some other gesture, but such a gesture is then only contingently and in a sense arbitrarily connected with the linguistic expressions 'yes' or 'no'. I.e. we can only establish these gestures after the correlating linguistic expressions have been developed.

Before continuing the discussion it is interesting to note what Skinner has to say in connection with the 'lie'. He writes : -

> " Special measures of generalized reinforcement are most obviously effective when they lead to an actual distortion of stimulus control. In a minor case, the speaker simply "stretches the facts". He overestimates the size of a fish he has caught or minimizes the danger of attack by an enemy. A special measure of generalized reinforcement has led him to misread a point on a scale of measurement.
> Stimulus control is not only "stretched" but "invented". A response which has received a special measure of reinforcement is emitted in the absence of the circumstances under which it is characteristically reinforced. We see this in the behavior of children: a response which has been enthusiastically received on one occasion is repeated on a different and inappropriate occasion. In a still greater distortion, a response is emitted under circumstances which normally control an incompatible response. We call the response a lie."[1]

Apparently Skinner does not contrast the telling of a lie in any way to truth telling, but considers it to be a greatly distorted tact, which takes place or comes about as a result of generalised reinforcement. Skinner's concept of 'generalised reinforcement' fulfils a key role in his analysis of the lie. His first explanation of a 'generalised conditioned reinforcer' runs as follows : -

> " Any event which characteristically precedes many different reinforcers can be used as a reinforcer to bring behavior under the control of all appropriate conditions of deprivation and aversive stimulation. A response which is characteristically followed by such a generalized conditioned reinforcer has dynamic properties similar to those which it would have acquired if it had been severally followed by all the specific reinforcers at issue."[2]

Skinner exemplifies the notion of generalised reinforcement with regard to verbal behaviour in the following manner : -

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1 B.F. Skinner, Verbal Behavior, p.149.

2 Ibid., p.53.

> " Generalized reinforcement may be deliberately used to strengthen particular forms or themes in the verbal behavior of a subject, (...). In a situation designed to resemble an interview or an experiment on verbal habits, the experimenter shapes up the behavior of his subject simply by giving some slight "sign of approval" contingent upon a selected property of behavior. For example, the experimenter smiles or nods whenever a plural noun is emitted. The relative frequency of plural nouns then increases."[1]

To Skinner, 'lying' thus becomes a matter of degree of distortion of an originally appropriate tact, resulting from (causal) generalised reinforcement conditioning. It seems to me that such an account of 'lying' is gravely inadequate and basically incorrect.

We can pose the question: "What do we mean when we say that a person A has told a lie?" Usually we would hold that : -

a. A made a false statement;

b. A intentionally made this statement, believing it to be false; and

c. A made the statement in order to deceive somebody else.

These three conditions appear to be necessary conditions for 'lying' and possibly together form the sufficient condition.[2]

If we would just accept condition (a) as the sufficient condition for 'lying', we would have no use for expressions such as "A mistakingly

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1 B.F . Skinner, Verbal Behavior, pp.148,149.

2 For the analysis of the concept of 'lying' I am indebted to D.S. Mannison's article "Lying and Lies", in the Australasian Journal of Philosophy, Vol.47, pp.132-144.

claimed that ..." or "A made a slip of the tongue and said ...". If we would accept condition (b) as the sufficient condition, we would have no use for expressions like "A believed he had made a false statement, but what he said was in fact true" or "A believed he had made a false statement, but it is in fact not known or determined whether the statement is true or false." If we accept condition (c) as the sufficient condition for 'lying', we exclude the possibility that A made a true statement in order to deceive somebody else. He may have slipped in a true statement amidst a number of obvious lies, in the hope that his listener would consider the true statement also to be a lie.

If we consider conditions (a) and (b) as together constituting the sufficient condition for 'lying', we would have to commit ourselves to the view that actors on the stage are telling lies when uttering certain statements, and also that we ourselves would be lying if we uttered false statements aloud while nobody else was present, which seems rather absurd. If we would hold that both conditions (a) and (c) together form the sufficient condition for 'lying', we would disregard the possibility that A thought he made a true statement, although it was in fact false, but tried to deceive his listener by uttering what he thought to be a true statement. If we would insist that conditions (b) and (c) together formed the sufficient condition, we should be

willing to admit that although A thought he made a false statement in order to deceive somebody else, but in fact made a true statement, the action of uttering the statement could be called 'lying' and the statement could be called a 'lie', which seems absurd. At best we could qualify that particular speech act as an attempt to lie.

If we thus accept that all three before-mentioned conditions are necessary conditions, what consequences would this have for Skinner's causal analysis of language? It appears to be clear from the foregoing analysis that we cannot qualify any utterance as a 'lie' nor any verbal behaviour as 'lying' if we do not admit to a necessary connection of the utterance to two apparently non-behavioural concepts, namely : -

1. The concept of 'intentionality', which here means that the person whose utterance it was, intended to make that utterance, believing it to be false. This in contrast to a Skinnerian behavioural account of an utterance just being a happening.

2. The concept of a 'goal' or an end product of the intended verbal behaviour, namely the deception of the person to whom the utterance is directly or indirectly directed. Although we may not succeed in deceiving our listener because he either suspects or knows we are lying or attempting to lie, and thus the goal is not reached, the behaviour can still be said to be goal-directed, and as such be qualified as 'lying'.

Obviously many concepts can be subjected to a similar analysis as the concept of lying, in order to show that a causal, behavioural account of language in many cases is not adequate, if we do use and wish to continue using these notions, and most likely must even necessarily continue employing these.

(ii) The Concept of 'Promising'.

As another example, the analysis of the concept of 'promising' may serve to emphasise the points made above.

Again, 'promising' seems to represent typically human behaviour, and is necessarily linguistic in nature. The question may be asked "What does it mean or entail to make a promise?" or "When is a verbal utterance a promise?". If we adhere to an ordinary, but perhaps slightly idealised or stylised use of the word 'promise', which would, for instance, exclude the notion of 'promising to oneself', the following conditions could be considered as necessary ones.[1] : -

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[1] I am indebted to John R. Searle for his account of 'promising' in Speech Acts, pp.57-62.

(a) A states to B that it is his intention to perform or refrain from performing a certain act (including speech act), either hypothetically, i.e. under certain conditions, or categorically.

(b) A gives expression to this real or supposed intention in order to make known to B and assure B that he will perform or refrain from performing a certain action. I.e., A gives expression of an intention (intentional act) with a certain intention.

(c) The proposed action or the refraining from a certain action must at least be thought of by A as appearing to B to be in B's favour.[1]

(d) The expression of the intentional action (or refraining from it) by A to B must be considered as entailing a commitment on the part of A, by B only (in the case of an insincere promise), or by both A and B (in the case of a sincere promise), to carry out or refrain from carrying out a certain act.

Again we may pose the question what consequences the above analysis has for a Skinnerian functional (i.e. causal) account of

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[1] This condition appears necessary in order to distinguish 'promises' from 'warnings' and 'threats'. Sometimes the word 'promise is used instead of 'warning' or 'threat', as in "I promise you I shall kill you, if you..." However, it seems to be usually recognised by the speaker as well as the hearer that the use of the word 'promise' is then somewhat stretched, and the intention of the speaker is in fact to warn or to threaten the hearer.

language. If we accept the above-mentioned conditions as necessary conditions for an utterance to be a promise, then we would have to conclude that the following non-causal concepts are necessarily involved if we wish to claim of any utterance that it qualifies as a promise : -

1. The concept of 'intentionality' is referred to necessarily in a two-fold way, namely -
   i. in relation to the performance of the speech act of 'promising' itself, which is intentional;
   ii. in relation to the proposed future action (or refraining from it), which is intended to be carried out or only supposed to be intended to be carried out (in the case of an insincere promise); and, of course, if it is carried out, it will follow that it is carried out intentionally if it is to qualify as the fulfilment of the promise.

2. The concept of a 'goal' is also necessarily involved in more than one way, namely : -

   in relation to the speech act itself -

i. the speech act has as its goal the making known to and assurance of the listener concerning a future action (or refraining from a certain action) by the speaker;

ii. the speech act also has as its goal, or at least is thought by the hearer to have as its goal (in the case of an insincere promise) the commitment of the speaker.

in relation to the intended action (or refraining from it) -

iii. the benefit or supposed benefit of the intended action (or refraining from it) to the hearer.

If the verbal behaviour itself was not intentional, it would make sense to maintain that certain utterances concerning our future actions made during our sleep (while dreaming), or made whilst we are only partly conscious, for instance, as a result of being drugged, or uttered while under hypnosis, might possibly qualify as promises, which seems rather odd. Neither does it make sense to maintain of any action or reaction which is not carried out intentionally, that it could constitute the fulfilment of the promise. For example, it does not make sense to maintain that a scream of fright as an involuntary, non-intentional reaction at the sight of a snake, could

qualify as the fulfilment of the promise to warn a sleeping camper in the bush if there are any snakes about, although such a scream may in fact alert and warn the sleeper.

If the speech act itself would not have as its goal the making known to and assurance of a listener concerning some future intended action on the part of the speaker, then it would make sense to claim that certain statements concerning our own intended actions might possibly qualify as promises if uttered whilst nobody else was present, and were not in any way recorded. Thus a statement like "I am going to town this afternoon to buy a present for B (my best friend!)", uttered aloud whilst nobody else was present, could then possibly be regarded as a promise to my best friend, which seems very odd indeed. Also, if the speech act did not have as its goal or was not thought to have as its goal (by the listener) the commitment of the speaker, then any statement concerning a proposed future action of us, made in the presence of a hearer, which action could possibly be thought of as benefitting the hearer, might qualify as a promise. This would make it difficult, if not sometimes impossible, to distinguish between simple statements regarding our future intended actions which do not commit us to carry out these actions, on the one hand, and promises on the other. For example, we might mention to our neighbour that we intend to go away on a

holiday for three months, and our absence would in fact benefit our neighbour, because he would during that time be allowed to pick and eat all the ripe fruit out of our garden. Yet, such a statement in no way commits us or is thought of as committing us to go on that holiday. There is no objection, moral or otherwise, to us changing our mind and instead spending our holidays at home, or not to take any holidays at all.

The condition of the intended goal of the intended action cannot be dispensed with either. If the action is not going to , or is not supposed to be going to favourably affect the hearer, but instead is going to be or is supposed to be going to be to the hearer's disadvantage, the utterance is more likely to be qualified as a warning or a threat.[1] If the intended action has no goal with relation to the hearer, that is, if the hearer is not going to be affected by the intended action or is not considered to be going to be affected by the intended action, the speech act of promising becomes completely senseless. If one would, for instance, say to a casual friend "I promise you that when I am eightly I shall stop wearing red ties", our listener may well remark "So what!" or "What is that to me?", thus bringing home that it is rather absurd to attach the concept of promise to a type of statement concerning our intended future action, which will in no way affect our listener.

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[1] See Footnote on p. 84 of this thesis.

It thus appears obvious from the above that no utterance can be called a promise without making implicit reference to the concepts of 'intentionality' as well as that of a 'goal' in various ways.

Numerous concepts in the English language may be analysed in a similar fashion leading to similar conclusions. To mention a few, concepts like 'claiming', 'requesting', 'forbidding', 'ordering', 'commanding', 'praying' would fall into this category. Many more can be thought of.

The basic problem for a Skinnerian analysis apears to be that, if adhered to, any utterance can only be considered as a happening, a set of physical movements of lips, throat, vocal cords, tongue, etc. plus a set of sounds produced by these, and the question may then well arise "What is the difference between a parrot uttering certain words or sentences and a human being uttering these same words and sentences?" Perhaps even more appropriately, what is the difference between a computer giving appropriate utterances to certain questions, and a human being uttering certain words and sentences, apart from the fact that the computer must be programmed beforehand to be able to do so. It seems then that it is legitimate to ask whether computers can lie, promise, claim, request, forbid, order, command, pray, etc. However, it appears that we have to

answer that such a question is absurd, since computers are not persons and only persons can lie, promise, etc. Yet it seems that on Skinner's account of language, and on any other purely causal account of language as well, the distinction between persons and non-persons cannot be drawn, since the difference between utterances as happenings and utterances as doing or actions cannot be drawn.

The whole problem of Skinner's functional or causal account of language thus becomes part of a much wider problem, namely whether a causal account of any person's doing, whether linguistic or otherwise, can provide an adequate description of the ongoing behaviour. The kernel of this big problem is, where does the concept of a 'person', which is necessarily connected with the concepts of 'intentionality' and of a 'goal' as set by the person, fit into the description of an utterance or a bodily movement as an action? What does it mean to say of a person "He did something", where the 'something' could be the making of a promise or the raising of his arm, as opposed to something happening to that person?

(f) The Concept of 'Causation'.

In the previous section of this thesis it has been argued that a causal analysis of all human behaviour is inadequate since it is in itself insufficient to provide us with a satisfactory account or explanation of human actions, verbal or otherwise. A problem which has already been mentioned in the short exposition of Skinner's theory is the sense in which he employs the concept of 'cause'. Skinner himself preferred the expression "functional relation", although he does not object to the word 'cause' as a synonym in "informal discussion".[1] It is obvious from the quoted passage on page 22 that Skinner uses a Humean type constant conjunction notion of 'cause' with regard to human behaviour, which relates to types of public happenings in the physical (including physiological) world which follow each other regularly.

Yet the concept of 'cause' as employed in ordinary language has another, and perhaps more basic application; we employ it in connection with the concept of human (and sometimes divine) action, but this application seems to be a non-Huean one. We would maintain that somebody causes something to happen; yet the way in which we then use the notion of 'cause' is at variance with the Humean type notion of causation, and thus with the way in which Skinner maintains he makes use of this notion in his psychological theory. Some of the

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[1] See pp. 22-23 of this thesis.

differences between what shall for convenience's sake be called a "Humean type cause" and an "action cause" are stated and elaborated on below.[1]

1. The concept of cause as applied to action usually involves the notion of a person, who is considered to be a thing or a substance rather than an event which 'causes'the subsequent event to take place, as is the case when we apply a Humean type notion of causation. It seems clear from previous quotations that Skinner ignores the concept of a person with regard to his use of the notion of cause, but concerns himself purely with event causation. Yet in the case of human action the concept of substance causation - i.e. a person being the cause of something happening rather than an event inside our outside the person - seems to be more appropriate in ordinary discourse.

2. The concept of cause as applied to action involves the notion of a person <u>making</u> some event to come about, instead of the event necessarily happening as an inevitable result of preceding conditions. The person is not <u>necessarily</u> thought of as constituting the sufficient condition for an action to take place, although it cannot be maintained that this is incompatible with the notion of action causation, since a person as he is at a certain time as a result of

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[1] For the exposition of the ambiguity of the concept of cause as applied in ordinary language I am indebted to Richard Taylor's book <u>Action and Purpose</u>.

hereditary and environmental conditions, may be the sufficient condition for a particular action to take place. A kleptomaniac may steal an item from a shop, and such an action may be considered to be the inevitable result of certain hereditary and environmental conditions. Yet the behaviour is usually classified as action. However, in cases of ordinary theft, the thief is usually not considered to be the sufficient (inevitable!) condition for the theft. Hence it seems that the concept of cause as applied to action is neutral with regard to the question whether the person is the sufficient condition or not in relation to the ensuing action. In contrast, however, in the case of a Humean type causal relationship the cause is usually interpreted as constituting the sufficient condition for the ensuing event.

3. In relation to the previous point it must be noted that in the Humean type notion of causation the concept of 'power' is in no way referred to. Skinner also eliminates any reference to 'power' in his account of causation as applied to human behaviour; human behaviour just necessarily follows certain events inside or outside of the person, but is not "brought about" by these in any literal sense of that expression. However, when we apply the notion of action causation, the notion of power seems to be necessarily involved. If we say that a person performed a certain action, we seem to imply that it was

through him having the power and the intention to do so that the action came about, and not that the behaviour followed certain other conditions or events necessarily.

4. If a person is not considered to be the sufficient condition for an action to take place - some philosophers would maintain that at least sometimes a person under the same conditions with the same hereditary make-up and the same environmental influences could have acted otherwise than he did - then what a person does or how he acts is not a necessary result of previous conditions.[1] Thus a person is not necessarily considered to be an empirically necessary link in a probably infinite causal chain of events, but as the beginning of a causal chain of events, although this would not be a Humean type causal chain since the relation between the first link of the chain (the person) and the second (the action) would not conform to the Humean type notion of causality. However, on a Skinnerian analysis of the notion of cause as applied to human behaviour, persons can never be considered as beginnings or initiators of causal chains of events; events outside or inside the behaving organism are seen as links in causal chains, are caused themselves, and in turn "cause" behaviour.

5. When we are talking about actions and action causation we are usually talking about individual events, i.e. particular actions which

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[1] See pp. 95-96 of this thesis.

take place at a certain time and place. In fact, in ordinary discourse we consider actions to be unique historical events. However, if we apply the Humean type concept of causation, we consider types or classes of events more or less independent of the time and place these events occur, i.e. we consider causal relations as instances of certain universal or probability laws. It is clear from Skinner's approach that he wishes to consider bits of human behaviour, which include actions, as instances of certain laws about behaviour rather than as unique historical events.

6. If we apply the Humean type concept of causation, we make reference to the future; we use the notion of cause in order to predict future events, which are considered to be instances of certain scientific laws. Scientific laws are formulated in order to describe certain uniformities or regularities in nature, to explain particular instances as falling under such laws and to predict future instances and retrodict past events. Skinner obviously tried to formulate such types of scientific laws with regard to human behaviour, employing the Humean type concept of cause. However, when we ordinarily use the concept of cause in relation to human action, we mainly use it to describe and explain past and present events, but seldom for predictive or retrodictive purposes, although this is not completely excluded. But if we try to predict how a person will act in the future from the way he has acted in the past under similar circumstances,

our prediction seems to be much closer to the notion of an "intelligent guess" than to that of empirical certainty or rationally derived probability which we attach to predictions based on physical and perhaps biological and physiological laws.

7. If we employ the Humean type notion of causation, our knowledge of causal relationships between events would be a third-person inferential type of knowledge, acquired from past observation, experiment and possibly measurement. Again, since Skinner strives to make this notion of cause applicable to all human behaviour, he is committed to the view that all admissible knowledge about causes, including knowledge about causes of human action, is of the third-person inferential type. Yet when we use the notion of action causation in ordinary discourse we would claim that in the case of our own actions we have direct, non-sensual, non-inferential knowledge that we ourselves as persons were the 'cause' of our actions.

8. In connection with the previous point it is clear that in cases in which we consider ourselves to be the cause of an action, we are dealing with the notion of a cause being aware of itself; we are at least sometimes aware that we <u>as persons</u> are causes of subsequent happenings. This kind of self-awareness of a cause is peculiar to the concept of action causation. We may, of course, also sometimes be aware of being a Humean type cause, when, for instance we fall and

knock over a chair. However, in such cases we consider ourselves as a physical or perhaps physiological object being a necessary link in a causal chain of events, rather than a person.

