SOME LOGICO-EPISTEMIC PROBLEMS REGARDING CAUSAL ASYMMETRY

WITH SPECIAL REFERENCE TO G. H. VON WRIGHT

Thesis Submitted To

THE UNIVERSITY OF HYDERABAD

For

DOCTOR OF PHILOSOPHY

In

PHILOSOPHY

By

MAHADEV DEWASHI

DEPARTMENT OF PHILOSOPHY

UNIVERSITY OF HYDERABAD

HYDERABAD 500 134

1991

DECLARATION

I hereby declare that the work presented in this thesis has been carried out by me under the supervision of Or. Chinmoy Goswami and that this has not been submitted for a degree or diploma in any other university

Date: 22-1-91

(MAHADEV DEVASHI)

C E R T I F I C A T E

This is to certify that Mr. MAHADEV DEWASHI has worked under my supervision on the problem, "LOGICO-EPISTEMIC PROBLEM REGARDING CAUSAL ASYMMETRY : With Special Reference To Georg Henrik Von Wright", in the Department of Philosophy, University of Hyderabad, Hyderabad. He has completed the research for full period prescribed under the Ph.D. ordinances of the University. I recommend that the thesis be sent to the examiners for evaluation.

Date: 22.1.91

Amitabha Das Gupta
HEAD
DEPARTMENT OF PHILOSOPHY
UNIVERSITY OF HYDERABAD
HYDERABAD.

C Goswami

(CHIHMOY GOSWAMI)
Supervisor
Reader
Department of Philosophy
University of Hyderabad
Hyderabad 500 134

G.V. Sudhakar Rao
Dean,
School of Humanities,
University of Hyderabad,
HYDERABAD 500 134.
22.1.91

ACKNOWLEDGEMENTS

I express My sincere gratitude to Dr. Chinmoy Goswami for introducing me to "Logico-Epistemic Problem Regarding Causal Asymmetry" and his careful guidance which led to this thesis. My association with him has been very pleasant and rewarding.

I also express my deep sense of gratitude to the I. C. P. R., for providing me a General Fellowship for two years.

I am thankful to my teacher and head of the department Prof. A. Ramamurty and all other teachers in the department, who helped me by giving valuable suggestions.

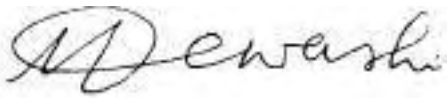
I must place on record my special gratitude to Prof. Douglas Ehring, and Prof. G. E.Von Wright, for their help.

I also express warm appreciation of my friends Biplab, Lenka, Padhy, Budhu, Sunil and Raja for their constant support and assistance in innumerable instances.

I owe my thanks to Mr.Ranjit Ghosh, for his sincere and devoted hours during which he typed my thesis.

I thank to 'the department of philosophy', VisvaBharati University, Santiniketan, for allowing me to make use of old journals and books.

Above all my thankfulness towards my parents and brothers are beyond my words.



Date: **(MAHADEV DEWASHI)**

CONTENTS

P R E F A C E

It is generally assumed that causes necessitate their effects in such a manner in which effects can never be said to necessitate their causes. It may be termed as "causal asymmetry. But the question is: how we understand it ? The problem of understanding the differences between causes and effects is the problem of causal asymmetry. This dissertation is an attempt to pose the problem and find a solution, after making a survey of some of the recent approaches to the problem.

In recent years there nave been attempts to alienate human action from the realm of natural phenomena. There is an ever growing tendency to discard the causal theory of action, viz. that actions are caused by the intention to act. The revival of interest among the analytic philosophers concerning the theory of action opened the possibility of viewing the causal notions in a larger conceptual framework. Von Wright's analysis of causality and that of causal

asymmetry open a new horizon of philosophical debate, his great contributions in the logic and theory of Action obviously play a significant role in his analysis of causal asymmetry. For von Wright, in principles an event must be brought about by an agent to be causally efficacious. The event which can be brought about by an agent *more* directly is a more plausible candidate for being the cause while the consequent of the action is the effect of the event brought about by the action.

This dissertation is divided in five chapters. The first chapter is concerned with introducing the problem and is devoted to give a brief historical background, in order to trace how the concept of cause has undergone shifts in meaning from Greek to modern times. The second chapter deals with some associated problems, for example, oncological framework, semantical framework, causes and conditions, counter-factual dependence and Direction of causation. Any account of causality must take into consideration such related issues in order to clarify the conceptual topography surrounding the concept

of cause. The third chapter is concerned with different approaches to the problem of causal asymmetry. This chapter critically discusses five main approaches viz. (i) Regularity theory, (ii) Fixity thesis, (iii) Counter-factual view, (iv) Theory of transference and (v) circumstantial approach. The fourth chapter deals with von Wright's approach to the problem of causal asymmetry, his approach has been discussed critically and an attempt has been made to defend his position as far as possible. The last chapter- the conclusion- explores the conceptual similarities between action and causation in order to establish that the notion of 'action' is a conceptual prerequisite, for the concept of 'cause'. however, this thesis, as such, may be seen as too much von Wrightean. Attempt has been made to show a kind of conceptual muddle(circularity) in von Wright's thesis. Thus a need was felt to go beyond. The suggestion is to view, the concept of 'cause' as an. extension of the concept of 'action' in

the sense that the relation between the 'result' and 'consequence' of an act of an agent is to be causally related as it the 'action' and 'result' of the acts of nature are causally related. Such an extension of the von Wrightean view helps us to give an account not only of causal asymmetry but also some of the other related problems.

M. Dewashi

CHAPTER I

INTRODUCTION

CHAPTER-1

INTRODUCTION

THE PROBLEM

One of the recurrent themes In the history of ideas has been to locate the position of man in the entire universe, that is, man's place and relationship with the surroundings. This constitutes the fundamental basis for an understanding - understanding of both the self and the non-self. One can roughly say that any understanding demands a kind of relationship between two generic entities - one is to be understood in terms of the other. In other words, a unique particular, unless it is subsumed under a generic type, can neither be understood nor can be used for an understanding. However, this is only a theoretical point of concern. Since any attempt at understanding begins only through a characterisation of an entity through language and use of language not only makes the entity public but also subsumes the entity under some generic type.

Plato taught us so. Knowledge can only be of universals. Bare particulars can never be an object of systematic study.

One of the roost important ways of understanding the happenings in nature is supposed to be through the causal terminology. Some, even, are of the opinion that proper scientific understanding must be a causal one. The problem of causality and that of causal relations have been intriguing problems throughout the history of philosophy. The notion of cause and that of causality plays a prominent role in the understanding of nature. The philosophy of nature, throughout the history of philosophy, has been much interested in an understanding of the nature of the causal relations. Causal relations display some interesting properties like irreflexivity and asymmetry.

The problem of 'causal asymmetry' has been

occupying a central stage in the arena of philosophical debate for the last few decades. Roughly, the problem of understanding the difference between causes and effects is the problem of 'causal asymmetry'. The difference between them seems obvious, but it is not so easy to state in any general and informative way what this difference is. It is usually believed that causal asymmetry is to be determined in terms of temporal asymmetry. But it is argued that the temporal asymmetry is not sufficient to characterize the causal asymmetry.

Many recent philosophers have pointed out that if any connection between cause and effect is granted, the connection roust be accepted in both directions - from cause to effect and also effect to cause. The state of a particular thing (effect) at a particular time determines also its past states (cause). Thus just as we can infer future states

from the present states, we can also infer past states from the present ones. This however, points to the symmetry of explanation and prediction. That is to say that once the causal connection is established, we may move either backward or forward epistemologically. But what happens at the ontological level ? However , this problem is not, satisfactorily resolved. The nature of tine is also intricately related to the notion of causal asymmetry. By far, time may be considered either as a continuous or as a discontinuous medium.

what ever may be the nature of time, if the cause item is earlier than the effect item, then there must be something in between. Our problem is: how to understand the nature of this 'something'. If we accept that the direction of causation is necessitated both ways then we cannot avoid the absurdity that a stone in becoming heated makes the

sun shine upon it in the same way in which the shining sun makes the stone heated,

This absurdity is due to the lack of proper distinction between the generic causal links and the singular causal situations. At the generic level, the problem of causal asymmetry remains in the background, while in the singular causal situations it comes to a sharp focus and becomes unavoidable. This dissertation, is interested in finding answers to the questions; "what is and how to determine causal asymmetry ?" This may not be the final answer, this only an attempt. Nevertheless, it is a search for an answer in some plausible directions.

HISTORICAL BACKGROUND

Often one is pushed to an embarrassing corner by a series of "whats" from a child. The situation is further thickened by a barrage of "whys". These what-questions and why-questions stem from the child's spontaneous urge to locate his/her place amidst the bizarre surroundings upon which he/she opened his/her eyes. We feel embarrassed sometimes due to our ignorance and often our social stigma forbids us to reveal what we know. We usually try to satisfy the enquiring infant mind with an answer in terms of some human purpose often stipulating some spiritual agent. Nevertheless, these why-questions and what-questions form the most significant entrance to the garden of "science". Our primitive ancestors had to ask these questions to themselves and seek their answers on their own.

human beings occupy both a marginal as well as a Central position. Since the human species constitute only a small fragment of the total universe, one can

easily dismiss the human existence as insignificant and the place occupied by them as marginal. It may be true that absolute extinction of the human specie is not going to make any effective difference in the folding ana unfolding of the universe. However, if the ultimate aim of "science" is to clarify the relationship that human beings have with the universe, they must be placed at the central niche in the universe. This tension-Marginality versus centrality-has resulted in the construction of different "models" at the different stages of human history for an understanding of both man and nature, self and other.

During the hunting stages of human civilization "Science" was limited only to observation and sporadic discoveries of some generalization of very elementary form. They are primarily concerned with what-questions. Here and there, through trial and error and mostly by chance, they stumbled upon some correlations between

events. The data so accumulated were used to be transmitted, through social memory, to the next generations. With the advancement of time, the Information content inflated, while people learnt to exploit land and sufficiently mastered the techniques of agriculture. As a consequence, society could generate surplus. During this transition of human society from hunting stages to agrarian one, first primitive attempts were made to find an order, to find a cosmos from the chaos. Host primitive world - views (Weltanschauung) were formulated.

The perceptible objects of the world presented to the naive primitive human beings either as similar or as dissimilar, as animate or as inanimate. Animate objects, like plants and beasts, were easy to understand. They all have a purpose, to live and go on living in their progeny, even at the cost of individual death and annihilation. Its purpose explains the

very being. The being makes sense only through the purpose it has. We have enormous evidence to this effect. Trees and beasts as objects of worship are too common among the early human societies. The inanimate objects, like rocks, mountains, rivers, the sky, the stars, the rains-around our primitive ancestor were also assumed to have purpose of their own, may be with some initial difficulty. The world's strangeness was thus resolved. The world became a home rather than a guest house. No inanimate objects could really exist, for such an existence would have been incomprehensible. In river's depths, on mountain tops, it was assumed, more subtle spirits pursue vaster and more impregnable design than the visible ones replicating beasts and human beings. In nature's forms and events, our ancestors saw action of forces either benign or hostile but never totally indifferent, never totally alien.

Such animistic beliefs consist essentially in a

projection of man'a awarness of the intensively telco-nomic functioning of his own nervous system on-to the functioning of inanimate objects of nature. It is the hypothesis that any phenomens, inducing the natural ones, can ana must be explained in the same manner, by the same laws, as subjective human activity-conscious and purposive. Primitive human society formulated this animistic hypothesis with complete candour, frankness and precision, populating nature with gracious and awe-inspiring myths and mythological figures which for centuries nourished art and poetry and proved to be the recurring source of inspiration for the development of culture.

Available historical documents point towards the nappy coincidence of simultaneity regarding the birth of philosophy in Greece, India and China, Between the seventh and fifth centuries before the Christian era, the three great traditions of philosophy were set up under three different geographically

separated locations. However, it seems that despite geographical differences, all of them overtly advocated animistic beliefs in some form or other. Nature for them was characterised not merely by ceaseless motion and change but by an effort or tendency - a tendency to change in certain definite directions. Nature to them was not only constituted of ceaseless motion but by a beautiful design as a consequence of which there is order and regularity. They thought that nature is not only a huge animal with a body of its own but a rational animal with a mind of its own. This ancient philosophical view of nature was obviously based on an analogy between nature and the individual human being.

Human beings found that they have power to make things happen, they then see causation as a matter of powers in nature making things happen. With the advancement of human knowledge, the concept of

1. Collingwood, R.G. - The Idea of Nature, Oxford, originally publish(1945), paperback(1985),part-I pp.29-92.

"causation" like any other concept has undergone changes in its meaning depending upon the "model" employed for understanding. To the Greeks, anything that provided an answer to the question begining with the word 'why' is a cause. The Greek counterpart of our 'cause' is called aitia. The word aitia comes from the courts of law; it means culpability, responsibility, change, accusation and blame. 'To hold guilty', 'to accuse of a thing', 'to impute the fault to one' and 'to acquit of fault' - are Greek expressions using aitia. The Finish counterpart the word syy has exactly the same double meaning as that ofaitia.[2]

Early Greek thinkers regarded cause as the world-stuff, that is, the material out of which all things have been made. Cause, for them, is the principle of unity, rather than of production. The Milesians did not speak of causes. The first explicit reference

2. von Wright, G.H. Explanation and understanding, Routledge &. Kegan Paul, London, (1971) , p.65.

to the law of causality occurs in Parmenides, who did not, however, regard it as the principle of change or becoming, but of being. It was Leucippus, who associated it with change which indeed is a case of causation. According to him, "nothing happens without a cause, everything has a cause and is necessary". Heracleitus claimed that all change is subject to law and thus enunciated the inductive principle which is a necessary supplement of the law of causation. Empedocles traced motion to moving forces and is therefore the father of the activity view of causation. Plato distinguished between various forms of causes but true causes in his view were logical entities devoid of motion. Aristotle said that the cause is always a compound containing four factors, each of which, may be considered, by itself, as a cause. He brought to focus the previous speculations on causation, and set forth the famous four-fold view of causation. These four causes are - material, formal, efficient, and final. Aristotle invented the four causes

to understand change and process in nature. The material cause is the matter from which something arises, e.g. the marble of which a status is made. The formal cause is the shape, the form the statue receives. These 'internal' causes have as 'external' companions the efficient and the final cause, e.g. the sculptor who makes the statue and the likeness of the man represented by it. Nature her self is a cause in all four senses of the term or, rather, the nature being, in virtue of its matter, form, efficiency or finality. Aristotle alsosowedthe relation between the categories of substance and causation. According to him, the cause being a bottom of substance, is not static but efficient. Even the term efficient, for Aristotle, is not an event, but a substance, that is, the seat of power. In other words, the efficient cause of a new organism is not the event or act of generation but the parent which did the act, who performed the act. For centuries, thereafter, the Aristotelian theory of

causation was accepted as gospel truth and discussed with varying shades of emphasis on its different aspects.

First Galileo attacked the Aristotelian doctrine of four causes. He says[3]:

> "...only that may properly be called the cause which is always followed by the effect..."

Thus it seems that Galileo has put forward a linguistic recommendation. He intends to narrow down the concept of 'cause'. The tendency to change in a definite way was supposed to be due to some external agency as opposed to the Greek view of nature as an intelligent being which, in itself, has the capacity to change in certain definite ways. The nature was supposed to be a huge machine - a machine in the proper and literal sense of the word- an arrangement of bodily

3. Quoted in Lyon, A-"Causality", The British Journal for the Philosophy of Science, Vol.28 (1968) ,pp. 1-20,

parts, designed and put together and set going. Bodies and objects in nature are immobile. They change their state due to some external force. Consequently, causal relations were supposed to hold between the states - between the successive states of a system.[4]

The French mathematician, Laplace, identified the necessary relation between the states of a system with the causal relations - the present state of a system being the causal consequence of its preceding state and the cause of its subsequent state. He believed of its subsequent state. He believed that the necessary relation between the states of a system is applicable not only to the universe as a whole but also to the finite system - any system that we can think of. According to this view, events follow each other with iron necessity - they are determined and even, in a way, preaeterrnined. One and the same series of states of a system arise out of one and the same set of external

4. The term 'system' is to be used cautiously. Since the development of cybernetic systems, the notion of system has undergone change. For details sees Blauberg, I.V. ,et.al - System. Theory, Progress Publishers Moscow, (1977) .

conditions. The necessity between the cause and the effect, however, becomes even more iron clad when the phenomena described by it are more abstract. There is even the suggestion that there exists a single causal chain so that everything that happens at one moment in the universe is connected with what happens at the next moment. This view is also known as the Laplacean determinism after the name of one of the greatest champions of this view.

Coming down to the modern age we find Bacon offering a queer view of causality and exulting over the discovery of a new method for scientific inquiry into causes. Scientists like Galileo and Kepler spoke of causes as forces verified in the motions they generate. quantitative determination come to be associated with the mathematical use of the causal relation. Descartes declared that the cause must be equal to or more than the effect in respect of "reality". Spinoza took up the geometrical method

in right earnest and reduced causation to the timeless relation of ground and consequence. Newton freely admitted "forces" as causes of all motion. Hobbes looked askance at the notion of force which is unobservable, and regarded causation as a relation between motions or moving particles. Leibnitz identified cause with spiritual energy and re-introduced into causality purpose, which was ignored by scientists ana condemned by spinoza. Locke ana Berkeley, though subscribed to the dynamic theory of causation, grew suspicious of it at least in the sphere of physical things. Hume subjected the popular view of his day to merciless criticism and dismissed force or power as an unobservable banished substance from both the physical and the mental world, and reduced the supposed objective necessity in the causal relation to the subjective necessity of expectation of regular sequence. According to Hume, causation is nothing more than invariable sequence, and

therefore , the cause is merely the invariable antecedent and the effect is merely the invariable consequent. It is a matter of "custom" or "habit", according to Hume. All certainty vanished from the world of concrete existence.

By Hume's brilliant suggestion, Kant awoke from his "dogmatic slumber" and tried to give necessity a fresh lease of life by basing it on the category of substance supposed to be involved in all knowledge of objects. But the necessity that he could or would prove relates to the employment of the causal principle and. not to the nature of causal relation. Hume had traced the belief in causality to an animal faith and shown the causal relation to be a spatio-temporal contiguity between specific, objects. Kant tried to justify our belief in causality, but ignored the other point urged by Hume. He came to recognise, however, that causation is more than contiguity re-inforced by regularity; it is a continuity between two events which are spatio-temporal in character. Kant's successors did little

to clarify the idea of causation, and this remark applies equally to Fichte. Schelling, Hegel, Schopenhauer and others.

Mill reverted to the Humean tradition, but tried to do justice to the element of necessity by introducing it through the backdoor in the name of unconditionslity. According to Mill, the cause is an "invariable unconditional antecedent". He means that group of conditions which without any further condition, is followed by the event in question. But it(the concept of unconditionally) leads us to widen everything as cause into the whole state of the universe at a particular moment, when properly understood. Thus in practice Kill forgot his definition of cause as the unconditional antecedent, and based his inductive methods on the invariable character of the causal relation. But Russell pointed out that a causal law should be regarded as almost unvarying, for otherwise

the cause should embrace a state of the universe and become useless for both scientific and practical purposes. He declared that "the law of causality, like much that passes muster among philosophers, is a relic of a bygone age, surviving, like monarchy, only because it is erroneously supposed to do harm".

Scientific method itself is not absolute and it changes with science. Similarly our theory of causation is chancing with the progress of science. The progress in science meant triumph for mechanistic world-view ana the mechanistic method came to be hailed as the only scientific method. The mechanistic philosophy of nature which started out with such brilliant prospects during the tine of Newton, ran into a series of difficult problems. Even during the greatest triumphs of the mechanistic philosophy of nature, physics began to develop in new directions tending to lead away from the general conceptual framework that had been associated with the mechanistic philosophy. The most important of these developments were the formulations

of the basic laws of electro-magnetic field, the elaboration of the Kinetic theory of gases and the initiation of the statistical laws of thermodynamics and other microscopic properties of matter. Although none of these developments stood in complete contradiction with them mechanistic point of view, each of them showed the need of progressive enrichment of the basic concepts which were required for expressing the lows of nature as a whole. Physicists made various adjustments, compromises ana extensions of their concepts to accommodate their finding, within the general conceptual framework of the mechanistic philosophy. The essential characteristic, however, remained very much the same. The assumption is that at least in, everything would finally be reducible, completely and perfectly, to an ultimate set of purely quantitative laws, involving perhaps mass points alone, perhaps mass points and fields, perhaps fields alone, was retained. The various qualitative changes occurring in matter as well as the existence of various levels would one day be seen

to be merely a result that follows perfectly and completely from the fundamental quantitative laws. A proper algorithm can and must be found in order to explicate the functioning of nature.

The problem of causality was discussed, specially with keen interest, after the advent of quantum physics. Eminent quantum physicists like Neils Bohr, Werner Heisenbery, Max Born and many others, demonstrated that, generally speaking, it is impossible to give an unambiguous account of the behaviour of the individual micro entities within the framework of mechanistic philosophy of nature. Heisenberg's principle of Indeterminacy expresses the fact that we cannot determine with equal accuracy both the position and the velocity of a planetary electron at any moment. Some thinkers think that this limitation is logical; while some others think, this limitation is to be a consequence of the interaction between the observer and the phenomena.

5. See Nagel, E.- The structure of science, Brocl & World, New York (1961) , pp.293-3C5.

6. Bohm, D.- Causality and chance in Modern Physics, First Pub. (1951), Harper Torch Book edition (1971) .pp.81-84.

Gradually, however, quantum physics has established its place, though grumbling of discontent can still be heard. It was difficult to conceive the universal causal chain breaking to pieces where it was the central core of scientific enquiry for some four hundred years. Nevertheless, the link of the causal chain had to be cut in the light of modern scientific discoveries.[7] After all, nature could not be described as a rigid mechanism of cause and effect.

withthe advent of quantum physics the very foundation of the Leplacean determinism was shaken. In the light of quantum physics, it was difficult to see how the very assumptions of the Laplace an determinism could be retained. A host of philosophers and scientists alike exerted their brains on the nature of causality. There was a strong objection by many to the results concerning the uncertainty principle which seemed to be the central thesis of quantum physics. Somephilosophers of our tine even tried to dispense with

7. Hanson, N.R. -"Causal Chains", Mind, Vol.64, (1955) , pp.289-311. The author argues against the link-in-a-chain view of causality.

the very idea of causality as it is loaded with metaphysical flavour.[8] Russell suggests that the causal notions are the concepts of a "bygone era" and are in the process of being replaced by the notion of function.[9] Causal notion seemed to him, to be absent from the advanced disciplines of theoretical sciences. But the idea of cause-effect has taken a very powerful held of our minds. Even when we are thinking through scientific problems with conscious care, we fall back on it at every turn. This has become our natural way of looking at all problems. The Greek idea of a rational universe, of cosmos, is still within us, causal explanations still occupy a high niche in the temple of scientific enquiry.

we all ere familiar with the word 'cause' and its allied terms like 'produce', 'generate', 'to brine about' etc. These causal terms imply an interference of an active agent with a system. The system then experiences the

8. Popper, K.R. 'The Logic of Scientific Discovery, Hutchison, London, 1st Pub. (1959}, revised (1972), p. 61.

9. Russell, B.A.W. "On the Lotion of cause", Proceedings of Aristotelian Society, Vol.13,(1912/13),pp.1-26; reprinted in his Mysticism and Logic, George Allen and unwin Ltd; London,(1917),pp.132-151.

effect. In nature nearly everything that happens is the outcome of a multiplicity of influences bearing upon a complex of causal mechanisms. Causes always are against more or less permanent background conditions. Causes are operative in a causal field. Scientists are concerned with the discovery and description of the causal mechanisms which must stand the test of experiments. In an experiment a typical procedure requires the stabilization of the conditions and changing of only one of the relevant factors. The concept of 'cause' is intrinsically related with the experimental aspect of science. Experiments are always designed on the basis of causal principles. That is one of the reasons why we still find the concept of cause being so frequently used in the applied branches of science like engineering end medicine.

Causal statements perform many functions.[11] Sometimes the causal statements are used as an explanation of some

10. Andersen, J. "Problem of causality" Australian journal of Philosophy, Vol.2, (1936) ,pp. 127-142.

11. Davidsion,Donald-"causal Relations", The journal of philosophy. Vol.64, (1967),pp.691-703; reprinted in Sosa, E (ed)— Causation and Conditionals, Oxford University Press, (1975) ,pp 82-94.

phenomena while sometimes predictions are made on the basis of causal principles, Some are of the opinion that 'explanation' ana 'prediction' are structurally similar processes of scientific enquiry, differing only in the time perspective"[12] - other things being equal, if one derives a description of an event prior to its occurrence, the event has been predicted while if the description of the event has been derived after the event has taken place, the occurrence of the event has been explained. The alleged symmetry between 'explanation' and 'prediction' holds pretty well so far as the deductive momelogical model (DR-Model) of explanation is applicable. By a DN-Model of explanation,[13] we shall understand that to explain an event, a set of law statements are taken into consideration such that the event in question is related with another event in terms of the law statements. According to Hemple, a full

12. Hemple, C. G.-"Function or General Laws in History". The journal of Philosophy, Vol. 39, (1942), pp. 35- 48. Some difficulties surrounding the so-called symmetry between 'explanation' end 'prediction'- were pointed out by Miller, D. L. "Explanation versus prediction", The Philosophical Review, Vol. 56, (1547) , pp. 40-60 and also see, Hanson, K.R."On the symmetry or explanation and prediction". The Philosophical Review, Vol. 63 (1959) , pp.334-356.

13. The name 'DN-Model' of explanation was coined by one of the critics of theory Dray, W.H. Laws and explanation in History, Oxford. (1957) .

statement of the explanation will have the following form :-

1) Whenever events of the type A occur, events of the type B occur. (Statement of law).

ii) A occurred (statement of fact).

Therefore, B occurred(statement of event for which explanation is sought).

We can put this more formally. Let there be an event e which demands an explanation. To explain the event e, we refer to another event, say d. That is, we explain the event e by referring to the event d, i.e. e because d'. This is possible only when there is a set of true law statements, like 'L_1 , L_2 ... etc.' such that the conjunction of the law statements with the description of the event d entails the description of the event e. It was noted that the deductive- nomological modelof explanation was originally thought of as a generalization of the ideas associated with causal

explanations.[14] One should not confuse between causal analysis and causal explanation, causal explanations are different from the causal analysis or the analysis of causality. Causal analysis is concerned with the discovery of conditionshlp relations among the states of affairs within a given system. In any causal explanation, an individual event is given and we try to construct an appropriate system in terms of which we are able to relate the given event with some other event or a set of events.

There is a large list or important philosophical issues that circle round the problem 01 causality. Any adequate analysis of any one of them should take some stand on every other issues. However, this thesis, due to want of space, would confine its attention only to the problem of causal asymmetry and would take a somewhat dogmatic stand on the other issues like ontological framework, semantical framework, causes and conditions, counter actual Dependence, etc.,in the next chapter.

14. The relation between 'causal explanation' and other 'deductive-nornological explanations' - is discussed at some length in Hemple, C.G. Aspects of Scientific explanations and essays in philosophy of Science, Free Press, London, (1965) .

CHAPTER II

SOME ASSOCIATED PROBLEMS

CHAPTER-II

ONTOLOGICAL FRAMEWORK

Any analysis on causation must presuppose an oncological framework and an accompanying semantical framework. We are not interested in the question: whether causal relations are real or not ? In other words, we are not interested in the oncological status of the causal relations themselves. We take it for granted that a relation is to be found in nature which we call 'causal relation' or in short 'causation'. But if 'causation' is a name of a relation between 'cause' and 'effect', then we must ask : What are the things (the nature of the things) among which this relation holds or can hold. Thus we must be quite clear about the nature of the entities(or the individuals) among which causal relations can hold, that is, the nature of the 'objects' which can be said to exemplify the relation.

One such category is that of "process" and the other is that of "events", however, it seems that there is no general agreement over the nature of these

entities; they are extremely vague. The very vagueness may add to our vagaries. We suppose that causal relations are defined for "state of affairs" and for "changes" among the state of affairs. Following von bright we shall consider the generic states of affairs and occasions as the basic oncological categories.[1] By a generic state of affairs we shall mean that it is insatiable or not on a given occasion in space and time. The coupling of a generic state of affairs with an occasion may be said to be an individual state of affairs. The notions of "state of affairs" and "occasion" are not free from problems. The questions what is a state of affair ? is perhaps equally perplexing. Nevertheless, we must start somewhere and for that matter, let us start with the notion of 'state of affairs' as the basic describe units of the world. The metaphysical approach here is very near to the metaphysics envisaged by Wittgenstein in his Tactatus. Again this does not mean that we are interested in advocating a metaphysical system. We are not at

1. von Wright, G.H.- Explanation And understanding, Routledge & Kegan Paul,London(1971),(Henceforth EU), p. 43, also see his Causality And Determinism, Columbia University Press, New York,(l974)(Henceforth CD), p. 13

all interested in the claim that the structure of the actual or the real world is likt the structure of the world envisaged by Wittgenstein. Our modest claim is only this much that part of the world can be best described in terms of the 'state of affairs' terminology and for an understanding of the notion of causal relations, the category of 'state of affairs' would be most convenient and helpful.

It might be suggested that the static category of a state of affairs is not suitable for a logico-philosophical theory of causality. Its place should be taken by some dynamic category. One such category is that of "process" and another is that of "event". Process is a dynamic notion. [2] A process has the notion of change built into it; it goes on. What is chance ? A preliminary answer is that a change is a transformation of states. That is, a change takes place when a state of affairs ceases to be or comes to be. so the category of "process" can be defined in terms of state of affairs

2. See Aunsat, Stanley-"What is a process"? The American Philosophical Quarterly.Vol.6,(1969)

affairs as events.[3]

The claim that the concept of event already, in itself, involves the concept of cause raises considerable suspicion in any analysis of causality. The simplest answer to this charge of circularity is that in the present context, the concept of event will be taken as independent of the concept of cause. We have taken the "state of affairs" as the basic ontogogical categories in terms of which we propose to analyze the causal concepts, consequently the concept of event can also be taken as primary in relation to the concept of cause, since we have already defined the concept of an "event" without any reference to the causal concepts. The analysis of causality, that is to follow, will be on the basis of the assumption that the concept of an "event" is primary in relation to the concept of "cause" and secondary in relation to the concept of a "state of affairs". Whatever may be the case in common sense or

3. It is important to notice that there are obvious differences between event ana state of affairs. The principal difference between them is that events are changes but state of affairs are not. For example, my neighbour's bleaching her hair blonde is an event, while the end result, i.e., her hairs being blond is a state of affairs. Inspite of this difference we have tried to explain that event may be explained in terms of state of affairs.

to characterize process. We require the temporal morality of "And then". The category of "event* requires the notion of "And next" which presupposed a discontinuous time medium.

One can define an "elementary event" as the changing of generic state of affairs into its opposite, for example, from the state of affairs described by p to the state of affairs described by not - p on a pair of occasions which are adjacent to each other either spatially or temporally or both. The change from a generic opposite of a state of affairs to the state the affairs itself,that is, from the state of affairs described by not - p to the state of affairs described by p - is also an "elementary event". The first change is that of passing away of the state of affairs described by p that of coming into being of the state of affairs described by p. As a matter of logical courtesy, one may also regard the continued persistence or the continued absence of a state of

in a variety of empirical interpretations and applications, that is how the matter stands in the present context. However, there is a natural and straight forward empirical interpretation of the concept of "event" in the examples from learning theory of psychology, and in the example, from Kinematics or phoronomy.[4] These interpretations do not involve, in a straightforward sense, any of the causal notions central to the theory itself. The same can be said of other scientific theories in which the concept of event occurs. The events themselves and their empirical interpretations in the applications of the theory do not involve causal concepts in any direct and intimate way. It is rather the opposite- the notion of event is uniformly assumed in the analysis of causes.

Let us consider following von Wright, a set, $(p_1 \ldots p_n)$, the "state space" of logically independent state of affairs, that is, on any given occasion they may obtain or not in any one of the logically possible combinations. If the number of elements in the state

4. Patrick, S. A.Probabilistic Theory of Causality, North-Holland publishing Co., Amsterdam(1970), pp. 13-21.

5. This is important to note that it would be quite interesting to give an analysis of cause in such a way that event can be defined in terms of cause.

space is finite and is equal to n, the number of logically possible combinations is 2^n, in the sense that each of the elements may either obtain or not obtain on an occasion. Any one of the combinations correspond to a compound state of affairs. The compound state of affairs will be called "possible total state of affairs"or "possible worlds", what is possible here is not "the world" but that the world at a certain stage of its development should be in a certain total state of affairs. The world is that which is now in one total state state of affairs and now in another total state of affairs. The notion of world is relative to a given set of states of affairs, to a given state space. It is a fragment or an aspect of the "real world" described in terms of the state of affairs in the set.[6] The "history" of the world is a temporal succession of the "possible worlds".[7] On the assumption that the total number of state of affairs is finite an is equal to n ; the total number of "possible histories" over a succession of m occasions

6. The metaphysics envisaged here is borrowed from Wittgenstein, L-Tactatus, (1921/22) .

7. The Question remains whether the density of such succession is that of real number of that of rational number ? we shall consider a discrete time medium following von-Wright, G.H."And Next". Acts philosophica Fennica, Vol.18,(1965),pp.293-304.

is 2^{mn}. It can be said that m is a measure of the "width" of the world.

The world may be in any of the 2^n total state of affairs on the "next" occasion with reference to an occasion. This "freedom" of the world can be termed as the "logical freedom"; this freedom is only logically possible. Everything that is logically possible may not be causally possible. There may be some restrictions or constraints on the development of the world history. Let us refer to them as the "causal restrictions". Let K be the number of total state of affairs (Possible worlds) in which the world may be on the next occasion when the causal restrictions are operative. In order words, when the causal restrictions are also considered the total number of alternative possible worlds in which the world may be on the next occasion is K. If we consider that on the pair of successive occasions in the history of the world, the two possible worlds are not identical, then the function $\frac{K-1}{(2^n-1)}$ can be used as a measure of the "degree of freedom" (or of determination) of the

Immediate development of the world at any given stage of its possible history. When the value of K tends to 1, the degree of freedom thends to O; while the decree of freedom approaches 1 as the value of K tends to 2^n when the degree of freedom $\frac{K-1}{(2^n-1)}$ is O, it may called total determinism, while when the degree of freedom is $\frac{K-1}{(2^n-1)}$ infinite, it may be called <u>total freedom.</u> A fragment of the history of the world may be called a "system". A system is relative to a state space, i.e., a series or occasions and a starting point. A system contains all the "causally possible" historical ramifications of the world defined by the <u>length</u> of the history and the <u>width</u> of the world with reference to a given starting point.[8]

So far we have considered the unanalyzed states of affairs as building blocks of the world. At times, we may also require a further analysis of the states of affairs in terms of objects, properties and relations. However, we are net going to give a detailed analysis of it.[9] Our intention here is not to develop a metaphysics.

8.EU,p.49

9. we need not go into the details concerning the structure of 'events' or 'state of affairs'. For 'state of affairs' and 'events'— see Kim, J.-"Causation, Romic sub-sumption and the concept of event". The journal of philosophy,Vol. 70, (1973),pp.217-236. And Barwise, Jon & perry John, Situations <u>and attitudes,</u> Cambridge, Mass:MIT Press, (1983) ;Davidson, <u>D.Essays on Action and Events,</u> Oxford University tress, (1980).

We are only saying that the true world has a similar structure. We are only saying that the category of state of affairs is best suited for the analysis of cause. The true world may or may not resemble to the structure of the world we have described, what seems plausible is that some aspects of the world may be described in this way and particularly for an understanding of the causal concepts such a structure of the world will be helpful. The use of the causal concepts usually refer to sons changes among the state of affairs. For example, the window is opened because the wind is blowing. Here the opening of the window is caused by something. That means, the opening of the window is nothing but two opposite states of affairs on two successive moments - 'the window is closed' and 'the window is opend' on two successive occasions, or a pair of successive occasions, temporally adjacent to each other.

SEMANTICAL FRAME-WOKK

The causal relation and the notions of cause and effect can hardly be regarded as logical primitives. One must try to analyse and even define the causal notions in terms of some other concepts. It is possible that these efforts will leave us with a residue of something which is "irreducible causal". Still attempts to analyze the causal notions must be made if we are to assign a proper place to the causal notions in a larger conceptual network. There are several concepts or croups of concepts which might be considered as plausible candidates for the explanations of the causal notions. One such concept is that of functional relationships. Russell argued that the notion of causality was in the process of being replaced by the notion of functional relationships.[1] Functional relationships of various types occur significantly in the formulation of laws, both in the natural sciences and in the social sciences. Straight forward "causal laws" are perhaps not at all important in the more advanced theoretical

1. Russell, B.A.W."On the Notion of cause", proceedings of the Aristotelian Society, (1912/13) , Vol. 13,pp. 1-26, reprinted in his Mysticism and logic George Allen & Unwin .Ltd., London, (1917) ,pp. 132-151,

sciences. But what gives to some functional relations their nomic or lawlike character can be best understood in terms of the causal ideas. Consider such well known elementary examples of laws in physics as the Gas laws, or the Snell's law or the Ohm's law. In its roost simplified form the Gas Law says that at constant temperature, the product of the volume of a gas(v) and the pressure (p) to which it is subjected is a constant/ i.e. P.V = a constant. One ordinarily would not speak of this as a "causal law",but it would be quite in order to say that the factors 'p' and 'v' are causally related. To a variation in one there will be a variation in the other. Such laws, as we have seen, are not ordinarily spoken of as causal, but the basis of the functional laws, seen to be, causal relations between the determinate states or between the variations in the determinate states.

Another group of concepts for analyzing causality are the various probabilistic and stochastic ideas.[2] The

2. There has been attempt to define the causal notion in terms of the probabilistic idea in the recent years. For example see Good, I.J."A causal calculus", The British Journal for the Philosophy of Science, XI, C1961) ,pp. 305-316, Suppes, Patrick-A Probabilistic Theory of causality, Amsterdamy, North-Holland Pub. Co., (1970).

probabilistic relation, for example, between attributes of things or features of events, may be considered as a special kind of functional relations. As in the case of functional correlations generally the question of how to distinguish between accidental correlations from the nomic ones is urgent for the probabilistic relations too. Two factors may be appearing fairly regularly and yet they are not related in terms of a law. The two factors which appear fairly regularly are related among themselves or one of them is responsible for the occurrence of the other is to be determined In terms of the causal ideas. The differentiation between the accidental and the nomic regularities are to be established in terms of the causal ideas. The causal notions seem to be more primitive in nature than that of the laws of nature, we must be able to relate the two phenomena causally, first, in order to connect them in terms of a law.

A third group of tools that are available for the analysis of causality are the various condition concepts-necessary and sufficient conditions. Whether causal

concepts can be fully accounted for in terms of the various conditions concepts is debatable. However, there is a general agreement among the philosophers and logicians that the causal relations exhibit some kind of a conditional relation. Not all conditional relations are causal but all causal relations are some kind of a conditional relation. Therefore, for the clarification of the conceptual features of causality, it seems that, the various condition concepts take priority over the functional relationships and the probabilistic ideas. Analysis in terms of the functional relationships and in terms of the probabilistic ideas seem to be circular in the sense that they themselves involve the causal notions or the notions of nomicity and law likeness which are to be established in terms of the causal ideas.

CAUSES AND CONDITIONS

There is a long time controversy between causes and condition. Philosophers are agreed that all conditions are not 'cause'. We usually call one of the conditions as the cause, and the others as mere conditions.

Now the question is: what are conditions and how they differ from the cause? The eminent logician. Carveth Read defines that 'condition' means any necessary factor of a case. According to him, conditions are of two kinds, viz, positive and negative. He says that a positive condition is one that cannot be omitted without frustrating the effect and negative condition is one that cannot be introduced without frustrating the effect.[1] Thus according to Read, if the effect is to be produced, positive condition must be present, and negative conditions must be absent.If, on the other hand, positive conditions are absent or negative conditions are present, the effect would be frustrated.

1. Roy,B.N. Inductive Logic. S.C.Sarkar of sons Ltd, Calcutta,(1950),pp.89-90.

Let us examine Read's notions of positive and negative conditions with the help of a concrete example. Suppose a picture falls from the wall. The falling of the picture is the effect. The positive conditions are the violent slamming of the door, the weakness of the cord with which picture was hung up, the heaviness of the picture etc. If these conditions had not been present the picture would not have fallen; hence these are positive conditions. The negative conditions, on the other hand, would be some support other than the weak cord, the presence of some person at the time when the picture fell so that he might have cought hold of it, and so on. If these negative conditions had been present, the picture would not have fallen, and thus the effect would have been frustrated.

It nay be noted that Read's definition of "condition" and "negative condition" are contradictory to each other, how can a negative condition which must be absent in order that the effect may be produced be a <u>necessary factor</u> for the cause ?

Many recent and contemporary philosophers (e.g. A. J.Ayer, R.G.Collignwood and others) speak of causal conditions of a change as those which were in some sense necessary for its occurrence, that is, those conditions which were such that had any of them not occurred, the change too would not have occurred. As it involves the conception of necessity of causal connection. This view seems to be contrary to Hume's analysis. But most contemporary philosophers do agree with Hume that the kind of necessity involved here is not logical necessity. A.C.Ewing and Brand Blanshard, however, suggest that causes imply their effects and are, therefore, not logically independent of them.[2] To illustrate the conception of the necessary and the unnecessary conditions we can consider the example of ignition of a match and the gravitational force accompanying it. No match might have ever been ignited except in the presence of some gravitational force, yet the presence of such a force is not regarded as necessary for the ignition of match. Thus, when we say that A was the cause of b it means that

2. Edward Paul(ed) The Encyclopedia of philosophy, Vol.2,Col.2,p.62.

both A and B occurred and A is that set of conditions among all that occurred, each of which was necessary for the occurrence of B, through logically they might be independent too.

A causal condition of an event is, thus, any Sine Qua non condition under which that event occurred and without the occurrence of which the event would not have occurred. Totality of such conditions is the cause or the event. This totality of necessary conditions is also the sufficient condition for the occurrence of the event in question. Sufficient condition is that set of conditions, all of which having occurred, the effect in question could not fail to occur. we can obviously see that once all the conditions necessary for the occurrence or the given event are enumerated, the totality of them will be sufficient for the occurrence of the event, i.e. no further conditions will be required and the totality having occurred, the effect cannot fail to occur. This may be described as the 'conjunction' of necessary

conditions, von Wright[3] draws our attention to the discussion of necessary conditions. The disjunction of two elements 'r' or 'p' can be a necessary condition of 'q' in the sense that whenever 'q' is present 'r or p' must have been present and also when 'r or p' is absent ' q' must not be present. Thus, in order to bring about a variation in the volume of a gas, it is necessary either to vary the pressure to which the gas is subject or to vary its temperature. In other words, variation in pressure or variation in temperature is a necessary condition of variation in volume, von Wright argues that if the disjunction is false, i.e., if both the disjuncts are absent, then 'q' cannot occur. Again, if 'q' occure then the disjunction must necessarily be true, i.e., at least one or the disjuncts must have taken place.

According to L. S. Stebbing,[4] "A condition S is a sufficient condition of an occurrence A provided that whenever S is present A occurs". It may be expressed

3. von "Wright,G.H. The Logical problem of Induction, p.66.
4. Stebbing, L. S. A Modern Introduction to Logic,p.271

as *(S —> A)*. He defines a necessary condition also as : "A condition N is a necessary condition of A provided that A never occurs in the absence of N". It may be also expressed as: (~N-->~A)

OR

~ (~ N . A)

Thus, according to stebbing, "A condition NS is a necessary and sufficient condition of an occurrence A provided that (i) whenever NS is present A occurs, and (ii) whenever NS is absent A does not occur"[5]. This necessary ana sufficient condition is nothing but the totality of the necessary conditions and, thus, philosophically, can be termed as the cause of the event. But practical considerations have impelled philosophers sometimes to regards any one of the conditions as cause. Some philosophers have preferred to reserve the expression 'cause' only for the causal condition of an event that is conspicuous or novel, or, particularly, one that is within one's control. According to R.G.Collingwood, nothing can be

5. Ibid.

called cause in its original and significant sense, which is not within the control of an agent. But, as Hill maintained, this is only a practical, rather than a philosophical question. Philosophically according to Mill, only a whole set of conditions can be termed as cause, as we have "no right to give the name of cause to one of them, exclusively of others".[6]

> Mill's well known position on this subject is: "... nothing car: better show the absence of any scientific ground for the distinction between the cause of a phenomena and its conditions than the capricious manner in which we select from among the conditions that which we choose to denominate the cause."[7]

Many discussions on causality have circled round the issue whether Mill was right or not on insisting that the cause must include all the antecedent conditions for the effect. Nevertheless, Mill goes on the state at least five principles accounting for the selection of

6. The Encyclopadia of Philosophy,Vol.2,Col.1,p.63
7. Kill, J. S. A system of logic, Longmans Green & Co., London,(1843),p.215.

the cause from among the conditions, viz;

i) The cause is the non-obvious condition.

ii) The cause is the condition we happen to be interested in.

iii) The cause is the temporally latest condition.

iv) The cause is an event rather than a state.

v) The cause is selected on the basis of certain moral principles which enable us to assign responsibility.

Some principles or rules are "relative" in the sense that the selection of the fact(s) about the person his beliefs, his interests, even his values. Some other principles may be termed as "objectively relative" in the use of such principles an objective feature of the causal relation is selected, but it is possible to explain the selection of the cause using even the objectively relative criteria in terms of the same physiological features that account for the relative

principles,

> "The selected features in no way suggest that the cause-effect relation is more intimate, binding, or necessary than the condition-effect relation".[8]

The Australian philosopher, John Anderson, introduced the concept of 'field' to tackle some of the problems to be found in Mill's account of causality. According to him, the cause is operative under a set of more or less permanent conditions, within a causal field. his thought seems to be in the right direction but he does not give anywhere a clear and formal definition of what he means by a "field". The difficulty with Anderson's analysis is that he does not bring to the surface and make explicit the essential point that the notion of 'field' or 'background* must always be relative to a particular conceptual analysis. With respect to one field or background, one event may be the cause of another event and yet when the field is altered and the frame-work is extended or enlarged by

8. Berafsky, Bernard. Determinism, Princeton Univ. Press, Princeton, (1971) ,p.57.

9. Anderson, I."Problem of causality" Australian Journal of Philosophy, Vol.11 (1938) ,pp. 127-42.

the consideration of additional variables or factors, the cause may turn out to be spurious. In a certain sense, it seems that Anderson wants to make the concept of a 'field' independent of any conceptual frame-work. He repeatedly makes the point that conceptual analysis never exhausts the concrete objects and he likes to emphasize the infinite complexity of things.[10]

A recent and detailed discussion of 'causes and conditions' is given by J.L. Mackie, in his article "causes and conditions"[11]. He has analysed the concept of cause in terms of the condition concepts. He says:[12]

> "A cause is <u>insufficient but necessary</u> part of a condition which is itself <u>unnecessary</u> but sufficient".

The first letters of the underlined words give rise to his acronym <u>INUS</u> condition as a characterization of cause. For example be(markie) says, the fire is said

10. Lucas, J. R.—"Causation", appeared in Butler, R.J. (ed), Analytical Philosophy, (1st Series), Basil Black-well Qxford, (1962) , pp. 32-65.
11. Mackie, J. L. "Causes and conditions", American Philosophical Quarterly, Vol. 2(1965), pp.245-64, reprinted in SOSA,E(ed.) Causation And conditionals, pp. 15-38 reprinted with modification in The cement of the Universe, Oxford (1974) , pp. 59-87.
12. Mackie,J. L."Causes and condition", of cit.p. 16.

to have caused by an electrical short circuit. A short-circuit is not a necessary condition, since many other conditions could create a fire. Neither is it sufficient, since this particular short-circuit would not have caused the fire, had there not been combustable material nearby, the absence of a sprinkler, and so on.

The short-circuit which is said to have caused the fire is thus an indispensable part of a complex sufficient (but not necessary) condition of the fire. In this case, then, the so-called cause is, and is known to be, an insufficient but necessary part of a condition which is itself unnecessary but sufficient for the result.

by saying that a cause is at least an INUS condition, Mackie means that a cause is either an INUS condition or a sufficient condition or a necessary condition or both a necessary and sufficient condition. In his will known book Cement of the Universe,[13] Mackie somewhat alters his view and argues chat a cause is necessary ana sufficient (in the circumstances) for the effect.

13. Mackie, J.L. The Cement of the Universe, Clarendon press, Oxford, (1974).

COUNTER FACTUAL DEPENDENCE

V

The causal statement permits us to extract the corresponding counter factual conditionals. Any analysis of the causal statements must account for this dependence. That is to say, the genuine causal statements have the capacity to sustain the corresponding counter factual conditionals.

A counter-factual conditional of the form had p been the case, q too would have been the cause, asserts a "connection" between the two propositions 'p' and 'q', ana by extension, between the states, events or processes described by them. It is supposed that the antecedent of a counter-factual conditional is false or at least the truth-value of the antecedent is not known to be true. Under such a situation we can say that the counterfactual conditionals are assertions about some possible situations, some actualized reality, some possible words. A counterfactual conditional can not be "verified" or "falsified" in the way as any other empirical proposition can be. It is only in an "oblique"

way that we can talk about the justifiability or the reasonableness of a counterfactual conditional. It is simply because the counterfacual conditionals do not assert anything about the actual world, about the actual state of affairs. But the force that a counterfactual conditional carries with it tells us that though the counterfactual conditional is an assertion about some hypothetical situation yet the hypothetical situation resembles the actual situation quite closely. A counterfactual conditional does not talk about some absured situation but it talks about some situation which could have been.

Where is a sense in which the consequent of a counterfactual conditional may be said to "fellow" from the antecedent of the counterfactual ccndicional.[1] The counterfactual conditionals thus points to some sort of a "necessary" connection between the consequent and antecedent on the counterfactual conditional.

1. Mackie, J. L. " Counterfactuals and causal Laws", appeared in Butler, R. J. (ed) - Analytical philosophy, (First Series) Basil Blackwell, Oxford, (1956) , pp. 66-80

The concept of necessity is a modal concept. A necessary proposition is true in all the possible worlds which are related by a designated relation with a base world. The talk of possible worlds commits us to say that the component propositions of any counterfactual conditional are description of some "generic" state of affairs, events, processes or phenomena and the like. Two propositions are related and there is a necessary connection between them points to the existence of a law statement connecting the descriptions of the two states of affairs. A counterfactual conditional asserts the existence of a law statement or refers to a law statement. The reasonableness of a counterfactual conditional depends on the truth of the law statement relered to by the counterfactual conditional. Since a counterfactual conditional asserts something about some hypothetical situation it con neither be true nor false, in the strict sense of the word. It is advisable that we should talk of the "reasonableness" or "justifiability" of the

counterfactual conditionals rather than their truths, A counterfactual conditional is Justified or reasonable, if and only if, we cannot find a counter-example to the law statement within the boundary conditions referred to by the counterfactual conditional.

The counterfactual conditionals themselves throw enough light to guide us in search for the counterexamples. In our search for the justification of a counterexample we do not provide complete details. Complete details of the situations are beyond our competence. Instead we lump situations together which we take to be relevant to our search for a counterexample, Many situations are not considered because they are either so obviously unreasonable or they so obviously tend to confirm the law statement referee to that they do not require any attention. What we consider are situatiionswhich hold some initial promise, both of being resonable and of disconfirming the law statement corresponding to the counterfactual conditional.

The genuine causal statements have the capacity to sustain the corresponding counterfactual conditionals. If we accept any genuine causal statement, say for example, 'lightning causes thunder', then we not only mean that in a particular situation or occasion when there was lightning there was thunder too, but we also claim that on any occasion, even when there was no lightning, had there been lightning there would have beer thunder. The moment we accept any causal statement as true, we ere also committed to accept the corresponding counterfactual conditional as reasonable or justified. A true causal statement not only permits us to talk of any particular occasion or situation but a class of situations or occasions inducing even chose situations in which the causal statement is not exemplified. There has been much discussion on the problem of counterfactual conditionals and one cannot say that the issue has been settled.

Mere universality of the occurrences is not sufficient to guarantee, the reasonableness of a counter-factual conditional. The characterisation of the law

statements must also Include the concept of necessity. The concept of necessity is essential for the formulations of the lawlikeness. The counterfactual conditionals associated with the formulations of the causal statements refer to a causal law ana the law statement is to be characterized in such a way that it includes the concept of necessity within itself. This necessity for the formulation of a law statement may not be logically necessary. Some philosophers are or the opinion that the concept, of non-logical necessity as suspect ana unsound.[3] But philosophical logicians have now become quite familiar with the view that the logically necessary ana possible is only a species of a more comprehensive genus within which a variety of forms of necessity ana possibility may be distinguished. The concept of 'natural necessity' as a middle thing between logical necessity or. the one hand and empirical generality on the other has been introduced by the philosophical logicans of today.[4]

3. Wittgenstein, L. Irectatus Logico-philosophicus, (1921/22) , 6.37.

4. Kenale, W.-"Universality and Necessity" ,The British Journal for the philosophy of Science, Vol.12,(1961),pp.69-102, Popper, Karl R.-"A Revised Definition of Natural Necessity" The British Journal For the philosophy of Science, vol. 18, (1968) ,pp. 316-321; Markovic, M.-"concept of physical necessity",appeared in suppes,Patrick, (ed)-Logic, Methodology and philosophy of Science, North—Holland publishing Co., Amsterdam, (1973),Ch—IV,pp.967—976,

There have been attempts to define the causal relation in terms or the counterfactual conditionals. The definition of a causal relation, according to them, invariably is in terms of the counterfactual dependence. The causal statements, themselves contain within the notion of the counterfactual conditionals and a characterisation of the causal statements without the counterfactual conditional is impossible. We can go back even to Hume for an evidence of this point. After giving the first definition of cause in the Inquiry Hume goes on to say.[6]

> "... if the first object had not been, the second never had existed".