9. In applying the Humean type concept of cause the notion of 'intentionality' is in no way involved. In Skinner's "functional relationships" no reference is made to the concept of 'intentionality'. However, in a previous section of this thesis we have seen that Skinner has difficulty with first-person expressions of intentions to act, and that his way of accommodating these within his system is unsatisfactory.[1] It will be argued at length in the next chapter of this thesis, devoted mainly to a discussion of Tolman's theory of psychology, that the concept of action seems to be necessarily connected to the notion of 'intentionality'.[2]

10. When, in applying the Humean type notion of causation we describe cause and effect as separate events, in the description of the cause there is no reference made to a future state of affairs. Skinner, of course, attempts to observe this condition in his application of (Humean type) causation to human behaviour. However, in the description of at least some cases of action causation, namely

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1 See pp. 40-44 of this thesis.

2 See pp. 175-179 of this thesis.

those of intentional, non-spontaneous actions, the description of the person intending to act in a certain way, i.e. the cause, makes reference to a future state of affairs. For instance, the description of a person intending to open a window makes reference to an aimed-at future state of affairs, namely the open window, although such a state of affairs may not be achieved by the ensuing action.

From the foregoing it is obvious that since Skinner attempts to employ the notion of cause with regard to human behaviour purely in a Humean type sense, he thereby disregards the concept of action causation completely. Thus it is very questionable whether Skinner can make a satisfactory distinction between actions on the one hand, and reactions and movements on the other. The term 'overt behaviour' does not help us at all in this connection, and in fact adds to obscurity and inability to distinguish, since we could consider such events as all reflex movements, perhaps all emotional reactions such as screaming or weeping, and even the growing of our hair and nails as overt behaviour, though hardly as actions.

It seems, therefore, that if we accept Skinner's "functional relationship" as applicable to all human (and animal) behaviour, and reject or ignore the concept of action causation, certain common, useful explanatory distinctions with regard to human behaviour can no longer be made.

(g) The Problem of Determinism.

One of the basic metaphysical presuppositions of Skinner's system of psychology, and for that matter, of other behaviourist theories, is that human behaviour is at least in principle completely determined. Human behaviour, which includes human action, is according to Skinner's theory, determined by preceding conditions or events outside or inside the behaving organism. Since the concept of a person does not appear to be essential for a Skinnerian account of any type of behaviour, his "functional relation" represents a Humean type causal chain of events, every event being the result of a previous sufficient condition. Thus any act of behaviour is the empirically inevitable result of a previous event or set of events inside or outside the organism, which in turn is the inevitable result of another event or set of events and so on.[1]

However, as has been argued in connection with the concept of causation, if we accept that a person as such can be the cause of ensuing behaviour, the question of determinism is still open. When the person or "agency" as such is considered to be the cause of following behaviour - sometimes called the "agency theory" of action[2] - we may maintain that the cause, i.e. the person himself, is the

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1 See pp.88-90 of this thesis.

2 Jerome A.Shaffer, Philosophy of Mind, pp.85-88.

inevitable result of hereditary material and environmental conditions. Richard Taylor writes the following in connection with the notions of 'agency' and 'causality': -

> " The point of these reflections is that there is nothing in the concept of agency, as such, to entail that any events must be causally undetermined, and in that sense "free," in order for some of them to be the acts of agents. Indeed, it might well be that everything that ever happens, happens under conditions which are such that nothing else could happen, and hence that in the case of every act that any agent ever performs there are conditions causally sufficient for his doing just what he does. This is the claim of determinism, but it does not by itself require us to deny that there are agents who sometimes intiate their own acts. What is entailed by this concept of agency, according to which men are the initiators of their own acts, is that for anything to count as an act there must be an essential reference to an agent as the cause of that act, whether he is, in the usual sense, caused to perform it or not. The concept of agency is, therefore, perfectly compatible with the thesis of universal causal determinism to which one might at first want to oppose it."[1]

The problem of determinism versus some form of indeterminism is embodied in the question "Could a person, under the same conditions, at the same point in time, on any particular occasion, have acted otherwise than he did?" Sometimes the question is phrased slightly differently, namely "Could a person, under the same conditions, at the same point in time, on any particular occasion, have chosen to act differently than he did?" By adhering to the latter formulation it may be argued that the problem is unduly complicated, since it gives

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[1] Richard Taylor, Action and Purpose, pp.114,115.

the word 'choice' a metaphysical significance, which it does not necessarily have to assume in order to retain its use within a language. We may maintain that what we mean by a person having a choice is, that he is offered or faced with various alternative courses of action, and not that under the same conditions he could have acted or decided to act otherwise than he did. Yet it seems that the word 'choice' also operates on another, deeper level, judging from the following hypothetical case.

Suppose a man is exploring a certain cave system. After a while he considers two alternative courses of action, namely staying in the cave or getting out of the cave. He decides to get out. Yet unknown to him part of the cave structure has collapsed and he cannot in fact get out. Here it seems that the choice to get out is not equivalent with a possible alternative course of action. If may be objected here that at least the man tried to get out, which is an alternative course of action from not trying to get out. However, we may adapt our example in the following manner. Suppose the man has been asleep for a while in the cave and woke up. On waking up he considered the same two alternatives as mentioned above. Yet unknown to him he has been breathing in some kind of noxious gas which was formed in the part of the cave where he fell asleep and which completely paralysed him. He only became aware of this after he made the decision to get out of the cave. Could one in such a case

maintain that the choice to get out was equivalent to trying to get out? If so, one would like to know what kind of behaviour constitutes or can be described as 'trying to get out'.

From the above considerations it was decided to accept the second formulation of the problem of determinism versus indeterminism as the more accurate one.

It has been argued by some philosophers in favour of libertarianism that concepts like 'trying', 'making an effort', 'deliberation' do not make sense if determinism is true. This type of objection may present difficulties particularly for a Skinnerian type of determinism, since such concepts appear to be logically connected to the concept of a person. Yet, if we adhere to an "agency" theory of action, we may well argue that a person trying or deliberating is himself in that state completely causally determined. It seems, therefore, that a conceptual approach to the problem is not going to help us one way or the other in throwing much light on the problem.

It is possible that a phenomenological approach may prove more fruitful in this direction. The first great puzzle of determinism versus indeterminism is, that it should have arisen as a philosophical problem at all. The reason for this seems to be that we experience ourselves at least at times as the causes of our physical actions, without at the same time experiencing ourselves to be the sufficient

condition for our actions. In other words, we experience ourselves as being able to have chosen to act otherwise than we did. Now we would perhaps not claim infallibility as to whether any particular action of ours was the result of us acting "freely"; we may be mistaken about at least some actions, particularly those connected with the notion of addiction. Yet the question may well be asked "How could we ever think that we could have chosen to act otherwise than we did if in fact we never on any occasion could have done so?" How could we ever sensibly employ notions such as 'being ourselves' whilst we acted as opposed to 'not being ourselves' or 'losing our self-control' whilst acting against 'being in full control of ourselves', if we did not at least in some cases experience "freedom of choice". If determinism is true, we would have to admit that in all cases any direct experience of "freely choosing how to act" would be an illusion. Now, even if determinism is true, it is still the task of psychologists and perhaps philosophers to offer an explanation as to why we have such illusions with regard to (some) human actions, since we normally do not entertain such (illusionary) beliefs in connection with inanimate nature nor plants and animals.

A second puzzle for determinism arises in connection with the possibility of predicting future human actions. If we accept determinism to be true with regard to human action, then it would seem that, at least in principle, we could predict our own future actions.

When we consider events taking place in the world, we would maintain that all conditions necessary to predict any future event within the physical world are in existence now or were in existence during the past. From conditions and events in existence now or in the past we could predict events at time t_1, t_2 and so on within our temporal framework. We can already predict astro-physical events with great accuracy. If determinism would always be true for human action, this would mean that if we started to work out or "calculate" our prediction at time t_1 concerning our own action at time t_4, we could after completion of our calculations at time t_2 make an accurate prediction of our future action at time t_4. Yet, as soon as we would "know" at time t_2 what we were going to do at time t_4, we could - if the action concerned was a so-called voluntary one - decide at time t_3, in order to falsify our own prediction, to perform a different action instead at time t_4. But this knowledge about such a decision was not in principle available to us at time t_1, since it is dependent on the outcome of our calculations at time t_2. However, if determinism is true with regard to all human action, firstly it seems odd that we could falsify our own predictions by deciding to do something else instead, and secondly, the knowledge of the decision to act otherwise than our predicted action, i.e. us deciding at time t_3 to act differently, would have to be available to us at least before time t_2. Thus to arrive at an accurate prediction at time t_2 concerning our own future action at time t_4, we would have to know something about ourselves

before time t_2 which we could only know at time t_3, which is after t_2. This seems absurd.

The argument thus is that determinism entails the possibility of accurate prediction. This means that conditions are in existence at the time the prediction is made which enable one to make accurate predictions. In the case of prediction of our own "voluntary" action, we are firstly faced with the oddity of the possibility of falsifying our own prediction, and secondly, with the problem that one of the conditions necessary for an accurate prediction, namely knowledge of our own future decision (in order to falsify our prediction) cannot be in existence at the time the prediction is made. And even if we could have knowledge of our decision to falsify our prediction in a certain way, we could again falsify that prediction which would take the first falsification into account, and so on, so that in such a case we would be faced with the problem of an infinite series of decisions to falsify our previous predictions.

From the foregoing it appears, therefore, that determinism of any kind, including the Skinerien type, with regard to all human behaviour, is a dubious position to hold.

CHAPTER III

TOLMAN'S THEORY OF PSYCHOLOGY

(A) Short Exposition

Edward Chace Tolman (1886-1959) declared his adherence to the school of Behaviourism from 1920 onwards. The main deviation from radical behaviourism is that Tolman's theory admits the concepts of 'purpose' and 'cognition' as necessary to the system. However, Tolman maintains that these concepts can be "objectively defined".[1] His purposive behaviourism is set out in his main work, entitled Purposive Behavior in Animals and Men, which was first published in 1932.

Tolman, like Skinner after him, rejected Watsonian "molecular behaviourism".[2] He accuses Watson of not having drawn a clear distinction between "molar" and "molecular" behaviour. In this connection he writes : -

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.13.

[2] See footnote on p.17 of this thesis.

> " In short, our conclusion must be that Watson has in reality dallied with two different notions of behavior, though he himself has not clearly seen how different they are. On the one hand, he has defined behavior in terms of its strict underlying physical and physiological details, i.e., in terms of receptor-process, conductor-process, and effector-process per se. We shall designate this as the molecular definition of behavior. And, on the other hand, he has come to recognize, albeit perhaps but dimly, that behavior, as such, is more than and different from the sum of its physiological parts. Behavior, as such, is an "emergent" phenomenon that has descriptive and defining properties of its own. And we shall designate this latter as the molar definition of behavior."[1]

Subsequently Tolman clearly states his position in the following way : -

> " It is this second, or molar, conception of behavior that is to be defended in the present treatise. It will be contended by us (if not by Watson) that "behavior-acts," though no doubt in complete one-to-one correspondence with the underlying molecular facts of physics and physiology, have, as "molar" wholes, certain emergent properties of their own. And it is these, the molar properties of behavior-acts, which are of prime interest to us as psychologists. Further, these molar properties of behavior-acts cannot in the present state of our knowledge, i.e., prior to the working-out of many empirical correlations between behavior and its physiological correlates, be known even inferentially from a mere knowledge of the underlying, molecular, facts of physics and physiology."[2]

Thus Tolman, in contrast to Skinner, presents a different argument in favour of "molar" behaviourism. Skinner adheres to the "molar" view of behaviour because of the inaccessibility to and

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, pp.6,7.

[2] Ibid., pp.7,8.

limited usefulness of the underlying physiological facts of behaviourist psychology, thereby merely providing a technical reason.[1] Tolman, however, maintains that behaviour-acts as a whole have properties over and above the physical and underlying physiological components and correlates of the act. Tolman here shows his affinity to Gestalt psychology, with its basic slogan : "The whole is more than the sum of its parts."

After thus concluding that behaviour qua behaviour has descriptive properties of its own, Tolman's next step in the formulation of his system is to ask himself what the properties are. He presents an answer in the following way : -

> " The first item, in answer to this question is to be found in the fact that behavior, which is behavior in our sense, always seems to have the character of getting-to or getting-from a specific goal-object, or goal-situation."[2]

The second feature is, expressed in ordinary language, that behaviour follows a certain pattern, using certain types of means. Tolman himself says in this connection : -

> " As the second descriptive feature of a behavior-act we note the further fact that such a getting to or from is characterized not only by the character of the goal-object and this persistence to or from it, but also by the fact that it always involves a specific pattern of commerce-, intercourse-, engagement-, communion-with such and such intervening means-objects, as the way to get thus to or from."[3]

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[1] See pp.17,18 of this thesis.

[2] Edward C. Tolman, Purposive Behavior in Animals and Men, p.10.

[3] Ibid., pp.10,11.

The third feature is the preference for the shortest way to the goal. Tolman states : -

> " As the third descriptive feature of behavior-acts we find that, in the service of such gettings to and from specific goal-objects by means of commerces with such and such means-objects, behavior-acts are to be characterized, also, in terms of a selectively greater readiness for short (i.e., easy) means activities as against long ones. Thus, for example, if a rat is presented with two alternative spatial means-object routes to a given goal-object, one longer and one shorter, he will within limits select the shorter."[1]

Tolman seems to think that the above-mentioned three features of behaviour-acts necessarily imply the concepts of 'purpose' and 'cognition'. He does not reject these concepts; he accepts these as an inherent part of his system, but maintains that these notions can be objectively, i.e. from a third-person viewpoint, recognised and characterised. He writes : -

> " But surely any "tough-minded" reader will by now be up in arms. For it is clear that thus to identify behaviors in terms of goal-objects, and patterns of commerces with means-objects as selected short ways to get to or from the goal-objects, is to imply something perilously like purposes and cognitions. And this surely will be offensive to any hard-headed, well-brought-up psychologist of the present day. And yet, there seems to be no other way out. Behavior as behavior, that is, as molar, is purposive and is cognitive. These purposes and cognitions are of its immediate descriptive warp and woof. It, no doubt, is strictly and completely dependent upon an underlying manifold of physics and chemistry, but initially and as a matter of first identification, behavior as behavior reeks of purpose and of cognition. And such purposes and such cognitions are just as evident, as we shall see later, if this behavior be that of a rat as if it be that of a human being.

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.11.

> Finally, however, it must nonetheless be emphasized that purposes and cognitions which are thus immediately, immanently, in behavior are wholly objective as to definition. They are defined by characters and relationships which we observe out there in the behavior."[1]

It is from the foregoing obvious that Tolman does not distinguish between human and animal purposes and cognitions. In fact, he cannot make a clear distinction between human and animal purposes and cognitions, since his data are in the cases of both humans and animals derived from the same kind of publicly observable behaviour, and not in the case of humans from any first-person statements about private feelings or awarenesses.

The question Tolman is faced with now, is how those purposes and cognitions are to be defined in a behaviouristic fashion. He thinks he has found the answer with regard to purposes by introducing the notion of 'docility', by which he means 'teachableness'.[2] This teachableness can be recognised by two facets of behaviour, namely (a) the readiness of the behaving organism to persist through trial and error to reach a certain goal, and (b) the tendency of the behaving organism on successive occasions to select the behaviour-act which gets it relatively the most easily and quickly to its goal. Tolman states : -

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, pp.12,13.

[2] Tolman writes in a footnote in the above-mentioned book, p.14: "Webster defines docility as (a) teachableness, docileness; (b) willingness to be taught or trained; submissiveness, tractableness. We use it throughout in the sense of "teachableness."

> " The doctrine we here contend for is, in short, that wherever a response shows docility relative to some end - wherever a response is ready (a) to break out into trial and error and (b) to select gradually, or suddenly, the more efficient of such trials and errors with respect to getting to that end - such a response expresses and defines something which, for convenience, we name as a purpose. Wherever such a set of facts appears (and where save in the simplest and most rigid tropisms and reflexes does it not?), there we have objectively manifested and defined that which is conveniently called a purpose."[1]

Tolman maintains that the concept of 'docility' can also be used in connection with an objective definition of 'cognitions'. 'Cognitions', he appears to think, are characterisable and definable by reference to certain environmental conditions. He states in this respect : -

> " Consider, now, the fact of cognition. The docility feature of behavior also objectively defines, we shall declare, certain immediate, immanent characters for which the generic name cognitions or cognition-processes is appropriate. More specifically, our contention will be that the characteristic patterns of preferred routes and of commerces-with which identify any given behavior-act can be shown to be docile relative to, and may pari passu be said cognitively to assert : (a) the character of a goal-object, (b) this goal-object's initial "position" (i.e., direction and distance) relative to actual and possible means-objects, and (c) the characters of the specifically presented means-object as capable of supporting such and such commerces-with. For, if any one of these environmental entities does not prove to be so and so, the given behavior-act will break down and show disruption. It will be followed by subsequent alteration. It is, then, such contingencies in the continuance of any given behavior-act upon environmental characters actually proving to be so and so, which define that act's cognitive aspects."[2]

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.14.

[2] Ibid., pp.16,17.

It is clear from the above quotations that Tolman is not concerned with the question what it feels like to a person or for that matter, an animal, to have a certain cognition, i.e. to "know" something, or to have a certain purpose. As a psychologist his only concern is how such cognitions and purposes can be inferred from and characterised by behaviour. It is only the third-person view which is of importance to Tolman, and also to all other behaviourist psychologists. In a later article he states in this connection : -

> " As psychologists we do not seek to re-live and describe the other man's immediate experiences. Such a re-living must be left, as we have said, to metaphysics, or to poetry, or to common sense - that is, to whatever disciplines as may concern themselves with immediate experience, per se. Psychology, as such, is concerned only with such objectively definable variables as the intentions, expectations, attainments, immanent in the behavior of organisms. Psychology as such is objective and behavioristic."[1]

A noticeable facet of Tolman's system is its heavy dependence on the concept of "intervening variables". Tolman's initial working formula in experimental situations is represented by the following formula : -

$$B = f(S,A)$$

B stands for behavior variables which are, of course, dependent variables. S stands for situation variables or "stimuli" and A

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[1] Edward C. Tolman, "Psychology versus Immediate Experience", in Philosophy of Science, Vol.2, p.364.

for antecedent variables such as age, heredity and previous learning; these are, of course, the independent variables since in a series of experiments these can be varied by the experimenter.

However, Tolman also wishes to provide an answer to the question what goes on within the organism between the applied stimulus and the behavioural response. It is to this intervening process that he connects the concept of "intervening variables". He thinks, however, that this concept has no value unless it can be expressed with reference to and characterised by the experimental variables on the one hand and the behavioural responses on the other. Tolman explains the notion of "intervening variables" in the summary of his book Purposive Behavior in Animals and Men as follows : -

> " Our system has been presented. It conceives mental processes as functional variables intervening between stimuli, initiating physiological states, and the general heredity and past training of the organism, on the one hand, and the final resulting responses, on the other. These intervening variables it defines as behavior-determinants. And these behavior-determinants it subdivides further into (1) immanent purposive and cognitive determinants, (2) capacities and (3) behavior-adjustments. All three of these types of determinant are to be discovered, in the last analysis, by behavior experiments. They have to be inferred "back" from behavior. They are precipitated out from the empirical correlations which can be observed between specific stimuli and initiating physiological states, on the one hand, and specific resultant acts, on the other. They are to behavior as electrons, waves, or whatever it may be, are to the happenings in inorganic matter. They are pragmatically conceived, objective variables the concepts of which can be altered and changed as proves most useful. They are not the dictates of any incontrovertible moments of immediacy."[1]

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.414.