But this way of defining the causal relations does not solve the problem of counterfactual conditionals, Specially awkwardere the cases where we would not admit that 'p caused q' but would say that under the circumstances q would not have been had p not bee.[7] We would definitely admit the case trivially when 'p' and 'q' and identical. But an event, is not said to be the cause of itself. Causal relations a re always irreflexive and never reflexive.

5. Lyon, A-"Causality", The British Journal for the philosophy of Science, Vol. 18, (1966) ,pp. 1-20.
6. Hume, Dvaid-Aninquiry concerning Human Understanding, L.A.selby,Bigge(ed)(1902),p.76
7. Kim, J."Non Causal Connection",Nous,8, (1974) .pp.41-52

DIRECTION OF CAUSATION

Logicians distinguish necessary and sufficient conditions ana many other types of conditions. It is usually believed that one condition concept, in combination with some logical constants and operators, is sufficient to define other condition concepts. The occurrence of the state p is a necessary condition for the occurrence of the state q, can be symbolized as 'NC(p,q)'. similarly, the occurrence of the state p is the sufficient condition for the occurrence of the state q can be symbolized as 'Sc(p,q), while 'not—p' by 'Np'. We actually get a scries of identifies; suea as :-

"Sc(p,q) = Sc(Nq,Np) = "C(q,p) = Nc(Np, Nq)".

This means that the occurrence of the state p is a necessary condition for the occurrence of the state q, if, the failure to obtain the state q is necessary condition for the failure to obtain occurrence of the state Np, i.e. for the failure to obtain the state p[1]. This naive looking identifies are absolutely

1. This consequence may be termed as "condition-ship symmetry thesis". This has not come to us from the antiquity, Broad, C.L. "The principles of Demonstrative Induction"Mind, (1930), pp. 302-317; also his "Mr.von Wright on the Logic of Inductio "Mind, Vol.53, (1944), pp.1-24.

harmless as far as the logic of conditionals are concerned. But these identities are likely to generate bizarre results if we equate them with causal terms. For example, "My tickling Ramesh caused him to lough" will logically imply 'Ramesh's not laughing caused roe not to tickle him.

This observation points to the fact that the analysis of causality in terms of the condition concept, by itself, may not be fully adequate. Nevertheless, we can say that the causal statements are some king of conditionals and the causal relations exhibit some kind of conditional relations among the state of affairs. This also points to the fact that the- causal relations have a directedness or an asymmetry. Any analysis of causality must account for this asymmetry.

The causal relation. appears to be asymmetrical, and indeed the differences between causes and effects are

far from trivial. As Hausman[2] says, 'someone who hoped to reduce smoking by curing lung cancer would be badly confused. Someone who tried to prevent Mrs. O' Leary' s cow from knocking over the centern by putting out the Great Chicago Fire would be mad". Thus the difference between ceuses and effects seems obvious, but it is not essy to state in any general and informative way what this difference is. It is usually believed that causal asymmetry or priority is to be determined in terms of temporal priority. That is, the cause-item is always prior in time than the effect item. but if cause is prior to the effect then what lies in between ? If nothing lies in between then how two items are to be related at all ? If there is something then why that thing is not the effect? A more modest claim would" be to say that the effects cannot precede their courses. But then this opens up the possibility of effect being simultaneous with the cause. In that case temporal priority criterion fails account for the causal priority.

2. Hausman, Danial M. "Causation and Explanation", American Philosophical quarterly, vol.23 (1966), pp. 143-54.

The problem of the causal asymmetry has been occupying a central stage in the arena of philosophical debate for the last few decades.[3] The problem of understanding the differences between causes and effects is the problem of causal asymmetry or causal priority. Some philosophers are ox the opinion that there is no special problem is accounting for the direction of causation or causal asymmetry if causes must precede their effects. Those who find a problem is accounting for the direction of causation, therefore, think that on account of causation should not require that causes precede their effects.[4]

Many recent philosophers have pointed out that if any connection between cause and effect is granted, the connection must be accepted in both directions, namely, from cause to effect and also effect to cause. The state of a particular thing(effect) at a particular time determines also its past states (i.e. it causes).

3. Particularly since the debate on backward causation sprouted forth in PAS proceedings by Dummet & Flew (1954).

4. Sanford, David, H. "The Direction of causation and the Direction of conditionship". The Journal of Philosophy Vol.73. (1976),pp.l93-207.

Thus just as we can infer future states from the present states, we can also infer past states, from the present ones. This, however, points to the symmetry of explanation and prediction. That is, once the causal connection is established, we may move either backward or forward epistemologically. But what happens at the oncological level ? This problem is not, however, satisfactorily resolved. The remaining problems are :

i) The temporal asymmetry is not sufficient to characterise the causal asymmetry;

ii) Human idea of "constant conjunction" is not sufficient to generate the causal notion.

Whatever may be the nature of time, if the cause—item is earlier than the effect-item, then there roust be something in between. Our problem is how to understand the nature of this 'something'. If we accept that the direction of causation is necessitated both ways then we cannot avoid the absurdity that a stone in oncoming heated makes the sum shine upon it is the same way in which

the sun makes the stone heated.

This absurdity is due to the lack of proper distinction between the generic causal links and the singular causal situations. At the generic level, the problem of causal asymmetry remains in the background, while in the singular causal situations the problem comes to a sharp focus and becomes unavoidable.[5]

The problem of causal asymmetry in simultaneous causation may be better explained if we try to understand 'cause' in terms of human action.

5. See for details analysis, .Mackie, J. L. "Causes and condition", American philosophical quarterly, Vol.2 (1965), pp.245-64 reprinted in E.SOSA, (ed)- Causation and conditionals, Oxford university Press, (1975),pp.15-38. And also his "The Direction of causation", The Philosophical Review, Vol. 75, No. 4, (1966),pp.441-466.

CHAPTER III

DIFFERENT APPROACHES TO THE PROBLEM OF CAUSAL ASYMEIRY

CHAPTER- III

DIFFERENT API ROACHES TO THE PROBLEM OF CAUSAL ASYMMETRY

It is customary to equate causal asymmetry or priority with temporal priority. This view is ascribed to David Hume. According to him, if c causes e then c is temporally prior to e.[1] In the contemporary tines it is advocated mainly by the positivist thinkers. Among them, there are subtle variations. We will take Prof. Berofsky[2] as their representative thinker for an explication of this view.

There is a growing discontent among the philosophers regarding regularity view on causal notions as a whole. Consequently, there is a search for an alternative. Some of the main tendencies which the dissertation intends to discuss in brief are as follows :-

1. Hume, D. An Enquiry concerning Human Understanding. ShelbyBiggeedition,London,(1902),p.79.

2. Berofsky,B. Determinism,Princeton,N.J.University Press, (1971) ,Ch.7.

REGULARITY THEORY

One very natural approach to the problem of causal priority or asymmetry involves the following two claims: First, that one state of affairs can be causally prior to another only if it is also temporally prior. Second, that the relation of cause and effect is asymmetric because the relation of being earlier than is asymmetric, and the direction of causal processes is nothing more than the direction of time.

This appears to have been clearly articulated by Hume, and it has also been accepted by a number of present day philosophers, such as Suppes.[3] Hume says that of two constantly conjoined events, the earlier is the cause and the latter is the effect.

Following Hume, most of philosophers and the logicians, especially the positivist thinkers, thought that the asymmetry displayed in the causal relations is cue to the asymmetrical nature of time. For example,

3. Suppes, P.-A Probabilistic Theory of causation, Amsterdam,(1970), p.12.

J. S. Mill[4], a great logician, equated the causal asymmetry in terms of temporal model. That is, the causal relation has a temporal character, in the sense, that the cause 'precedes' the effect in point of time and that the former is also 'continuous' with the latter. There is a 'causal chain' connecting the events allegedly separated by temporal intervals. From x to y, the passage is like 'x - u - v - y'. This presupposes continuous time medium. There is, as such, no problem with the continuous time medium. For a description of an event it is lifted out of the continuum. Language forces upon us a discrete time medium. One should be very clear ana also cautious of the situation, or else, is likely to land in the whirl pool of zeno's paradox.

according to Mill, the causal relation is an asymmetrical one. Since the 'antecedent' event in time is the cause, there is no possibility of interchanging causes and effects. Mill is very clear in his analysis of causation. But unfortunately, there has been a tendency in modern physics, possible under the influence of the

4. Mill, J.S.-A system of logic, Creen & Co. Ltd., London, (1943).

Uncertainty principle of Heisenberg, to repudiate the conception of causality. The present day physicists want to replace 'causal determinism' by 'statistical probabilities'. Thus causation ceases to be a case of only 'regular precedence'. In this way, it is thought that the reference to 'time factor' way be, and actually has been, cropped from the concept of cause. With it, also goes away the character of asymmetrical relation in causation.

Similarly, positivist thinkers, following Hume, claim that if two events are found to be "constantly conjoined" and "contiguous" in our experience, then the earlier item causes the later one. It appears that there is an oncological category mistake. Because, "constant conjunction" demands generic events, while "continuity" demands particular events. Thus, positivist thinkers hold that causes are always operative along with the direction or time. Some are of the opinion that temporal order is determined through causal order.

5. Reichenbach, Nans - The Directon of time, Berkeley university Press, (1956).

So, positivistic and empiricistic view is that there is no separate category called "causal priority". It is only a subset of temporal priority. They rule out every possibility of simultaneous as well as backward causation. This creates a problem at the oncological level. Let us assume that c cause e. In that case c is temporally prior to e. To apply the notion of temporal priority within a small time interval, time has to be viewed as a discrete medium, which it is not. To avoid this difficulty the positivists grant that e should not occur temporally prior to c, thereby granting the possibility of simultaneous causation.

Bernard Berofsky, in his book. Determinism, proposes an analysis of causal priority which remains within the framework of "regularity" theory, claims that, where c causes e, there be some set of laws, L, meaning postulates, and factual assumptions such that a statement asserting the occurrence of c taken together with these laws, etc., entails a statement assorting the

occurrence of e. Difficulties of causal direction arise because in many such deductions when 'c' and 'e' are interchanged the deduction remains sound. Berofsky suggests a condition that would rule out of law L_1, from being applied to c in terms of e; if there is another lav; L_2 that can account for c and also account for facts other than the occurrence of c for which L_1, cannot account, then L_1 cannot be legitimately applied in an account of c. His major difficulty, as pointed cut by Douglas Ehring, is that "if we allow for the possibility of causes that are not subject to any legitimate lawful account, this approach cannot be the whole story"[6]

The Humean thesis, is however, exposed to at least three objections. The first is that this approach cannot provide a satisfactory account of temporal priority. Because if the direction of causation is to be analysed in terns of the direction of time, and asymmetry of causation explained in terms of the asymmetry

6. Ehring, D.- "Causal Asymmetry", The Journal of Philosophy, Vol.79,(1982),p.762.

of temporal model, then a causal theory of the direction of tine is exposed to circular fallacy. So an advocate of the present approach must hold that either the concept of temporal priority is analytically basic, or that it can be analysed in non-causal terms, however, it can be argued that neither of these is ultimately plausible. This thesis does not argue these points in details.

The second objection is directed against the claim, that one state of affairs can be causally prior to another, only if it is also temporally prior. The thrust of the second objection is that it is logically possible for a cause tobesimultaneouswith its effect. That is to say, there seem to be cases of simultaneous cause-effect pairs. The causal asymmetry in such cases obviously can't be accounted for in terms of temporal asymmetry alone.

There arc two main ways of attempting to support the claim that it is possible for cause and effect to be simultaneous. One is to describe cases, either actual or possible, in which it seems plausible to say that a cause is simultaneous with its effect. The other involves supporting the claim that causes can be simultaneous with their effects by arguing for the stronger thesis that they must be. Can the former claim that it is at least possible for cause end effect to be simultaneous be supported by actual cases ? This question may be answered in the following way. Let us consider a pencil that begins to move when a force is applied to one end of it. It is natural to suppose that the force that is applied to one end of the pencil causes the simultaneous motion of the other end. This supposition cannot be correct, since it's incompatible with the theory of relativity. But what exactly is wrong with the case ? The answer is that, since our world does not contain any perfectly rigid bodies, it is not true that at the precise instant when

the force is applied to one end, the other end will immediately begin to move. The fact is that the end of the pencil to which force is applied is accelerated, and undergoes compression, with the result that the other end of the pencil does not begin to move until compression has occurred throughout the length of the pencil. So it is not the case that the force exerted at a given instant causally brings about, at the very same instant, the movement of the other end of the pencil.

The problem here is, of course, a very general one; it is not tied to the particular example just considered. For if relativity theory is correct, there is a finite limit to the speed with which causal processes can be transmitted. So actual examples of simultaneous causally related events can never involve events that are spatially separated.

Let us search for other actual examples of simultaneous causally related states of affairs.

Consider the cases of physical objects that ere in contact, will it not be true that, if one of the object is moved, it is the movement of the surface of that object which is the cause of the movement of the part of the surface of the other object that is in contact with it ? If so, the claim that this is a case where cause and effect are simultaneous will not conflict with the relativity theory. Because there is no distance between the two surfaces.

But this sort of example is not satisfactory either. The basic problem is this: on the one hand, if the relevant pert of the surface of either object has only thickness, then the same sort of difficulty will arise as in the above case of the pencil. And if neither surface has any thickness, they can't be in contact. because, if the surfaces have no thickness, they can be represented by closed sets of points, and two such sets cannot stand in the relation that is required if the corresponding objects are to be in contact. From the actual cases discussed above, it may be concluded

with a fair degree of certainty that our world does not, in fact, contain any esses in which a cause and its effect are simultaneous. It seems, therefore, that one must instead consider whether one can describe logically possible cases in which a cause and its effect would be simultaneous. Some philosophers are of the opinion that the possibility (logical or perhaps physical) of simultaneous causation must, be considered.

Let us new turn to second part of the objection which is more dramatic. In this part, we intend to establish the claim that causes can be simultaneous with their effects by arguing that they must be. On the fact of it, this line of thought seems rather unpromising. For, as Richard Taylor has argued, if all causes were contemporaneous with their effects, temporally separated states of affairs could never be causally related.[7] We know that temporally separated events are sometimes causally related. But Prof. Myles Brand[8] has

7. Taylor, R-Action and Purpose, Englewood Cliffs, N.J., (1956). p.38..

6. Brand, M. "Simultaneous causation". Time and Cause, (ed)van Inwagen,Dordrecht,(1960),pp.137-53.

argued for the view that it is a mistake to think that temporally separated states of affairs are even causally related. The argument that brand offers rests upon what he refers to as Hume's maxim:[9]

> "For any event e and f and time interval t if e occurs during t and e does not change during t and e is the cause of f, then f occurs during t".

But we may ask: what reason is there for accepting this claim ? Brand's answer to this question is as follows:-

"Hume's maxims says that if an event £ occurs during t and does not genuinely change during t, then f also occurs during t if e is the cause of f. Suppose that, contrary to the maxim, e occurred during t, e remained the same during t, e was the cause of f, but f began after e began. However, if f began after e began, then something happened after e began to have mace f began. There was nothing, however, that happened after e began that could have made f began. No other

9. Ibid, p.147

event could have made f began after e began, since e, was the cause of f; and no change in £ during t could have made f began offer e started, since £ did not change during t. Thus f. did not begin after e began, and the denial of the maxim does not specify a situation that canoccur".[10]

One may think that Brand's argument seems weak for the following two reasons(i) What is logically untoward about there being a causal law expressed by a statement of the form 'If x has property p at time t, that state of affairs will directly give rise to the existence of some ether entity, y, that will have property q at time t_1 where there is a non-infinitesimal time interval, d, between t and t_1 ? How does Brand, in the above argument show that there can not be such gap in causal connections ? The answer is that Brand has not really offeree any argument. He has simply asserted that '... if f began after e began, then something happened after e began to have made f began', (ii) the situation is

10. Ibid, p.148

the same it one sets aside the possibility of gappy causal laws, and considers the less esoteric case of laws according to which the value of same quantity at some point in time is causally dependent upon the value of certain quantities during a preceding interval. Thus consider a law which says that the velocity of a particle at some time t_1. is causally determined by its velocity at some earlier time t_0 together with all of the forces that acted upon the particle during the interval from t_0 upto, but not including, time t_1. Now, if there were no force acting upon the particle during that time interval, one would have a case that falls under Hume's maxim, since the velocity of the particle does not change during that time interval preceding time t_1. But it would be a case that falsifies the maxim, since the effect does not occur at the same time as the cause. Brand tries to show that this sort of case is logically impossible. But here, too, the only thing in his argument that is relevant to this case is the unsupported assertion that if f began after e began, then something happened after e began to have made f began.

These cases show, moreover, that the problem is not merely with Brand's argument. Since both sorts of cases are logically incompatible with Hume's maxim, these possibilities show that the maxim cannot express a logically necessary truth.

The final question that needs to be considered is whether it would follow that if Hume's maxim were a necessary truth, that a cause must not be simultaneous with its effect. Brand does not develop his argument very carefully. But his basic line of thought appears to be this. Causes must be either events that involve change or events that do not. If the cause is an unchanging event, then Hume's maxim leads immediately to the conclusion that the event must be simultaneous with the cause. Suppose, then that the event involves change. It can then be resolved into a sequence of unchanging events, the final member of which will be the cause of the original effect. Hume's maxim can then be seen to hold.[11] The main problem with this argument

11. Ibid., p.148

lies in the assumption that if one can cite some changing event as a cause of some other event, the former event can be resolved into a sequence of unchanging events having a final member which is the cause of the original effect. That this is false can be seen from the following sort of case. For example, a particle has velocity $\underline{V}_0$ at time $\underline{t}_0$, and during the interval from time $\underline{t}_0$ upto, but not including, time $\underline{t}_1$. is acted upon by a force that varies continuously. Theparticle having velocity $\underline{v}_0$ at time $\underline{t}_0$, together with the forces acting upon the particle during the interval, are causally sufficient to ensure that the particle has velocity $\underline{v}_1$ at time $\underline{t}_1$. Now, we may ask, can this cause be resolved into a sequence of unchanging events, the final member of which can be cited as the cause of the particle's having velocity $\underline{v}_1$ at time $\underline{t}_1$? The answer, obviously, is negative. For, no matter how small an interval, At, prior to time, $\underline{t}_1$, is selected, the velocity of the particle, and the forces acting upon it, vary throughout that interval. There

does not exist, therefore, may unchanging event which is the cause of the particle's having velocity v_1 at time t_1. So Hume's maxim cannot be applied.

Thus, we may say, Brand's overall argument is, in short, rather unsatisfactory. His defence of Hume's maxim, upon which the argument turns, is unsuccessful. Moreover, the maxim itself does not appear to express a logically necessary truth. Finally, even if it did, it would not follow that causes must be simultaneous with their effects.

The third objection is that it is logically possible for an effect to precede its cause. Given the difficulty of establishing even the more moderate claim that it is possible for an effect to be simultaneous with its cause, this third line of attack may seem very unpromising.

The question of whether it is possible for an effect to precede its cause has been discussed very extensively, and most philosophers seem to feel that a negative answer is called for.[12] A variety of arguments have been offered in support of this view. Same have argued that allowing both forward and backward causation gives rise to contradiction. Although philosophers are generally agreed that a cause roust either precede the effect or at least be simultaneous with the latter, some of them, at least, are inclined to think that the impossibility of cause's succeeding the effect has not been demonstratively proved. Dummett, for example is of the opinion that the question 'can a cause succeed its effects' ? - is, after all, & sensible question. The question whether a cause can succeed its effect could, Durnmett explains, arise in our mind from such considerations as the following.

12. Sustained discussion of this topic was initiated by the symposium involving Dummett and Flew"- can an effect precede its causes"?, procedings of the Aristotelian society, suppl. Vol.28, (1954) ,pp.27-62; see alsoBlack."Whycannot an effect precede its cause ?" Analysis, Vol.16,(1955/56),pp.49-58; Flew.A."Effect before their causes - Addenda and corrigenda". Ibid pp. 104-110; Dummett,K-"Bringing about the past",Philosophical review, Vol.73,(1964), pp.338-59;Goroviz "leaving the past alone", Ibid,pp.360-71.

A given change that is caused could be said to occur under a set of numerous conditions. Among these conditions are included both necessary and sufficient conditions. Now, from this it follows that if a particular event is necessary as well as a sufficient condition of another event, then the other event is also a necessary as wall as a sufficient condition of that event. If, in certain circumstances, a projectile's striking the wall from a particular angle and with a particular velocity is both a necessary and sufficient condition of the rebounding at a given angle and with a given velocity, then its rebounding in the way that it did is also both a necessary and sufficient condition of its striking the wall with the particular velocity and from that particular angle. From this it follows that if an earlier event is a necessary as well as sufficient condition of a latter event, then the latter event is also in its turn a necessary and sufficient condition of the earlier one.[13] There is nothing in the concepts of 'necessary' and 'sufficient' conditions

13. Ayer,A.J. The problem of knowledge, Harmondsworth; penguin,(1956),pp.172.

as such which necessitates their application to the latter event.

Take the example of the 'quasi-cause' which Dummett cites. A 'quasi-cause' resembles a 'cause' in every respect except that it is stipulated to succeed its effect. Such a 'quasi-cause' must, according to Dummett, satisfy certain conditions in order to establish its undisputable claim to be counted as a cause of its preceding phenomenon. Having these conditions in mind, Durnmett constructs the following example of a 'Quasi -cause' Let us suppose a certain manregularly wakes up three minutes before his alarm-clock goes off. This regularity is maintained even when he does not know that, and for what time, it has been set. He sleeps very late on those occasions when the clock fails to ring. Suppose also that one day the man forgot to wind the clock and the following morning he woke up very early and a friend of his, who knew nothing about this strange phenomenon, happened

Just to walk into his room and inadvertently set off the alarm clock just three minutes after the man wakes up. could it not be reasonable to think in such cases that 'the man wakes up because the alarm-clock is going to go off"?[14]

Now although there is contradiction involved in the thought of an effect preceding its Cause, it seems almost impossible to show the reason why it must be contradictory. In our opinion, the only way to prove the contradiction involved in speaking of a cause succeding its effect is by insisting on the point that a cause is essentially a producer. In order that a later event might cause an earlier event, the later event must be able to.bring about an event in the past. But the only way to bring about an event in the past is to alter what has already happened. Yet everbody will object to such an absured suggestion. The past is unchangeable, closed. But the question could still be asked. What

14. Dummett, M.F. "Can an effect precede its cause?" Proceedings of Aristotelian Society(Suppl.) vol.26 (11954).p.32.

makes it impossible to speak of bringing about an event that has already happened ? Does it reflect some arbitrary choice an our part to restrict, the use on the expression " bring about" to events that have not yet happened ? or is there some genuine difference between the past and the future which induces us to speak of 'bringing about' only future event ?

Prof. Ayer suggests that the reason why we do not allow ourselves to conceive of our actions as affecting past events, is, not merely that the earlier events exists, but that they are, for the most part, already known to exist. Since the same does not apply to the future, we come to think of human action as essentially forward-moving, Normally, when one tries to bring something about, one is net certain of its happening. Becausethefutureseemstousuncertain, we think that we must strive to bring things about. The past, on the other hand, is not unknown to the same degree, especially not the immediate past.[15]

15. Ayer, A.J. The problem of knowledge, p. 175

The above suggestion, to us, does not appear to be the whole story. Our knowledge of any state of affairs does not make us mere spectators or the drama of existence. Event if we known that we are going to see satyajit Roy's movie at the cinema tomorrow, that does not make our going there redundant or fruitless. And if we sit down idly in our rooms doing nothing, we cannot be said to have known it already.

Moreover, our knowledge of the past is really not so certain as Prof. Ayer suggests. Even with regard to the immediate past, we can make mistakes about what we claim to know. So it cannot be true that we 60 not try to produce something in the past because we are absolutely sure of what happened in the past. There are many instances where we are not sure whether something has happened in the past. Someone may ask, however, why do we not make any effort in those cases to find out whether the event has taken place by trying to wring it about ?

Our suggestion would be that efforts cannot be ascribed to an agent to bring about something after the potentiality of a thing is actualized. Before some state of affairs comes into being, it could be said to be potential. Potentiality or possibility makes sense only in the case of the existence of alternatives (of existence and non-existence). When a potential becomes actualized, the alternatives of its existence are closed. We then make no efforts to bring it about, we do not perform any action intended to produce it because efforts make sense only in the presence of alternatives. Thus we make no effort to bring about a past event as the alternatives of its being and non-being are closed. But in the case of a future event we make efforts to bring it about, because there are alternatives to the existence of the event. Unless we make efforts to bring it about, unless we perform those actions that ere intended to bring it about, it may not come into existence at all.

The concept of production is an Integral part of the concept of causation. And the concept of production rules out the possibility that a past event may be brought about. We get instances of production primarily in the realm of human activities. Here, all the instances are cases of agents producing something in the future. There is no instance of an agent producing something in the past. But Humean concept of causation is not connected with production. Thus temporal asymmetry implies that backwards causation is an immediately obvious contradiction. tut surely this is wrong. Even if there are, in the end, deep conceptual reasons (which we have already discussed critically) why effects can't precede their causes, they are not immediately obvious. we can certainly make some initial sense of precondition (where present mental states are affected by future events) and of travelling Lack in time (where the traveller's past behaviour is affected by his or her present day experience). Thus we ought to allow that backward causation is at least conceivable.

For example, one kills himself today (the cause) to bring about the last birthday of his life (the effect) that he actually celebrated ten days back.

The upshot is that it seems to support the conclusion that it is logically possible for an effect to precede its cause. We would seem to be Justified in concluding, then, that the asymmetry of causal processes, ana the direction of then, can not be explained in terms of temporal priority. So it cannot properly account for the causal asymmetry. In place of the temporal priority view a number of possible alternatives have been offered in the last two decades. Let us try for another approach.

FIXITY THESIS

Prof. J. L. Mackie clearly shows in his article "The direction of Causation"[1] that causal asymmetry need not merely be temporal. He argues that causal asymmetry or priority may be accounted for in terms of fixity. Though uncertain that there are genuine cases of backward causation, he thinks that an account of causation should not rule out the possibility that some effects precede their causes. Mackie puts it :

> "...it seems, conceivable that there should be evidence for cases of recognition, and if precognition were anything like ordinary perception it would involve backward causation: the details of the precognized object would be causally responsible for the content of the precognizer's belief and of the description he offers. It seems, then, that we recognize a relation which we may call causal priority, which holds in one direction only between a cause and. its effects, and that this relation is not identical with and probably does not entail, temporal priority?"[2]

Mackie tries to establish causal priority or asymmetry in two ways. The former one is as follows:-

1. Mackie, J.L. "The Direction of causation". The Philosophical Review, Vol. 7:No. 4 (1966) , pp. 441-466.
2. Ibid, pp.441-442

> "If A and B are causally connected in a direct-line, then B is causally prior to A, if there is a time at which B is fixed, while A is not fixed otherwise than by its causal connection with B"[3]

It may be remarked here that though, taken literally, the lints quoted above purpose only a sufficient condition for causal priority, Mackie fact takes it in the main body of the paper as both necessary and sufficients that A and B stand in such a relation is constitutive of B's being the cause, specifically,of A.

In a latter account Mackie Says :

> "Suppose that X and Y are individual events, and x is seen as necessary (and sufficient) in the circumstances for y, so that the basic requirement for the judgement that x caused y is met, then, despite this, x was not causally prior to y if there was a time at which y was fixed while x was unfixed. If, on the other hand, x was fixed at a time when y was unfixed, then x was causally prior to y. Again, if x was not fixed until it occurred, then even if y also was fixed as soon as x occurred (given, of course, that x was necessary in the circumstances fory), x was causality prior to y. And further, if there is some line or chain of causation, some continuous

3. Ibid.,p. 457

> causal process, linking x and y and some other event z so that x was between y and z, and if a was not fixed until it occurred, then x was causally prior to y".[4]

Both these accounts explain causal asymmetry in terms of fixity. It is quite fundamental in Mackie's analysis. According to him, two individual events A and B are such that the basic requirements for the judgement ' a caused b' is fulfilled. Under the circumstances, Mackiesays that a would be causally prior to b, if and only if, there is no such time, t, when b is fixed and a. is not fixed. This notion of fixity explains that causal relations are asymmetrical, without any explicit reference to time. In other words, he fixes it instead by appeal to the concept of events being 'fixed'. That is causes 'fix' their effects but not vice-versa. For example, 'if a and b are causally connected... , then if b is fixed at time when a is not fixed, it must be a which is the effect and b the cause'.

4. Mackie, J. L. The Cement of the universe? Oxford University Press, Oxford, (1974) ,p,190.

Hackle explain causal priority in terms of a distinction between fixed and unfixed events. The outcome of his analysis seems to be this: If an event A is epistemologically fixed before another event B, this precludes B being the cause of A. Mackie sums up his reasons for accepting this principle in the following passages"[5]

> "Although we may be able to infer a cause from a previously known effect this would only show that the cause occurred; it would smooth the way to our knowledge of the cause, but not to is existence, whereas if we explain the effect by reference to the cause we show how the way was smoothed to the existence of the effect. And above all, if the effect was unfixed when the cause was fixed, we cannot explain the cause's actually being there by reference to something which still might net have happend: what is explained must depend upon what explains it, so the latter cannot have been less ontologically solid than the former?

This leads us to ask: what does it mean to say that an event is fixed at a given time ? Mackie, construes that an event e occurring at time t is fixed at t_1. if and only if either t_1 is not earlier than t, or there

5. Ibid, p. 185

is some event d which is nomologically sufficient for e, and which occurs at or before time t_1. There are a number of objections against Mackie's analysis of causal priority.

Firstly, as Mackie himself points out, his account implies that the world is totally deterministic. That means, it is to be understood as a world in which, for every contingent state of affairs involving particulars, there is a temporally prior, nomologically sufficient condition that no states of affairs would stand in the relation of causal priority. ' ...if total determinism holds, and there was not even a first creative event, our present concept of causel priority will not be true of the real world".[6]

Thus, it seems that Mackie's account of causal priority can obtain between events only if there is some time at which the events are not fixed, and in a totally deterministic universe this will not be so. He is not especially troubled by this consequence.

6. Ibid, pp.191-92

Yet surely it is rather surprising that our ordinary concepts of causation has the consequence that it is logically necessary that some events be causally undermined.

Secondly, an analysis of causality need not beg the question against determinism. It is not relieved by the likelihood that indeterminism holds at the microlevel.[7] The vast majority of causal connections with which we are acquainted occur on, the macroscopic level and have a direct dependency on microscopic indeterminism. Thus, the vast majority or causal connections do not satisfy Mackie's requirement that the effect be unfixed prior to the cause's occurring. Thirdly, in analysing causal priority in terms of fixity, which in turn involves the notion of temporal priority, Mackie faces the problem that confronts any attempt to relate causal priority to temporal priority, namely, what account can be given of ten oral priority ?

7. For details analysis, see Anscombe,G.E.M. Causality and Determinism, Cambridge University Press, Cambridge,(1971) .

Can it plausibly be treated as primitive, or is some analysis called for ? And if the concept of temporal priority stands in need of analysis, is there any satisfactory alternative that does not involve causal notions ? If not, then Mackie's account of causal priority is implicitly circular.

Fourthly, Brown's challenge against Mackie's analysis of causal priority is that there seems to be an ontological difference between cause and effect in the sense that causes smooth the way to the existence of their effects, while effects do not relate in the same manner to their causes. This ontological primacy of cause has to be taken account of, even if it. is not possible to match it by an epistemic analysis.[8]

Another objection arises from a possibility mentioned by Douglas Gasking.[9] Let us suppose that iron glows in a certain way only when its temperature is at least 1000^{oC}. It seems possible that the state

8. Brown, E. "The Direction of Causation", MIND, Vol.85 (1979),pp.335-50

9. Gasking, D "Causation and Recipes", MIND Vol.64, (1955),pp.479-487.

of affairs, which is iron's being at that temperature, might hove precisely the same spatio-temporal location as the state of affairs, which is the iron's glowing. But even if that were so, one could. Gashing argues, know that the former was causally prior to the latter, in view of the fact that the heating of substances always makes them hotter; but does not in general make them glows that iron glows at 1000°C.

Someone may ask; why does this sort of case constitute a problem for Mackie's analysis ? The reasons are (i) given that the events occur at the same time, and that each is nomologically sufficient for the other, there cannot be any time at which one is fixed, and the other not. And (ii) given that they also occur at the same place, there can be no intervening causal process by virtue of which one is causally prior to the other. So if such cases do occur, or if, at least, they arc logically possible then Mackie's analysis must be unsound.[10] we may, therefore, very well conclude that the notion of fixity fails to capture, the notion of causal asymmetry. Let us now pass to another alternative.

10. See Dewashi, M. "Mackie on causal Priority: A critical study" Indian Philosophical quarterly. Stud; Supp.Vol.18 July(1991) forthcoming.

COUNTERFACTUAL VIEW

David Hume implicitely attempts a counterfactual analysis of causation, He says in his Inquiry:

> " ... if the first object had not been, the second (would) never (have) existed". (See, An Enquiry concerning Human Understanding,p. 76)

Although he himself never took the connection between counterfactual and causation seriously, some other philosophers certainly have. Only in the recent past, counterfactuality entered into the discussion as a basis for distinguishing laws from accidental generalizations.[1] The mein distinction between them is that laws support counterfactuals, but accidental generalizations do not. This line of argument was often used by those advocating a entomological approach.

The counterfactual approach, however, has recently taken a new direction. Encouraged by the success in possible-world semanices for counteractuals,[2] attempts are now in progress to explicated 'cause' in terms of

1. Pur details analysis, see chisholm, R. "Law statement and counterfactual inference" , Analysis, Vol. 15, (1955) , pp.97-105.
2. For details analysis, see, Lewis, D"Counterfactuals, combrid e. Harvard univ, Press. (1973) ;Follack, J. L. Subjunctive Reasoning, Dordreeht, D.Reidel(1976) .

counterfactuals and to by pass the detour into nomol-ogicals. Let us consider Lewis account of counterfactual dependency briefly.

David. Lewis has argued in his article "cousation"[3] that c cause e just in case e counterfactually depends on c. For him, in the counterfactual dependence of e on c is absent, e is absent too. We can summarize lewis's account in the following two statements:

a) An event e causally depends on an event c just in case if c had not occurred e would not have occured.

b) An event c is a cause of an event e just in case there is a chain of events from c to e, each event in this chain being causally dependent on its predecessor.

It follows that the counterfactual conditional "if c had not occurred, e would not have occurred," entails, under Lewis's analysis, the causal statement "c caused e".

3. Lewis, D "Causation" The Journal of philosophy, vol.70 (1973) ,pp.556-67; reprinted in SCSA, E(ed) in causation and conditionals, Oxford University Press,Oxford, (1975) ,pp. 180-91.

In another article, Lewis further addresses the question whether this kind of analysis can account for the asymmetry of causation.[4] The difficulty is this: given that in general the nearest world in which a cause is absent will be one where the effect is absent, what stops us from symmetrically taking it that the nearest world in which an effect is absent will be one where the cause is absent, thus ending up with effects causing their causes as much as vice-versa.

Lewis' answer is roughly along these lines. A given particular cause will characteristically produce a range of independent chains of particular effects (consider the way in which an explosion, say will leave traces all over the place.) But a given particular effect will very rarely be produced by more than one chain of particular causes (only one lighted match, or bolt of lightning, or finger on the button, or whatever, will normally be responsible). As lewis put it,effects

4. Lewis, D "Counterfactual Dependence and Time Arrow", Nous, Vol.13,(1979),pp.455-76.

are rarely overdetermined by their causes; but the overdetermination of causes by effects is absolutely normal. And then he argues that the nearest possible world without a given effect will still contain the cause, because there will be lots of other effects left to fix the cause, but take away the cause and there will be no alternatives left to fix the effect.

We may say that the key counterfactual 'if c had not occurred, e would not have occurred' - is true (in the actual world) just in case some possible world in which neither c nor e occurs is closer to the actual world than any possible world in which e but not c occurs. Closeness of possible worlds to the actual world is to be understood in terms of one world resembling the actual world in respect to overall comparative similarities more than another world resembling the actual world (However, the notion of 'actual world' need not be metaphysical, it is only indexical).*

* Most of the possible world semantics is based on this indexical notion of the 'actual world'. Adams, R.M. "Theories of Actuality" Nous. Vol.8, (1974) ,pp.211-231; Stalnaker.R-C.-Inquiry.M.I.T.Press (1984), pp. 43-58.

There are two major charges against Lewis' account of causation. J.Kim objects to Lewis' classification of certain kinds of cases as one of causal dependence. Among these some, Kim observes, exemplify an 'analytical' or 'logical' relation, and other in which one event is a part of another.[5] Bernard Berofsky objects to Lewis' contention that the vagueness of counterfactuals infects causation.[6] we shall try to look more closely into the above objections.

First, Lewis defines counterfactuals as 'if c had not occurred e would not have occurred' entails 'c caused e'. We obtain a counterexample to this definition by letting c be 'jadu's getting married' and e be 'Jadu's not remaining a bechelor'. There is some sort of analytical tie between 'getting married' and not 'remaining a bachelor', not a causal connection or using kim's well known example, let c be 'socrates drinking the hemlock' and e be 'Xanthippe becoming a

5. Kim, J-"Causes and counterfactuals". The Journal of Philosophy, No. 70, (1973) pp. 570-72, reprinted in SOSA, E(ed) causation and conditional, (1975).pp. 192-94

6. Berofsky, B-"The counterfactual analysis of causation", The Journal of Philosophy, Vol. 70. (1973) ,pp.568-569.

window'. There is some kind of dependency between 'socrates drinking the hemlock' and 'Xanthippe becoming a window', but it is a non-causal connection.[7]

Second, Lewis analysis of counterfactuals cannot deal with cases of overdeterminism. There are two main types of overdeterminism, namely; (a) preemptive overdeterminism(in short 'POD') and (b) simultaneous overdeterminism(in short 'SOD'). In the POD, one event causes a second, but the second event would have been caused by a third event if that event was not prevented from occurring by the first one. And in the SOD, two events in fact occur such that each is causally sufficient for a third. For example, suppose that S_1 and S_2 are switches, equidistant from a bulb B. Suppose also that S_1 ana S_2 are flipped at precisely the sane tine. The following diagrams, Fig.l representing SOD and the fig. 2 POD (where S_1, S being flipped breaks the connection between S_2 and B) make the example illustrative.

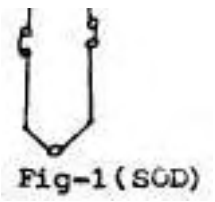


Fig-1 (SOD)

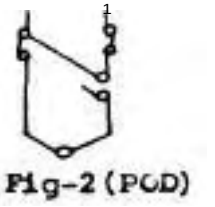


Fig-2 (POD)

7. Kim, J.-"Non-causal connection", Nous, Vol.8 (1974, pp.41-52.

Lewis' position can deal with POD. The counterfactual if S_1, had not been flipped, B would not have lighted'- is false, since the flipping of S_2 would have lighted B . But from this it does not follow that S_1's being flipped did not cause B's being lighted. For there is a causal chain, consisting of the events of the current's flowing through the wire from S_1 to B, the filament in B becoming heated, and so on, such that each is causally dependent on its predecessor.

It is more difficult for Lewis to account for SOD. His definition of counterfactuals yield the result that B' *s* lighting is caused by neither the flipping of S1 nor the flipping of S_2 . There is no counterfactual dependency between B's lighting and the predecessor-event in the S_1-chain, and similarly in the S_2-chain; if S^1's flipping had not occurred, B would have nevertheless lighted because S_2 was flipped, and similarly for S_1's flipping. Moreover, given that there are no other plausible candidates for the cause of B's lighting, its lighting is an uncaused event.

Lewis dismisses SOD as " test cases" because he lacks "firm naive opinions about them". But whatever naive opinions one has about these cases, surely the result that B' s lighting is uncaused cannot be accepted.

Third, Prof. Berofsky raises minor and major objections against counterfactual analysis of causation. According to him, Lewis' analysis is in certain respects too weak and in other respects too strong. Bereofsky argues that cases of genuine overdeterminism in a deterministic context provide examples of causes that turn out not to be causes on Lewis analysis, for they are not necessary conditions, Berofsky also argues that the respect in which the counterfactual analysis is too strong is in making every necessary condition a cause. Since the counterfactual analysis of causation ultimately makes use of the concept of comparative similarity of worlds, a concept conceded to be vague by its creator, Berofsky poses a question as to the legitimacy of allowing this vagueness in the analysis of causation.

Inspite of the above criticisms, this line of approach is further developed by J. L. Mackie.[8] He formulates an account of causal priority in counter-factual terms. In accordance with this terms; c is causally prior to e if and only if c and e are causally connected on a particular occasion and, if a small change were made such that c and e had not been so connected on that occasion but things had been as far as possible as they were, c would have occurred but e would have failed to occur.

Mackieillustrates this view with an example of two causally related items, e.g. the rotation of a drive shaft and the rotation of the rear wheels of a car. When the engine is moving, the car along the road, the rotation of the wheels is causally dependent on that of the dirve shaft. What does this mean ? The answer is: ' ... this means that if the connection between the two rotations had not been there-say,if the differential had

8. Mackie, J. L. "Mind, Brain, and causation", Midwest Studies in Philosophy. Vol.4. (1979) ,pp.19-29

failed or had been missing - but things had otherwise been as far as possible the same, the drive shaft would have been rotating but not the wheels'[9] As Mackie put it, the directed conditionally is formulated in terms of a counterfactual conditioned of which the contrary-to-fact antecedent is that the causal relation between the relevant items is absent. The antecedent also includes the condition that the failure of the causal relation is the result of a 'small change in the circumstances'- so that the circumstances are as far as possible the same. The consequent of the conditional states that the cause-event occurs but the effect-event fails (or might fail) to occur.

This analysis of causal priority, in general, is vulnerable to counterexamples involving preemption. Suppose, for example, the "small change" required to eliminate the causal connection between £ and e brought into play in some otherwise preempted cause d, which in the absence of this connection, causes e.

9. Ibid, p.24

Secondly, Doughlas Ehring[10] points out that suppose f is a necessary condition of the causal relation between c and e, where c causes e elimination of f will eliminate the causal relation between c and. e. However, we can suppose that f is also a necessary condition for both c. and e. For example, f rnay be the presence of oxygen and £ and e two fires. Thus, if f, fails to occur so will c and e, and Mackie's analysis will not provide a verdict on which is the cause relative to the other. That means, Ehring suggests a concrete instance, where c and e are two fires and the f which is necessary both for the causal relation and for c and e separately is the presence of oxygen.

Thirdly, Mackie claims that his analysis is true where 'A's doing X is necessary, sufficient, or both' for B's doing Y, Suppose that c is a sufficient but not a necessary cause of e such that e is causally overdeter-tnined by c. and d, we then introduce a small change in the circumstances which eliminates any causal relation between c and e. Since c is Causally overdetermined, e

10. Coring, D "On Mackies New Account of causal priority". Analysis, Vol.41,(1981),pp.82-83.

occure in the absence of this causal link to c. If we If we further suppose that the small change made also eliminates a necessary condition of c, then we are required to conclude that e cause c contrary to our assumption.

The above counterexamples, therefore, show that Mackie's analysis does not provide an adequate reconstruction of our concept of causal priority, thereby initiating the search for an alternative approach.

TRANSFERENCE THEORY

An alternative approach which has gained recent adherents is perhaps best referred to as "transference theory" - Jerrold Aronson[1] and David Fair[2] provide the most detailed analysis of this view. Fair's account gives a revised version of Aronsion's analysis of transference theory. Let us discuss them critically.

The main theme of Aronson's account of causation is the notion of "transference of same quantity (energy, etc.) from cause-object to effect-object". The following three necessary conditions (jointly sufficient) for the truth of "A cause B" are:

a) In "A causes B", "B" designates a change which is an unnatural one(i.e., change which cannot be accounted for without reference to the behaviour of other bodies).

b) In "A causes B", at the time B occurs, the object that causes B is in contact with the object that undergoes the change.

1. Aronson, J -"On the Crammer of cause", Synthese, Vol.22,(1971),pp.414-430.

2. Fair ,D-"Causation and the Flow of Energy",Erkenntinis, Vol.14, (1979),pp.219-250.

c) If "A causes B",prior to the time of the occurrence of B, the body that makes contact with the effect object possesses a quantity(e.g. velocity, momentum, kinetic energy, heat,etc.) which is transferred to the effect object (when contact is made) and manifested as B.[3]

Now we try to illustrate the above mentioned conditions, as given by Aronson. He states that the theory of transference is meant to be applied to "mechanical" cases of causation. Condition (a) incorporates a distinction between two kinds of change, i.e., "natural" and "unnatural" - which in turn is presupposed by condition (c) A natural change is characterized as a change in an object that takes place independently of other objects, i.e., a change in an object that can be accounted for without reference to the behaviour of other individual objects. An example of a natural change would be a body in motion in a straight line with a constant velocity. In this example, we do not ask for a causal explanation of constant unilinear velocity. Aronson asserts that all natural changes are uncaused.

3. Aronson, J "On the Grammar of 'cause' ",pp.421-22

Unnatural changes are changes which result from the interaction of an object with other objects. According to Aronson, unnatural changer, unlike natural changes, are causal.[4]

This distinction between natural and unnatural changes, with the corresponding claims about their causal relations/ plays a crucial role in Aronson's account of causation. If some natural changes have causes, Aronson would be hard pressed to interprent those causal sequences in terms of the transference of same quantity.

Aronson clearly requires that "transference" involves at least two objects, one of which initially possesses the quantity and another to which the quantity is transferred. Since caused natural changes would involve only single object, no such transference could occur.

4. Ibid, p. 421.

The transference theory suffers from at least three difficulties.(a) Aronson's assertion that there are no such caused natural changes is unwarranted. That is to say, not all causal sequences involves transference of a quantity from one object to another. Consider, for example, a chemical substance undergoing internal processes or an atom transmitting rediation. Although such processes in no way require explanation by reference to the interaction with other bodies, we still allow that these are causal processes. The fact that the changes in question are the result of internal processes does not by itself, either on conceptual or empirical ground, rule out that such changes are caused.[5]

b) Second line of objection to this version of transference theory is directed against the claim that all causal processes involve the transference of some quantity. In other words, even in cases involving two objects, the causal sequence is not always accompanied

5. One might weaken this condition to require only transference between subparts of an object or objects, However, we must still deal with cases in which the quantity is released but not transferred to any subpart of any object.

by such a transference. Counterexamples of this claim may be generated along the following lines. Suppose that a light L is on at time t_1, and at time t_2 a switch is turned off causing the light to go out. Clearly, there is no transference of a quantity from the switch to the light. Indeed, the causal efficacy of flipping the switch depends upon the elimination of any such transfer of electrical energy from the switch to the light. Other similar counterexamples may be constructed. In general we may suppose that A is a necessary condition for the occurrence of B in the circumstances and that there is some transference of a quantity from A to B. In order to cause the elimination of B, we eliminate the transference from A to B.

c) Aronson, in the course of his discussion, considers an objection to this theory. For instance, a catch is released "causing" a spring to pull a weight over some distance. The release of the catch certainly did not transfer any quantity to the spring. Aronsons

strategy, in this case, which be counts as an instance of a "triggering phenomena" - is to deny that the release of the catch causes the weight to move. He bases his denial of this causal Judgment on a distinction between what he calls, "causes" ana their "occasions" - the latter being " a condition for making possible", i.e., a condition that allows the cause to act. This distinction between "causes" and "occasions" cannot be sustained. Where more than one causal factor contributes to the effect, often each factor is necessary to the causal efficacy of the remaining factors. Thus the match may only be effective in starting a fire given the presence of oxygen, etc. The presence of the oxygen can legitimately be picked out as a cause. Aronson is not drawing a distinction between the cause and other causal conditions, rather, he is distinguishing between those factors which can be counted as causes and those which cannot.

Let us discuss Fair's notion of transference theory critically. He develops a version of transference theory which is not subject to many of the counterexamples

which are considered against Aronson's theory. Fair's revised formulation might be represented as follows:-

> A causes B if and only if either A is a p-cause of B *or* A *is* an O-cause of B.

"p-cause" is an expression used by Fair to designate the crucial notion of cause and "O-cause" is introduced here to cover cases in which omissions play some causal role. "P-causation, according to Fair, is the core notion of causation, whereas "O-causation" is a systematic extension of this core notion.

> A is e P-cause of B if and only if there arc physical descriptions of A and B as manifestations of energy or momentum such that either :-
>
> i) this energy/momentum, at least in part, is transferred from A-objects to B-objects.
>
> ii) this energy/momentum is transferred between A-objects and B-objects, and the physical redescription of A is a discription of an energy gain and B, an energy loss.
>
> iii) the energy/momentum redescription of A is of a lowering of a barrier to the release of potential energy, and the physical re-description of B is of a manifestion, at least in part, of that released potential energy.
>
> or

iv) A's physical re-description is of the raising of a barrier to the flow of energy or momentum, and B has a physical re-description as the interruption of the flow of energy or momentum.[6]

Now we shall try to explain the above four clauses one by one. Clause (i) of the definition corresponds to Aronson's transference requirement. Fair does not require, as does Aronson, that on every occasion effects energy/momentum is transferred from the cause, A . Fair further specifies that the quantities transferred must be energy or momentum. Clause (ii) takes account of a certain class of cases which fail to satisfy the transf-erence requirement of clause (i), specifically those in which transference runs from effect—objects to cause-objects. For example, it is correct to say, according to common sense, that placing ice in water causes the water to become cold, even though the energy flows from water to ice. Fair contends, however, that in all such cases the physical re-description of the cause will be an energy gain ana of the effect an energy loss. Clause (iii

6. Fair, D. "Causation and the flow of Energy" Erkenntnis. Vol.14, pp.219-250.

is addressed to another class of cases which do not meet the transference condition, those in which no energy/momentum may be transferred from cause—objects to effect-objects, but in which the cause consists of releasing stored energy. These causal sequences are the "triggering phenomena" which Aronson attempts to treat as non-causal. Clause(iv) picks out cases in which the cause consists of stopping the flow of energy/momentum.

It is important to note that 'O—cassation' involves cases in which either the cause or effect or both are omissions. In order to illustrate Fair's approach, the truth-conditions for one such case will be stated. The con-occurrence of x causes the non-occurrence of y if and only if in some plausible world x p-causes y.

The notion of "plausible world" Is relative to persona and context, and is left purposely vague. Fair lists two additional clauses for causal relation in which one or the other but not both, cause and effect, are omissions.[7]

The first objection is, unlike Aronson, Pair does not distinguish between "natural" and "unnatural" changes. Fair does, however, seem to assume that causation must always involve 'objects' and that the "causal-objects" must be distinct from the "effect-objects". This assumption is inconsistent with cases of the following sort: two electromagnetic waves interacting in a closed system. In such cases, the causal interaction is independent of any objects. we might even imagine that the "objects", which are the source of these waves, have prior to their interaction, been converted to energy. At the same time, this assumption does not seem to be easily replaceable. One possibility is to define "transference more generally as a change in position, of quantity.

7. Ibid, p.247.

of energy/momentum, however, this modification generates its own difficulties. As Aronson makes clear in attempting to distinguish "unnatural" from "natural* changes, certain "transferences" of energy in this new sense do not involve causation. In the case of initial motion, for example no causal explanation is required although a quantity of Kinetic energy is transported from one point in space to another.

Another problem which has been raised against the traditional Humean account of causation is that of backward causation. Neither Aronson' s nor Fair's version of transference theory is able to deal with such cases. Aronson does not even consider the issue, but Fair explicitly states that his account "does not rule out backward causation - as a conceptual possibility.[8] however, it is far from obvious how a transference theorist could distinguish between cases of forward and backward causation. In the case of forward causation, "transference" consists of the possession of a quantity

8.Ibid.,p.241

of energy/momentum by an object at a time t_1 and the possession of that same energy/momentum (or a part thereof) by another object, at a later time t_2. The same would be true in case of backward causation. If a later event causes an earlier event, the corresponding "transfer" would be indistinguishable from a case in which earlier event caused the later, that is, the energy/momentum is possessed by one object at t_1 and by another object at t_2. Fair and Aronson must either reject the possibility of backward causation or provide us with some way of distinguishing forward from backward causation. The latter possibility would seen to require going beyond an account of causation simply in terms of "transference" alone. Thus we shall try to look at another alternative approach to tackle the problem of causal asymmetry.

CIRCUMSTANTIAL APPROACH

In his recent paper "causal asymmetry", Douglas Ehring has proposed an account of causal priority or asymmetry based on the 'circumstantial' character of causal relations. The purpose of his paper, is to provide an "adequate reconstruction" of causal priority which will "apply to all empirically possible worlds?*

Ehring' s account may be summed up simply as: on a particular occasion a given event c causes another event e just in case there are certain additional conditions or events, at least some of which are causally connected to £ but not to £. In order to develop a precise statement of this approach to causal priority, two key notion require clarification. One is that of "causal connection" and other is that of "condition of a causal connection". The first, that of a causal connection, is relatively unproblematic. That is to say

* Ehrinc, D."Causal Asymmetry", The Journal of Philosophy, Vol. 79, (1962) ,pp. 761-774.

some event c is causally connected to another event e just in case c causes e or e causes c. On the other hand, the second notion, that of a condition of a causal connection, is unfortunately less tractable. He claims that an event f is a condition of causal connection (CCC for short) of events c and e if the causal connection of c and e is counterfactually dependent upon f. That means, it is a CCC. if f had not occurred, c and e would not have been causally connected. Ehring excludes, as possible CCC's, pre-empting and overdetermining causes on the one hand, and joint effects of a cause on the other hand.

A direct condition is characterized in the following way:

f is a direct condition of the causal connection between c and e, where e and c are particular events, if and only if

1) a) c, e, and f occur, and c and e are causally connected,

b) f is a member of a set of events($f,d_1...d_n$) each of which occurred, such that the causal connection

between c and e is counterfactually dependent upon each member of the set in the absence of the other members, where this set includes all and only nonredundant[1] member,

and

2) there is no event c upon which f counterfactually depends which is not a member(either redundant or net redundant) to the set ($\underline{f}$, d_1... d_n)[2].