In the preceding quotation the concept of 'intervening variables' seems to refer to some kind of hypothetical constructs which facilitate the explanation of consequent behaviour. However, Tolman, in a later paper, equates the notion of 'intervening variables' with that of 'behaviour readinesses', which seems to come closer to a Rylean concept of dispositional properties.[1]

Tolman writes : -

> "(...)the molar behaviorist seeks to state the intervening variables as specific types of behavior-readiness or, in more common sense terms, as objectively definable "demands," "intentions," "expectations" and "attainments." The physiological behaviorist states the laws of visual perception in terms of photochemical actions on the retina, convergence of the two eyes, bi-retinal disparity, lens accommodation and neurological processes in optic thalami and cortex. The molar behaviorist states the laws of perception in terms of objectively defined behavioral conditions of "intention" and "expectation" as these have been discovered by Brunswik and his students, and as they may also be discovered by animal psychologists. There will, of course, be no conflict between the two behaviorisms. Each will play into the hands of the other. The molecular physiological variables will, of course, underly and may, if you will, be said to explain the molar variables of "demand," "intention," "expectation." But these latter will have to be discovered and schematized at their own level."[2]

Tolman divides the "intervening variables" into two main groups, as follows : -

> " I define the I's as behavior-readinesses. And I would divide them into two main groups which I shall designate respectively as demands and cognitions."[3]

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1 See pp. 11,12 of this thesis.

2 Edward C. Tolman, "Psychology versus Immediate Experience", in Philosophy of Science, Vol.2, p.365.

3 Ibid., p.367.

The "demands" seem to answer questions of the kind of "why" or "what for" an organism engages in a certain kind of behaviour; the "cognitions" appear to answer the question "how" or "in what manner" the organism prepares for that behaviour.

The problem of "intervening variables" and the ambiguity of this concept will be discussed in the next section of this chapter.

A general discussion of concepts relevant to philosophy of psychology and the discipline of psychology itself, and Tolman's treatment and characterisation of these will also be undertaken in the following sections. Concepts treated are those of 'consciousness', 'introspection', 'speech', 'goals', 'purposes', 'cognitions'.

The problem of teleological or purposive explanations will be elaborated upon in relation to the concept of human action.

(B) Philosophical Problems

(a) The Status of "Intervening Variables".

As has been indicated in the previous section, a very important problem for behaviouristic psychology, and in particular for Tolman's system because of its heavy dependence on the notion of 'intervening variables', concerns the logical and/or existential status of such postulates.[1]

It seems that in connection with a behaviouristic psychology, there are two ways of viewing the concept. The first way is that of considering these intervening variables as purely logical constructs, useful for explanatory purposes, but of having no existential status, i.e. they do not refer to any inner events, mental or physical; the question whether such events exist or not is irrelevant. Tolman appears to be mainly inclined to view these variables in such a way. He states : -

> "They (...) are pragmatically conceived, objective variables the concepts of which can be altered and changed as proves most useful. They are not the dictates of any incontrovertible moments of immediacy."[1]

In a later paper Tolman calls "intervening variables" "behavior readinesses", which reeks of Ryle's "dispositional properties",

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.414.

however, with this difference that Ryle talks about ordinary mental concepts in this way, whilst Tolman only regards his own logical counter-concepts in this manner.[1] Ryle considers many ordinary mental concepts as comparable in status to properties such as brittleness of glass and solubility of sugar in water. Such concepts, he argues, are hypothetical in nature, not referring either directly or indirectly to a property of the glass or of the sugar, but to the behaviour of glass or sugar under certain circumstances. Similarly, according to Ryle, many ordinary mental concepts do not refer directly or indirectly to inner states of the person, but to the overt behaviour the person displays under certain conditions. It seems to follow that such dispositional properties are thus not just empirically, but logically related to stimuli and response, although Ryle would have to argue that empirical instances must have given rise to the formation of the concept.

Tolman, in contrast, is not so much concerned with the question of existence of inner mental states, nor with their eventual contribution through the medium of an introspective method to science; he declares these states, if they do exist, to be the province of poets and novelists, and introspective data unsuitable for scientific purposes. Tolman's intervening variables, therefore, are not the ordinary colloquial concepts, nor are they related to these. They are

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[1] See the quotation from Tolman's "Psychology versus Immediate Experience" on p.110 of this thesis.

artificial, purely scientifically valuable, logical constructs. Tolman, however, at times shows some inconsistency on this point, as shall be argued later in this section.

Of course, if we accept the intervening variables to be merely logical constructs, then their employment must be connected with pragmatic explanation, and changed in definition or even omitted, if either they do not function adequately in the relevant explanation, or if more effective constructs can be arrived at which make the former ones inferior or even redundant.

Perhaps Tolman's clearest formulation and explanation of the notion of 'intervening variables' may be found in his paper "The Determiners of Behavior at a Choice Point", in which he states : -

> " A theory, as I shall conceive it, is a set of 'intervening variables.' These to-be-inserted intervening variables are 'constructs' which we, the theorists, evolve as a useful way of breaking down into more manageable form the original complete f_1 function."[1]

He explains the symbol f_1 earlier in the above-mentioned article as follows : -

> " ... the f_1 (...) indicates merely the fact of the functional dependence of the dependent variable upon the independent variable."[2]

Hereby he refers to the following simple scheme : -

Independent variable ——— f_1 ——— Dependent variable [3]

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[1] Edward C. Tolman, "The Determiners of Behavior at a Choice Point", in Psychological Review, Vol.45, p.9.

[2] Ibid., p.3.

[3] Ibid., p.3.

Tolman explains further : -

> " In place of the original f_1 function, I have introduced a set of intervening variables, I_a, I_b, I_c, etc., few or many, according to the particular theory. And I have conceived a set of f_2 functions to connect these intervening variables severally to the independent variables, on the one hand, and an f_3 function to combine them together and connect them to the final dependent variable, on the other."[1]

Thus here, quite clearly, Tolman presents his intervening variables as logical constructs, convenient for theory formation and thus for explanatory purposes. The input-output situation - and by output he means overt behaviour - form the necessary and sufficient conditions for the definition of the variables.

The second way of regarding intervening variables is to consider them as referring to some kind of inner events - whether these are mental or physical (physiological!) is of no relevance - but maintain that these variables can be adequately defined for scientific purposes by reference to input-output conditions of the organism, without reference to "inner feels" of those events. Thus it follows that the theories incorporating such type of intervening variables, construct scientific input-output criteria for their definition, which may or may not represent the third-person observational facets of "inner events" which are manifested in first-person "inner feels".

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[1] Edward C. Tolman, "The Determiners of Behavior at a Choice Point", in Psychological Review, Vol.45, p.9.

Of course, the validity of the theory then becomes to a large extent dependent on the validity of the behavioural criteria of the inner events, or even, in case we are doubtful with regard to the question of determinism in the discipline of psychology, on the possibility of absolutely valid behavioural criteria of such inner events.

That Tolman has also toyed with this notion of intervening variables is apparent from his treatment of the notions of 'consciousness' and 'introspection'. In his introductory chapter of Purposive Behavior in Animals and Men he declares : -

> " Behavior-adjustments constitute our behavioristic substitute for, or definition of, what the mentalists would call conscious awareness and ideas. They are unique organic events which may on certain occasions occur in an organism as a substitute, or surrogate for actual behavior."[1]

and : -

> " (...) "behavior-adjustments," (...) under certain special conditions, are produced by the immanent determinants in place of actual overt behavior ..."[2]

whilst in the last chapter (XXV) he maintains that these "behavior-adjustments" are one type of intervening variables, and explains such variables - as we have seen[3] - as "(...) objective variables the concepts of which can be altered and changed as proves most useful."

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.20.

[2] Ibid., p.21.

[3] See p.109 of this thesis.

In the chapter called "Conscious Awareness and Ideation" Tolman is again rather ambiguous as to the status of his notion of 'consciousness' as an intervening variable.[1] Also in the chapter "Speech and Introspection", in which - as we shall see in one of the following sections of this thesis[2] - he struggles with questions of existence and validity of the process of introspection, Tolman deals with the notion of behavior-adjustment. Here again he seems to regard his behaviouristic version of consciousness as referring to existing inner events, since he writes : -

> " Introspection, if it be a veridical process at all, implies, in short, some sort of an "inner sense." It implies that the introspector can "perceive" not only his actual runnings-back-and-forth, but also his mere behavior-adjustments to such runnings-back-and-forth."[3]

"Behavior-adjustments" are by Tolman defined as organic events which may occur within an organism as a substitute for actual behavior.[4]

Thus it appears that there is some inconsistency in Tolman's own treatment of the concept of intervening variables. It seems, however, that Tolman himself has felt some uneasiness in this respect, since he remarked in his article "The Determiners of Behavior at a Choice Point" : -

> " A few years ago (...) I had the temerity to suggest that such 'lookings back and forth' might be taken as a behavioristic definition of conscious awareness. This was, no doubt, a silly idea. I would hardly dare propose it now."[5]

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[1] See pp. 126-131 of this thesis.

[2] See pp. 139,140 of this thesis.

[3] Edward C. Tolman, Purposive Behavior in Animals and Men, p.241.

[4] Ibid., p.20.

[5] Edward C. Tolman, "The Determiners of Behavior at a Choice Point", in Psychological Review, Vol.45, p.27.

However, Tolman does not clarify whether or not the notion of 'consciousness' either as an organic inner event, which can be behaviouristically defined, or as a purely logical construct, has any role to fulfil in his system. A related question is, of course, whether the colloquial concept of (psychological[1]) consciousness can be denied to be of relevance to psychology, since consciousness, i.e. private awareness of what one sets out to do, what one is doing, and what one has succeeded in doing, seems to be implied in the very construction of any theory, even a theory of behaviourism.

Another sign of Tolman's ambiguity on the concept of intervening variables may be found in Tolman's remark : -

> " The molecular physiological variables will, of course, underly and may, if you will, be said to explain the molar variables of "demand," "intention," "expectation."[2]

and, as we have seen before, Tolman's "demands", "intentions" and "expectations" are intervening variables.[3]

Now, whether or not molecular physiological variables underly and explain the intervening variables, if these are to be considered as purely logical constructs useful for explanatory purposes only, is completely irrelevant and beside the point. However, if one admits, as Tolman obviously does, that a correspondence between physiological variables and intervening variables is likely to be discovered, and considers this of importance, then one obviously seems to give an

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[1] See the following section of this thesis.

[2] Edward C. Tolman, "Psychology versus Immediate Experience" in Philosophy of Science, Vol.2, p.365.

[3] See p. 110 of this thesis.

existential status as some type or aspect of "inner events" to the intervening variables.

In conclusion, therefore, it may be said that since the notion of intervening variables is highly ambiguous in Tolman's psychology, his whole system seems to rest on a somewhat unstable foundation.

(b) The Concept of 'Consciousness'

(i) The Ambiguity of the Concept.

Since the concept of consciousness is of such primary importance for the discipline of psychology, a linguistic analysis of the colloquial notion of consciousness has been attempted with the object of obtaining a clearer understanding of its function in ordinary language, before Tolman's definition and characterisation of this concept is subjected to greater scrutiny.

Apart from being frequently employed within the discipline of psychology, the concept of consciousness is also regularly used in ordinary, everyday language. However, the colloquial concept of consciousness is ambiguous, since the notion is generally used in two different ways. We employ the notion of 'consciousness' and its contrast, the notion of 'unconsciousness' in the first place in a physiological sense. A person is said to be conscious when he behaves in an ordinary way, goes about his work, eats, even sleeps, and is in general considered to be capable of having certain experiences such as hearing noises, seeing things, experiencing pains, etc. A person is said to be unconscious when he is (usually) flat on his back, knocked out by a heavy blow or as a result of having suffered some serious injury; he may be rendered in the state

of unconsciousness by some other means such as the inhalation of a gas or by an injection. A person in such a state is considered to be incapable of having any experiences or sensations, as a matter of fact as being incapable of feeling or doing anything at all. These notions of consciousness and unconsciousness as applied in a physiological sense are used in an identical way in relation to animals.

It is important to note that if we apply the notions of consciousness or unconsciousness in the above-mentioned sense, we do not add any qualification. When we say that somebody is unconscious, we do not usually add that he is unconscious of, for instance, a noise, or unconscious of something that is happening to him. The person concerned is just unconscious, which means unconscious of anything at all. Also, when we use the notion of unconsciousness in this sense, we do not mean that it just happened that the unconscious person does not experience anything, but, more strongly, that he cannot, being in the state he is, feel or experience anything. If, in contrast, we say that a person is conscious, we do not necessarily mean that he does have certain specific experiences, but that he is capable in general of having certain experiences of a certain kind.

Another feature of the physiological notions of consciousness and unconsciousness is that we allow for gradation; we speak of a person or an animal slowly regaining consciousness or slowly losing it,

for example, when he inhales a particular kind of gas. A person can thus be said to be "half conscious".

However, quite often we use the notions of consciousness and unconsciousness in a different, or what could be called a psychological sense, and employ the concept of someone being conscious of something synonymous to the notion of someone being aware of something. Used in this sense, consciousness seems to be something selective, related to a particular feature or set of features or changes of these in a person himself or his environment. The notion of consciousness in this sense is never employed by itself, but always qualified. One is said to be conscious of a particular smell, of a sound, of an object. Also, this sense of consciousness seems to imply that a person being conscious or unconscious (not conscious) of something, just happens to be aware or not aware of something, and not that he must be or cannot be aware of some particular thing. Another point to note is that if we use consciousness or awareness in this sense, we do not readily admit of gradation; we claim that a person is either conscious or aware of something, or that he is not. We do not say that somebody is partly aware of a sound or a bodily sensation.

A similar distinction with regard to the notion of consciousness as used in ordinary language has been made by Alan R. White in The Philosophy of Mind. White's remarks imply the valid point that psycho-physical consciousness (which is his equivalent of physiological

consciousness) is a necessary condition for psychological consciousness, although it is not a sufficient condition. He states in this connection : -

> " Being conscious or unconscious of so and so is not the same as simply being conscious or unconscious. If there is anything of which a man is conscious, it follows that he is conscious; to lose consciousness is to cease to be conscious of anything. But to be conscious, as we all are when we are not asleep or drugged, etc. is not incompatible with our being unconscious of X or Y. To act unconsciously, therefore, is not to act while unconscious."[1]

However, from the above it seems that White has a slightly different interpretation of the common use of the notions of consciousness and unconsciousness. On White's interpretation a man is unconscious in a kind of total sense if he happens not to be conscious of anything. Thus a man is unconscious in this sense when he is asleep. Yet, using ordinary language, we would deny that a man is unconscious when he is asleep; in fact at times we may contrast being asleep to being unconscious in the physiological sense. It seems, therefore, to make more sense to equate the notion of 'a person being unconscious' to the notion of 'a person being incapable, for physiological reasons, of being aware of anything', and not with the notion of 'a person just happening not to be aware of anything', as White does. When a man is asleep he is capable of having sensations, although the stimulus applied may have to be stronger. A noise may have to be louder to make a person aware of it, and a pinch more vicious.

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[1] Alan R. White, The Philosophy of Mind, p.73.

The above analysis points at yet another distinction between physiological and psychological consciousness and unconsciousness; namely that to render a person unconscious in the first sense a change is affected in his physical or bodily constitution. We try to stop the brain from functioning by the administration of a drug or a heavy blow on the head. If, however, we want to secure unconsciousness in the second sense, i.e. if we want to make or keep a person unaware of something going on in his environment or within his body, we use a quite different technique. We try to distract a person's attention, and do this quite often by trying to focus his attention on something else. Of course, the success-rate of rendering a person unconscious in the first sense is much higher than in the second. We can be sure for all practical purposes that a person will be unconscious if we administer to him a certain dosé of a certain drug. But we often are far less successful in distracting a person's attention, particularly for any length of time.

It is, of course, the psychological notion of consciousness which is of interest to philosophers and psychologists.

In The Concept of Mind Ryle tries to equate this notion of consciousness with the concept of 'heeding' or 'paying attention to'. He writes : -

> " 'Conscious' in this sense means 'heeding'; and it makes sense to say that a sensation is hardly noticed even when the sensation is moderately acute, namely when the victim's attention is fixed very strongly on something else. Conversely, a person may pay sharp heed to very faint sensations; when, for instance, he is scared of appendicitis, he will be acutely conscious, in this sense, of stomachic twinges which are not at all acute. In this sense, too, a person may be keenly conscious, hardly conscious, or quite unconscious of feelings like twinges of anxiety, or qualms of doubt."[1]

It is obvious from the above quotation that on Ryle's interpretation of psychological consciousness, this kind of consciousness is subject to gradation. Thus people could sensibly be said to be partly conscious of a sensation, or an image or an external physical object, which seems rather odd.

It also seems that in our ordinary use of language, the notion of 'taking heed' or 'paying attention to' is often used quite distinct from the notion of 'being aware of'. Paying attention to something or taking heed of something usually means taking some kind of action concerning something. Paying attention to one's pains means taking some medicine or going to a doctor. However, we can be conscious of a pain without taking heed of it - in fact a doctor may rebuke his patient for not heeding his pains. It seems, therefore, that although consciousness may be a necessary condition for paying attention or taking heed, it is not the same thing.

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[1] Gilbert Ryle, The Concept of Mind, p.73.

By many Cartesian inclined thinkers it has been claimed that the concept of psychological consciousness is necessarily related to the arena of private experience, usually called the "mind", and is as such uniquely the concern of the discipline of psychology. Mentalistic psychologists have held that we could only reach and deal with this aspect of a person through the method of introspection. However, behaviourists have tried to define and characterise consciousness or create some kind of scientific counter-concept by tying the concept down to publicly observable facets of stimuli and response (behaviour!).

(ii) Tolman's Definition and Characterisation.

A prime example of the creation of a scientific counter-concept is supplied by Tolman, who defines 'conscious awareness' in the following way : -

> " It must also be noted that in certain special types of situation it will appear that the immanent purposes and cognitions eventually allowed to function may depend for their characters upon a preliminary arousal in the organism of something to be called behavior-adjustments. Behavior-adjustments constitute our behavioristic substitute for, or definition of, what the mentalists would call conscious awareness and ideas. They are unique organic events which may on certain occasions occur in an organism as a substitute or surrogate for actual behavior. And they function to produce some sort of modifications or improvements in what were the organism's initially aroused immanent determinants,

such that his final behavior, corresponding to these new modified immanent determinants, is different from what it otherwise would have been."[1]

Tolman's concept of psychological consciousness is also applicable to animals. On the characterisation of consciousness in relation to the behaviour of the rat in the maze, he writes : -

" In the first place, we shall declare that the behavior of a rat in the moment when he is conscious is not fundamentally, i.e. metaphysically, other than, and different from, his behavior when he is not conscious. We, as mere behaviorists, are not going to suppose that the rat, in a conscious awareness moment, is in any fundamentally unique sort of metaphysical situ."[2]

Tolman then raises the question as to when consciousness arises, and answers as follows : -

" Our answer will be that it is primarily in moments of changing behavior, in the moments of learning, that consciousness will appear."[3]

In relation to the behaviour of the rat in the maze Tolman supplies the following definition of consciousness : -

" We herewith define conscious awareness as consisting in the performance of a "sampling", or "running-back-and-forth," behavior. The function and use of such a sampling or running-back-and-forth behavior, i.e., of conscious awareness, will be to enhance, reinforce, throw a spot light upon, some section or area of an environmental field."[4]

He adds to this characterisation of consciousness : -

" To be conscious is to hold up and delay in order to enhance, to limn in, some area or aspect of a position-field, (...)"[5]

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.20.