It is important to note another condition that is an indirect condition of the causal connection between c and e. An indirect condition is illustrated by the following schematic examples suppose that c causes f and f causes e, so that f, is a direct condition of causal e, so that f is a direct condition or the causal connection between c and e. In the case of 'c causes f' suppose that the condition of this causal connection c, where c is not identical with e, c then will qualify as an indirect

1. According to Ehring, the definition of a condition of a causal connection is meant to emphasize that without the condition(or any occurrent "substitutes"), the particular causal connection between c and e which is at issue would fail to be realised. He also says that the relevant causal connection between c and e might fail to be realized because either c or e or both fail to occur.
2. Ehring, D."Causal Asymmetry", p. 767.

condition of the causal connection between c and e,via its direct conditioning relation to c's causal connection to f; and f's direct conditioning relation to c's causal connection to e. Thus we have the following definition of an indirect condition:

> "c is an indirect condition of a causal connection between c and e, if and only if, c is a direct condition of a causal connection between some direct condition f of a causal connection between c and e, and either c or e"[3]

After discussing the above conditions, Ehring says, We are now in a position to offer a definition of "causal priority" as follows :[4]

c is causally prior to e if f either

a) 1) c ana e are causally connected, and

2) there is same condition of the causal connection between c and e with is not connected causally to c and is causally connected to e, and there is no condition causally connected to c but not to e.

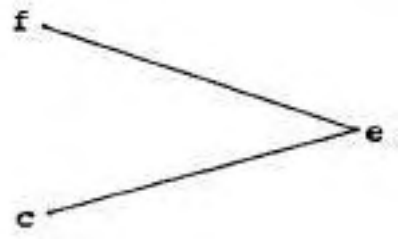
3. An indirect condition may fail to be a direct condition of that which it indirectly conditions. If c, the indirect condition, had not occurred, f may still have occurred, and thus c and e would have been causally connected.

4. Ehring, D-"Causal Asymmetry",p.770.

Or

b) c is causally connected to some event f and c is a direct condition of a causal connection between f and e, and f is causally prior to e.

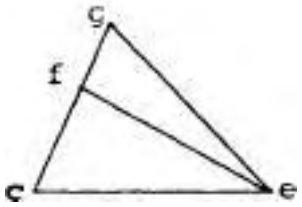
In order to elucidate the above definition, Ehring himself beings with two illustrations. The first is diagrammed as follows :



In this diagrams, there is a causal connection between c and e, where f is a direct condition of that causal connection. Ehring further supposes that there is a causal connection between f and e, but no causal connection between f and c. From these suppositions, we may conclude that c causes e rather than that e causes c, given clause (A), of the definition of "causal priority".

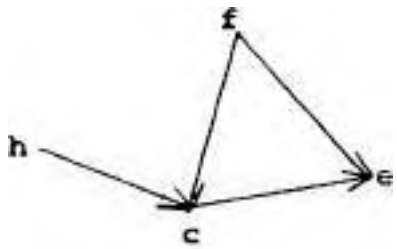
Ehring offers a concrete example :- the scratching of the mach = c, the match's ignition = e, and the presence of oxygen = f. There exists a causal connection between the scratching of the match and the lighting of the match. The presence of oxygen is a condition of the causal connection between the scratching and the lighting, and the presence of oxygen and the scratching are not causally connected. From these facts, it is clear that the cause in the pair is the scratching and the effect is the fire.

The second illustration, according to Ehring's presentation, involves an indirect condition. It can be diagrammed as follows:



In this case c and e are causally connected, and f is a direct condition of the causal connection between c and e. f in turn is causally connected to c, and g is a direct condition of this connection, g, however, *is* not causally connected to c, but g is causally connected to e. Thus we can conclude that c causes e rather than e causes c.

Shring also claims that clause (B) comes into play in those cases in which clause (A) fails to apply. He offers the following example: suppose that c causes e and that there is only one causal connection, f. f in turn is a cause of c (and thus of e). A rough example of this night consist of c = the burning of a match; e = the burning of a building; and f = the presence of oxygen. A diagram may help to clarify:



If f is the only condition of c's causal connection to e, then there would exist no connection of c's causal connection e which was causally independent of c. According to Ehring's definition of causal priority, clause (B) resolves this difficulty. First: of all, he says, we must assume that, since f causes c, there exists a condition of that causal connection (call that h). h is causally independent of f, and thus there is a condition of f's causal connection to e which is causally independent of f.. Thus, f is causally prior to e. If h were to fail to meet cause (A) with respect to f; and e, the problem would be moved back one stage. Thus f is causally prior to e. c, in turn, is a direct condition of the causal connection between f and e, since c is causally between f and e. Thus, by cause (B), Ehring concludes that 'c is causally prior to e'.

Jig-chuen Lee[5] offers a counterexample against Ehring's account of causal asymmetry He presents the

5. Lee, jig-chuen. "Causal connection, causal asymmetry ana the counterfactual analysis of causation", Synthese, Vol.67, (1986) .pp.213-23

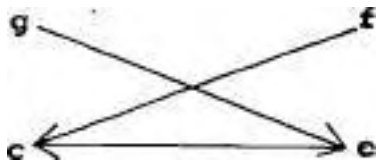
following example. John puts a pile of poisonous mushrooms of kind X in the Soup, Fred then injects a chemical into the mushroom which changes their colour, size, etc., but not the nature of their poisonous character. Although now of kind Y, the mushrooms kill people in the same way. In turn, Don would nave injected the same chemical (call this event d') if Fred had failed to do so. Harriet drinks the soup and dies. Fred's injecting the chemical(f) would seem to be condition of the causal connection between Harriet's drinking the poisonous soup of kind Y(c) and her death(e).

It seems that since f. is a condition of the causal connection between c and e, Fred's action should be a cause or Harriet's death, given the assumption that a condition of a causal connection is a cause of the effect of the causal pair. However, it is counterintuitive to say that Fred's action is a cause of Harriet's death. "For the chemical does not affect the way the mushrooms kill people. with or without Fred's action, Harriet would have died anyway"[6].

6. Ibid., p.216

Gregory Bassham[7] has also doubted against Ehring's claim that "causal priority will apply to all empirically possible worlds".

Ehring's account presupposes that causal relations must be asymmetrical at least in the following respect: that if an event c causes e, then e does not cause c. But Bassham argues, 'once the possibility (logical and perhaps physical) of backward causation is admitted, should this presumption be retained ?' The following picture, in which an event c(in part) causes an event e, ana e in turn (partially)backward cause c, seems at least to be a conceptual possibility:



The above picture shows that asymmetry is not a necessary feature of causal relation, as Ehring assumes.

7. Basshgm,G."Ehrinc's theory of causal Asymmetry", Analysis Vol. 46, (1986), pp,29-32

Thus, 'causal priority' and 'causal asymmetry' - are not, as Ehring treats them, interchangeable terms, according to Bassham.

Ehring's account of causal priority involves a further assumption that no account of causal priority, as such should involve that every event in the universe is not causally connected to, and counterfactually dependent upon, a first cause. But Bassham asks: How does Ehring's account presuppose this ? Suppose, that there is a first cause c, upon which every event in the universe is counter factually dependent. Suppose further, that we want to establish the causal priority or c to some event e. It is evident that clasue (A) of Ehring's definition is not applicable, since in the present example there is no ccc of c and e which is neither connected causally to c nor to e. Even clause (B) does not apply, since Ehring excludes joint effects of a cause c from counting as a condition of the causal

connection between c and some other effect e.[8] But every event, ex-hypothesi, is causally connected to, and counterfactually dependent upon, c. Thus, every event is a Joint effect of c, and there is no event which can count, as clause (B) requires, as a ccc of c and e. Thus, on Ehring's analysis, we would have to conclude, contrary to Bassham hypothesis, that c is not causally prior to e or to any other event. Therefore, it seems that Ehring's notion of causal priority, in terms of circumstantial character of causal relation, fails to capture the notion of causal asymmetry. We find that during the recent years, there has been an attempt to explain the problem of Causal asymmetry in terms of manipulability.

We pass on to the next chapter.

8. Ehring, D. "Causal Asymmetry, p. 768..

CHAPTER IV

VON WRIGHT'S APPROACH TO THE PROBLEM OF CAUSAL ASYMMETRY

C H A P T E R - IV

VON WRIGHT'S APPROACH TO THE PROBLEM OF CAUSAL ASYMMETRY

In order to account for the asymmetry associated with causal relations manipulability theory has been gaining grounds over other views with a rapid pace. This obviously demands a closer attention towards a comprehensive theory of action. There is an ever growing tendency to discard the causal theory of action, viz; that actions are caused by the intention to act. The revival of interest among the analytic philosophers concerning the theory of action opened the possibility of viewing the causal notions in a larger conceptual frame-work.

Georg Henrik von Wright's analysis of causal asymmetry and that of action open a new direction of philosophical debate. His great contributions in the logic and theory of action obviously play a significant role in his analysis or causality and causal asymmetry. He provided an analysis of causal asymmetry in terms

of manipulability or controlability. Thomas Reid, R.G. Collingwood and Douglas Gasking, to name only a few, had been the predecessors to von Wright in this direction.

According to Collingwood, very roughly speaking, the cause is a voluntary agent which brings about several effects with the help of voluntary actions. He claims that the original and fundamental sense of "cause" occurs in the actions of human beings in relation to other human beings. he also claims that cause form the impression of "compelling* or "causing" some other man to do something when by argument, command, threat or the like, we place him in a situation in which he can only carry out his intentions by doing that thing; and conversely, form the impression of "being compelled" or "caused" to do something. It is this primitive sense of "cause" as directly influencing or even compelling another human agent that is responsible for our tendency to use the language of

i. Collingwood, R.G. - An Essay on metaphysics. Clarendon Press,London,(1940),pp.285-327.

"necessary connection" while speaking of causality. He has given three meanings of cause.[2] The first is, which produces a voluntary act, the second is a means through which a man can bring about or prevent something in nature, and the third is a condition or set of conditions in nature which are invariably accompanied by some change, whether these conditions are within man's control or not. collingwood regards the second of the above sense of causes as "levers", i.e.; means of ends. Similarly, Douglas Gasking has argued in favour of the conception of causes as means to ends, Collingwood refers to causes as levers and Gashing as recipes. His views on the notion of causation is essentially connected with the manipulation technique i.e.; for producing desired results. According to Gasking, 'a statement about the cause of something is very closely connected with "recipes" for producing it or preventing it'.[3] Casking claims that we have a general manipulative technique for making the iron

2. Ibid; part — III.
3. Casking, D. "Causation and Recipes", Mind, Vol.64, (1955), pp.483.

bar to the usual manipulative technique for making things hot, namely; putting on a fire, which in this special case, makes it glow. He says that we do not speak of making iron hot by making it glow. Because, we have no general manipulative model for making things glow without heating it. In other words, we may say that the high temperature causes the glowing, but not vice-versa. This example shows that causal relation must be asymmetrical in nature. We never claimed, according to Gasking that the effect produces the cause. Accordingly, the nature of causal relation, 'cause always produces the effect' in the sense of manipulation. Gasking, therefore, is very much aware of the need for such an analysis of causal asymmetry.

The concept of manipulative causation is more clearly and logically articulated by prof. von Wright. Hehas argued for an 'experimentalist' analysis of certain causal locations and explained that the

experimentalist concept of causation is supposed to capture the desired asymmetry.[4]

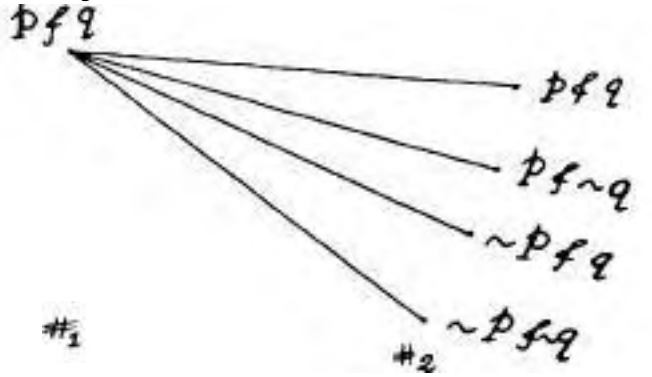
Von Wright develops his ideas by reference to a model of the world that satisfies requirements of logical Atomism. There is a set of n basic states. He says that a state of the world is in conjunction with n terms such that each of the basic states or its negation appears as a term. According to him, occasions are basic units of time (and space). On any occasion 2^n different states are logically possible, Andover m occasions 2^{mn} different histories are logically possible (See Oncological Framework).

Von Wright claims that causal analysis depends on a system. System defines what is physically possible (not everything that is logically possible is physically possible). A System, according to von Wright, is relative to a series of occasions, a

4. See von Wright, G. H. Explanation and Understanding, Routledge & Kegal Paul, (1971), Henceforth, EU and causality, and Determinism, Columbia University Press, New York, (1974), henceforth CD.

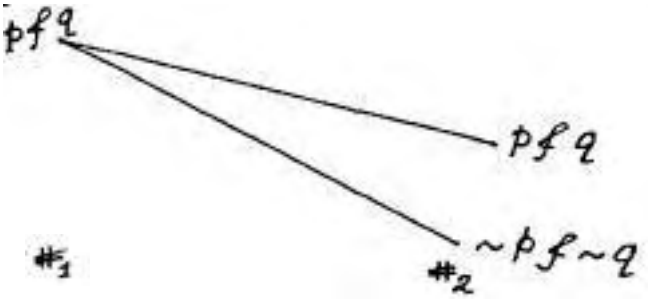
set of basic states, and a starting-point or state. It contains all the physical, possible historical ramifications of the world defined by the n basic states through the m occasions starting with the given starting point or state.

Let us consider a set of two basic states; namely p and q, and also consider two occasions like #1 and #2. Supposing that p & q is our starting-point or state at #1 occasion, there are four logically possible histories by the occasion # 2 :-



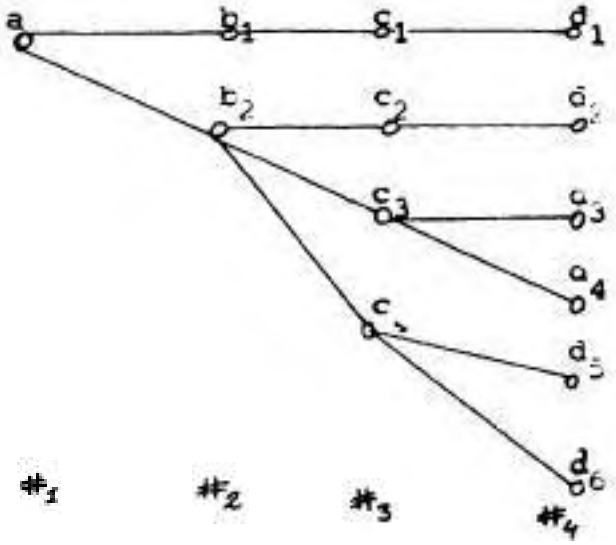
But let us suppose only the top one and the bottom one (of the above picture) are physically possible, Then our relevant system (for the two basic states, the two

occasions, and our starting state) would be the following



It is important to note that, systems are defined in part by reference to a king of physical possibility, according to von Wright.

Let us consider a system with four occasions:



This system has actually passed through four stages, from a to d^1. Each node is a state of the system with basic states $p_i...p_n$. Von Wright defines the top row as the course that nature would take unless (active) interference with the normal course of nature takes place. Thus aTbi (i.e. a and next b_1.) would happen an occasion #1 unless someone acted so that aTb_2 happens. And if we are giver, that b_2 obtains at #2, then $b2Tc_2$ unless someone acted so that $b2Tc_3$ or $b2tc_2$, andso on. Thus we can say that in von Wright's system, an every occasion, nature not only does but would behave in a certain way but for the interference of agents.

Von Wright develops a formal (logical) apparatus for characterizing causal relation. He also adopts an internationalist view for the formulation of the causal relation and rejects the extensionalist approach on the familiar ground that the genuine causal statement

permits us to extract the corresponding counter factual conditionals. After the formulations of the counterfactual conditionals, he goes on to elaborate how a counterfactual conditional can be "verified", if they can be verified at all. Von Wright seems to be on the right track when he says that the ground for asserting a causal counterfactual conditional is an inductive generalisation. Thus a "verification" of a causal counterfactual conditionals will also rnake sure that the generalization is a nomic one. Here he brings in the human "interference with the normal course of nature". For him, the observed regularity does not give us the assurace that it required for the justification of counterfactual conditionals. The assurance rests or; the possibility of free human action, We might have observed in the past that a certain state described by 'p' is always followed by the state described by 'q' but this observation, by itself, is not enough to give us the assurance that this relation. will continue to hold. What gives us the assurance that

this relation will continue to hold is the fact that by bringing about the state of affairs described by 'p' we can bring about the state of affairs described by 'q' and by preventing the state of affairs described by 'p' we can prevent the state of affairs described by 'q' from occurring. This pair of experiments, analogous to that of Mill's methods of difference, give us the assurance that the pair of the states of affairs will continue to exhibit the same relation in future, and consequently the generalization connecting the two states of affairs in question is a nomic one.

For the analysis of the nomic connection in causal relation, von Wright develops a complex formal logical apparatus with reference to an arbitrarily selected "now", ana an arbitrarily selected "total state of the world". The total state of the world immediately succeeding the "now", he calls "tomorrow" and develops a logic of tomorrow. It is similar to

that of a weakened version of his system-M of modal logic.[5] Let us use 'MP' and 'Lp' for symbolizing 'perhaps, the state p will obtain tomorrow' and 'it is of necessity that the state p will obtain tomorrow' respectively. *One* can write 'NMNP' for 'Lp'. The weakening consists in the fact that the principle $p \rightarrow MP$ fails to held. From the fact that the state p obtains now it does not follow that perhaps the state p will obtain tomorrow (or on the next occasion). he then introduces a weakened version of the system—S4 of modal logic as the "logic of future" and symbolizes 'perhaps the state p will obtain on some future occasion', that is, 'the state p is possible at some future stage' in the historical development of the world by 'Vp' and defines 'Ap' as 'NVN'. It means that 'it is of necessity that the state p will obtain at some future stage* in the development of the history of the world. The principle, $p \rightarrow Vp$, fails to hold in the "logic of future" as well, though the principle • $VVp \rightarrow Vp$ (and its dual) holds

5. VonWright.G.H."And Next",Acta Philosophica Fennice, Vol. 18, (1965) , pp.293-304, also see EU pp.45-46 & CD,p.22.

6. The principle *'MMp-->Mp' fail to hold in any normal system of Modal logic.*

good.[7] Von Wright then turns attention towards the past and the total state immediately preceding the "now", he calls "yesterday". The state p obtained yesterday (or; the occasion immediately preceding the "now"), can be symbolized as '$\mathcal{A}$'. The "logic of yesterday" too is a system of modal logic which has not yet received any standard name.[8] Since, ontologically the past is closed, there is no room for the contingent propositions in the "logic of yesterday". But we can shight shift the "now" in the past, that is, we can shift the reference point to some occasion in the past and then we can talk about the future possibilities fro ' that reference point. We shall see that this will enable us to talk about the "lost possibilities" which is essential for the formulations of the counterfactual conditionals referring to the past, that is counterfactual conditionals of the form; 'had there been the state of affairs p (when in fact it was not there), the state of affairs

7. CD.p.23
6. Von Wright prefers to call this system as the system-R of modal logic, - see in CD,p.25

q would have been'. In the "logic of yesterday* every truth is a necessary and every falsity is an impossibility. To say that the state of affairs p obtained yesterday is equivalent to say that it is not the case that the state of affairs p did not obtain yesterday. In symbol, * $^{4}Mp \leftrightarrow N^{4}NP$". Finally, the symbol 'Vp' is introduced in the "logic of past", which is structurally similar to the system -S4.3 of modal logic. It means that 'the state, p has come to obtain in the world either "now* or at some stage in the past'. Correspondingly, 'Ap' defined as'NVNP' to mean that 'the states of p has always obtained in the past including the "now"[9]. This approach immediately invites the problems, viz; what are the real states of affairs that make these modal statements true ? How can we verify or confirm them ?

In terms of the above vocabularies von Wright thinks that we can tolk about a "lost possibility."[10] The state of affairs p is a "lost possibility" means

9. Von Wright,G.H." Always", Theoria. Vol.34, (1968) pp.208-221; also see his CD,p.25

10. CD,p.26

that 'the state of affairs p is not and never was and never will be but there was a time in the past when the state of affairs p might have been(i.e. might have come to be) at some future stage'. In symbol, we can write:

$$\overleftarrow{\Lambda}\ Np \ \& \ \overrightarrow{\Lambda}\ Lp \ \& \ \overleftarrow{V}\overrightarrow{V}p$$

Somestate of affairs, according to von Wright, are "causally necessary". That means, the state of affairs in question not only has, as a matter of fact, obtained on all occasions in the past but it is certain that the state of affairs will always obtain in all future. Von Wright introduces a new symbol for such expression and writes 'Λp'. This symbol stand for 'the state of affairs p is causally necessary'. This can also be defined i terms of the concepts already introduced as fellows:

'the state of affairs p is causally necessary' = 'Λp' = $\overleftarrow{\Lambda} p \ \& \ \Lambda\Lambda p$ *and* 'the state of a fairs p is causally possible' is symbolized as vp. This jis equivalent to

$\sim p \vee \sim p$ = NANP. These he differentiates from the formula 'fl/» $\sim \Box p$ ' and $\sim p \vee \sim p$'. The former, von Wright abreviates as •rtf»• and the latter as '$\sim p$'. We can easily check that '$\Box p \rightarrow \Box p$ • is a valid principle but the converse is not. In fact, '$\Box p \neq N \Box p$ ',for him is the formulation of the "accidental generalization."[11] He seems to forestall the problem regarding the nature of the causally necessary state of affairs and thus says.[12]

" ...it seems obvious that molecular (compound) states may be necessary - more specifically states which are disjunctions of other states. Consider, for example, the compound state $\sim p \vee q$ or which is the same p->q . That this state is causally necessary means that, at every stage in the world's history, necessarily either the state p does not obtain or the state q obtains. In other words necessarily, if p obtains, then q obtains too".

11. CD- pp.26-27
12. Ibid; pp.27-26.

To avoid the paradexes of implication (whether strict or material), he thinks that the state of affairs connected by a nomic tie must themselves be contingent. The symbolic expression for the causal laws would be then something like, Y(p$\mathcal{N}$q) & A(p→q). He also anticipates the problem of the temporal relations. Can any two state of affairs be nomically related when they are temporally separated or to put it in another way, can causal actions be possible at a distance ? However, von Wright recognizes the issue as a "bit problem in the philosophy of causality",[13] and yet puts the problem aside. He only talks of contiguous causation in some details and we can formalize the statements of the form: 'necessarily if the state of affairs p obtains in any stage of the world's history, then the state of affairs q certainly obtains at the next stage' as A ($p \rightarrow \overrightarrow{Lp}$) - which is equivalent to A (Mp → q).

13. CD-p.29

Equipped with these preliminary remarks, von Wright finds himself in a position to talk about the counterfactual conditionals of the form, 'had there been p, q too would have been'. In his classic essay" on conditionals" [14] von Wright discusses the problem of counterfactual conditionals at some length and finds that the ground for asserting a counterfactual conditional may either be deductive or non—deductive, In other words, the components of a counterfactual conditional may be "connected" either logically or not- logically. Such not-logical connection, he calls nomic and concludes:[15]

> "The problem of counterfactual conditional assertion is closely allied to the problem of the ground of induction."

Von Wright's main thesis that a counterfactual conditional asserts a "connection" between two propositions seem to be in the right direction but it will be an oversimplification to call all the "non-logical"

14. Von Wright, G.H. "On Conditionals" in Logical Studies Routledge & Kegan Paul, London, (1957) .pp. 127-165.
15. Ibid., p. 163

connections as "nomic". There may well be other ways of connecting two propositions such that the corresponding counterfactual conditional is quite reasonable. For example, 'if we were to desert our family we would be acting immorally' — is a reasonable counterfactual conditional and yet the connection is not a nomic one. However, for dealing with the problems associated with causal direction, we will require considerations of only these counterfactual conditions whose components are "causally related" or "nomically connected", We shall call such counterfactual conditionals as "causal counterfactual conditionals". That is to say, the assertions of the form would be : 'had the state of affairs p been present, the state of affairs q too would have been present*. It points out to some causal laws by way of which we can say that 'p causes q'. According to von Wright, such causal counterfactual conditionals is a conjunction of four propositions , they "contain four things".[16] The first is 'the state of affairs p is not the case on that occasion' in symbols :~p. The second is that 'it was certain on

16. CD.p.31

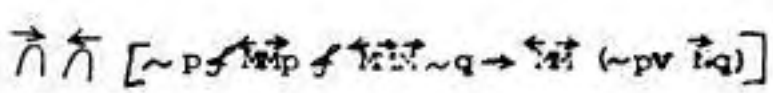
that occasion that either the state of affairs p is not going to obtain on that occasion' (or on the occasion immediately succeeding that occasion). In our symbolism: $\overleftarrow{MN}(\sim pVq)$ or *fa** $(\sim pv\overrightarrow{N}q)$.

This is depending upon whether the state of affairs q is supposed to materialize simultaneously with the state of affairs p or immediately after. Third statement is that 'it was not certain on that occasion that the state of affairs p was not going to obtain? that is, the state of affairs p q as possible on that occasion. In symbolic expression, it would be like :- • $\overleftarrow{M}\overrightarrow{M}$ p'. Finally, the fourth is that, 'it was not certain that the state of affairs q was going to obtain on that occasion'(or on the occasion immediately succeeding that occasion) . In symbols : $\overleftarrow{M}\sim q$ or $\overrightarrow{M}\sim q$. This is also depending upon whether the state of affairs q is supposed to materialize simultaneously with the state of affairs p or immediately after. The full expression of a counterfactual conditional is thus: ~p fittfit/^pVQ) fc*«P & $\overleftarrow{M}\sim q$. or, alternatively, or

~p & fe^ (~pV Nq) & [illegible] & [illegible]. This form is depending upon whether the state of affairs q is supposed to materialize along with the state of affairs p or immediately after.

Obviously such counterfactual conditional are not entailed by the nomic generalizations. The formula '□ (p→q)' or '□ (p→Lq)', for generalizations do not entail that there have been or will be any occasion when the state of affairs p will or did in tact obtain. The extraction of the counterfactual conditional is only for the hypothetical cases where the state of affairs p fails to obtain and it is for all such occasion. The generalized hypothetical counterfactual conditionals are of the form(when p and q are simultaneous),

And when q is supposed to succeed p immediately, it has the following forms



This formula depending upon whether the state of affairs q is supposed to materialize simultaneously with the state of affairs p or immediately after the obtaining of the state of affairs p.