[2] Ibid., p.205.

[3] Ibid., p.205.

[4] Ibid., p.206.

[5] Ibid., p.209.

The problem now for Tolman is to transfer this concept of consciousness obtained from and characterised by empirical data of animal (i.e. rat) behaviour to a human situation. He wishes to maintain that consciousness can be claimed to exist "in the higher animals" in the absence of actual runnings-back-and-forth. However, to characterise consciousness in this sense he introduces the notion of behaviour-feints or ideations : -

> " We will suppose that in the higher animals, and perhaps even in rats, there is an ability, upon the holding up of a "practical" behavior, to embark not only upon an actual running-back-and-forth (i.e. consciousness) but also upon mere surrogates for, adjustments to, such "non-practical" runnings-back-and-forth. Such mere adjustments-to, mere behavior- feints, will perform the same function that the actual runnings-back-and forth would have performed."[1]

> ." Now, such behavior-feints at running-back-and-forth, we shall define as ideations. Simple awareness equals an actual running-back-and-forth. Ideation equals an adjustment to such running-back-and-forth. It is a surrogate or substitute for such an actual running-back-and-forth and accomplishes the same end."[2]

One here begins to wonder what kind of entities or processes such ideations are. Tolman refuses to commit himself on the precise character of these, but does admit that his concept of behaviour-adjustments is derived from the Watson and Weiss doctrine of "Implicit Behavior." He states : -

> " The real meaning of the Watson and Weiss "implicit behavior," i.e., sub-vocal speech or sub-gestural gesture, is to be found, we believe, in its character as a surrogate for actual behavior. Implicit behavior, as they describe it,

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p. 210.

[2] Ibid., p. 211.

> seems to be in essence an activity which, while without going through any actual gross movements, somehow brings the organism into contact with the very same types of environmental consequence which the corresponding actual behavior would have achieved for him."[1]

Tolman, however, rejects the physiological account of such implicit behaviour as unimportant. He states : -

> " But it seems obvious that it is not the precise neuro-muscular characters or feints which are important, but merely their substitute or surrogate character. Implicit behaviors or behavior-adjustments are surrogate behaviors, and that is the important point."[2]

Here one begins to suspect that Tolman is in some sense cheating when constructing his system. His aim appears to be the construction of counter-concepts to mentalistic notions, which counter-concepts he then tries to define and characterise by reference to publicly observable behaviour. However, with regard to his concept of consciousness he seems to admit (in connection with the behaviour of "higher animals") the necessity of introducing the notion of ideation. He then dodges the question as to what kind of behavioural or physiological processes these ideations are or by what kind of behavioural or physiological processes these ideations can be characterised in any precise sense, and claims that only their function is important for the psychologist. Is Tolman here scientifically in any better position than the mentalist? How could he possibly accept or know that people can be conscious whilst not running back-and-forth, if he does not accept the

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, pp. 211, 212.
[2] Ibid., p. 212.

validity of at least some introspective reports? Actually Tolman seems to claim more than the mentalist does by suggesting that these ideations are some kind of "as-if" substitutes of behaviour of a molar kind, which suggestion he could not possibly substantiate without introspective evidence. It seems, however, unlikely that introspection will support him, as shall be argued later.

Tolman himself dismisses off-hand a mentalistic account of consciousness and ideations as "raw feels" by saying : -

> " If consciousness and ideation have unique 'raw feels' these latter are by definition to be left out of our science."[1]

This last remark raises an important question, namely did Tolman wish to characterise the ordinary notion of psychological consciousness in a behaviouristic fashion, omitting the first-person "raw feel" account as of no scientific value, or did he want to construct parallel or counter-concepts to our ordinary concepts or to those employed by mentalistic psychologists? It has been accepted in this thesis that the latter is the case, since such an interpretation seems to make more sense in respect of Tolman's general method of theory construction.

Connected with the above-mentioned ambiguity is the question whether Tolman's concept of consciousness stands for something - either an entity or a process - within the organism, which he attempts

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.215.

to characterise with reference to observable processes of stimuli and behaviour, or if his concept of consciousness is just a logical construct to facilitate explanatory purposes of his system, and not supposed to "refer" to any internal process or entity, either mental or physical. From the before-mentioned quotations it seems that Tolman considered the processes of consciousness and ideation to be physical in nature. Yet, since he classifies ideation as a behaviour-adjustment, and behaviour-adjustments form a sub-group of Tolman's "intervening variables" which are often presented and interpreted as just being logical constructs convenient for explanatory purposes, there still appears to be an ambiguity or even a contradiction imbedded in Tolman's own treatment of the status of his notion of consciousness. The problem of the logical and/or existential status of Tolman's "intervening variables" has, however, been discussed in general at some length in a previous section of this thesis.[1]

An important and interesting consideration is whether Tolman's concept of consciousness approaches in any way what in ordinary language we would try to express with the psychological notion of consciousness. For instance, is it true that when we claim to be conscious of something, we would necessarily also admit of some back-and-forth running bahaviour feint, or, conversely, is it true that when

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[1] See pp. 112-119 of this thesis.

we would admit of some ideational back-and-forth running behaviour, we would necessarily also admit of conscious awareness of certain features of the alternatives under consideration? To throw some light on such questions an example given by D.M. Armstrong in A Materialist Theory of the Mind on the training and carrying-out of the profession of a chicken-sexer (which example Armstrong uses for quite different purposes) may in this context be of some interest.

> " (A chicken- sexer) ... can, more or less accurately, say that a chicken will grow up to be a cock or a hen, but he does not know, and nobody else knows, what visual cues he is using. (Chicken-sexers are trained by being shown photos of chicks whose later career is known. They are told when they guess correctly, and they gradually come to guess better and better.) It is natural to say that female and male chicks give rise to different sense-impressions in the chicken-sexer, and that these impressions are responsible for the sexer's choice, but yet that the sexer has no direct awareness of these impressions. And they might have every property of 'ordinary' sense-impressions, except that of being objects of awareness."[1]

In relation to the above it may be stated that a chicken-sexer has a certain know-how; he can discriminate between a male and a female chicken. Similarly a rat can discriminate between two entrances in a discrimination box. The trainee chicken-sexer is told during the learning period when his guesses are correct, and the rat is rewarded when he chooses the right entrance. However, apart from having this know-how or skill, the chicken-sexer knows or is aware that he has this particular skill. This is something we

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[1] D.M. Armstrong, A Materialist Theory of the Mind, pp. 114, 115.

cannot easily establish in the case of the rat since the rat cannot communicate with us by using speech. But if we ask the chicken-sexer on what features he distinguishes male from female chicks, he would answer that he does not know or is not consciously aware on what cues he performs his job. The chicken-sexer may tell us that "in his mind" he runs over pictures of male and female chicks, yet he will at the same time maintain that he is not aware on what particular features or combination of features he makes the distinction. In fact, if he were aware of this, neither the practice during the learning period of showing him many pictures of male and female chickens nor any supposed running back-and-forth ideations in the chicken-sexer's mind would be likely to occur. The chicken-sexer would, perhaps with the aid of just a few pictures and a few life examples, be told for which features or combination of these to look, and he would learn his job most likely much quicker and probably without admitting of any running back-and-forth ideations. Thus the chicken- sexer has a know-how, he knows that he has this know-how, but he also knows that he is not consciously aware and that he cannot supply an explanation (apart from pointing at training) on what features or combination of these he makes the discrimination. In fact, he would deny conscious awareness of discriminating features. Here we are landed with an oddity. The chicken-sexer's behaviour would fit Tolman's concept of consciousness, even to the point of

something which looks very much like running back-and-forth behaviour-feints or ideations. Yet here we refuse to apply the ordinary notion of consciousness on the part of the chicken-sexer with regard to the discriminating features which are the cues for his behaviour. On the other hand, if the chicken-sexer would be aware of the discriminating features which are the cues for his behaviour, and on the basis of which he performs his job, he would probably deny having any running back-and-forth behaviour-feints. We may even go as far as maintaining that if the chicken-sexer had conscious awareness of discriminating features, running back-and-forth ideations would be superfluous. Thus the chicken-sexer's discriminating behaviour in that case would not fit in with Tolman's definition of consciousness. Yet our ordinary notion of consciousness with regard to discriminating features would here apply. It seems, therefore, that we may conclude that Tolman's notion of consciousness does not in any way coincide with or come near to our ordinary every day concept of conscious awareness, and at times even appears to be radically in contrast with it. Tolman would have to assert that consciousness existed or that the concept is applied appropriately when we would emphatically deny this, and vice versa.

We may in this connection draw a distinction between training and being trained on the one hand, and teaching and being taught, (learning!) on the other. Such a distinction is often, although

imprecisely made in ordinary language. The behaviour of the rat in the maze and also that of the chicken-sexer seem to constitute examples of modified behaviour as a result of training. No conscious awareness (using this concept in the ordinary meaning) of discriminating features is required. However, we could teach a person in many cases to discriminate by telling, and him consequently learning on what features the discrimination is to take place. It seems that Tolman's notion of docility or teachableness does not allow for a distinction between being trained to do something and being taught to do something.

The concept of training seems to be connected with trial-and-error approaches to a problem, and does not necessarily involve the use of language. It is applicable to animals as well as human beings. The concept of teaching, in contrast, appears to be far less, if at all connected with trial-and-error approaches; it must involve the use of some form of language or related to linguistic behaviour, and it is only applicable to human beings.

It seems that consciousness in the ordinary psychological sense on the part of the organism being trained is by no means a necessary condition for training to take place, whilst in the case of somebody learning something as a result of being taught, consciousness seems to be a necessary requirement. It seems even that a method of training may be developed in order to elicit a certain discriminatory behaviour pattern, when teaching for some reason is impossible.

Tolman, in defining his concept of consciousness, only seems to take a training-situation into account without paying any attention to a teaching-learning situation, in connection with which we would ordinarily consider the notion of consciousness to be much more applicable.

Thus, in conclusion, it may be said that Tolman's creation of a scientific counter-concept of the notion of psychological consciousness is dubious, because of its ambiguous logical and/or existential status. Also, it appears that Tolman's concept of consciousness is at great variance with the ordinary language notion of psychological consciousness, even to the point where at times we would have to claim that Tolman's notion of consciousness is applicable and the ordinary language concept of consciousness not, and vice versa. It has further been argued that in respect of Tolman's concept of consciousness a distinction between training and teaching can no longer be made.

(c) The Concept of 'Introspection'

As introspection was considered by mentalistic psychologists to be the main method - perhaps the only one - to be employed in order to get into direct contact with consciousness, the psychological behaviourist, unless he denied the existence of such a peculiar process as the supposed discovery and examination of one's own thoughts, intentions, sensations, images and emotions, was committed to give some sort of account of this strange phenomenon. The term 'introspection' is, of course, a technical one, employed by mentalistic psychology, and designed to stand for the supposed procedure through which we acquire direct contact with our consciousness, and which we can more or less turn on "at will", often in order to report on certain "inner" experiences. Although the term 'introspection' is not used in ordinary language, the colloquial expression of 'looking within oneself' seems to convey at least some aspects which are akin to the concept of introspection.

The problem for the psychologist, and for the philosopher of psychology, is to account for knowledge, indubitable or otherwise, about one's own personal states, which knowledge could not have said to have been derived through any of our sense organs, such as our eyes, ears, etc. Thus by some psychologists and philosophers particular

interest was shown and attention given to the channel or method through which such knowledge was acquired.

We all use expressions such as "I have a headache", "I am angry", "I feel depressed", "I am thinking about ...", "I am deliberating on ...", "I intend to ...", and claim to have some kind of direct knowledge about the items we are talking about, namely our sensations, emotions or emotional states, thoughts, intentions, deliberations, decisions, etc. We also usually imply to have some kind of "privileged access" to our own sensations, emotions, thoughts, etc., as at least in some cases we would consider that personal claims about such "private items" override reports made by other people on our sensations, emotions, etc. Even where we would deny indubitable knowledge, for instance in cases of more complex emotions, we would still maintain that our knowledge was acquired in some other manner than through the observation from or through our ordinary sense organs of our own behaviour, or through the study of our own first-person reports about our sensations, emotions, etc. Indeed, the ability to make these first person reports (if we consider these to be genuine reports) seems to presuppose some kind of mysterious channel through which the relevant information can flow in.

Tolman, in his book Purposive Behavior in Animals and Men is concerned about the question of 'introspection' particularly since the method of introspection has a unique, necessary and irreplaceable role in mentalistic theories of psychology. The status and employment of

the method of introspection is considered by mentalistic psychologists to be one of the decisive factors which separates psychology from other scientific disciplines. Tolman makes the following remarks with regard to this curious phenomenon of introspection : -

> "What is the nature and function of introspection? The first point, we would make, is that in introspection the 'environmental' objects, about which the introspector is talking, and which his proclamations purport to bring to the listener's attention, are the introspector's own behavior-adjustments. Introspection, in so far, therefore, as it claims to be a valid procedure, asserts the possibility of such responses to one's own behavior-adjustments. Introspection requires, if any credence is to be given to it, that an individual can release tool-behavior in which the utterance of the words is the means-commerce and the presence-to-the-listener of the introspector's own behavior-adjustments is the goal-object. In order to be able to introspect, an "observer" must be capable of sign-gestalts in which his own behavior-adjustments, and the words for describing such, are the sign-objects (i.e., means-objects) and a presence-of-these-behavior-adjustments to the listener is the desired signified-object (i.e., goal-object). Introspection, if it be a veridical process at all, implies, in short, some sort of an "inner sense." It implies that the introspector can "perceive" not only his actual runnings-back-and-forth, but also his mere behavior-adjustments to such runnings-back-and forth. It requires that he can report that he is thus adjustmentally running-back-and-forth."[1]

Thus Tolman appears to be inclined to accept the existence of the phenomenon of introspection and treats it as some kind of inner perception, which looks very much like a mentalistic account. However, he tries to reduce the significance and unique status of introspection, accorded to it by the mentalists, by claiming that it does not play

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.241.

any necessary or unique role in the consideration and understanding of "individuals", but is in principle replaceable (perhaps in a more cumbersome way) by overt molar behaviour. Thus he states : -

> " It is a remarkable enough process in all conscience; and it implies that an individual can respond to the fact of his own behavior-adjusting and to another individual as part of one total environmento-social complex. But, essentially, it indicates to his listener nothing that could not be indicated by more gross behavior. That is, instead of thus introspecting, telling what he was thinking about, and that he was thinking about it, an introspector could (theoretically at any rate) let his thoughts out into actual behavior. He could grab his listener by the scruff of the neck and make the latter watch him behave thus and thus."[1]

> " In short, the dicta of "introspection" present to the listener nothing which, theoretically at least, cannot be conveyed by other more gross forms of behavior."[2]

In the first place it may be remarked that knowledge of our own sensations, emotions and intentions seems to cover a much wider range than just knowledge of our running-back-and-forth ideations, which in ordinary language we may perhaps equate at times with the concept of 'deliberation'. However, what kind of behaviour-adjustment of actual running-back-and-forth signifies pains, after-images, dreams, intentions?

Another criticism concerns the difficulty of conceiving what kind of gross molar behaviour could perform the same function as certain statements referring, at least in some sense, to the past or the future.

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.243.
[2] Ibid., p.244.

What kind of molar behaviour can replace statements such as "I had a headache yesterday" or "I intend to go swimming tomorrow"?

Tolman attempts to justify his claim that the data of introspection cannot reveal to us anything more than some act of gross molar behaviour, by considering sensations, images and feelings in greater detail. In this connection he argues with regard to sensations that the naming of a colour is in principle no different and does not supply us with any more information than the demonstrated ability to sort things of different colour into different heaps does. He says : -

> " We should learn no more than we should if, instead, we were to let him sort differently colored stamps into piles, putting the reds all into one pile; or if we were to let him match and locate this specific postage-stamp color on a chart of all colors, i.e., a chart showing all possible variations in hue, intensity and saturations, or on such a color discriminanda pyramid as was discussed in Chapter V. His introspective naming and "describing" could convey to us no information not conveyed by such gross discriminatory responses."[1]

Tolman argues in a similar vein with regard to colour dimensions of hue, saturation and lightness.[2]

It seems that here again Tolman makes the fundamental mistake, already discussed in relation to the concept of consciousness, of treating the ability to do something or the possession of a certain skill on the same level as an awareness of such an ability or an awareness on the part of the organism of the possession of a certain

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1 Edward C. Tolman, Purposive Behavior in Animals and Men, p.246.

2 Ibid., pp.247-250.

skill. It is also possible, even for human beings that discriminating and sorting of items into different heaps can take place, without awareness on the part of the individual, on what feature or combination of features the discrimination takes place.[1]

Thus, when we observe an organism sorting out items into different heaps, the following possible descriptions may be considered : -

1. The organism discriminates, but (a) is not aware that it discriminates, nor (b) is it aware on what features it discriminates. This situation may apply to animals and even human beings in certain situations, for instance it may apply to some discriminating manipulations as observed in babies.

2. The organism discriminates, (a) is aware that it discriminates, but (b) is not aware on what features it discriminates. The example of the chicken-sexer is applicable here.[2]

3. The organism discriminates, (a) is aware that it discriminates, and (b) is also aware on what features it discriminates. This situation applies to human beings carrying out systematising behaviour.

It must be noticed that a fourth case, n.l. an organism which is aware on what features it discriminates without being aware that it discriminates, appears to be a logical impossibility, since 'awareness

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1 See pp. 132-134 of this thesis.

2 See p. 132 of this thesis.

of particulars on which one discriminates' appears to entail 'awareness that one discriminates', or 'awareness how one does something' seems to entail 'awareness that one does that thing'.

Now it seems that the gross behaviour involved in situations (2) and (3) would not be radically different from that involved in situation (1), yet in situation (1) the notion of introspection would not be relevant; in situation (2) an introspective account to the effect that the organism is engaged in discriminatory behaviour would be possible, and in situation (3) an introspective account to the effect that, as well as an account how discriminatory behaviour took place, would be feasible.

On Tolman's account of introspection being replaceable by gross behaviour, we would firstly have no reason or criterion to deny that introspection took place in situation (1) - in fact we would, in contrast, claim that it would be possible. Secondly, we could not distinguish between situations where introspection would reveal whether the organism is only aware that discrimination took place, and those where from an introspective report it was obvious that the organism was also aware how discriminatory behaviour (i.e. on what features) was carried out.

Thus it appears that Tolman's theory of the replaceability of introspection by gross behaviour is not only inadequate and would

allow for less distinction than we could ordinarily make, but is also fallacious, since it would ascribe the possibility of introspection to situations in which this would become, to say the least, meaningless, if not nonsensical.

(d) The Phenomenon of 'Speech'

As has already been remarked in connection with Skinner's account of 'verbal behaviour', the phenomenon and role of speech, or perhaps more precisely, of language, is of paramount importance to the psychologist. The mentalists had accepted that language was the vehicle through which the content of consciousness was and could only be revealed to others, and that introspection was the only or major valid scientific method through which we could get at consciousness. Thus, to these psychologists, speech, although recognised as behaviour, had at least in some cases an essentially different function from other types of bodily behaviour. Only through language - usually spoken - could the content of consciousness be revealed to outside observers, and, after all, consciousness was what the psychologist was supposed to study.

In view of the above it is important to the behaviourist to include in his system an adequate account of the phenomenon of speech. Tolman realises that speech constitutes a distinguishing feature with regard to human behaviour as opposed to animal behaviour. Thus he states : -

> " For speech it is (as has been emphasized by the anthropologists) which, more than anything else, seems to make of man the unique culture-forming animal that he is. It is speech which first and foremost distinguishes man from the great apes."[1]

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1 Edward C. Tolman, Purposive Behavior in Animals and Men, p.235.

However, as a behaviourist, Tolman's main purpose is to show that speech is not and does not achieve anything essentially different from other types of behaviour.[1] Hence he tries to accommodate speech to the animal cry, which, he argues, is not essentially different from other types of behaviour.

> " It appears, in short, that the animal cry, like all other behavior, is of the nature of a commerce with a given means-object, or situation, in order to achieve a certain further goal-object, or situation, e.g. the eliciting of a desired response in others of the social group."[2]

Furthermore, he accepts the validity of the distinction between the different functions of the animal cry - those of 'proclamation' and 'command' - as made by de Laguna, who writes : -

> " The cry, (...) has a certain double character. It is, particularly when called out by external conditions, at once a specific response to a situation (proclamation) and an act directed toward another member of the group (command). (...) The proclamation is primarily a specific response to a situation, and only secondarily an act directed toward the hearer with the end of influencing his behavior. (...) The command, on the contrary, is primarily an act directed toward another in order to influence his behavior."[3]

It seems plausible from this kind of analysis to accommodate human verbal emotional spontaneous utterances like expressions of pain, joy, fear, sorrow, to the animal cry. These also can be said to function as 'proclamation' and 'command'. For example, a cry of fear functions

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1 See quotation on p.149 of this thesis.

2 Edward C. Tolman, Purposive Behavior in Animals and Men, p.237.

3 Grace A. de Laguna, Speech, its Function and Development, p.262.

both as a response to a certain situation as well as a warning, which may be interpreted as a 'command' to other members of the species, and which elicits appropriate behaviour. However, can we substantiate the claim that our spoken language is a natural development of such kind of utterances? It appears that here some difficulties arise which have been ignored by Tolman.

If spoken language is a development of certain spontaneous utterances, the behaviourist is under at least some obligation to explain why our conventional linguistic expressions with regard to certain sensations and emotions are usually so extremely unlike in sound to our spontaneous vocal utterances. For instance, expressions like "I am afraid" and "It hurts" are not at all like our spontaneous cries of fear and pain. Also, our emotional utterances can usually be identified and interpreted by people who do not know the language we speak. This is far more difficult and often impossible with regard to our conventional linguistic expressions of certain sensations and emotions. It may be possible that the behaviourist can supply an explanation with reference to certain conditioning processes, but as far as I am aware, these "missing links" have not been elaborated on as yet.

Another problem for Tolman arises in connection with the obvious deliberate, intentional use of language. Although it appears quite acceptable that animal cries, and indeed some spontaneous human utterances may function as 'proclamation' and 'command'to other members

of the species, there is no evidence to suggest that such cries are intended in such a way by the utterer of the sound. We may very well argue, that here the ordinary words 'proclamation' and 'command' are misused. Included in the ordinary notion of both words is the awareness by the person who is proclaiming or commanding, that in fact he is doing so, what he is proclaiming or commanding, and often an awareness why or for what reason he is doing so. When we swear in anger or frustration, and hereby use a conventional expression, we cannot be said to be proclaiming or commanding, although our swearing may have some characteristics in common with proclamations and commands. People, totally deaf from birth, often do produce certain verbal utterances like cries of pain, fear, frustration, anger, yet quite frequently they are unaware they do so since they cannot hear themselves. Thus it does not seem plausible that the deaf person intends these cries as proclamations and commands, and consequently it does not make much sense for us to interpret these cries in such a way.

On Tolman's account it is also difficult to make an essential distinction on the part of the listener between vocal utterances of a member of the species the listener belongs to, a member of some other species, and even "natural noises" such as the noise of a strong wind in trees or the sound of an avalanche. All these noises could be interpreted as fulfilling the role of a Tolmannian 'command'.

The problem of providing a link between spontaneous emotional

utterances (cries) and deliberate use of language is connected with another difficulty, namely that of considering language as 'tool' behaviour. Tolman states in this respect : -

> " Speech accomplishes the same sort of result that other behaviors would, only more expeditiously. Speech, in the last analysis, is but a "high-faluting" "tool," not differing in essence from other tools such as "strings," "sticks," "boxes," and the like."[1]

It cannot escape notice that by claiming that language is a tool like other tools such as strings, sticks and boxes the colloquial use of the word 'tool' is extended and by doing so certain essential differences between the ordinary concept of 'tool' and that of 'speech' or 'language' are blurred. If we talk about tools, we usually talk about physical implements which serve as extensions, usually to our limbs, by means of which we can achieve certain ends quicker and better. Thus it already may seem strange that since we do not consider our hands and feet as tools, we should consider our vocal cords to be tools. The behaviourist may argue that it is not our vocal cords etc. which constitute the tool, but language, which is learnt or conditioned behaviour. In reply, however, we may counter that many movements we make with our hands constitute learnt behaviour, but neither our hands or feet, nor their movements we call tools. Why then should we consider the movements of our vocal cords and voice box and/or the sounds which are consequently produced tools?

It seems that Tolman may argue that we can or do achieve certain ends

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.236.

with speech, or that language is goal-directed. But so are many of our other bodily movements, which are mostly qualifiable as 'actions'. Thus, by calling the use of language "tool behaviour", Tolman seems to eliminate the distinction between using our body or part of it for some purpose on the one hand, and using a separate physical implement as an extension to our body for a certain purpose, on the other. On Tolman's account we would also have to consider goal-directed bodily behaviour to constitute tool behaviour. We may, therefore, conclude that Tolman's expression of tool behaviour in relation to our use of language, appears to be rather misleading.

Since Tolman accepts the 'proclamation' and 'command' function of the animal cry and subsequently tries to accommodate the animal cry to human verbal language, the question of the characterisation of the concepts of 'proclamation' and 'command' is of some interest. Tolman maintains that the command function is characterised by certain overt behaviour of the listening organism which effects a change in the speaking organism's environment. Tolman states : -

> " What happens in a command (in so far as it is successful) is that by means of it the speaker causes one of his fellows to do something. (...) The command is thus a tool, one end of which the speaking-organism manipulates in such a way that the other end reaches over and pushes the listening-organism."[1]

It cannot escape notice, that by making the command dependent on the subsequent behaviour of the listening organism - which Tolman seems

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.238.

to do, although there is a certain ambiguity in the above quotation, the expression 'command' assumes the role of an "achievement" word. This is not signified by the colloquial use of the word 'command'. A command is no less a command when it is not followed by the aimed-for behaviour of the listener. If it were, we would give no meaning to expressions such as 'not hearing a command', 'not understanding a command', 'disobeying a command'.

The characterisation of the proclamation function is an even more difficult task for the behaviourist. Tolman says: -

> " (...) for the proclamation, the situation is similar. The only difference is that, whereas for the command, the function of the speech is primarily to induce some specific "practical" behavior in the listener, for the proclamation, the function of the speech is to induce, rather, a certain conscious awareness or ideation in the listener, i.e., a certain specific "non-practical" running-back-and-forth behavior, or behavior-adjustment."[1]

Thus the proclamation function is characterised by reference to conscious awareness and ideation in the listener, which fall into Tolman's category of 'behavior-adjustments'.

Apart from raising the same objection as in the case of Tolman's use of the word 'command', namely that he seems to employ the word 'proclamation' as a kind of achievement word, another question arises. The characterisation of the proclamation by reference to 'behavior-adjustments' seems to be an odd move to make for a molar behaviourist.

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[1] Edward C. Tolman, Purposive Behavior in Animals and Men, p.238.

What kind of behaviour is Tolman referring to? Is he perhaps referring to not overtly observable physical events such as brain processes? If so, how can he escape C.D. Broad's accusation of becoming a molecular behaviourist when this is useful? Broad argues : -

> " (...) I will call a Behaviourist who thinks that all mental processes can be reduced without residue to molar behaviour a "molar Behaviourist".
> But it is very difficult to get the Behaviourist to stop at this point. When overt behaviour, supplemented by changes of blood-pressure, incipient movements in the throat, etc., seems inadequate to make the behaviouristic analysis of some mental process seem plausible, the Behaviourist is very liable to appeal to hypothetical molecular movements in the brain and nervous system."[1]

Another question which may be asked in connection with Tolman's attempts to assimilate language to the animal cry is whether by doing so, he can still make a type-token distinction in relation to linguistic utterances. It may be argued that since every single animal cry constitutes a response to a particular stimulus-situation, it is the utterance as token which is of significance. However, when we utter a certain proclamation or issue a certain command in conventional language, it may be that it is the utterance as type which is the more important. By repeating a proclamation or a command various times, we may still be said to have uttered only one proclamation or issued only one command. Even by reformulating a proclamation or a command, or by uttering these in a different language, we may be said

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1 C.D. Broad, The Mind and its Place in Nature, p.616.

to have made not more than one proclamation or issued not more than one command. Wittgenstein, by arguing that first-person statements about pain replace pain behaviour, lands himself into a similar predicament. He states : -

> " When I say 'I am in pain', I do not point to a person who is in pain, since in a certain sense I have no idea who is. And this can be given a justification. For the main point is: I did not say that such-and-such a person was in pain, but "I am ..." Now in saying this I don't name any person. Just as I don't name anyone when I groan with pain. Though someone else sees who is in pain from the groaning."[1]

Every time we utter a swear word or a groan as an expression of pain, it can be said that it is the utterance as a token which fulfills its function of giving relief, avoiding tension. We may even exclaim "I have a fearful toothache!", in which case such a conventional expression may very well be uttered instead of a moan or groan, and thus figure as a token utterance rather than a type utterance. However, if, for instance, in answer to the question "Why are you so quiet this afternoon?" we say "Because I have a headache" it is the utterance as type which is of significance. By repeating the answer we do not add to the explanation.

From the above example another defect in Tolman's attempt to assimilate speech to the animal cry, and indeed in Wittgenstein's treatment of first-person pain statements comes to light. An animal cry as a response to a certain situation or a groan or a swear word

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[1] Ludwig Wittgenstein, Philosophical Investigations, par.404.

as an emotional utterance of pain only make sense or are understandable if the stimulus situation or the pain either exist in the present, i.e. continue to exist during the utterance, or existed in the immediate past, i.e. just before the utterance was made or ceased to exist during the time it took to make the utterance. It does not make much sense to groan or to swear or make an exclamation of pain by using a conventional statement-like expression as an utterance of a pain we had a week ago, although the behaviourist may possibly try to make a case for the notion of 'delayed response'. Yet first-person statements about past pains do make sense. It is up to Wittgenstein to show how a statement such as "I had a toothache yesterday" replaces pain behaviour. Similarly it is up to Tolman to argue how statements concerning past events, and for that matter, future events, figure in relation to the animal cry or the emotional utterance.

The above difficulties connect up with yet another problem. Animal cries and emotional utterances cannot be said to be true or false, although our emotional utterances may be said to be faked, or constitute fake behaviour. In contrast, our statements about our own sensations and emotions, whether in the present or in the past tense, may be said to be qualifiable as being true or false. When we use a conventional statement-like expression such as "I have a frightful headache!" as a replacement of a natural expression of pain such as a groan, we would not consider such an expression to be qualifiable as true or false,

although we may consider it to be faked, but when we employ such an expression in order to convey information to a listener, the expression seems to figure as a normal statement about factual conditions, and as such may be true or false.

In view of the before-mentioned difficulties and problems, it does not appear that Tolman has succeeded in substantiating his claim that human speech and language constitute a development of the simple animal cry and as such are not essentially different from it.

individual psychologists have meant by this term and what particular problems and implications are connected with their use of that notion. Hence an assessment and discussion of what Tolman means by 'behaviour' follows.

As has already been pointed out in the exposition of Tolman's psychology[1], Tolman rejects an early Watsonian molecular account of behaviour as consisting of muscle twitches, glandular secretions, neural processes, etc., but maintains that "behavior-acts" are "in complete one-to-one correspondence with the underlying molecular facts of physics and physiology".[2]

It is not clear what Tolman means by a one-to-one correspondence. As it stands it seems that we have to envisage overt behaviour as being some kind of physical process different from although correlated with muscle twitches etc. The question arises what then the component physical parts of an act of behaviour are. However, it is likely, in view of Tolman's further analysis that he merely means that there is a one-to-one correspondence between a description of a bodily movement as a mere movement in physical and physiological terms, and a description of it as a behaviour-act in behaviouristic psychological terminology. Thus granted this, and granted that Tolman in his system means by behaviour, overt molar behaviour, the question now becomes: What kind of

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1 See pp. 102-104 of this thesis.

2 Edward C. Tolman, Purposive Behavior in Animals and Men, p.7.

(e) The Concept of 'Behaviour'

One of the fundamental problems for psychologists and the science of psychology in general has been the question as to what constitutes the subject-matter of the discipline. Since "consciousness" was rejected as the subject-matter on the grounds that the study of this by the unique method of introspection was considered to be a very doubtful procedure, both scientifically and with regard to practical results, it was argued by the psychological behaviourist that in order to give psychology objective scientific status and at the same time creating a science capable of producing worthwhile practical results, the subject-matter of the discipline should be regarded to be human (and animal) behaviour.

The concept of 'behaviour' as constituting the subject-matter of psychology seems at face value to be rather clear cut and a great improvement on the notion of 'consciousness', since the latter seems much more mysterious and intangible, as the arena of consciousness is supposed to be only directly privately accessible. However, on closer examination some difficulties and questions arise in connection with this basic shift of ground.

Since psychological behaviourists seem to differ among themselves as to what counts as 'behaviour', it is necessary to examine what

properties must a physical bodily movement or set of movements of a living organism possess to qualify as a behaviour-act in Tolman's sense? Tolman's first and basic answer is that behaviour is always directed towards or away from a certain situation, i.e. it has a purpose.[1] Thus in reply to a Why? question with regard to a specific behaviour-act, an answer in the form of "In order to get at (achieve)..." or "In order to avoid ..." is essential. In fact a teleological explanation. Tolman, of course, uses the expression 'purposive'. The problem here involves Tolman's employment of the notion of 'purpose'.[2] He denies the necessity of getting at someone's private awareness (which would include awareness of purposes) through an introspective method, but maintains that 'purposefulness' can be recognised by employing behavioural criteria. Thus it seems that since Tolman does not make a distinction between behaviour carried out on purpose (by the person whose purpose it is) on the one hand, and behaviour which seems to be merely goal-directed, there is obviously in Tolman's system no place for goal-intended behaviour. The distinction between goal-intended behaviour characterised by a conscious intention on the part of the acting individual, and goal-directed behaviour which only implies a direction towards a certain goal, but no director, has been drawn very clearly by R.B. Braithwaite. Braithwaite remarks in connection with the notion of 'intentional action' and a behaviouristic analysis of this as follows : -

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1 See pp. 104-108 of this thesis.

2 The ambiguity of the concept of 'purpose' will be discussed in greater detail on pp. 169,170 of this thesis.

> " This is not to say that there is no philosophical difficulty about intentional action; there is the problem - fundamental for philosophical psychology - as to the correct analysis of the intention to act in a certain way. But this is different from our problem as to how a future reference can occur in an explanation, unless indeed an extreme behaviouristic analysis is adopted, according to which there is no conscious element in an intention, and goal-intended behaviour is simply what we call goal-directed behaviour in the higher animals. But for this extreme behaviourism psychology reduces to biology, and intentional action falls under biological goal-directed activity and the type of teleological explanation we meet in the sciences concerned with life in general and not especially with mind."[1]

It seems that in Tolman's psychology all behaviour which is carried out with a certain intention or purpose on the part of the executor is indeed treated under the concept of goal-directed behaviour. Tolman thus ignores the concept of 'intention' in relation to explanations relevant to at least some behaviour, and the widely held acceptance of the view that intentions, figuring in explanations concerning behaviour, can only be directly and in the first instance privately known at least before the relevant behaviour has been carried out or completed, by the person whose intentions are involved in the explanation. On Tolman's account it is not possible to draw a distinction made in every day life between behaviour as simply a response to a situation without deliberation or conscious intention on the part of the executor before or whilst carrying out the behaviour, on the one hand, and behaviour carried out intentionally, often after some deliberation of pro's and con's, on the other. Thus a sudden

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[1] R.B. Braithwaite, Scientific Explanation, p.325.

movement on hearing a loud noise or a display of anger on being insulted, is put qua behaviour into the same category as behaviour carried out on reaching a decision after careful consideration of many factors involved, or behaviour intentionally carried out in order to satisfy a specific desire or reach a specific goal. It follows, therefore, that in Tolman's system it would not be possible to draw a distinction between what in ordinary language would be called reactions on the one side, and actions on the other. For instance, we ordinarily talk about pain reactions and emotional reactions, and contrast such overt behaviour with actions.

It has been argued above that the ordinary distinction between actions and reactions disappears in a Tolmannian account of behaviour. Similarly, it may be argued, that the distinction between action after careful deliberation and conscious awareness of a purpose or an intention on the part of the executor, on the one hand, and behaviour which is sometimes somewhat loosely characterised by notions such as 'spontaneous action', 'automatic action' and 'impulsive action', cannot be drawn at all. Although none of these notions necessarily exclude the possibility of conscious awareness on the part of the agent, there does appear to be a difference between actions carried out after consideration of pro's and con's, and actions, which, though hardly qualifiable in ordinary language as proper reactions, seem to lack the element of preliminary or perhaps even simultaneous deliberation.