After making so much ground, von Wright proposes to throw some light on the problem of "verification" of the singular causal counterfactual conditionals" which he thinks to be equivalent to the problem of distinguishing the accidental generalisations from the nomic ones. For von Wright, the mere generality is not sufficient to generate the concept of law-likeness, as opposed to Hume. The observation of the regular succession of events may give us a hint of the law likeness but the observation of the regular succession of events or the constant conjunction of phenomena, by itself, is not sufficient to guarantee that such regularity will continue to hold in all future. Here von Wright brings in the concept of human action. He thinks that the concept of law likeness is to be

built on our capacity to act, to "Interfere" with the "normal" course of nature. The "verification" of the causal counterfactual conditionals would require, according to von Wright, considerations of the possible situations of the past, of the "lost possibilities". As he puts it:[17] 17

> " ... what is required for this discussion is a dive under the surface of actual reality into the depths of actualized possibilities, the "lost possibilities" of an ever growing past."

Therefore, von Wright admits that the "verification" of a causal counterfactual conditional, in straight forward sense, is impossible. It can be "verified", only in an <u>oblique</u> way. In some oblique sense, we can "verify" a causal counterfactual conditional by our active "interference" with the world, with the 'normal course of nature'. The very possibility of the "verification" of the causal counterfactual conditionals and hence the criteria of law likeness, according to von Wright, is based on the

17. CD,p.37. and also EU,pp. 71-72.

possibility of "free" human action, of interference with the "normal* course of nature. He says :[18]

> "It is on this possibility.
> viz; of interfering with the
> "normal" course of nature,
> that the possibility of distinguishing
> the nomic from the
> accidental ultimately rests".

He further strengthens his view, which he calls the "experimentalist theory of causation" by an illustration. He asks us to assume 'p' and 'q' to be the descriptions of such logically independent states that whenever the state of affairs described by 'q' has also occurred invariably either simultaneously with the occurrence of the state of affairs described by 'p' or immediately after. To make sure that the connection between the two generic states of affairs described by 'p' and 'q' respectively is a nomic one, we must consider a situation when the state of affairs described by 'p' is not there and we "believe" that the state of affaire in question will not

18. CD,p 39 and EU,p.72

be there on the next occasion unless we bring it about, unless some one produces the state of affairs in question. Moreover, we "feel confident" that some one can bring about the state of affairs described by 'p' on that occasion. We bring about the state of affairs described by 'p' and the state of affairs described by 'q' , which too has been absent on that occasion, "dives up" on that occasion or on the occasion immediately after. This he says "will impress us". To check that the state of affairs described by 'q' would not have cone in any other way, we make a supplementary experiment. In a genetically similar situation, where the state of affairs described by 'p' is absent, we "refrain" from "intervening" and the state of affairs descried by 'p' remains absent. If the state of affairs described by 'p' also remains absent on that occasion or on the occasion immediately after, this will "justify" us in being "impressed"[19]. Von Wright writes:[20] "This will confirm that we were justified in being "impressed" by the result of our

19. CD p.45 and also EU,p.72
20. CD p.45 and also EU,p.72

previous experiment". This he claims to be the nearest. logical possibility of "verification" of the singular causal counterfactual conditionals. Similarly the possibility of establishing that the generalization which entail the causal counterfactual conditional is a nomic one. "what he seems to suggest is that there exists an intrinsic connection between the concept 'cause' and 'nomic necessity' on the one hand and the concept of 'action' and 'agency' on the other. He also seems to suggest that the former concept presuppose the latter ones. According to von Wright, the concepts of 'cause' and 'nomic necessity' is based on the concepts of 'action' and 'agency'. For him the concept of 'nomic necessity' or the concept or 'cause' is derivative of our concept of 'action'. Though, he does not give any argument for this derivation but it seems, that his views closely resemble that of Collingwood[21]. Collingwood distinguishes three different senses of the word "cause" and points out that the anthropogenic conception of 'cause' is the most primitive one-conceptually

21. Collingwood, R.G. An Essay on Metaphysics, pp.285-289

and even historically. The Humean Idea of mere 'constant conjuction' though necessary yet is not sufficient for our idea of causation. Mere succession of the state of affairs does not given us the guarantee that this succession will continue to hold in all future; that is to say, mere generality does not give rise to our notion of "necessity* that is associated with our concept of cause. The idea of "causal necessity" is different from the concept of "logical necessity". The concept of 'causal necessity, is grounded on our ability to act intentionally, to interfere, to bring things about. Von Wright wants to say that it is vital that the state of affairs described by 'p' should be capable of being introduced by our action to be causally efficacious. That is why, von Wright concludes that the manipulative concept of causation is secondary to that of action. He says :[22]

"If a man throughout stood "possive" against nature, i.e; if he did not possess the notion that he can do

22. CD, p.52-53 and also EU, p.82

things, make a difference to the world, then there would be no way of distinguishing the accidental regularity from the causal one. Nor would there be any tray of distinguishing the case when p has the "power" of producing q from the case when some factor r has the "power" of producing the sequence of q upon p. Man would simply not be familiar with the idea of how it would have been, if ... this is the ground for saying that the concept of causal connection rests on the concept of action?

Now we are in a position to analyse von Wright's account of causal asymmetry. his approach to the problem of causal asynmetry is loaded with the concept of action. Von Wright is of the opinion that the notion of 'cause' is dependent, in some sense, on the notion of 'action'. He says that '... p is a cause relative to q, and q an effect relative to p, if and only if, by doing p or prevent it from happening'.[23] He argues that the problem of causal asymmetry demands a closer look at the particular causal situation and it cannot be solved on

23. EU,p.70

the generic level alone. The universal generalizations, by themselves, cannot suffice as a ground for this asymmetry. If we have two different description, like 'p' and 'q' of two different logically Independent generic state of affairs, the two statements 'p is the cause of q' and 'q is the cause of p' - are quite compatible, because the two statements refer to two different causal situations. For instance, von Wright describes a device consisting of two buttons, so connected that, whenever one button is pressed the other simultaneously sinks, and vice-versa; yet one can established the asymmetrical relation between the going down of the two buttons. He says that for the two button-device, "in the case when by doing p(i.e the button to the right sinks down) we bring about q (i.e.; the button to the left sinks down), it is p that is the cause and not q, and in the case when by doing q we bring about p, it is q that is the cause and not p.[24] The above analysis clearly shows that the causal relation is not symmetrical but asymmetrical.

24. EU, p.75

we may suggest, therefore, that human agency is involved in cases of causation.

This suggestion will be more clear when we explain it with the help of von Wright's "two valves" example. According to him, there is a container with two valves, a top one and a bottom one. He also assumes that the valves ere so connected that when the top valve closes, the bottom valve opens, and vice-versa. He further assumes that the two changes take place absolutely simultaneously. From the above example, we become curious to know whether they are causally related, and if so, which is the cause and which is the effect here.

It is clear from the above 'two valves' example that there is some kind of "connecting mechanism." between the valves. But it does not settle the question. It must be assumed, therefore, that we {human beings) can operate the two valves ourselves. For example, we

shut the top one by pressing it with our hand and we can also open the bottom one by putting our hands on it. We do the first and see the bottom valve open. We do the second one and see the top valve close. Under the normal circumstances, we should feel convinced that the changes are causally connected. Moreover, we should not think that on the first of the two occasions, it was the closing of the top valve which made the bottom one to open, and on the second occasion, it was the opening of the bottom valve which caused the top valve to close. Thus, the two changes occur, for all we can see simultaneously; and yet we confidently distinguish then as cause and effect.[25] So the causal order is revealed, according to von Wright, through intentional human interference. The only suitable way to distinguish the cause from the effect is by way of "manipulability" That is, the cause is the one by manipulate the effect. As von Wright puts it :-

"What makes p a cause - factor relative to the effect-factor q is... , the fact that by manipulating p, i.e. by producing changes in it "at will" as we say, we could

25. See for detail analysis CD, pp.63—68

bring about changes in q".[26] That is to say that x is a cause of y if and only if we could bring about changes in y by producing changes in x.

Von Wright is not in favour of the usual positivistlc view that the causal asymmetry can be fully characterised in terms of temporal asymmetry alone. We find that causal symmetry is different from the temporal asymmetry since he thinks that simultaneous causation or even backward causation is a logical possibility. The causal asymmetry can be established independently, without any consideration of the temporal asymmetry. ..e can illustrate this by an example. Where two states of affairs, the cause and the effect appears to have occurred simultaneously, and yet a causal order is detectable. For example, consider a bicycle driver on the move. Be is pedalling and the cycle is moving forward. The fact that the driver is pedalling and the fact that the cycle is moving forward are simultaneous. The simultaneity of the two facts does not for-bid us

26. Von Wright, G.H."On the logic and Epistemology of causal Relation," in Sosa, E(ed)— causation and conditionals, Oxford University Press, Oxford, (1975) p.107.

from differentiating the cause from the effect. The rotation of the rear wheel and the rotation of the padal are simultaneous and yet we are able to identify the causal order. This is, the rotation of the rear wheel is caused by the rotation of the pedal.

From this observation, it seems that we cannot ignore the possibility of simultaneous causation entirely. If we have two states of affairs occurring simultaneously and they are causally related, we must be able to account for the different between the cause ana the effect without any reference to temporal order. This obviously points to the fact that the causal order is quite different from the temporal order. It is admitted that the causes always or nearly always precede their effects in time and we often employ the temporal order to decide which of the two causally connected events is the cause and which one is the effect. But we do not rule out the possibility of an effect occurring simultaneously with its cause. It will be quite justified to recognize a relation which we may call the causal priority as

different from the temporal priority. The relation of causal priority holds in one direction only from the cause to the effect, though it may not be identical with the direction of time. It does not mean that temporal order has no significance in causation. Von Wrightadmits that he is not trying to deny "that time is an essential ingredient in the logical analysis of causation".[27] He only claims that the asymmetry of the causal relation, that is, the separation of cause factors from effect-factors car.not be accounted for in terms of temporal relationships alone. He says that the root of the asymmetry lies elsewhere (i.e. in deliberate human interference.)

The asymmetry of the causal relations are to be understood in terms of the capacity to interfer, or deliberate human intervention. In other words, it is to be determined by our(human) capacity to interfere by the "normal course of nature". The event over which we have a more direct control is the cause. We can

27. EU, p. 43

control the effect only through a control over the cause. At times, we may come across situations where two events are equally amenable to human control and one causes the other. In such situations, we must stick to the particular situation and the cause will be that which has been under human control more directly in that situation. For an illustration of this point we can go back to our example of the bicycle. In this case. let us suppose that the pedal and the rear wheel of the cycle are moving on reverse direction. It is also supposed that the cycle is an ordinary one. Under this situation, we also know that it is the rotation of the rear wheel that causes the pedal to rotate. By retaining the pedal in the reverse direction we cannot make the rear wheel to rotate in the opposite direction or in the backward direction. It is only by retain, the rear wheel that we can make the pedal move in the reverse direction, This observation clearly suggests that the direction of causality is to be understood in terms of human intervention. The cause factor must be amenable to human control more directly than the effect factor.

Therefore, von Wright concludes that effects are the consequence of actions while the causes are the result of the actions. According to him, 'to regard things as being causally related is the intellectual privilege of agents who think that they are, free to interfere with the world'. This he calls as the experimentalist view of causation. It makes the notion of the agency conceptually prior to that of causation. But von Wrightinsists that it is not the interfering or manipulating agent who is the cause, but some event which he has brought about. He very clearly says that to speak of actions themselves as causes of their results is a "bad mistake".[28]

In this context, it is important to make a distinction between doing ana bringing about or the result and the consequence of the action. By doing certain things we bring about something else. For example, by raising the arm, the policeman stops the car. The thing done is the result of an action and

28. EU,p.68

the thing brought about is the consequence of the action. The connection between an action and its result is logical. That is, if the description of the action is a and a corresponding description of the fact is p which materialises due to the performance of a., then p is known as the result of action a. Here, the relation between ' a. and p is a logical one. In symbols: 'Bp→p' ('•Bp' is stand for 'an agent does p'). And if the natural consequence of p is q, then q will be the consequence of that action A. Here the relation between 'p and q' is not logical' but causal one. Let us give a concrete example, suppose by opening a window we let fresh air into the room (i.e. ventilation). The thing done by an action is the result of the action; but the action does not cause the result, since the result is an essential part of the total action itself. What we bring about are the consequences(i.e. effect) of our action. Thus by the result of the act of opening a certain window we can understand either the fact that the window is opening (i.e. change from closed to open) or the fact that it is open. Here the open window is

a result but also part of the action. So the relation between the act and its result is intrinsic (logical). If, the first transformation effected through action, is called the result of an act, then the second is a consequence of the action. In the above example, a consequence of the act of opening a window may be the temperature in a certain room falls. Here the relation between en act ana its consequence is extrinsic (or causal).

Someone may object that the distinction between result and consequence (of action) or. the ground that-what he calls a consequence is quite commonly in ordinary language spoken of as the result of an act, and vice-versa. So there is no difference between the two concepts. Von Wright clearly says that the conceptual distinction between such changes among the states as often display intrinsic and sometimes expresses extrinsic relation to a given act in ordinary language. He also says that the 'defect' of ordinary language is

connected with the fact that the distinction between the result and the consequences of an act, although logically sharp, is at the same time, in an important sense, relative.[29]

Thus, von Wright wants to differentiate the notion of 'action' and 'agency' on the one hand and the notion of 'cause' and ' lawlikeness' on the other. And by extension between the causal counterfactual conditionals ana the counterfactual conditionals associated in action, the result of an action become logically dependent on the action. In other wards, a description of an action will include the description of the result or the action, that is, the counterfactual conditionals associated with actions and agency are conceptual or logical. Whereas the cause-effect relation is to be established through empirical means, that is, the description of the cause-event by itself does not entail the description of the effect-event. That is to say that cause and effect are distinct events. If event A is the cause of event " B, then A and B

29. See for details, von Wright, G.H. Norms And Action, Routledge & Kegan Paul, London (1963) , pp. 35-55.

must be distinct events. Further two distinct events must be logically independent of each other. That is if A is the cause of B, then A should be descripable independently of B and so also B should be describable independently of A. Von Wright agrees with Hume that causal relations are empirical, but he is of the opinion that observation of mere sequence, by itself, is not sufficient ground for our belief that such sequence will continue to hold in all future. According to him, this belief, i.e., the observed regularity will continue to hold in all future, is based on our ability to act, to "interfere" with the "normal" course or nature. But this relations hold between the changes among the states of affairs and not between action and changes among the states of affairs. When by performing an act, we bring about the states of affairs described by p, the state of affairs described by q also obtains as a consequence of our action. Here it is the obtaining of the states of affairs described by p that is the cause at obtaining

of state of affairs described by q. This observation shows that cur actions are not caused by some event or a group of events. We may conclude, therefore, that the cause is more intimately connected with the action, while the effect is an outcome of the action in an indirect way.

It is important to note that according to von Wright, actions are not events, yet a description of an action entails a description of an events. Thus actions are not causes. But some philosophers, particularly the Davisonian group, are of the opinion that actions are events. Hence, actions are caused. At this point, it must be noted that von Wright has a lot to say about the notion of action. It is not surprising that his notion of action plays a significant role in his analysis of causal asymmetry, we must pause a little and take a closer look at his notion of action briefly.

The logic of action forms an integral part of the deontic logic, which von Wright had developed since early fifties. The concept of action is basic to this logic. It is also basic to explain causality, according to him. His Korms and Action - and Practical Reason[31]- are brilliant attempts in this regard. We can decipher two different tendencies from the philosophical literature so for as the logical form of the sentences are concerned, viz; extensional and intentional - depending on the nature of language that is required for the characterization of action.

According to Davidson,[32] actions are nothing but mental events. As actions are events, if they have parts, then the parts Can be causally related, he says that the relation between actions and consequences are causal. The sense of willing, which is a part of basic action, causes the bodily movement which is the

30. Von Wright, G. H. Norm And Action. Rout ledge & Kegan Paul, London,(1963).

31. ----: Practical Reason, Basi; Blackwell, Oxford, (1983), and there are many published and unpublished articles scattered here and there.

32. Davidson, D-"Action,Reasons, and Causes", Journal of philosophy,60 (1963), 685-700; reprinted in white.A.R. (ed) The philosophy of Action, Oxford University Press, London, (1968).

other part of the action. Davidsonian view of action can be called extensional theory of action.

In accordance with this theory, an action acquires its designation due to its particular position in the causal nexus. An action is preceded by a mental event where there is a proposition - "want and desire". Since an explanation of the performance of an action, in this view, is necessary and sufficient to cite the causal antecedents of the bodily movements associated with the action, namely, the agent's wants, desires, beliefs, etc. An immediate consequence- an action is not identical with the associated bodily behaviour; it is a complex event involving at least bodily motions, neurological events and brain events, and also the wanting, believing, etc. are parts of the action performed. And the logical form of such actions or events can very well be captured in terms of first order predicate logic. This line of discussion is very interesting as well as a controversial issue. We are not going for detailed

analysis of this view.[33] Von Wright's notion of action can be said to be intentional. We shall wish to give a brief expository survey of the intensional theory of action. The fundamental units or the building blocks for an intensionalistic theory of action would be propositions or proposition like objects and a monadic operator over them. This is the notion that some propositions are made true by an agent. The basic syntactical expression, in this language would be an agent A performs an act a such that the proposition p is made true. What corresponds to an event, what is brought about, in this framework, is a state of affairs ana a description of which is made true.

The basic insight or the intensionalistic approach towards the action sentences is that action is to be

33. For details analysis, see Davidson, D. "The logical form of Action sentences", in Rescher, N. (ed), The Logic of Decision. and Action, university of Pittsburgh, Pittsburgh, (1966) , pp. 61-95; and his "the Individuation of Events", in Rescher, N.(ed) Essays in Honour of Carl G. Hemple. Reidel, Dordrecht, (1969) pp.216-234; also see Goswami, C-"Bringing about", Indian Philosophical quarterly. Vol. 13, (1936) ,pp. 177-164; and Dewashi, M-"Prof."von Wright on Action", Indian Philosophical quarterly. Stud. Suppl. Vol. 17, July (1990),pp.29-36.

construed as a change among the states of affairs. A proposition is made true by bringing about the corresponding state of affairs. However, the point is to be noted here is that an agent can never do p, which is a sentence, he can only do something which makes the sentence true. Thus, according to von Wright, there is a large class of action of types "doing p" where p is a proposition expressing a state of affairs. The proposition made true by bringing about the corresponding states of affairs. An action, therefore, is to be distinguished from bodily movements. An action, according to von Wright, is essentially Intentional;[34] whereas a bodily movement may just occur. An unintentional bodily movement may be due to some conditioned reflexes. An element of intentionality is always associated with action. No one raises his hand for nothing.

34. Since I use the words 'intentional' and 'intensional' frequently in this section, therefore, I take this opportunity to underline the difference between then. Intentional is used where an action is directed to an objective or aim. This is a subclass of the intensional, which contrasted with extensional. In extensionality, if x is identical with y. then everything true of x will be true of y, and any tern substituted for another with the same reference will have the same truth-values. In intensionality, expressions contain terms for mental states, ana this mean that substituted expressions with the same reference may not have the same truth—values, (this is a logical ana not a psychological distinction).

The requirements of an intensionalist theory of action are as follows :- (1) The agent's behaviour should eventuate in the result of the act, and (ii) By this behaviour, the agent should have intended or aimed at the result in the sense that the actually intended event, the consequence, would causally follow from the result (practical Inference). So the result of an action will be that event which is brought about by the agent where the agent believes that by bringing about the result he will be able to achieve the event he intended. The event so achieved is the consequence. It is to be noted that the first requirement of an intentional action, according to both the theories (i.e., intensional as well as extensional) are the same; but von Wright thinks that an agent is intending a result by his behaviour is not equivalent to that of the behaviour being caused. In his own words:[35] " ... Intentionality is not anything "behind" or "outside" the behaviour. It is not a mental act or characteristic experience accompanying it." Thus, in normal cases, what we see directly is not mere behaviour but intentional

35. EU p.115

action. Von Wright , therefore, rightly says that the theory of action is to be understood "intentionalistically" and it is to be explained "teleologically".

Action is to be explained "teleologically", means, it will be explained in terms of certain purpose or aim. That is to say that an agent achieves a certain result by doing certain thing. For example, 'an agent opens the window'. Here what he achieves thereby is the 'opening of the window? It also implies that an agent has "freedom" to act. He is not predetermined. It may be pointed out that sartre's notion of freedom also implies an ability to act. According to Sartre, man is free. Only objects are predetermined. He says that for a man action is inescapable. One who does not choose, is, in effect, chooses not to choose and to that extent does something for which he can be held responsible. "Not to cheese", Sartre

Says "is. in fact, to choose not to choose[36]. Thus, von Wright says 'to act is intentionally (at will) to brinq about or to prevent a change in the world (in nature)'[37] We may say, therefore, that action has counterfactual elements. Me can express it in the form : 'had there been an action, the possible result too Would have been,.[38]

One may suspect von Wright's notion of action as circular. For, action may be characterized as an event and therefore, it must have a cause. If that is so, then von Wright's argument is obviously circular. It will be circular in the sense that causal relation presupposes action and action in turn presupposes a causal connection.

Wehave already said that according to von Wright, action itself is not cause of anything. Further, since causal relation holds between events and action is not an

36. Sartre, J.P.—Being And Nothingness, (1966),p.84. For an analysis, of this point, see Dewashi,M."Sartre on Human Freedom",I. P.Q. Studt-Suppl, Vol.l5,No. 1, Jan,(1988),pp.31-34.
37. Von Wright.G.H. An Essay in Deontic Logic, North-Holland, (1968),p.38.
38. For detail analysis, see Dr.Goswami,C. "Bringing about".I.P.Q.Vol.13,(1986),pp.177-184.

event but a separate category, it cannot be brought under the causal nexus. Thus, von Wright believes that action is to be explained "teleologically" and not "causally". Teleological , explanations are to be distinguished from the causal explanations in the sense that the former is expressed in an 'in order that vocabulary' and there need not be any' nomic tie' between the explanandum and explanan. On the other hand, in the causal explanation, there exists a nomic tie between the thing explained and the thing in terms of which it is explained. Ana they are usually expressedina because vocabulary. This distinction will be made more clear with the help of a concrete example. For instance, Ram ran in order to catch the train. This is a case of teleological explanation, since Ram's running is conditioned by reaching the station before the departure of the train to fulfill his aim or purpose,i.e., to catch the train. His belief, however, may be mistaken. That means, it is very much possible that Ram would have missed the train no matter how fast he ran. But the teleological explanation of his running may nevertheless be correct. It is a sort of explanation to the

question 'why p ?' in term of the answer 'so that q' or 'in order that q'. On the other hand, 'lightning causes thunder' - is a case of causal explanation. Here we not only mean that in a particular situation, when there was lightning there was thunder too, but we also claim that on any occasion or situation, even when there was no lightning, 'had there been lightning, there would have been thunder too: However, the distinction may be made more clear with the help of 'practical inference', which forms an essential part for any action situation.

The logic of action is represented by a "practical inference" of the following scheme.[39]

1) A Intends to bring about the state p.
11} A consider that he cannot bring about the state p unless he does a..

Therefore,

iii) A sets himself to do a..

here the first premise speaks about A's (agent's) intention to do something which has as its consequence

39. EU,p.96

the fact that p is realised or brought about. In other words, we may say that A Intends to do q such that the result of the action q is the realisation of the state of affairs p. The second premise speaks about A's means-end-belief in the broad sense that his doing £ is factually (or conceptually) necessary for this achieving p. The conclusion describes A's begining to do a. The symbol 'A' 'P' and 'a' play, here, the rate of variables. To obtain a specific practical inference, we have to substitute for A a name or definite description of an agent, for 'p', a goal or result and for 'a' an action respectively. This can be seem in Seller's formulation of "practical inference" His concept of "practical inference" may be set out sechematically as follows:[40]

i) I will bring about E
ii) Unless I do A, I can't bring about E.

Therefore,

iii) I will do A.

It is important to note that the conclusion of the "practical inference" is an "intentional action" and

40. Seller, "practical Inference", appeared in Bruce, A. (ed) Reason and Action. D. Reideal, Dordreach, Holland Boston 'USA, (1977) ,p.158.

not mere behaviour. Without doing an action, we cannot bring about our desired result.

So von Wright's analysis of the "practical inference" entails a thesis about the nature of explanation of action. If the conclusion of a "practical inference" is a true statement of what the agent's intentional act was its premises also constitute an explanation of his action. This type of explanation von Wright calls, "teleological". Unlike traditional accounts of teleological explanation, however, von Wright restricts the explanandum of this kind of explanation to intentional action, for what subsumes diverse behaviours under an end is simply the agent intending that end and his behaviour is to be understood in terms of it. But to intend an end by one's behaviour is to act intentionally and teleological explanation, therefore, presuppose intentional action. Teleological explanation presupposes that the agents behaviour be understood in terms of a "result" which he intends. [41] There is a necessary reciprocity between an enquiry into the

41. For a details account of "teleological explanation" see EU,pp.84-131.

"intentionallty" of an agent's behaviour and 'explanation" of his action. This reciprocity is the key to von Wright's conception of the "practical inference". The premises of a "practical inference" imply an intentional action without the addition of any causal or lowlike statement and therefore, explain the action in a teleological rather than a causal way.

The premises of a "practical inference" lay down the conditions in terms of which to understand the "intentionality" of the agent's behaviour. The "practical inference" is valla because its premises are constituted by the set of conditions in terms of which the conduct of an agent is to be Interpreted or understood. In von Wright's own words:[42]
"... the formal validity of the practical inference requires that the item of behaviour mentioned in its conclusion is described (understood, interpreted) as action, as doing or trying to do something by the agent under consideration. In order to become teleologically explicable, one could say, behaviour must

42. EU,p.l21.

first be intentionalistically understood". The premisea of a "practical inference" imply a statement about the act that an agent's behaviour is understood to be, what he intends (aims at) by his behaviour, regardless of what the mere behaviour is whatever it is, and that is how, we must understand it. Whatever behaviour is occurring, he is acting intentionally. Von Wright's mode of analysis here is different from that of the causal theories. His aim is not to decompose the concept of "intentional action" into its mere basic elements. He regards the concept of "intentional action" and that of "intentionality" as, in a critical sense, irreducible. One does not understand the concept of "intentional action" by first understanding a concept like mere "behaviour" and then adding to it other concepts like "causality" and "desire",. To understand the concept is not to eliminate it is favour of other concepts but to see it in a larger conceptual structure, in a larger conceptual frame work. To understand a concept, therefore, is not to define it in terms of other concepts but to find its relations with other concepts.