Human behaviour in hazardous traffic situations may exemplify such a distinction. A man driving a car, may, on noticing another car approaching from the opposite side with great speed and obviously carelessly driven, 'spontaneously' or 'impulsively' apply his brakes. However, it is also possible that after split-second deliberation he decides that instead of braking it may be wiser in this particular case to turn into a side street or to swerve to the side of the road as far as possible; he may even decide that it is still the best to brake in this particular situation. The question now becomes: What is the difference between the man braking spontaneously or impulsively and the man braking after making a split-second decision after weighing alternative courses of action 'in his mind'. From a third-person viewpoint this difference may not be evident from the actual behaviour itself at all, but from a first-person viewpoint it would be. This would become obvious from a description and explanation such a person would give of his behaviour. In the first case he would describe his action as 'impulsive', 'spontaneous', 'automatic' or even 'instinctive', and usually though not necessarily refrain from any form of justification of his action. In the second case, however, he would describe his deliberation of alternatives before or during the action, and evaluate his choice of action in the given situation. Such an evaluation would usually amount to a justification, but it can and does sometimes take the form of a condemnation. Of course, such a subjective evaluation of the action from a first-person viewpoint is not necessarily the correct one.

A question which may be raised in connection with he foregoing comments is, on the basis of what criteria differentiation between what has been characterised as 'actions on impulse' or 'spontaneous actions', meaning by this actions without previous or simultaneous deliberation, and what has before been classified as 'reactions' - such as behavioural expressions of sensation or emotion - could be undertaken. It is not unlikely that the attempted distinction is not a very well defined one, and that one has to admit of many borderline cases. However, for a possible distinction the following pointers may prove of value.

Firstly, reactions are not directed towards operating on the environment, although, of course, they sometimes do in fact operate on the environment. They appear to be more like responses to previous stimuli without regard by the executor to any possible future events. Spontaneous or impulsive actions, however, quite often seem to be directed towards operating on the environment in the sense that they appear to be directed towards a possible future state of affairs. For instance, a scream as a spontaneous reaction in a dangerous traffic situation does not appear to be directed towards a future state of affairs, whilst applying brakes in a car 'spontaneously' is.

Secondly, reactions, although often expressed in a conventional form, are not initially tied down to any particular culture, i.e. they are not completely dependent on convention, they are transcultural and

most likely in some respect innate. Tears of sorrow, cries of pain, exclamations of joy are as such universally expressed and understood. Spontaneous actions, however, are much more dependent on a certain cultural environment. The spontaneous slamming on of brakes in a car can only be understood sufficiently by people of a community which has similar contraptions. On our part, we may have trouble interpreting certain apparently spontaneous actions of people belonging to some primitive isolated tribe.

Thirdly, a reaction need not be taught at all, although a conventional expression of it can be and often is taught and learnt, such as swearing in a particular language. In contrast, many so-called impulsive or spontaneous actions seem to have become established as habits after a period of learning. When we learn to drive a car we learn to apply brakes with the conscious intention to do so, but after some time such a kind of action becomes automatic or spontaneous in most traffic situations.

In this connection it needs to be emphasised that at least some human behaviour is a function of history and that this may count for the fact that some types of actions become apparent reactions without becoming quite disconnected from the concept of 'intentionality'. The lack of history or the ability to construct historical knowledge on the part of animals may explain the fact that notions such as 'automatic action', 'spontaneous action' and 'action on impulse' are primarily,

perhaps exclusively employed in relation to description of human behaviour and rarely, if ever, in connection with animal behaviour. In the case of animals we would be much more inclined to use either the notion of 'action' or that of 'reaction'. It seems, therefore that 'automatic actions', 'actions on impulse' etc. form a sub-class of actions rather than being a species of reactions.

In elaboration of the above point, it is obvious that we, in contrast to animals, can learn from a book or from verbal information given by somebody else, without being shown certain behaviour or being rewarded for 'correct' behaviour by our instructor. In fact, we often have to pay for instruction received. In this manner we can learn things like how to operate a certain machine, how to swim, how to play a particular game. Such acquired skills become after a while, i.e. after initial conscious intentional following up of detailed instructions for appropriate behaviour, at least partly, but sometimes fully, automatic.

Another major problem encountered in connection with Tolman's characterisation of "purposeful behaviour" is that in his system the goal is always seen as separate from the behaviour that leads to it. The goal itself, although the behaviour leading to it or away from it is characterisable as "purposeful" by exhibiting the features of persisting through trial and error, and docility, is always thought of as a state or entity separate from the act itself. It is thus

difficult to accommodate in Tolman's system actions carried out on purpose or intentionally, which do not seem to have any goal beyond the action itself. We play a game of tennis or go swimming on purpose or intentionally without aiming at anything beyond such behaviour. We walk up and down on purpose, yet without any specific purpose or goal beyond the behaviour itself. The behaviour itself can perhaps be regarded as the goal, but then the concept is used in a different sense than for instance in relation to the reaching of food by the rat in the maze, or the escape from an electric grill by the rat, which signifies a negative goal. Once the food is reached or the grill has been escaped from, a particular behaviour cycle is ended. This does not seem to apply in the case of actions like playing a game of tennis or even wiggling one's toes on purpose.

Thus, in summing up, it may be said that the shift from "consciousness" to "behaviour" as the subject-matter of the discipline of psychology meets with some insidious problems. In particular Tolman's concept of behaviour has been examined and it has been claimed that the notion of 'purpose' connected with this is ambiguous. It has also been argued that Tolman cannot make a distinction between goal-intended and goal-directed behaviour, since all behaviour in his system must be considered as goal-directed. Following from this, Tolman cannot distinguish between actions and reactions; neither can a distinction

between deliberate intentional action and 'spontaneous' or 'impulsive' action be drawn. It has finally been maintained that in Tolman's system the goal of behaviour is always separate from the behaviour that leads to it. Thus Tolman cannot accommodate deliberate actions, carried out for their own sake.

(f) The Concept of 'Action'

(i) The Relevance of Teleological or Purposive Explanations to the Concept of 'Action'.

It has been pointed out that to Tolman the concept of 'goal' appears to be essential to his notion of 'behaviour'. Similarly, philosophers such as R.B. Braithwaite and Charles Taylor seem to accept that the concept of 'goal' is necessarily connected with the concept of 'action'. I believe these philosophers to be mistaken in this respect, and have the suspicion that purposive behaviourist psychology as well as some philosophical action theory is unsatisfactory and inadequate because of this basic fallacy.

Whereas Tolman considers behaviour in general to be essentially goal- directed or purposive, Braithwaite and Taylor at least draw the distinction between goal-directed and goal-intended behaviour, but appear to argue - Taylor explicitely - that goal-intended behaviour (which he equates with the notion of 'action') is goal-directed behaviour with some additional features. Thus Taylor states : -

> " To speak of 'action' is to say not only that the laws governing the behaviour so described are teleological, but also that this behaviour can only be accounted for as action, i.e. in terms of intentionality."[1]

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[1] Charles Taylor, The Explanation of Behaviour, p.62.

Both Braithwaite and Taylor seem to accept (consider Braithwaite's use of the expression "goal-intended"[1]) that the concept of a goal is essential to our ordinary concept of human action. To them goal-intended behaviour appears to be goal-directed behaviour which would carry a different, i.e. "intentional" description.

I think Braithwaite and Taylor are right in considering the concept of goal to be necessarily connected with what they call goal-directed behaviour, but this may turn out to be nothing more than a tautology. Biologists and psychologists have from observation concluded that a great proportion of movements of parts of living organisms or whole organisms, have, although such movements are variable themselves, a tendency to be directed towards or away from a certain end state or condition, and often reach such a final state or condition, which in turn is linked to a general goal, namely the survival of the individual organism and/or the species it belongs to. There is no reason why such teleological explanations need to be incompatible with causal explanations, as has been argued by Braithwaite.[2] However, a teleological law appears to give greater satisfaction in ordinary as well as scientific explanation than a causal law, simply because greater gaps of ignorance concerning relevant causal chains and/or their variability and complexity are covered whilst at the same time the teleological law still fulfils all the scientific requirements of description,

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1 R.B. Braithwaite, Scientific Explanation, pp.324 ff.

2 Ibid., Chap.X.

explanation and prediction. Possibly a (psychological) reason for looking for goals and formulating teleological laws is the fact that we are ourselves often aware that many of our own movements are intentionally directed towards a certain end or goal. However, just because we have found plausible teleological explanations for movements which appear to be non-intentional, this does not commit us to the view that all our intentional movements or actions are necessarily goal-directed, with the added feature that we ourselves are the director.

Another source of confusion may very well lie in the ambiguity of the English word 'purpose'. The word 'purpose' can be used as a synonym for the word 'intention' as well as the word 'goal'. This ambiguity is partly brought to light when we consider expressions like "He did it on purpose", which means "He did it intentionally" or "He meant to do that", and compare these with an expression such as "He did it for a purpose" which means "In his action he was aiming to achieve a certain goal". We can negate the latter statement by claiming "He did not carry out his action for any particular purpose", which does not entail that he did not do whatever he did intentionally or on purpose, or that he did not mean to do whatever he did. For instance, somebody may claim that he rolled his eyes or kicked the table leg just "for the hell of it". It must be noticed too, that the expression 'on purpose' is complete in itself, whilst by saying that a person did something for a purpose or with a purpose in mind, we have not said anything yet about that purpose or goal.

Tolman, in his system, does not consider the concept of'purpose' to be synonymous with that of 'intention' at all; he uses the word 'purpose' in the sense of 'goal' or 'end' of behaviour. To Tolman the notions of 'goal-directed' and 'purposive' are synonymous.

It has been pointed out before that the word 'purpose' is used ambiguously in the English language; similarly the word 'goal' seems to be the victim of some ambiguity. If we consider the goal as a feature of some actions, namely those which are goal-intended, the notion of a goal is used as a particular. The goal is seen as the particular aim towards which the intentional movement is directed, which aim may or may not be reached. That aim may or may not be positively correlated with the preservation of the organism or the species it belongs to. If it is not positively correlated, it may be negatively correlated, in actions which have partial or complete destruction - usually of the individual organism - as their goal. It is also possible that neither a positive nor a negative correlation between the aim of the intentional movement and the notion of survival can be discovered.

If we now consider the use of the word 'goal' in purely goal-directed movements, it seems that either directly or indirectly the notion of 'goal' creeps in in some kind of universal sense. We may say that an animal's behaviour in hunting is aimed at catching his prey, which may be seen as a particular goal, but this particular goal is

subordinated to a goal which may be described as "satisfying the animal's hunger". Psychological behaviourists would most likely take exception to such an expression as being too mentalistic, and replace it by "eating". However, this last goal would be seen as subordinate to the goal of living organisms, namely survival, which seems to have a universal flavour. It seems that here a general feature of 'goalness' of the behaviour of living organisms is referred to.

Another ambiguity in dealing with the notion of a goal concerns a means-end distinction. If we consider the behaviour of a hunting animal, the end of that set of behavioural movements can be described as 'catching his prey', but this in turn usually is the means to another end, i.e. it leads to another set of behavioural movements, namely eating. This last end may in turn be seen as a means to a further end, survival. However, in connection with purely goal-directed behaviour the notion of survival is the only notion which cannot be considered as a means to any further end, but solely as an end in itself.

Similarly, in a human situation, the end say of studying at a university may be the getting of a degree, which in turn may be the means of getting a good job, which is the means to something else, etc.

The difference in a consideration of goal-directed and goal-intended behaviour with regard to a means-ends distinction would be that in goal-directed behaviour particular goals are always links in chains of means, eventually connected with the universal notion of survival as a

goal, which is an end in itself, whilst in intentional behaviour, although here too we can quite often recognise means-ends links, the ends in themselves always appear to be particulars, empirically and logically independent of any notion of survival, though they may be compatible with this. If again we consider the behaviour of a man studying, the particular end in itself may be the acquisition of a good job, it may be the getting of a degree, or it may be the studying itself, in which case his behaviour has no final end or aim as in the usual notion of 'goal' as employed for instance by Tolman. The activity of studying is the end in itself; there is no goal beyond that.

If we again consider the notion of a 'goal' or of 'means' and 'ends' in relation to goal-directed and intentional behaviour, it seems that we may say that in relation to goal-directed behaviour, the goals - whether means or ends - are always seen as goals <u>for</u> the behaving organism and basically aimed at the good of that organism (or the species it belongs to), i.e. continuation of existence and improvement of it, although the mechanism of the particular behaviour may "misfire" and produce adverse results. With regard to intentional behaviour, any goals, whether means or ends, can only be seen as goals <u>of</u> the behaving organism (person) whose behaviour it is, since that behaviour does not necessarily have to favour or be aimed at favouring its continued and possibly its improved existence.

When talking about goals of an organism, it is not meant that the goal is a property of the organism or its (overt) behaviour, but that the goal has been set by the organism; whether this setting or fixing of the goal is itself determined, is beside the point. Thus a person may intend to buy some beer; whether the person having this intention is always causally determined or is only in some cases causally determined, does not bear any relevance to the postulation that the goal is set or apprehended as being set by the particular person who has the intention, and is logically and here also factually independent of the concept of survival.

However, when talking of goals for an organism we seem to specify something about the behaviour itself of that organism, namely that the behaviour tends towards a certain end result and that this end result in turn tends to favour survival. Thus it seems that goals for an organism are linked with the ultimate goal of survival as a matter of empirical fact. Whether somewhere along the line the concept of goals for an organism does not become logically connected with that of survival seems to be an interesting speculation. Would we still call the end product of a class of goal-directed movements, which does not even in principle seem to favour survival, a goal, or would we perhaps maintain that certain behavioural patterns appear to be "senseless" or "purposeless"?

The distinction between goals of and goals for an organism is very clearly evident when we consider first-person reports of behaviour. A person, who would notice himself making certain reflex movements would deny that these movements themselves and their end results were in any way set, fixed or apprehended by him. He may even maintain that in a sense these movements occurred despite of himself, or that they were not under his conscious control. He may eventually come to regard these movements (after some consideration) as movements in favour of a final goal - survival -, but still deny that they were directed towards goals set by him as a person and not just in a way necessitated by him as a mere physical organism.

Another noteworthy point in relation to the distinction between goals of and goals for an organism is that in considering goals of an organism only logically impossible goals, such as drawing a round square or perhaps travelling back in time, cannot strictly speaking be considered as goals. We may, however, very well consider goals like flying to the planet Venus or swimming the Pacific Ocean, although it is at least at the moment factually impossible to reach these goals. However, when considering goals for an organism, it seems that also factually impossible goals are out of consideration, since the notion of goals here is derived from actual observation. It seems even, that empirically possible, but factually never observed goals are out of consideration, since we only conceive of an end-product as a goal after repeated observation of a class of behaviour.

Since it has been argued in connection with intentional movements that a goal or a purpose as an end-product of behaviour, beyond that particular behaviour, is not logically necessary, but that the end in itself may be the behaviour itself, and ends in themselves are always particulars, and since it has also been argued that these particular ends in themselves are always ends of but not necessarily ends for the behaving organism, it seems that the concept of intentionality itself may be the only notion which is logically connected with the concept of action. However, if this viewpoint is to be defended, there are again problems to be dealt with, and some explanation to be given concerning the possible types of connection between the concept of intentionality and that of action.

If we consider an ordinary movement, either of ourselves or somebody else, what makes us call it 'intentional'? It is the knowledge or belief that the person whose movement it is, meant in some sense or other to carry out a movement or set of movements. Perhaps the person concerned meant to carry out the particular movement he did carry out, or through certain circumstances - maybe as a result of a physical handicap - another movement resulted and not the one he wished to carry out. However, such a situation does not sever the link between 'action' and 'intentionality', since the notion of intentionality is still involved. In explaining the movement that in fact took place, we would have to make reference to the action that was intended to take place.

Perhaps a person by his movement intends to reach a certain goal, but this goal is not reached because this is logically or factually impossible. Again, such a situation in no way conflicts with the idea of the movement concerned being intentional.

It is certainly possible, and in fact quite common, that a person is not aware of all the facets of his behaviour. This would normally be the case when he is driving home in his car. But this does not conflict with the fact that the whole of his behaviour, i.e. driving home, was intentional.

Much of our behaviour may be described as 'impulsive' or 'automatic' action, but it is usually the case that such types of action have at least at some stage of a person's life been carried out intentionally, so that a connection between the notion of an automatic or an impulsive action and that of intentionality cannot be denied.

It may also be possible that we ourselves are mistaken about the causes of our behaviour. Such a situation may be applicable to people behaving under post-hypnotic suggestion. However, in explaining why they carried out a particular act, they may be mistaken about the causes, reasons or goals of their behaviour; they may even deny awareness of these, but they would, I think, seldom deny that they meant (intended) to do whatever they did.

Thus it seems that the notion of intentionality as connected with that of action basically deals with what description a particular movement has for the person whose movement it is. This would be in a sense a logically privileged description, since only the person himself is in a logically privileged position with regard to knowledge or beliefs concerning his intentional behaviour. Only he can from other sources than observation of his own behaviour, tell, or avow, under which description he views such behaviour.

If we accept that either directly or indirectly (in cases of spontaneous or impulsive actions) the notion of intentionality is connected with the concept of action, and we cannot conceive of the idea of an action without the idea of intentionality being in some way or other involved, what conclusion can be drawn with regard to Tolman's system of psychology? Tolman, by stressing goal-directedness of behaviour, but ignoring intentionality, is not basically talking about actions at all, since behaviour which has no intentional description in some way or another for the person whose behaviour it is, does not qualify as action.

Since Tolman derived his concept of 'purposive behaviour' from the observation of animals, the question may be posed, in relation to the foregoing arguments, whether animals can act. It is obvious that we often apply action terms to animals, particularly the ones higher up on the evolutionary scale. There may be various reasons why we do so.

Firstly, there may be a psychological reason. Since some animals have become domesticated, they often seem to be regarded, at least in some sense, as persons. We may then be playing a kind of game like a child plays with its dolls. It also seems that we apply intentional descriptions much more readily to the behaviour of pets like canaries and goldfish than to animals living in their natural state, although some of these may be considered to be higher up on the evolutionary scale.

Another reason why we seem to endow at least some higher animals with intentions and consequently with the ability to act is, that we appear to give them the benefit of the doubt. Some animal behaviour seems to be so diversified although obviously goal-directed, for instance a cat stalking a mouse, that at least it looks as if the cat has the intention of catching the mouse. Since the cat cannot avow about its intention to us, or as it seems to other cats, we are ignorant as to whether it could avow in some sense or another to itself. What seems to be in doubt is whether the cat could see the mouse under different descriptions or perhaps under any description at all. Does the cat see the mouse as a little animal with a long tail, or does he see it as an item of food, or both? Does the cat see the mouse under any description at all or is it just an environmental object which stimulates the cat to behave in a certain fashion through certain patterns which reach its retina after the cat has been deprived of food for a reasonably long time?

Thus it seems that in ordinary speech, as suggested before, we may give the animal the benefit of the doubt, although it seems that the more diversified obviously goal-directed behaviour is, the more we are usually inclined to endow the animal, rightly or wrongly, with intentions.

(ii) The Concept of 'Goal' in Relation to Goal-Intended Behaviour.

In has been argued in the previous section that the concept of a goal in connection with goal-intended behaviour is used as a particular, in contradistinction to the use of the notion of goal in a universal sense as the end-in-itself, namely survival, in relation to goal-directed behaviour. However, the word 'particular' as used here, may itself become open to some ambiguity.

It has been said before that if the notion of a goal is involved in the description of intentional behaviour, the goal is always seen as a particular aim at which the movement is directed. Yet the question may be posed in what sense it is a particular, since it may be argued that goals such as "making money" or "keeping fit" do not seem to specify a particular goal, but rather a more general one. With regard

to these two examples it must be noticed that firstly, it may be difficult to separate the behaviour leading to the goal from the goal itself, and secondly, that these goals are likely to signify a continuous aim rather than one which is likely to be completely satisfied at a particular point in time. Once we have made a fair amount of money or have acquired a reasonable state of physical fitness, we have to work at it to either increase or maintain that amount of money or that state of health if we do not wish to forgo our aim. Let us consider the following example of a goal which seems to have some flavour of generality. Suppose our goal is to "get some food". Here the way of getting the food is not specified, neither is the amount of food, neither is the type or types of food, neither is the place where we are going to get it, neither is the particular food itself (a particular chicken, a particular packet of butter, etc.) It may, however, be possible to deal with this problem by maintaining that although in many cases the goal is not a particular in the sense that every facet of it is completely specified, the notion of a goal here still signifies a particular, in the sense that it stands for a particular, though maybe non-specific goal the person concerned is aiming at achieving, which is distinguishable from other goals. To take up the example again, if after having bought some items of food, the person concerned is asked whether he wanted or intended to get those specific items, he may very well answer negatively and explain that he just wanted some food. By saying this he wants to claim that this particular aim was non-specific

in the sense that various items of food, various amounts of food and various types of food, all presumably within a certain range, would have satisfied his particular objective.

In view of the fore-going it seems that many of our goals are not completely specific, but can be said to entail a larger or smaller degree of specification. Perhaps an example of complete specification would be if we would aim at getting a specific item we have seen in a shop window. However, up till now we have only considered specification of "ends of behaviour", and not touched upon the problem of specification of behaviour leading towards these more or less specific ends. Yet another problem arises, namely can the behaviour aimed at securing a particular object be separated from the object to be secured and the notion of a goal in connection with that of intention still make sense? On further consideration this seems doubtful. When we describe our intentions in connection with goals or end-products of intentional behaviour, our description always contains a verb signifying some kind of behaviour which is not itself the objective to be fulfilled. We want or intend to <u>buy</u> food, to <u>make</u> or <u>earn</u> money, to <u>study</u> for a degree. As soon as we say "We want money (or food, or a degree) we usually express a wish rather than an intention.

If this analysis of goals in relation to intentions is correct, then it may follow that no goal figuring in an intentional description

can be completely specified. For example, our intention may be to buy a particular object. Now, although the end of the intended behaviour may be said to be completely specified, the behaviour of buying is not. To be able to specify this behaviour, and for that matter any type of behaviour, completely, we would have to specify every single movement we make, and by that we may mean every single unit of movement(muscle twitch) that goes into a gross movement such as lifting one's arm. Now, obviously we are not even aware of such atoms of movement; we can lift our arm without any awareness or even knowledge of the physical processes that take place. Thus certainly from a first-person viewpoint a goal-intended movement or set of movements cannot be completely specified, before nor after the actual movement has taken place. One may even go so far as to doubt whether by observing our own intentional behaviour from a third-person viewpoint with the help of scientific instruments, we could even in principle completely specify a goal-intended movement, since this may involve a description of sub-atomic events which may be undetermined themselves, or if they are determined, we may not in principle be able to ascertain this due to observational limitations (Heisenberg's principle of indeterminancy). Of course, such a third-person account can only be given during the time the behavour takes place or after it has taken place.

Thus it seems plausible to maintain that particular aims can be said to be more or less, but never completely specific, and a distinction between a "general goal" and a "specific goal" in connection

with intentions would in a sense be an arbitrary one, since the distinction would amount to taking a certain degree of generality into account. However, it does not seem plausible either to maintain that a goal can be completely non-specific; it seems that always something has to be specified to give the concept of a goal any sense. Although at times we would not know what somebody's goal is, we would always assume that such a goal has some kind of specification though we are not aware of it.

Another problem arises when we ask ourselves whether the concept of a goal as a particular is in danger when we consider notions such as a 'common goal' and people having a 'goal in common'. Examples of 'common goals' would be the lifting of a heavy log, the raising of money for a club, the liberation of one's country from oppression. These represent goals which either cannot be achieved by one person at all, or may be achievable or assumed to be achievable better and/or quicker by cooperation with other people. However, the fact that more than one person intend to contribute towards a goal does not make that goal any less a particular, distinguishable from other goals.

If we talk about people having a 'goal in common', we usually mean that they aim at the same thing, the word 'same' here not standing for numerical identity but rather similarity. Thus two people may have various goals in common, such as getting a house, going on a holiday,

becoming professional artists, etc. Of course, in these cases the goals are particulars, and it is only a contingent fact that other people have similar goals.

Up till this stage we have only considered goals as particulars in relation to goal-intended behaviour, but the above analyses of larger and smaller degrees of specification, and notions of 'common goals' and 'goals in common' may be equally well applied to behaviour of animals, even those of relatively low status on the evolutionary scale, and thus to goal-directed behaviour. For instance, the behaviour of birds building a nest may be causally determined in the sense that the bird ends up with one specific nest, yet in a teleological explanation the goal is not considered to be a specific nest but just a nest which is likely to fulfil its function, and which goal is linked to the universal goal of survival (of the species). The behaviour of wolves hunting in packs in order to catch a prey may be seen as behaviour of some individual organisms having a 'common goal'; the behaviour of two rats trying to escape from an electric grill could be considered to be an instance of behaviour of two individual organisms having a 'goal in common'.

(iii) An Attempt at Systematisation of Ordinary Explanations of Bodily Movement.

In order to throw some light on problems of psychological explanation, a classification of ordinary explanations of bodily movements will be attempted. The various types of explanation are compared and contrasted with each other, mainly in an effort to extract some useful insight concerning questions such as what counts in ordinary language as an explanation of an action and whether such an explanation may either be reduced to or can be said to be compatible with a behaviouristic account of human behaviour in general.

Thus we may consider such questions as to what connections are assumed and what inferences are made when we observe a certain movement (or set of these) of a person.

It seems that when we observe the movement of a person other than ourselves, the following possibilities of a description of that movement will have to be taken into account.

1. Movement considered as motion.

We may consider the movement in the same way in which we regard the movement of inanimate objects like stones. When the body of a person or part of this moves, we consider it pushed or pulled. This may happen by direct contact with another physical entity, solid or

otherwise, such as a motor car, a stream of water or a strong wind, but in the case of a person falling from a height we consider this movement as resulting from some physical force acting on a distance. However, in all these cases we make the inference of a kind of Humean causal link between a previous or simultaneous condition or event and the bodily movement. It must be noticed that we do not always observe the previous or simultaneous condition or event (or set of these) with which the bodily movement is causally connected, but sometimes only infer the existence of these, without even being able to pinpoint and specify these conditions or events. Whether only part of the body moves or the whole body, makes no difference to the type of inference we make; neither does the question whether the object moving is animate or inanimate.

This first case, although of little or no relevance to concepts of behaviour and action, is still worth mentioning, because it points at the distinction between a description and explanation of a bodily movement as a physical event or a mere motion on the one hand, and a description of it as a biological or physiological event on the other. An explanation is always of the 'because of' type, never forward looking but nearly always backward looking. The inference of a causal connection is made from an observed event to a previous or simultaneous state or event (or set of these), which are not necessarily observed. If these are not observed, their existence is always inferred.

2. Movement considered as organic, goal-directed behaviour.

We may consider the bodily movement of a person as constituting the behaviour of a living organism. This means that we tend to consider it in the light of getting away from or moving towards a certain end state.

Sinple reflexes are examples of this type of movement, but more complicated plant, animal and human behaviour may be described in this manner. Usually an explanation of this kind of movement is basically teleological in essence. Explanations are offered in the form of "in order to", i.e. a future goal is linked to a present event. The basic inferences are those of a future (unobserved!) goal - mostly, if not always either directly or indirectly connected to the survival of the particular organism or the species it belongs to - and a connection between the goal and a present event. However, this connection is not seen as a causal one; the inferred future event or state of affairs is in some sense considered as bringing about the present observed movement. But such a teleological explanation may be compatible with a causal explanation connecting the observed event with the future goal once this has been reached. This position has been defended by R.B. Braithwaite who argues in favour of such a theory by using the notion of 'multiplicity of causal chains' by which a goal may be reached.[1]

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[1] R.B. Braithwaite, Scientific Explanation, Chap.X.

It must be noticed, however, that another inference is also made, namely that of a connection between a past or present event or condition (or set of these) which may be observed or also inferred, and which exists or has existed inside or outside of the behaving organism, and the observed movement. But this kind of 'because of' explanation is usually secondary to the 'in order to' explanation, and is often not considered to be sufficient in itself. To the question "Why did his pupils contract?" an answer in the form of "In order to protect them from damage" is often in ordinary life considered to be more satisfactory than "Because a strong light shone into them." It seems, however, that the simpler and the more stereotyped a class of bodily movements is, the more stress will be given to a causal explanation. The more complex a class of bodily movements is and the more diversified its instances are, however, all reaching or apparently directed towards the same goal, the greater the satisfaction that will be derived from a teleological explanation. However, it must be granted that on further reflection a teleological explanation is not considered to be "standing on its own", since it is usually, if not always assumed that there must be preceding or simultaneous causes for biological events, which may be located either inside the organism or in its environment.

An important point to note with regard to the more complicated kind of explanations relevant to a movement considered as a biological event is, that a causal explanation does not necessarily refer to the

whole organism being affected by an inside or outside event or condition, but may refer to a particular part of the body being stimulated. This appears obvious in connection with causal explanations of simple reflex movements. However, a teleological explanation always refers, either directly or indirectly, to the whole organism or even a class of individual organisms (species) to which the behaving organism belongs. For instance, a teleological explanation of pupil contraction "in order to protect the eyes" is subordinate to an explanation in the form of "In order to equip the organism better for survival."

It is of interest that playing activities, particularly those of animals, although not obviously goal-directed, are often endowed with a teleological explanation. An animal plays "in order to keep alert", "to keep its muscles and reflexes in good condition", "to get accustomed to its environment", "to get rid of surplus energy", etc. Similar teleological explanations are also sometimes given with regard to human playing activities, especially those of children.

3. Movement considered as action.

In the third place we may regard a bodily movement neither as motion nor as goal-directed movement or behaviour in the biological sense, but as action, connected in some way or another with intentions on the part of the person displaying the behaviour. Although we may make teleological-like or causal inferences, and may thus connect the observed behaviour with a future goal,or a past or present condition or event (or set of these), such inferences are considered to be neither

sufficient nor even necessary for a movement to be regarded as action. An action may be directed towards a certain end-state or goal but does not necessarily have to be so in order to qualify as action.[1] Similarly, an action may be considered to be caused by previous or simultaneous conditions or events (or a set of these) inside or outside the person, but in ordinary discourse this is not regarded as essential for behaviour to be classified as action. If anything, the contrary would be the case, since the concept of 'compulsive action' may be regarded as being closer related to the concept of 'reaction' than to that of 'non-compulsive action'.

However, we do in a sense regard action as being 'caused', but then employ the concept of cause in a non-Humean sense.[2] Some philosophers seem to assume that in ordinary everyday explanations we consider intentions themselves to be causally connected in a kind of Humean way with simultaneous or subsequent behaviour. It seems to me that we connect the person having a certain intention with the behaviour. We do not say "His intention caused, or resulted in that action", but rather "He meant to do that".

The ways in which the concepts of 'intentionality' and 'action' may be connected has been discussed in a previous section of this thesis.[3]

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1 The concept of a goal as used here differs from that employed in the usual teleological explanations of biological behaviour, as has been argued on pp.170-175 of this thesis.

2 See the analysis of the concept of cause in connection with Skinner's psychology, pp. 87-94 of this thesis.

3 See pp.175-179 of this thesis.

Thus it seems that a necessary and sufficient condition for a movement to qualify as an action is for it to be somehow, either directly or indirectly, either factually or apparently, connected with the notion of 'intentionality'.

Hence we make the following inferences when we regard a movement (or set of these) of another person as an action, namely, firstly that of the person having a certain intention in relation to the movement, or having had a certain intention in relation to a class of movements (actions from habit), and secondly, that of a connection between the person being in that intentional state or having been in that intentional state and the actual movement, or an apparent or supposed connection (in the description of his action by the 'actor') between a person being in an intentional state and the actual movement, for instance in cases of behaviour under post-hypnotic suggestion.

If we now consider the inferences we make in connection with goal-directed behaviour (2) and those with regard to action (3), the following basic differences may be noted : -

1. When considering movement as goal-directed behaviour, the explanation of that behaviour is connected to the concept of a biological organism; when regarding movement as action, the relevant explanation is connected to the concept of intentionality, and hence to that of a person.

2. Teleological as well as causal explanations are always seen as essential to movement considered as goal-directed behaviour, whilst, although teleological-like and causal explanations may sometimes be seen as relevant to movement considered as action, only explanations referring to the intentions of the person whose behaviour it is, can be said to be essential.

3. In explanations of movement as goal-directed behaviour, the inferred conditions or events connected to the observed movement are physical in nature, and as such in principle publicly observable; in explanations of movement as action, the inferred state (of intentionality) of the person - whatever this may mean - is not even in principle considered to be publicly observable, but only privately known to the person whose movement is observed.

4. In explanations of movement as goal-directed behaviour, the inferred connection between the observed movement and the inferred future event, as well as the connection between the observed movement and the observed or inferred past condition or event (or set of these) are considered to be direct and factual; in explanations of movement as action the connection between the movement and the person in a particular intentional state may be indirect (in the case of habitual actions) or only apparent (in the case of actions under post-hypnotic suggestion).

Another point of interest in relation to the foregoing is that when regarding merely goal-directed movement our inclinations are to bring the behaviour under some kind of general causal or teleological law-like proposition. Examples of general causal propositions are : "The pupils of the eyes contract when exposed to strong light", "People startle when exposed to sudden loud noises". An example of a general teleological proposition would be: "Living organisms withdraw from contact with hot objects to avoid getting burnt."

When we consider movement as action we are far less, and at times not at all inclined to consider the behaviour as an instance of some kind of law or regularity. We only have this inclination when we consider the intentional act as in some sense determined by conditions beyond the control of the person concerned. An example would be a law-like proposition such as: "Alcoholics tend to find ways and means to procure and drink alcoholic beverages." But as soon as we consider people themselves as initiating causes we have the tendency to see their intentional behaviour as unique in the sense that it cannot (whether in principle or merely in practice) be explained by appeal to some kind of general law.

The main question of philosophical interest which arises out of the foregoing account of our descriptions and inferences with regard to a bodily movement of a person other than ourselves, is not whether such

accounts and inferences are correct or incorrect. The puzzling question really is : Whatever explains the fact that we generally and universally do give such differing explanations and make such differing inferences of bodily movements of another person, from an objective viewpoint? Particularly the differences in description and inferences of movement as goal-directed behaviour and movement as action seem to be in need of some form of explanation.

It seems that at least part of the answer may be found by a consideration of that much neglected area of ordinary discourse, by philosophical as well as psychological behaviourists, namely first-person account. Hence a first-person account of bodily movements is of interest, particularly in the attempt to find some kind of clarification as to the source of the differences in accounts of third-person descriptions of movement as goal-directed behaviour and movement as action.

Thus let us now consider descriptions and explanations of bodily movements from a first-person viewpoint, and see if this will shed some illumination on our philosophical puzzle.

Already, before we actually set out on such a task, a problem arises. In the consideration of movements of other persons the notion of 'observing' such movements has been employed. It is obvious that in the accounts given, by 'observation', 'visual observation' was meant.

This is also quite noticeable when we consider experiments of psychological behaviourists, and for that matter, psychologists of other bends. The question thus arises if the notion of observation is necessarily connected with that of vision, or whether it is a more or less contingent fact that many of our ordinary, everyday observations of other people, and of biological and physical things or processes, and practically all our scientific observations (consider here also such procedures as the reading of instruments) are connected with visual experience.

If we consider any of our other sense organs, it seems that only touch could possible qualify as a means of observation, that is without the help of mechanical aids. Hearing could qualify in a practical sense only with the help of tape-recorders and other equipment. An explanation of this could be that vision as well as touch primarily examine spatial relationships, whilst hearing is much more connected with temporal, one-directional sequences.

Let us, however, for the sake of dealing with our problem, extend the notion of observation beyond that of mere visual observation, at least to tactual observation, and possibly also, though this is connected with many as yet unsolved philosophical and psychological questions, to some kind of "inner" observation, in which none of the ordinary sense

organs play a role. As said before, the notion of this "inner" observation is a doubtful one, accepted by phenomenologists, but rejected by Ryle according to whom such a concept is the result of a category mistake.

If we now try to follow as closely as possible the same programme as has been adhered to with regard to third-person accounts of movements, let us consider a movement of ourselves in the following ways : -

1. Movement considered as motion.

We may consider and give a description of the movement of our whole body or part of it as mere motion, and ourselves or the parts affected of ourselves purely as physical objects. It is interesting that sometimes in such an account of our whole body moving, we do not speak of an "I" being moved, but of "my body" being pushed or pulled, say by a strong wind or a moving solid object.

We know, or at least we claim to know that our body, or part of it, is being moved (we generally employ the passive tense!) not by visual observation, but usually because our body is touched and pushed or pulled, although the consideration of ourselves falling over or falling from a height constitutes an exception. It seems, however, that in most cases the sense of touch is of primary importance in our knowing of being moved without visual cues. Even with regard to falling it may be doubted that we would know we are falling without the feeling of

resistance of the air, or visual clues in relation to our environment, although the feeling of "loosing our balance" may also play a role here. However, we certainly are not bodily aware that we are hurtling through space, most likely because the earth itself and thus everything around us in (astronomically) close proximity is also hurtling at approximately the same pace and our spatial relationship to the objects around us does not change, although, of course, our spatial relationship to the sun, moon and stars does. Yet we prefer to say and still persist in saying that they move in relation to us, although we know better. The psychological explanation for this may possibly be the fact that we do not experience any movement. On the other hand, we sometimes seem to experience the feeling of movement, when we ourselves are not moving, but our immediate environment, or something in our immediate environment, is. For instance, it is quite common to experience the feeling of movement (derived from visual cues) whilst sitting in a stationary train, a train next to ours starts to pull away. We may then be mistaken in thinking that our train is moving instead of the one next to us, and it is not uncommon to find out what the real position is by checking up on other visual cues such as the (stationary) station itself.

If we now try to compare and contrast our first-person account with a third-person account of a movement as sheer (physical) motion, it

seems that in a first-person description we do not infer being pushed or pulled and neither do we infer the existence of a previous or simultaneous thing or event which is doing the pushing or pulling. We usually make statements of knowledge concerning such movements. We "know" that we are being pushed or pulled by something. If it can at all be shown to us that we were wrong in this claim to knowledge, our defence would be that at least we felt being pushed or pulled. Thus in contrast to an inference of a causal connection between the movement observed and a previous or simultaneous event which may or may not also be inferred, a causal knowledge claim is made in the case of first-person descriptions of movements, at least with regard to the feeling of movement, as derived from the feeling of being pushed or pulled. In the case of a third-person account it is still possible that a person made an intentional movement at the same time we saw something else coming into contact with him. If we say to Peter "You stumbled because John pushed you, I saw it" it is still feasible that Peter may answer "Oh no, I stumbled on purpose just to trick John". In our own case we would know whether we stumbled through being pushed or stumbled intentionally.