It is a great merit of von Wright that he has put forward the logical peculiarities that are associated with the concepts of 'cause' and 'action' and an analysis of them clearly shows that the two concepts are closely related. Any attempt to understand causal asymmetry and the causal notions without any reference to the concept of human action seems to be untenable. Since the relation of cause and effect is to be established in terms of our action and they are usually characterized as an extention of our notions of action. Without human interference, there may only be a regular succession of events, but that they are causally related could not be established. Our confidence in our ability to act in certain definite ways gives rise to the concept of "cause" which is in turn an act of nature. That is to says, according to von Wright, "to act is to interfere with the course of the world, thereby making true something which would not otherwise (i.e., had it not been for this interference) come to be true at that stage of its history "(see-CD,p 34). That which is made true is a description of the result of the action. An action

description (e.g. ' A opened the window) makes explicit reference to the event which was the result of the action (i.e. the window becoming open) and implicit reference to the state of affairs which would have continued to obtain had the agent not acted on that occasion (i.e. the state of affairs of the window's staying closed). This implicit reference is formulated in terms of a counterfactual conditional. Thus von Wright says that every action contains a counterfactual element within it which is of the form; 'had there been no action, the result of the action would not have obtained'. To say that the result of an action has not obtained is simply to say that the action has not been performed. When one brings about the state of affairs p, he acts. This logically entails that the state of affairs described by p is the case; our ability to act presupposes the persistence of the "normal" state of affairs. Thus, von Wright says:[43] "The notion of an action and of ability to act thus presupposes confidence in and familiarity with a certain amount of regularity in the course of events in the world. The confidence

43. CD,p.39, and also in EU,pp.190—91.

we sometimes vest in counterfactual conditional statements to the effect that such and such would have been, had we not interfered with the world".

What seems to be von Wright's suggestion here is that the notions of cause and that of lawlikeness presuppose the concept of action and which in turn presuppose "certain amount of regularity* in nature. He prefers to fall back on the Humean idea of regular succession for the formulation of the causal conditionships, But this does not reduce his merits concerning the clarification of the two concepts. He clearly seem the similarities in the linguistic usages of the two concepts and consequently he finds that the concept of action is needed for the understanding of the notion of 'cause' and to tackle the problem of causal Asymmetry.

Von Wright's analysis of causality and that of causal asymmetry open a new horizon to solve the philosophical problem regarding causation. His theory of action obviously Plays an importance role in his analysis of causal asymmetry. It is fair to say that von Wright has given us the most detailed and systematic statement of the manipulability theory of causation.

Kim says:[44] whether the concept of bringing about q by doing p itself must be analyzed by the use of the concept of 'cause' ana 'causal saymmetry'. He claims that the action concept is not something that should be taken as primitive. He further says that no unitary relation corresponds to the expression "bringing about q by doing p." He offers one of the stock example in the current action theory, 'I signal for a turn by extending my left am. 'Kim points out that this example fits von Wright's formula that by doing p(where p is my left arm being extended), I bring about q(where q is the

44. Klin, J. Book Review: Explanation And Understanding, G.H. von Wright, in The Philosophical Review, vol.82 (1973, pp.380-388.

state of affairs that a signal for a turn is made). From this example, Kim concludes that von Wright's actionist concept of causation is not wholly convincing. That is to say, the arm be extended is not cause of a signal being made. The relation between the former and the latter case is not a causal link but rather the existence of appropriate rules and conventions about signalling.

The gist of Kim's objection is that 'all the cases of bringing about are not causal; they may be conventional'. To get rid of this Kimian objection, we may very well say that von Wright himself has never claimed that causal relation is equal to that of bringing about. However, it is true that all causal relations may be understood in terms of brining about, but converse is not true (that is, all the cases of brining about need not be causally connected). For example, we do say that by killing Mr.X, Y can make Mr.X's wife a widow, but the converse need not be true i.e., 'death of Mr.X' need not be causally related to the fact of 'Mr.X's wife being a widow'. It may be conventional or social.

von Wright clearly says that 'in the case when I being about q by doing p p is the cause ana not q and in case when I bring about p by doing q, q is the cause and not p.'[45] This distinction requires that there is some basic action, i.e., and action which we can do directly and not doing something else. That is to say, if p were a basic action, such as raising my arm, the result of it would be the cause and q the effect even if p and q were simultaneous. This suggests that in order to impose a causal direction in cases of simultaneous causation, human action must in fact be involved. It is clear, therefore, that even in simultaneous causation, where temporal factor fails to establish causal asymmetry, human action comes to our aid.

Further Kim points out that in order to understand causal asymmetry, in the cases of simultaneous causation, von Wright introduced 'human action'. That is to say, human action is needed if there is a genuine case of simultaneous causation. But in response to another objection. Von Wright himself says that he is uncertain

45. EU, p.70

about the existence of simultaneous causation. Hence it seems, according to him, that there is no significant role of human action to understand causal asymmetry,

We may say that it is true that von Wright himself says: '...I am therefore, not certain whether genuine example of simultaneous causation can be found''[46]. But von Bright's this remark does not rule out the possibility of simultaneous causation. If we agree that at least theretically, simultaneous causation is possible then nobody can deny the importance of human action to understand causal asymmetry. He states that 'p is a cause relative to q, and q an effect relative to p, if and only if by doing p we could bring about q or by suppressing p we could remove q or prevent it from happening' (EU,p.70). But it may seen that there are obvious counter-instances to such a view. For example, the eruption of vesuvious was the cause of the destruction of Pompeii. however, human beings can not make volcanoes erupt, or prevent then from erupting. His answer may be such that the eruption of a volcane and the destruction of a city

46. EU,p.76

are both very complex events, and that within each of these complex events, we can distinguish a vast number of events between which there hold causal connections of this kind. Let us suppose that the Pompeii is an instance of the causal law that the roof of a house will collapse under a certain load- and such a collapse is southing that we can easily produce or prevent.

Manipulability theory, in roost of its forms, implies that the truth values of causal statements are relative to the capacities of certain agents and thus may vary from person to person and over time, contrary to our intuition that such statements are not relative in this sense[47]. Von Wright's concept of agent is not like an individual agent, viz; x,y,z, etc. His notion of agent represent refers to an ideal agent which need not vary from person to person and over time. Thus in von Wrightian schema, the truth value of causal statements are not relative to persons though it may be relative to a theory.

47. Ehring,D. "Causal Asymmetry",The Journal of Philosophy, Vol.79,(1982).pp.761-774.

The Manipulability theory is ultimately circular, since "doing p" is to be analysed in causal terms. In other words, manipulation is a type of action, and it seems quite plausible that action necessarily involves a causal relation between mental events and events brought about by the action. It would seem, therefore, that any account or causal priority or asymmetry that Involves the concept of manipulation will suffer from circularity.

Thenotion of action, according to von Wright, is not an event. Thus it is neither cause nor it can be explained in causal term. According to von Wright, action is analysed only in teleologlcal term. So we may very well say that vonWritht'sconcept of manipulability is free from this circularity.

From the above critical discussions, it seems that most of the criticisms on vonWritht'sledas, are

based on some misunderstanding of his views on cause and action. According to von Wright, the relation of cause and effect is to be established in terms of our action. Without human interference, there may only be a regular succession of events but that they are causally related could not be established. Our confidence in our ability to act in certain definite ways gives rise to the concept of cause which in turn can be thought of as act of nature.

CHAPTER V

CONCLUSION

CHAPTER-V

CONCLUSION

We have devoted considerable effort and space to review the ideas of Collingwood, Gasking and particularly von Wright. We also have taken into consideration some of the criticisms raised against the experimentalist theory, especially by J.Kim and Douglas Ehring. Further we tried to defend the experimentalist or manipulative theory as far as we could.

Causal relations, as we have seen, are basically anthropomorphic. The recent attempts to strip the causal notions from the traces of anthropomorphism have not been fully successful. We are not at all convinced that only 'primitive' people or the Greeks thought of causation on the model of human agency. In recent times anthropologists, such as Evans-Pritchard and Max Glucktnan, report that in some cases where ill ensues for the people concerned

there is a belief in a double causation.[1] For example, Mr.Jadu's hut falls down because termites have eaten the basis of its supports. But the question is: why should they have attacked Mr.Jadu's hut and not the next man's ? That means, it is clear that termites eating away supports will cause them to collapse - it is the particular person which needs further explanation. So the cause may be seen as some kind of agency, though not a personal one. Where agency is personal, aitia as guilt may be imputed. If it is not personal, aitia as guilt may pass over into being aitia as cause,[2] shedding the ascription as responsibility.

Nevertheless, the notion of agency, in aitia as cause may still be reminiscent of the notion of human agency. It *is* not only a puzzle for primitives, but also for contemporary philosophers. It has been well said by Austin, that the word ' cause' snares us; that

1. See for details analysis, Moral coral Crises"- Magical and secular Solution", in Max Gluckman, (ed)-The Allocation of Responsibility, Manchester. (1972) ,p.6; where Evens Princhard's views are also discussed.
2. For the background of the notion of aitia as bearing an imputation of guilt and responsibility, and the carrying over of this into its causal use, see Lloyed. G. Maqic, Reason and experience, Cambridge, (l979),p.49.

is, we are struggling to ascribe to it a new, unanthropomorphic meaning, yet constantly, in searching for its analysis, we unearth and incorporate the lineaments of the ancient model.[3] Therefore, we say that all the versions of the experimentalist or manipulative theory currently available trace the anthropomorphism in causality to human intervention into the normal course of natural events. Someone may ask that if this is the case, how would we react to such a counter example: The pull of the moon causing tide formations on earth ?

Before answering the above counter-example, we must keep in mind that the entities which we relate in terms of the causal relations are abstractions from nature, and the metaphysical scheme that we have envisaged in the introduction (sees Ontological Framework) following Wittgenstein and von Wright, seems to be best suited for the understanding of the causal asymmetry

3. Austrin, J.L.-"A plea for excuses", in Urmson & Wornok(ed)-Philosophical Papers, Oxford, (1961) ,pp. 150-151,

and the causal language. The structure of time will also be taken as a discrete medium, that is, the density of the successive moments of tine is that of rational numbers and is not that of real numbers. Me have to divide time into segments in order to talk about nature meaningfully. We inevitably do it in terms of days, hours, seconds or may be even micro-seconds. The notions of "before" and "after" need not presuppose the time media as discrete in the sense that for any two points in time, we can find a point of time such that the intermediate point can be suitably related with the two points of time in terms of the relations of "before' and "after". Similarly, the notions of "then" and "always"[4] need not presuppose the time madia as discrete. But for the formulation of the causal relations in terms of the states of affairs and changes among the states of affairs, the notion of "next" is inevitable which clearly demands for a discrete time medium. The notion of"next" is inevitable for the expressions required for the formulations of the changes among the states of

4. Von Wright, G.H.-"And Then", Societies Scientiarm Fennica,32.(1966),pp.1-11.

affairs. A "change" among the states of affairs means two non-identical states of affairs at two successive moment. Successiveness demands a discreteness among the entities which are arranged through the notion of a successor function. If- each point has a unique successor, except the end point, it forms a chain. Temporal sequence is a chain of moments and in this sense the temporal medium is to be taken as discrete. Or the density of the moments in time (possible worlds) is that of rational numbers and not that of real number.

With these remarks, we may try to answer the earlier mentioned counter-example against manipulability or experimentalist theory. The examples 'Pull of the moon causing tide formation on earth' — shows that it is an example of causation in nature without any human intervention or is an example of natural causation. Natural causation means that a causal relation is determined in terms of 'natural laws'. Here, in accordance with natural laws, that is, 'the pulling of the moon'

brought about the so called changes on earth, that is, 'tide formation on earth'. But we have already mentioned that causal relations are nothing but abstractions from nature. To understand the phenomena of change in nature, we need the help of manipulative or experimentalist theory of causation. We can very well understand the 'pull of the moon causing the tide formation on earth', in the light of a miniature model replicating similar phenomena. Let us suppose that we have a puller infornt of a deepwell. If we pull, then water will come, or the way a physician takes out the liquid medicine from a vial through a syring. This miniature model, when extended to nature, helps us in understanding natural changes. In the present example, the moon, like an agent, pulls, it orings about the tide formation on earth. This relation also shows that it is asymmetrical. That is,'the pulling on the moon' causes 'the tide formation on earth' and not the other way round. Since 'pulling' is more directly amenable to human control than that of 'tide

formation' or 'accumulation of water at a place from surrounding areas in sea'.

One may venture to say that our view cones very close to that of von Wright, von Wright explains causal connection in terms of human agency. He is of the opinion that for an understanding of the idea of causation, we must understand the idea of causation, we must understand the idea of action and agency. The idea of causation is "conceptually" dependent on the idea of action. He further classifies his opinion by claiming that when we say that a generic event A is the cause of another generic event *B,* what we mean is that we can influence a B-type of event by influencing an A type of event and not vice-versa.

One may argue that given von Wright's explanation of causal relation, anyone who says that we can influence X by manipulating Y because Y and X are causally related would be guilty of the sorae error as the physician

In Le Malade Imaginaire, who proclaimed that opium tends to put people to sleep because it has a dermative virtue.[5] But the thing which, in von Wright's view, we roust not say, is something which sensible persons constantly do say. This Indicates that von Wright has not quite succeeded in capturing our everyday concept of causal connection.

In response to this objection we may say, attribution of such a view to von Wright is quite beside the point. Von Wright clearly makes a distinction between the causal ideas in the realm of natural states of affairs and in the realm of human states of affairs; he considers causal relations only in the realm of natural phenomenal for human phenomena, he prefers the term teleologlcal rather than causal. In the above example, the cause, 'dormative virtue', is clearly a human state of affairs ana not a natural state of affairs, though the effect, 'opium tending people to sleep', is a natural state of affairs. Such causal connection can

5. Moliere-Le Malade Imaqinaire, trosieme intermeon.

only be attributed to von Wright's view at the cost of "category mistake", so to say.

With an amendment of von Wright's view on causation, we may claim that many difficulties are removed. The commonsensical claims that we can influence X by manipulating Y because Y and X are causally connected, amounts to sayings We can Influence X by manipulating Y because any natural agent who was able to manipulate Y could thereby influence X. What humans can do is explained by being deduced from a generalization about what any natural agent with the requisite ability could do a clear case of explaining one regularity by subsuming it under a more comprehensive one. In that case we need not, as von Wright does, claim that the category of causality is totally alien for human phenomena. We may, then take into consideration, the cases of social engineering, social (human) phenomena are also causally linked through human intervention, we may also pay a closer attention to the modern Management

techniques which again is based on the human interve-ntion in the realm of social phenomena, Moreover, even in the realm of natural phenomena, it becomes easier to explain the causal connections for the events related to geological past or astronomical predictions.

Von Wright has noted the resemblance between 'causes' and 'actions', yet he falls victim to the Humean idea of "regular succession" of the state of affairs. He is only able to explain the causal regularities in terms of some other regularities of nature. A regularity in the "change" among the states of affairs is dependent on human intervention, according to von Wright. Our notion of 'cause' is loaded with the concept of 'action'. But a von Wrightean analysis of the notion of cause being dependent on action, assumes a circularity. Since, he makes a distinction between the result and consequence of an action and a perfect description of an action must include the intended consequence. The practical inference employed in action presupposes a regularity

in nature, and the causal regularity is established through action. It seems, therefore, that the notion of action, if taken as an extension of the concept of our action, the circularity nay be avoided.

When an action is performed, something is brought about, some event takes place. By the very fact that we describe it as an action performed by an agent, we assign responsibility to him. This assigning of responsibility to an agent implies that he could have done otherwise. This brings us face to face with the concept of an agent, an agent who can act freely who has a choice. A mere behaviour is a response to a stimulus. Such responses or behaviour nay be found in any object in the world. The objects in the world may behave in a certain fashion, but such behaviour need not turn the object into an agent. To be an agent, to act, one must have some comprehension regarding the objects in the world and their behaviour, as if the agent himself /her self is not an object in the world, to act upon them. Such a distancing is conceptually necessary

for an agent, though he/she is never totally cut off from the world. Such a distancing or separation of the agent from the world may be termed as a 'being-of-the world', while mere objects or even changes taking place, are in-the-world.'*

From this point of view, we may say that an agent is assumed to be a "being-off-the-world" who is capable of contemplating, who, as a congniser, must have cognised (or at least contemplated) the consequences. An agent, in order to be an agent, roust separate himself/herself from the mere objecthood of being-in-the world, yet the agent connot be totally lifted out of the world and assigned a place beyond it. He maintains contact with the world by deriving his group identity through some socially given myths or lebenswelt. The agent's subjective intentionality gets objectified through the socially accepted norms and myths of the society to which he belongs. This does not mean that an agent acts with a complete obedience to the social norms. On

* This terminology of 'being-in-the-world' and 'being-off-the-world' - was suggested to me by Dr.Chinmoy Goswaml. He has used these terminologies in one of his papers "on the logical Form of Action Sentences", presented in a symposium on Human Action organised by Indian Philosophical Association in Bombay on June 5,1990

the contrary, the role played by an individual is never totally determined. An agent, performs within a broad framework, which is made available to him by the society to which he belongs. But minute details are always filled in and interpreted by the agent himself. Through a process of contemplation, cognition, etc., an agent makes a non-actual possibility actual. The actualisations of the non-actual possibles, are actions. The very idea of a possibility emarges from a being-off-the-world. Only by separating himself/herself from the world, one can look beyond. A mere being-in-the-world, grapples with only 'is' but a hybrid being-in-off-the-world tries to grapple with both 'is' s and 'could be's' or •might be 's'. In order to differentiate actions from events, to act, there is a primacy of the being-off-the-world over the being-in-the world, a cognition is necessary to form an intention, a directedness towards a good, to have a teleological model for action.

Human actions are directed towards some end, that is, something in the future is aimed at by our actions.

But the causal notion seems to be baaed on the concept of our actions in the sense that they are that 'acts' of nature and we find out the relation in terms of something in the past, as in the case of causal explanations and in terms of something in the future, as in the case of prediction. It is admittedly an anthropocentic mode of understanding which always lies beneath our everyday understanding. We have learnt it in our childhood and it is not possible to disregard it totally. However hard we may try to free ourselves from the anthropomorphic notions in the name of objectivity or science.

If we suppose that causal relations held for the "changes" among the states of affairs, and our actions have consequences then we also must accept that nature does move or change, by itself. It is true that cor intervention can bring about a change in the existing state of affairs, but one cannot deny that "changes" among the states of affairs are also brought about even without our intervention. The causal efficaciousness

is to be compared with the performing of our actions while the persistence of states of affairs may be compared with the non-performing of any action. Of course, the distinction between the "result" of an action and its "consequence" will be fused or even may collapse in case of the "acts" of nature, but that there are consequences of our actions is an evidence to the fact that nature changes by itself, without any human intervention as well. Nature is to be seen as an "agent" who can "act". It may be the case that we may not be interested to assign any sense of rationality or value in nature but that is no obstacle or hindrance for assuming that nature can "act" (or behave) in certain ways. We may not be interested in explaining the "acts" of nature in. the sane teleological way as we do for the human actions as we do not assign any "intentionality' to nature or to the "acts" of nature. The ways in which nature usually "acts" (behaves), we call - causal relation. Action and behaviour coincide. The distinction between action and behaviour collapse. Nature's actions are her behaviours, the way

she behaves. Understanding of nature, its laws and functions is the key to the problem of causality and we must accept that our understanding of nature, its ways of behaviour is, at least partly, based on our understanding of ourselves. Since the days of primitive (early) understanding, animistic ideas have been spreading their roots. It is believed that a growing child, from its birth to maturity undergoes through the developments of human history from "early" man to "modern" man during the 'Journey of an individual through early childhood to maturity gathers animistic beliefs; Consequently, animism has deeper roots than is usually believed in the modern scientific world. Any attempt to remove all the traces of animism from the process of understanding is not only futile but there is no intellectual virtue In it.

Von Wright claims that the notion of causation is conseptually dependent on the concept of action. His theory of action presents certain logical peculiarities which are closely related with the concept at cause and

yet he fails to recognise that the concept of cause is only an extension of our concept of action. Nevertheless, he provides a very clear account of both the concepts of cause and that of action. He himself, at certain places, points out that the logical behaviour of the two concepts are very close and their behaviour in language almost coincide. Von Wright clearly sees the similarities in the linguistic usage of the two concepts and consequently he finds that the concept of action is needed for the understanding of the notion of 'cause'. We would like to say that the very notion of 'cause' is anthropocentric. It may not be a proof but enough evidences in support of anthropocentricism of the causal notions that in most of the natural languages, we find the causal notions quite intricately connected with the notion of agency -and action.

It may appear that, we have deviated a long way from our main concern-the problem of causal asymmetry. The deviation has not been without reason. The problem of causal asymmetry can only rnake sense when one has a

vivid picture of the notion of causal relation itself. The notion of causal relation itself has been a problematic issue. We had to devote some space on the idea of causal relation itself, as our main problem- the problem of causal asymmetry — is dependent on it. Once we have a fairly clear picture of the notion of causal relation, we may hope to shed some light on the problem of causal asymmetry, which, as expected follows naturally.

The notions of "cause" and that of "action" are closely related with each other. Since the concept of "cause" can only be well understood in terms of "action" or in terms of ideas connected with action. Causal notion is an extension of the notion of "action". Causal relation, the 'cement of the Universe' binds the phenomena together. Through the discovery of causal relations a consmos is discovered amidst chaos. But such cognations are possible only through actions. Actions alone opens the doors for cognition. There is an interdependence between action and cognition, in general. It is through action, we cognise and with some knowledge about the

world we act upon it. Cognition of causal relations is more heavily dependent on the notion of action since causally connected events are supposed to be the result and consequence of an "act" of nature or even "act" of nature and its result.

In the light of such a view, the problem of causal asymmetry takes a peculiar turn. This problem comes to sharper focus when we consider singular causal statements. Singular causal statements have a particular spatio-temporal location. Consequently, philosophers were tempted to equate causal priority with time. That is to say, temporal factor play a significant role in it. Some philosophers are of the opinion that the asymmetry displayed in the causal relation is due to the linear nature of time. They rule out any possbility of causes and effects being simultaneous.

Onemay not be able to put aside the possibility of simultaneous causation under a deeper logical and metaphysical scrutiny. If one believes that the nature

of time is continuous, then it may not be problematic. One can always allow a small time between the cause and the effect. A description of the cause must have a duration in time, so has the description of the effect. Assuming, the time medium to be continuous, one can always put something in between and hence causal priority can be equated with the temporal priority. However, to believe that time is continuous will be hypothetical. It is impossible to capture the continuous time media is in our common language, even measurement of time impossible. We have assumed that the time medium is discrete, in order to express causal relation in language. Once we assume, time media is discrete, the problem of simultaneous causation is unavoidable. If cause and effect are two distinct moments then there must be something in between to connect them. The element in between can very well serve as the effect or the cause. One way to eseape the dilemma is to accept that the effect is not prior to cause. This obviously opens up the possibility of the effect being simultaneous with the cause. In that case time factor is not at all a helpful

guide to differentiate between the cause and the effect. It may be claimed that mere time factor is not able to solve the problem of causal asymmetry. Since, in simultaneous causation, there is no time gap between the cause factor ana the effect factor.

We may conclude, therefore, that the asymmetrical character of the causal relations are to be understood in terms of human intervention. The event over which we have a more direct control is the cause. We can control the effect only through a control over the cause. In other words, the event which can be brought about by an agent more directly is a more plausible candidate for being the cause, while the consequence of the action is the effect of the event brought about by the action. At times, we may come across where two events are equally amenable to human control and one causes the other. In such situations, we roust strick to the particular causal situation and the cause will be that one which has been under human (agent's) control more directly in that situation. The cause factor must be amenable to human control, at least, theoretically.

more directly than the effect factor. This approach is a different account of causal asymmetry which deviates considerably from the traditional ideas of mere "constant conjuction" or "temporal asymmetry", without the help of temporal factor, it solves the problem of causal asymmetry. Moreover, the present approach to causation, if suitably amended, may shed some light on the other associated problems mentioned earlier (in chapter-2). It can be easily shown that the cause can very well be singled out from the conditions through the possibility of human intervention in each singular causal situation. The factor, from among the many factors present, is called the cause which has been under more direct human control than the effect in any causal situation. In fact that is how we single out 'striking of the match' as the cause for 'the match stick cot ignited'. Similar is the case with the counterfactual dependence. The result of an action is counterfactually dependent on action, though this counterfactulity is logical. The logical necessity of the counterfactual associated with action retains

its necessity but loses its logicality in case of the "acts" of nature due to epistemic uncertainties. Thus the notion of action, which the positivists thought as an off-shoot of animism, in connection with any scientific enquiry comes out to be an extremely useful, practical ana handy concept for an understanding or the causal concepts. It also comes out to be the case that the notion of action lends adequate support in solving many problem, associated with the causal notion. Obviously the logic of causal asymmetry is the logic of the asymmetrical relation between the action and its result while the knowledge of causal priority is directly obtained through the amenability or the fact or to human control.

SELECTED BIBLIOGRAPHY

CLASSICAL TEXTS ON CAUSATION

Aristotle : Physics

: Metaphysics

Collingwood, R.G. : An Essay on Metaphysics, Clarendon Press, Oxford, (1940).

Hume, D. : A Treatise on Human Nature, L.A. Selby-Bigge edition, London(1888).

: An Inquiry Concerning The Human Understanding, L. A. Selby-Bigge edition, London,(1902).

Kant, I. : critique of Pure Reason, Translated by Norman Kemp Smith, London,(1929)

Reid, Thomas : Philosophical works, Hamilton edition, Edinburgh,(1895).

Sorabji, R. : Necessity, Cause and Blame, perspectives on Aristotle's theory, Cornell University Press, (1980) .

WORKS ON THE HISTORY OF CAUSATION

Allan, D.J. : "Causality Ancent and Modern", Proceedings of the Aristotelian Society (Supplementary Volume), 44, (1965).pp. 1 - 18.

Anscombe, G.E.M. : "Whatever has a beginning of existence must have cause : Hume's argument exposed", Analysis, 34,(1974),pp.l45-151.

: "Causality and Determinism", Appeared in SOSA, E(ed) Causation and conditionals, Oxford,(1975), pp.63-81.

Aronson, J. : "The legacy of Hume's Analysis of Causation", Studies in History and Philosophy of Science, Vol.2 (1971), pp.135-156.

Beunchamp, Tom. : "Hume's Two Theories of cusation" Archive Fuer Begriffsgeschichte, 55,(1973), pp.281-300.

: "Hume on causal contiguity and causal Succession", Dialogue, 13,(1974), pp.271-281.

Brown, N. : "A Kind of Necessary Truth", Philosophy, 50,(1975) ,pp.37-54.

Chakarborty, T.K. : " Hume's Definitions of cause", The Journal of ICPR,2 (1985) pp.67-75.

Cumins, Rober : "States, causes and the Lav of Inertia", Philosophical Studies, 29,(1976),pp.21-36.

Ducasse, C.J. : "Critique of Hume's conception of causality" Journal of Philosophy, 62,(1966).

: "On the Nature and the observability of the causal Relation", Journal of Philosophy, 23, (1926), pp.57-67, and also reprinted in Sosa,E(ed) Causation and conditionals, (1975), pp.114-125.

Frankel, Henry : "Harre on Causation", Philosophy of Science, 43,(1976), pp.560-569.

Genova, A.C. : "On Anscocnbe's Exposition of Hume", Analysis, 35,(1974),pp.57-62.

Goodman, Nelson : Fact, Fiction and Forecast, Harvard University Press,(1955).

Gomberg, Paul : "coherence and Causal Inference, Canadian in Hume's Treaties", Canadian Journal of Philosophy, 6,(1976),pp.693-704.

Goudge, T. A. : "Causal Explanation in Natural History", The British Journal for the philosophy of Science, 9,(1958) pp.194-202.

Gray, Robert : "A Refutation of Hume's theory of causation", Hume Studies, 2 (1976) , pp.76-85.