In the case of the description of our own movement being based purely on visual cues, the description would not differ very much from a third-person description. The difference would be that a variation in spatial relationship between ourselves and our environment would

provide the visual cue, whilst in a description of a third-person movement the variation in spatial relationship between that person and his environment (which includes us) would only be a consideration.

2. Movement considered as goal-directed behaviour.

Let us now consider first-person descriptions of movements seen as goal-directed behaviour in third-person accounts.

Simple, stereotyped behaviour such as the movement of our leg after having been tapped on the patella, contraction of the pupils when exposed to strong light, the withdrawal of our hand on touching a hot object, would qualify in this connection. Perhaps more complex behaviour, such as screaming and running away from something which frightens us, crying after having been told some bad news, may sometimes also be considered as belonging to this class.

The main criteria for considering this kind of behaviour as differing from intentional behaviour or actions would probably be, firstly, that we did not mean or intend to carry out that behaviour, and, secondly, that we did not at any time in the past consciously intend to carry out that type of behaviour, for example, as a result of being taught by somebody else, or consciously developing a certain habit on our own account, although there may have been similar occurrences of that behaviour in the past.

It seems that our finding out about our own goal-directed behaviour is sometimes little or no different from finding out about somebody else's similar behaviour, in that we sometimes regard it very much from a third-person viewpoint. We find out that our leg jerks up after being tapped on the patella usually by visual observation; we find out that our pupils contract or dilate under certain conditions by watching ourselves, in this case in a mirror. In fact, we are often surprised about this kind of behaviour in our own case. However, we seem to know in some direct way that we withdrew our hand on touching a hot object, and also that we withdrew our hand because the object was hot. In such a case a third-person report would rely on and be derived from visual observation, whilst a first-person report would involve reference to touch. We also seem to be in some way directly aware that we are crying because we feel sad and not because we are peeling onions, and that we run because we are frightened and not because we want some exercise. With regard to the last three examples we appear to be in a logically privileged position to make these statements concerning the causes or causal factors involved in the occurrence of our movements. Moreover, these causes do not seem to be and are not claimed to be known or inferred on the basis of visual observational data, but rather in a direct way or by some kind of "inner" observation, although it is doubtful whether first-person statements concerning such causes are incorrigible.

An interesting point can be made regarding our explanations of our own goal-directed behaviour, namely that causal explanations are particularly stressed, whilst hardly any explanation is ordinarily given in a teleological form. It does not seem unlikely that only after third-person observation of similar movements of other people and biological organisms in general, teleological explanations have developed, which explanations eventually appeal to or are subordinate to explanations referring to the concept of survival. In an ordinary first-person explanation of what has been called goal-directed behaviour in relation to third-person accounts we are not so much bothered about references to future aims and goals, and eventually survival. What we seem to be very well aware of is, that we did not consciously intend to make a certain movement or did not in the past intentionally build up a certain type of movement, and hence are looking for the cause in the sense of sufficient condition of the movement, not related to ourselves as persons, although possibly located within our body as a biological organism.

The causal explanation (as is also the case in third-person accounts of goal-directed behaviour) appears to be different from explanations in connection with movement considered as motion, where the notion of cause seems to embody the sufficient condition which immediately precedes or is simultaneous with the movement observed, and

does not allow as much for any in-between, usually unknown, causal chains. A feature of the type of causal explanation relevant to goal-directed behaviour is, that they appear to be instances of what Braithwaite, following Bertrand Russell, calls mnemic laws, in contrast to mechanical laws. Braithwaite characterises this type of laws as follows : -

> " In all mnemic laws an earlier event is said to determine a later event without the intervening causal chain being specified or indeed known."[1]

Thus one of the most important points which springs to light with regard to first-person reports of goal-directed behaviour is, that a 'because of' explanation of the relevant movement is highly predominant over an 'in order to' explanation, this thus in contra-distinction to third-person reports of similar behaviour. It seems that the causal account is a much more "natural" explanation in this situation. Possibly much greater sophistication and perhaps some scientific experience is necessary to come up with a teleological account regarding our own biological behaviour. Most likely we would have to be aware that other people and perhaps animals make similar movements which are related to similar causal factors before we would be inclined to construct a teleological explanation with direct or indirect reference to the notion of survival. In a sense it would thus seem that a teleological explanation would be a non-natural, contrived one, but useful in the explanation of types of behaviour.

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[1] R.B. Braithwaite, Scientific Explanation, p.337.

3. Movement considered as action.

A first-person description and explanation of movement considered as action is of great interest in this attempt at classification, since we may here find a clue to the problem of differing third-person accounts and explanations of movements.

When we consider our own movement as action, this seems to involve that our behaviour is in some way related to us as a person, in contra-distinction to our own movement related to us as a biological organism or a physical object. By this we seem to mean that we intended to carry out certain behaviour (whether this eventuated or not) or intentionally built up a certain type of behaviour, applicable in certain situations, i.e. our description of our own movement seen as action implies implicit or explicit reference to our own present or past intentions.

Now in contra-distinction to third-person accounts of movements considered as action, in which we make inferential claims with regard to a person's intentionality, in first-person accounts of movements considered as action we make knowledge claims, based on "inner" or private awareness of our own intentional states. If we, at the same time, give something which looks like causal and teleological explanations, these have the appearance of pseudo-causal and pseudo-teleological explanations, since the concepts of cause and goal are

employed in quite a different sense than they are in ordinary third-person as well as in scientific accounts of movement seen as goal-directed behaviour or movement seen as motion, as has been argued in other sections of this thesis.

If, on the other hand, we would provide a full-blooded causal or teleological explanation of our own movements, we would be disinclined to classify our movement as action, since we would in our explanation deny involvement of us as a person in relation to the behaviour under consideration. A full-blooded causal explanation would involve some Humean account, which only seems to see conditions and events in our environment or within our body as causes or stimuli, and deny that we ourselves as persons constitute initiating causes. Similarly, a full-blooded teleological account would either directly or indirectly refer to survival of the individual and/or the species as biological structures as the ultimate end of the behaviour under consideration, and not to a goal set by the behaving person. Thus expressions used in first-person action explanations such as 'because of' and 'in order to' do not function in the same way as they do in first-person, third-person and scientific accounts of movement as goal-directed behaviour or as motion, since they do not just connect states or events, but always entail reference to a person. The concept of a person is connected to the notion of cause as the initiator of behaviour; it is connected to that of a goal, as set by the person whose behaviour is under consideration.

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[1] See pp.87-94 and 170-175 of this thesis.

The paradoxical situation with regard to first-person accounts of our own movements thus is, that as soon as we would provide a causal or teleological explanation in line with scientific explanations of that kind, we would deny qualifying our behaviour as action, since we would deny to be as persons involved in that behaviour. Moreover, we would not make inference claims but knowledge claims in this respect. It would even seem that statements as to whether our own movement would qualify as action or not could be at least in some cases be regarded as indubitable, once we have for ourselves accepted consistent criteria for the use of the word 'action' as opposed to such terms as 'reaction', 'movement', 'motion'.

Thus it appears that differing first-person accounts of movement based on knowledge claims may well constitute at least a partial explanation of the differing third-person accounts of movement based on inference claims.

We may argue from analogy with our own case. This does not quite seem to provide the full answer, since we are usually not so quick nor so confident to apply action accounts to similar animal behaviour unless we sometimes for psychological reasons see the animal as a person. It seems more likely that we apply action accounts to other people on the basis of their ability to make first-person statements of their intentions to act; moreover, we consider their utterances in this

mental or physical - which can for scientific purposes be adequately defined in terms of input and output. It seems thus to follow that if action explanations referring to intentionality and input-output explanations are compatible, the former are in fact reducible to the latter for third-person and/or scientific purposes, although intentional explanations, which are merely "residue" explanations or "raw feel" explanations, may be given. However, strictly speaking, such explanations, if given without any additional explanations, would only have the status of pseudo-explanations, since the "shadow inner aspect" states in which a person happens to experience himself cannot be causally efficacious.

Thus we may draw the conclusion that either any first-person knowledge claims concerning our own intentional efficaciousness based on private awareness, are false and ought to be ignored in favour of third-person scientific input-output explanations, and with it distinctions between 'action' on the one hand and 'reaction', 'movement' and 'motion' on the other, as well as the concept of a person as distinct from a purely biological organism be abolished, which is the conclusion the psychological behaviourist must draw in order to be consistent, or that we admit that first-person claims concerning our own intentional states have objective validity, enable us to make useful and comprehensible distinctions concerning various types of behaviour, and should not be ignored and omitted at the cost of the impoverishment and

respect usually as type rather than token statements.

A further reason why we accept in certain cases third-person action explanations (referring to that person's private state) may be purely a pragmatic one, namely that an action account of somebody's movement as opposed to a goal-directed behaviour account or a motion account, has explanatory power, whilst the others do not.

From the above considerations it seems obvious that action explanations cannot in principle be reduced to or replaced by goal-directed behaviour explanations or motion explanations, since the notion of a person doing something or aiming at something at some time or another, in connection with the movement under consideration, cannot be left out of action explanations, and the behaviour at the same time remain intelligible as action.

Another question is whether action explanations are compatible with goal-directed behaviour explanations or motion explanations, taking only overt behaviour into account.

If this would be the case, we would have to assume that a person in a certain intentional state cannot be causally efficacious, and that "inner states" are epiphenomenal, i.e. the appearance to the person in question of him aiming to do something, is a kind of "shadow effect" which can be ignored in the formulation of scientific psychological laws, only dealing with input and output or internal processes - either

even at times incomprehensibility of explanations of human behaviour, basically for such a comparatively puny reason as the unity of science.

Thus it has been argued in this last section of chapter III that the concept of 'goal' is not essential to that of human action; instead it has been advanced that the concept of 'intentionality' is in some way, either directly or indirectly, necessarily connected with that of human action.

Distinctions have been analysed between 'doing something on purpose' and 'doing something for a purpose','goals of' and 'goals for' an organism, and the concept of a goal in a particular sense and that of a goal in a universal sense. A means-ends distinction has been analysed particularly with respect to goal-directed behaviour and related to the concept of goal as a universal. Furthermore, a distinction has been made between particular and specific goals, and it was argued that goals, although usually particular (in goal-intended behaviour), seldom or never seem to be completely specific, but carry a higher or lower degree of specification. The notions of 'goals in common' and 'common goals' were also compared and contrasted.

In the last segment a systematisation of ordinary explanations of bodily movement has been attempted. Movements were considered as

motion, as goal-directed behaviour and as action, from third-person and first-person viewpoints, and the accounts compared and contrasted. It has been claimed that action explanations are not reducible to or can be replaced by goal-directed behaviour explanations or motion explanations. It was concluded that the distinction between 'action' on the one hand, and concepts like 'reaction', 'movement' and 'motion' on the other, as well as the concept of a person would no longer have any meaning, and explanations of human behaviour would necessarily become impoverished and sometimes incomprehensible, within a system of behaviourist psychology.

CHAPTER IV

SUMMARY

In this thesis psychological behaviourism has been distinguished from philosophical behaviourism on the ground that its aim is basically to solve methodological questions and thus to transform the discipline of psychology into a science by rendering it capable, with the help of new methods, of predicting and controlling human and animal behaviour. Philosophical behaviourism, however, is concerned with fundamental metaphysical questions; it attacks the conventional bifurcation of a person into a body and a mind by arguing that colloquial mental expressions do not presuppose the existence of a separate entity, the mind, and that technical mental expressions founded on the conventional metaphysical mind-body view, if analysed, lead to logical absurdities. A point of contact between psychological and philosophical behaviourism is the felt necessity by psychological and philosophical behaviourists to deal with existing mental expressions, either by giving explanations in behaviouristic terminology, or by creating behaviouristic counter-concepts.

Two neo-behaviourist theories of psychology, namely those of Skinner and Tolman, have been looked at in some detail, mainly in order to illustrate some of the basic shortcomings and doubtful presuppositions

of psychological behaviourism as a whole. The most important differences between these two theories may be summarised in the following way.

1. Although both Skinner and Tolman reject the older Watsonian tendency towards molecular behaviourism and consider themselves to be molar behaviourists, they do so for different reasons. Skinner's reasons are of a practical nature. Firstly he argues that gross overt behaviour is much more easily observable; secondly he stresses the point that the molecular neurological preceding events or components of behaviour are not always known and may never be completely known in enough detail to predict instances of behaviour; thirdly he points out that it is even more unlikely that we shall be able to interfere with the nervous system in order to control consequent instances of behaviour.

It has, however, been argued in this thesis that at times Skinner appeals to the concept of 'covert behaviour' in order to rescue his own system. He does this in trying to analyse colloquial expressions referring to private events, such as expressions of intention, and also in relation to some facets of verbal behaviour. The question then becomes "What exactly does Skinner mean by "covert behaviour"? Does it stand for anything else than internal or semi-internal molecular events like muscle twitches, heart beat, breathing, neurological events, etc.?

Tolman's main reason for adhering to molar behaviourism is a more subtle philosophical one. Skinner argues on technical grounds that molecular behaviourism is not feasible. Tolman, however, maintains that in principle molecular behaviourism is not of much use, since a behaviour-act as a whole has emergent properties of its own which cannot be worked out from the sum total of the underlying molecular components of the act. Thus, in Tolman's view, a description of a total behaviour-act cannot be arrived at from a description of its molecular parts. Hence Tolman's affinity with Gestalt psychology.

It has been shown that Tolman in relation to his counter-concept of 'consciousness' at times appeals to the notion of 'behaviour-adjustments' or 'ideations', and admits that this notion is derived from the Watson and Weiss doctrine of "Implicit Behavior". Thus it may be argued that Tolman also seems to take refuge into molecular behaviourism in order to substantiate his system.

2. Another point of difference between the two theories concerns the type of explanations which have been thought relevant to, and have been employed to deal with behaviour, particularly that type of behaviour which we ordinarily would call "action".

Skinner's innovation in this field was his concept of 'operant behaviour' which enabled the psychologist to deal scientifically with

that type of behaviour for which the unconditioned or conditioned stimuli were unknown, i.e. the kind of behaviour which we ordinarily would call "spontaneous". Skinner thought that his 'operant behaviour' could be justified as some kind of Humean type causal relationship. It has, however, been argued in this thesis, that, firstly, Skinner implicitely makes use of a teleological principle, and secondly, that even with the admission of a teleological principle it is doubtful whether such type of explanation is appropriate to all human action.

Tolman, in contrast to Skinner, admits of and incorporates a "purposive" or teleological principle in his explanation of behaviour-acts. Behaviour-acts are directed towards or away from a certain end or goal. In this thesis it has been objected to Tolman's theory, firstly, that the concept of an 'end' or 'goal' is not essential to all human action, but that the concept of human action appears to be logically related to that of 'intentionality'. Secondly, in connection with the above, it has been maintained that certain explanatory distinctions and contrasts made in ordinary language are obliterated in Tolman's system. In this system all action explanations are necessarily reduced to or replaced by goal-directed explanations.

3. Tolman's theory, in contrast to Skinner's, is heavily saddled with the concept of 'intervening variables'. It has been argued that Tolman is inconsistent in this respect, since he has used in his

writings two interpretations of the notion of 'intervening variables', namely that of considering these to be purely logical constructs, useful for explanatory purposes, and that of giving these variables an existential status.

4. Skinner's and Tolman's approaches to the phenomenon of speech forms another point of distinction. Skinner employs a functional (causal) approach in order to make "verbal behaviour" fit in and be on a par with other types of behaviour. Tolman approaches the problem from a more historical angle by claiming that human speech is a further development of the animal cry and may be classified as "tool behaviour". His treatment of 'speech' is teleological, in accordance with his whole system.

It has been argued in relation to Skinner's causal treatment of "verbal behaviour" that the analyses of some concepts which necessarily involve verbal behaviour, are impossible without necessary reference to the concepts of 'intentionality' and of 'end-product' or 'goal'; examples have been given. It has also been maintained that on Skinner's account no difference can be drawn between utterances as happenings and utterances as actions, and consequently no distinction can be made between non-persons and persons.

In relation to Tolman's teleological treatment some similar objections as to Skinner's theory have been raised. Other main

objections concern the impossibility of making type-token distinctions and the fact that animal cries and many human emotional utterances cannot be qualified as being true or false, whilst other (human) expressions are, which seems odd if we accept Tolman's theory.

5. As has been pointed out at various places in this thesis, Skinner's attempts of dealing with mental concepts and expressions usually differ from Tolman's. Skinner deals mainly with colloquial mental expressions by trying to account for these in a behaviouristic fashion and at times translates these into behaviouristic terminology. His accounts of such expressions are at times similar to those of Ryle. It has been attempted to show in this thesis that Skinner's analyses of colloquial mental concepts such as 'intention' (or 'purpose' or 'goal') and 'thinking' are unsatisfactory and even absurd.

Tolman tries to overcome the problem of mental expressions by creating his own counter-concepts of technical and colloquial terms which can be behaviouristically defined. The ambiguity in the status of counter-concepts such as 'consciousness', 'cognition' and 'introspection' has already been mentioned in relation to Tolman's notion of 'intervening variables'. Tolman's appeal to molecular behaviourism, particularly in relation to his concept of 'consciousness' has also been noted before. It has been argued in this thesis that Tolman's counter-concepts are often unsatisfactory, since certain

explanatory distinctions made in mentalistic psychology and ordinary language can no longer be drawn.

Various more general philosophical problems have been raised in this thesis in connection with either Skinner or Tolman or both.

It has been pointed out that determinism is presupposed by any behaviouristic theory of psychology. A clarification of the problem of determinism has been attempted and an argument advanced in order to throw doubt on the validity of this presupposition.

The concept of 'causality' has been looked at and the scientific use of this notion, which has been more or less adhered to by many behaviourist psychologists, has been compared and contrasted with a more colloquial and possibly a more fundamental use of this concept in relation to human action.

Some attention has been given to the behaviourist's inability to distinguish what may be indicated as "levels of knowledge". It has in this connection, for example, been argued that the behaviourist must treat knowledge <u>how</u> to carry out certain behaviour such as discriminating between objects on the basis of shape or colour, and knowledge <u>that</u> one is capable of such feats of discrimination, as knowledge of the same kind and on the same level.

Strong emphasis has been placed in this thesis on the necessary connection between the notion of some human behaviour (verbal or otherwise) and the concept of 'intentionality'. In relation to this, concepts like 'behaviour', 'action', 'goal' and 'purpose' have been examined and ambiguities pointed out. The possible necessity of the employment of the concept of a 'person' in an analysis of at least some human behaviour has been hinted at, although not fully developed. In connection with these problems a possible systematisation of ordinary explanations of bodily movement has been advanced. From this it was concluded that action explanations cannot in principle be reduced to or replaced by goal-directed explanations or motion explanations without at the same time closing the possibility of making valuable explanatory distinctions and running the risk of at times even becoming absurd.

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