Hartshorme, C : "Causal Necessities: An Alternative to Hume", The Philosophical Review, 62,(1954),pp.479-499.

Hocutt, M. : "Aristotle's Four Because", Philosophy, 2(1974),pp.385-399.

Imlly, Robert, A : "Hausman on certainty and necessity in Hume", Hume Studies, 2(1979) pp.47-50.

Kearney, John, K « "Lock, Hume and the principle of causality; A note", Thomist,41, (1977),pp. 418-423.

Lerner, Daniel, (ed) : " Cause and Effect, Free Press, London,(1965).

Lewis, D. : "Causation", Journal of Philosophy, 70,(1973),pp.558-567.

Lucas, J.R. : "Causation", appeared in Butler, R.J. (ed). Analytical Philosophy, First Series, Basil Blackwell, (1966) ,pp. 32-65.

Mare-Wogan, K, :"On Historical Explanation", Theoria, 28,(1962),pp.213-233.

Madden, E.H. : "Hume and the Fiery Furnace", Philosophy of Science, 28,(1971), pp.64-78.

Mack, Eric. : "Causing and Falling to Prevent", South-west Journal of Philosophy, 7(1976), pp.83-90.

Mure, G.R.G. : "cause and Because in Aristotle", Philosophy, 50,(1975),pp.356-357.

Passmore,John : "Explanation in Everyday Life,Science and in History", History and Theory, 2,(1962),pp.15-38.

Parkinson, G.H.R. : "Different types of Causation"in his(ed) Encyclopedia of Philosophy. (1988), pp.279-300.

Qakeshott, M. : "Historical continuity and causal Analysis", in Draky,W.H. (ed.) Philosophical Analysis and History. Harper & Row, New York,(1966),pp.193-212.

Rosebery, A. : "Causation and Recipes: The Mixture as before", Philosophical studies, 24, (1973).

Robinson, J. A. : "Hume's Two Definitions of cause", The Philosophical Quarterly,12, (1962), pp.145-157.

Shorter, J. M. : "causality and a method of Analysis", in Butler, R. J. (ed) Analytical philosophy, 2nd Series, Basil Blackwell, Oxford,(1958), pp.145-157.

Sievert, D. : "Hume secret power and Induction", Philosophical studies, 25.(1974), pp.247 - 260.

Silberstein, L. : Causality. Macmillan, London, (1983) .

Smith, wrynn. : "Kant and the General law of Causality", Philosophical Studies,32,(1977), pp,113 - 128.

Sprigge,T.L.S. : "Final causes", Proceedings of the Aristotelian Society, (Supplementary) 45,(1971)pp.149 - 170.

Stround, Barry. : "Hume and idea of causal Necessity:, Philosophy of Science,29(1978), pp.39-59.

Todd,Robert,B : "The four causes: Aristotle's exposition and the ancients", Journal of the History of Ideas, 34,(1976),pp.319 - 322.

Tooley, M : "Laws and causal Relations", Midwest Studies in Philosophy,9, (1984) , pp.93 - 112.

: "Causation: A Realist Approach, Clarendon Press,Oxford, (1987)

Troy,Organ : " Causality Indian and Greek" Philosophy East and West, (1976) , pp.48 - 67.

Volfe, T. : "Mill on Causality",The Personalist 57,(1976),pp.96 - 97.

Zeigler, Geogory, M : "Hume's view of the causal Relation", The Persopalist,56, (1975) ,pp.351-363.

WORKS ON ONTOLOGICAL AND SEMANTICAL FRAMEWORK

Bishop, John : "Is Agent-Causality a conceptual Primitive ?", Synthese, 67, (1966), 225 - 247.

Emmet, D. : "How near can a cause get to its effect?". The philosophical quarterly,38.(1988),455-470.

: The Effectiveness of Cause Chapter-Ill &IV, Macmillion, London (1984), 17-41.

Gjelsvik, Olav. : "A notes on objects and Events", Analysis, 48.(1988), 15-17.

Hacker, P. M. S. : "Events" Ontology and Grammer", Philosophy, 57,(1982).

Helm, P. : "Are Cambridge changes Non-events7", Analysis,.25,(1975), 140-144.

Kim, J. : "Causes and Events: Mackie on Causation", The Journal of Philosophy,67, (1971) .426-441.

: "Causation, Nomic Subsumption and the concept of Event".The Journal of Philosophy.70(1973). pp.217-236.

: "Causation, Emphasis and Events", Midwest Studies in Philosophy, 2, (1977), 100-103.

Kybury, H(Jr.) : "Chance", Journal of philosophical Logic, 5, (1976),355-394).

Loiss, Frankel : "Mutual Causation, Simultanety and Event Description", Philosophical studies, 49, (1986), 361 - 372.

Menzies, P. : "A Unified Account of causal Relata", Auatralasion Journal of Philosophy, 67. (1989) ,172-189.

Wunsat, Stanley. : "What is process?" American Philosophical Quarterly, 6 (1969) .

Riker,W.H. : "Causes of Events", Journal of Philosophy, 55,(1958),281-291.

Rita,Gupta : "Agent causation and Event-Causation", Indian Philosophical Quarterly, 14(1987), 409-430.

Rosenber, A : "On Kim's account of Events and Event-idenlity", Journal of Philosophy, 71,(1973),551-556.

Ruddick,W. : "Causal Connection", Synthese, 18(1968),46-47.

Russell, B.A.W. : "On the Notion of cause", Proceedings of the Aristotelian society,13(1912/13),1-26; reprinted in his Mysticism and Logic, George Allen and Unwin Ltd. London, (1917), 132-151.

Shoemaker, S. : "Causality and properties" in Invagen, von. P(ed) .Time and Cause. (1980), 109-135.

Suppes, Patrick. : "A Probabilistic Theory of Causality, North-Holland publication, Amsterdam(1970).

Thalberg, Irving. : "The Irreducibility of Events", Analysis. 38, (1978), 1-9.

Waiting, John : "Are causes Events or fact?" Proceedings of the Aristotelian Society, 74, (1973/74) , pp.161-1170.

CAUSAL ASYMMETRY & REGULARITY

Ayer, A.J. : The Problem of Knowledge, Harmondsworth Penguin,(1956), pp.170-175.

Berofoky, B. : Determinism, Princeton University Press,(1971),pp.42-128.

Black, M. :"Why cannot an Effect Precede its cause"? Analysis,16,(1955),pp.49-58.

Brown, E. : "Direction of causation", Mind, 83, (1979),pp.335-350.

Costa, Michael, J :"Hume's Argument for Temporal Priority of cause over effect", Analysis, 46,(1986),pp.89-82.

:"Hume and Causal Realism", Australasian Journal of Philosophy,67, (1989), pp.172-189.

Davidson, D. : "Causal Relations", Journal of Philosophy,21,(1967),pp.691-703.

Denbigh, Kenneth, G. :"Time and Change", Diogenes, (1975), pp.1-20.

Dumraett, M. : "Bringing about the past", The Philosophical Review, 73, (1964). pp.338 - 359.

: "Can an effect Precede its cause?" Proceedings of the Aristotelian Society, (1954), pp.27-44.

Earman, John : "Notes on the causal theory of time", Synthese, 24, (1972), pp. 74-66.

Evandro, Agazzi : "Time and Causality", in Maria Luisa chira(ed). Italian Studies in Philosophy of Science, D. Reidel Publishing, (1930), pp.299-321.

Flew, A. : "Can an effect precede its cause?", Proceedings of the Aristotelian Society, (1954), pp.45-62.

: "Effects before their causes: Adenda end corlaenda". Analysis. 14(1955/56) pp.104-110.

: "Causal Disorder Again", Analysis, 17. (1956/57) ,pp.81-88.

" "Magicians, Alam clocks and Backward causation", The Southern Journal of Philosophy, 9.(1973), pp.365-366.

Gale, R.M. : "Why a cause cannot be latter than Its Efeet"?,The review of Metaphysics. 19,(1965),pp.209-234.

Greewood,John,D. : "Kant's third Antinomy: Agency and Causal Explanation", International Philosophical Quarterly,30, (1990) , pp.43-57.

Martin, R. : "Causes and Alternative Causes", Theories, 36, (1970), pp.62-92.

: "Causality and Agency: A Refutation of Hume", Philosophical and Public Affairs. 16, (1987), pp. 186-192.

Nglin,W.S. : "Backward causation", Analysis, 41, (1981), pp.86-91.

Fapineau, D. : "Causal Asymmetry", British Journal for the philosophy of Science, 36, (1985), pp.273 - 289.

pears, D.F. : "The Priority of causes". Analysis, 17, (1956/57) , pp.54-63.

Will, F.L. : "Will the future be like the past?". Mind, 61(1947),332-347.

Zetterbery, J. P. : " Letting the past be brought about", Australasian Journal of Philosophy, (1979), 413 - 421.

CAUSAL ASYMMETRY & FIXITY

Denise, Theodore C. : "Redundancy and INUS condition-ality:, Analysis, 46. (1986), pp.120-130.

Dewashi,M. : "Mackie on causal priority; A critical study; I. P. Q. , stud, Suppl. Vol. 18. July (1991) (forthcoming) .

Ehring, D : "On Mackie's New Account of causal priority", Analysis, 41(1981), pp.82-83.

Hipinen, Risto. : "A note on necessary and sufficient cause", Philosophical studies, 26,(1974), pp.447-448.

Lee, Jig-Chuen : "The Non-transitivity of Causation", American Philosophical Quarterly, 25, (1988), pp.87-94.

Mackie, J. L. : "The Direction of causation". The Philosophical Review, 75(1966), pp.441-466, reprinted in his The cement of the universe, clarendon press, oxford, (1973), pp.160-192.

Mackie, J.L. : "Newcombes Paradox and the Direction of causation". Canadian Journal of philosophy, 7(1977), pp.213-224.

: "Causal Priority and the Direction of conditionally". Analysis, 41(1981) pp.84-86.

: "Causes and condition". American Philosophy Quarterly.2(1965), pp.1-20. See its revised verson in his The Cement of universe, clarendon press. Oxford,(1973), pp.59-67.

: The Cement of the universe: a study of causation. Clarendon Press, Oxford (1973)

Reviews :—

i) Foster, J. A. Inquiry, 18 (1975) ,487-498

ii) Mellor, D.H. Ratio, 17(1975), 251-254

iii) Flew, A-Philosophical Books, 16, (1975), 1-6.

iv) Earman, J. The Philosophical Review, 85, (1976), 390-394.

v) Beauchacnp, Tom L-Candian Journal of philosophy, 7. (1977) ,371-404.

vi) Brand, Mylea-Philosophy of science, 42, (1975), 335-337.

vii) Berafosky, B.-Journal of Philosophy, (1977), 103-118.

Martin, R. : "conditionally Necessary Causes', Analysis 30,(1970), pp,147-150.

: "The sufficiency Thesis, Philosophical Studite, 23,(1972), pp.205-211.

Robinson, W. S. : "It's Past Fixity", Mind,(1986), pp. 230-232.

Suhting, W.A. : "professor Mackie on the Direction of Causation", Philosophy and Phenomenological Research, 29(1968), pp.289-291.

CAUSAL ASYMMETRY & COUNTERFACTUAL

Bsow, Jaap Jaco, A. : "Causality and the supposed counter-factual condition in Hume's Enquiry", Analysis.46.(1986), pp.131-133.

Bennett, Jonathan : "counterfactuals and possible worlds" Canadian Journal of Philosophy, 4,(1974), pp.391-402.

Chisholm, R.M. : "The contrary to fact condition". Mind(1946), pp.289-300.

: "Law statement and counterfactual Inferenee"Analysis,15.(1955)pp.97-105.

Downing, P. B. : "Subjunctive conditions. Time order and Causations" Proceedings of the Aristotelian Society, 59,(1958/59) pp.125-140.

Goodman, A : The problem of counterfactual conditionals". The Journal of philosophy, 44.(1947), pp.113-128.

Jackson, F. : "A causal theory of counterfactual" Australian Journal of philosophy, 55 (1977), pp.3 - 21;

Kim, J. : "Non-causal connection", Nos.8(1974) pp.41-52.

Kumar, Dharmendra, : "Counterfactual conditional"Journal of Philosophical Association, 15(1974) pp.72-60.

Lewis, D. : counterfactuals, Cambridge, Mass,(1973),

Lee, Jig-Chuen. : "Causal condition, causal Asymmetry and the counterfactual analysis of causation" Syntheses, 67, (1986) . pp.213-223.

Madden, Edward H. : "Non-Logical Necessity", Idealistic Studies. 5,(1975), pp.7-19.

Miller, Barry. : "causation and Necessary connection", The Mew Scholasticism, 67.(1973), pp.76-63.

Milmed, B.K. : "Counterfactual statements and Logical Modality", Mind, 66, (1957), pp. 453-470.

O'conner, John : "Causal overdetermination and counter-factuals" Philosophical Studies, 29 (1976), pp.275-276.

Pollock, J.L. : "Subjunctive Generalization", Synthese, 28, (1974) ,pp.199-214.

Rescher, Nicholas : "Counterfactual Hypothese, Laws and Dispositions",Nous.5(1971), pp.157-179.

Salmon, Wesley : "An "At-At" Theory of Causal Inference", Philosophy of Science, 44(1977), pp.215-224.

: "Laws, Modalities, and counterfactual" Synthese.35.(1977), pp.191-229.

: "Why ask why"? Proceedings and Addresses of the American philosophical Association. 51,(1978), pp.683-705.

Sanford, David H. : "The Direction of causation and the Direction of conditionship", Journal of Philosophy.73,(1976),pp.193-207.

: "Can there be one-way causal conditionship" Synthese, 76(1988),pp.397-408.

Schlossberger, E. : "Similarity and counterfactuals". Analysis, 38, (1978) ,pp.80-82.

Simons, P.M. : "Rescher on Nomic Necessity",Philosophical Studies, 28, (1975) , pp.227-228.

Skyrms, Brian : Causal Necessity. New Haven and London, (1980).

Woolhouse,R.S. : Counterfactuals Dispositions, and Capacities", Mind, 83.(1973), pp. 557 - 565.

CAUSAL ASYMMETRY- TRANSFERENCE AND CIRCUMSTANTIAL

Achinstein,P. : "Causation" Transparency, and Emphasis", Canadian Journal of Philosophy, 5. (1975) pp.1-23.

Aronson, J. : "On the Grammer of Cause", Synthese, *22*. (1971), pp.414-430.

Bassham, Gregory : "Ehring's theory of Asymmetry", Analysis, 46,(1986), pp.29-32.

Ehring, D. : "Causal Asymmetry", Journal of Philosophy,79,(1982), pp.761-774.

: "Causal Relata". Synthese, 73(1987) pp.319-328.

: "The Transference theory of causation", Synthese,67, (1986) ,pp.249-2S6.

: "Causal Asymmetry and causal Relates Reply to Lee", Synthese,76.(1988) pp. 10-25.

: "Non-Simultaneous causation",Analysis. 47,(1987),pp.28-32.

: "Closed causal loops, singular causes and Asymmetry", Analysis. 46, (1986) pp.23-35.

Fair, D. : "Causation and Flow of Energy", Erkentenls.l4{1979),pp.219-250.

CAUSATION & ACTION

Alston, William. : "Wants, Actions and causal Explanation", in castaneda, H. N. (ed) Intentionality. Mind and Perception, Wayne state university press, Detroit, (1967).

Anscombe, G. H. M. : Intension, Basil Blackwell, Oxford, (1957)

: Causality and Determinism, Cambridge University Press, London (1971).

Aqvist, Lennart : "A new Approach to the Logical theory of Actions and causality", in soren stenhund (ed) Logical Theory and Semantic Analysis, D. Redide, Holland/ USA, (1974), pp. 73-92.

Armstrong, D. : "Beliefs and Desires and causes of Action. A reply to Donald Davidson", Philosophical Papers, 4.(1975), pp.1-7.

Aune, Bruce : Reason and Action, D.Reddel, Dordrecht, (1977).

Bandepadhaya, T. : "Human Action and the conscious Body" Indian Philo.Quart.Vol.IX No.3 (1982), pp.251-263.

Beardsley, Monroe, C : "Actions and Events; the problem of Individual, American philosophical Quarterly, (1975).

Brand, Myles, (ed) : The Nature of Human Action, Scott Foreman, Glenview, IIlinios,(1970).

Brown, D. G. : Action. George Allen and Unwin, London, (1968).

Brown, D. A. : "Can Desire be causes of Action?", Canadian Journal of Philosophy, (1974), pp.145-148.

Chisholm, R. M. : "Reflections on Hunan Agency", Idealistic studies, 1(1971), pp.33-46.

Churehland, P. M. : "The logical character of Action Explanations",The Philosophical Review, (1970) ,pp.214-236.

Costa, Michael, J. : "Causal Theory of Action",Canadian Journal of Philosophy,17,(1987), pp.831-854.

Crowell, E. : "causal Explanation and Human Action", Mind,61(1975)pp.770-772.

Cummins,Robert. : "Dispositions states and causes". Analysis.34,(1974), pp.194-204.

Danto,A.C. : "Basic Action", American Philosophical Quarterly, 2(1965), reprinted in white, A.R. (ed) The Philosophy of Action, Oxford(1968).

: Analytical Philosophy of Action. Cambridge University Press, Cambridge, (1973).

Davidson, D : "Action, Reasons and cause", Journal of Philosophy,60,(1963); reprinted in White, A.R.(ed).The philosophy of Action, Oxford University press, London,(1968).

Davis, P. E. : "Action and causes of Action", Mind. 71(1962), pp.93-95.

Davis, L.H. : Theory of Action. Prentice-Hall, Englewood.Cliffs.N. J.(1979).

Daveney, T.K. : "intentional Behaviour".Journal for the Theory of social Behaviour, 4. (1974), pp.111-129.

Fitzgerald, P. J. : "Acting and Rafraining", Analysis, 27. (1967) pp. 133-139.

Frankfurt, H.G. : "The problem of action", American Philosophical Quarterly,15(1978).

Gasking : "Causation and receipes", Mind,64, (1955), pp.479-487.

Goutom. S.P. : Reasons for Action. Ajanta Publications, Delhi,(1983)-"On understanding Human Action" in Kumar, R(ed) Philosophical Theory and social reality, Allied pub. New Delhi, (1984), pp.184-196.

Goldman, A. : A theory of Human Action, Prentice-Hall, Englewood, Cliffs, N.J. (1970).

: "Action, Causation and unity", Nous, 13(1979), pp.261-270.

Haech, R.J. : "Receips and causes". Mind, 76(1967) pp.98-102.

Hamlyn, D.W. : "causality and Human Behaviour", Proceedings of Aristotelian Society. (Supplementary), (1964), pp.125-142.

Hess, Peter H. : "Action, Reason, and Human causes? Analysis 41,(1981),pp.77-81.

Hornsby, Jennifer : Actions, Routledge & Kegan Paul, London(1980)

: "Sartre and Action Theory", Philosophy and Phenomenological Research, 48 (1938).

Korner, S : Practical Reason, Basil Blackwell, Oxford,(1974).

Locke, Don : "Reasons,Wants,and Causes",American Philosophical Quarterly,11.(1974), pp.169-179.

: "Doing and Happening", The review of Metaphysics, 22,(1968), pp.249-250.

Madden, Edward, H. : "Human Actions: Reasons or causes- to justify or Explain?" Journal for the theory of Social Behaviour, 5, (1975), pp.3-6.

McCullagh, C.B. : "Causal Theories of Action", Philoaophica1 Studies,27(1975),pp.201-209,

Mele, Alfred R : "Intentional Action, and Wayward causal chains: the problem of tertiary wayward-ness". Philosophical Studies, 51(1987). pp. 55-60.

Miller, Jr.F.E. : "Actions and Results" Philosophical Quarterly, 25(1975)pp.350-354.

Mohanty, S.K. c The concept of Human Actions AD Analytical study. Ph.D. Thesis, Utkal University Vani Vihar, Bhubaneswar.(1989).

Pears, D. : "The Appropriate causation of Intentional Basic Actions", Gritica, 7(1975), pp.523-526.

Prasad, R. : "Indention and Action", Indian Philosophical Quarterly, 1, No. 4 (1974) .

Richman, Robert, J. : "Responsibility and causation of actions", American Philosophical Quarterly, (1969), pp.186-190.

Schild, Willy : "Slants and causes", Logique East Analyse. (1971), pp.687-706.

Sher, George : "Causal Explanation and the vocabulary of Action". Mind.82(1973), pp.22-30.

Smart, J.J. C. : "Causality and Human Behaviour", Preceding of The Aristotelian Society. (Suppl.) , (1964), pp.l43-148.

Stoutland, F. : "Basic Action and Causality", The Journal of Philosophy, 65, (1968), pp.467-475.

Thalberg, Irving : "Constituents and causes of Emotion and Action", Philosophical Quarterly, 23(1973).

Segerberg, K : "Bringing it about:", Journal of Philosophical Logic.Vol.xviii,No.4 (1989),pp.327-347.

Vermazen,Bruce :."Action in the causal series", Philosophical studies,35(1978) pp.287-294.

Vollrath,John F. : "When Actions are causes?"Philosophical studies,27(1975),pp.329-339.

Wallace,James,D : "The influence of Agents", Canadian Journal of philosophy. (1971), pp.45-57.

Yolton,J.W.S. : "Agent Causality", American Philosophical Quarterly,(1966),pp.14-26.

BOOKS BY VON WRIGHT

von Wright, G.H. : The Logical Problem of Induction, BasilBlackwell,Oxford, (1941/1957).

Reviews:

1. Day, J.P. : Philosophy, 25, (1960), pp.77-80
2. Nagel, E. : Journal of Philosophy, 37,(1941). pp.529-531.
3. Broad, C.D, : Mind, 53, (1944), pp.1-24
4. Baker, : Journal of Philosophy, 55(1958), pp.130-131,
5. Madden, E.H. : Philosophy and Phenocnenoloqical Research,16,(1958), pp.550-551.

von wright, G. H. : A Treatise on Induction and Probability, Routledge & Kegan Paul, London, (1951) .

Reviews:

1. Hay, W.H. : Journal of Philosophy, 50(1953), pp.782-788.
2. Jeffreys, H. : British Journal for the philosophy of Science, 3 (1952) pp.276-277.
3. Kenemy, : Philosophical Review, 62. (1953), pp.93-l01.

von Wright, G.H. : An Essays on Modal Logic ,North-Hoiland, Amsterdam, (1951).

: Logical studies. Routledge & Kegan Paul, London (1957).

: Norm and Action, Routledge & Kegan Paul, London, (1963).

Reviewed by Pitcher, G.: The Philosophical Review, 74, (1965), pp.519-526.

: An Essay in Denotic Logic and General Theory of Action, North-Holland, Amesterdam, (1968).

: Time, change and contradiction, Cambridge university Press, (1969) .

: Explanation and understanding. Routledge and Kegan Paul, London, (1971).

Reviews:

1. Toulmins : The Philosophical Quarterly, 22 (1973) pp.176-178.

2. Brittan. Jr. G.G. : The Journal of philosophy. 70 (1973) pp.759-765.

3. Kim, J. : The Philosophical Review, 82 (1973) pp.380-388.

4. Beauchamp,Tom L. : International Philosophical Quarterly, 12(1972),pp.626-629.

5. Toretti,R. : Dialogos, 9,(1973), pp.174-179.

von Wright,G.H. : Problems in the Theory of Knowledge, The Hague, Nijhoff,(1972).

:Causality and Determinism, Columbia University, Press, New York (1974),

: practical Reason, Basil & Blackwell, (1983).

: Truth, Knowledge, and Modality, Basil & Blackwell, (1984).

ARTICLES BY VON WRIGHT

von Wright, G.H. : "Practical Inference", The Philosophical Review, (1963), pp.159-179.

: "And Next", Acta Philosophies Fennica, 18 (1965), pp.293-304.

: "The Paradoxes of confirmation", Theoria (1965), pp.255-274.

: "And Then", Societas Scientiarm Fennica, 32, (1966), pp.1-11.

: "Deontic Logics", American Philosophical Quarterly, 4, (1967), pp. 136-143.

: "Remaarks on the Logic of Prediction", Alatus, 35, (1973), pp.156-167.

: "On the Logic and Epistemology of Causal Relations", Suppes et al (ed) Logic, Methodology and philosophy of Science, North-Holland, Amsterdam, (1973), pp.293-312; reprinted in E.Sosa, (ed), Causation and condltionals, Oxford, (1975), pp. 95-113.

: "Replies, on Manninen & Toumela (eds). Essays on Explanation and understanding, D.Reidel publishing Co.(1976),pp.37l-414.

: "Determinism and the study of Man", In Manninen, J & Toomela, R(eds) Essays on Explanation and uncerstanding, pp.415-435

: "On so-called practical Inference", Acta Sociologies,15(1972), pp. 39-53.

: "Logic of Action A sketch" in Reseher,K(ed) The logic of Decision and Action, Pittsburg (1967).

: "Freedom and Determinism", Acta Philosophica Femica, vol-31 (1960),pp.5-85.

WORKS ON VON WRIGHT

Apel, Otto-Karl, : Understanding and Explanation: A transcendental pragmatic perspective. The MIT press, Cambridge,(1984).

Beauchamp,Tom.L. & Robinson, D. N. : "On von Wright's argument for Backward causation",Ratio (l975) pp.99-103.

Broad,C.D. : "The Principle of Demonstrative Induction", Mind,39(1930),pp. 302-317.

Goswami,C. : "causality and Actions von Wright on 'cause", Philosophica. (1979), pp.1-15.

Goswami,C. : "Bringing About", Indian Philosophical Quarterly. Vol. 13.,(1986), pp.177-184.

Dewashi,M. : "Is causal relation Asymmetrical?", Indian Philosophical Quarterly, stud., Suppl. , 16, Oct. (1989) ,pp. 1-8.

Deweshi,M. : "Temporal versus Manipulability Theory of Causal Asymmetry" I.P.O. stud, Suppl.Vol. 17, Jan,(1990).pp.15-23.

Dewashi,M. : "Prof.von Wright on Action", Indian Philosophical Quarterly, stud.,suppl., 17, July, (1990), pp.29-36.

Martine,R. : "von Wrightt Action and causation: an addendum to Kim's Critique", Philosophical studies, (1975), pp.295-296.

MacIntyre, Alasdair : "causality and History",appeared in Manninen, Juho. and Toumela, Raimo(eds). Easays on Explanation and understanding, D.Reade1 Publishing, Co. (1976) .pp. 137-158.

Manninen,J&Toumela, R. (eds) : Essay on Explanation and understanding, D. Reidel Publishing, Co. (1976)

Reidel,Manfed, : "Causal and Historical Explanation", appeared in Manninen & Toumeda (eds) Essays on Explanation and understanding(1976}, pp.3—20.

Stoutland,F. : "The causal Theory of Action", Manninen and Toumela(eds).Essays on Explanation and understanding, (1976).pp.271-304.

Waterlow,C : "Backward causation and continuing" Mind 63,(1974),pp.372-387.

Weinryb,Elazar, : "von Wright on Historical Causation", Inquiry,17(1974},pp.327-336.

winch, Peter : "Causality, and Action",Menninen & Toumela(eds} Essays on Explanation and understanding (1976), pp.123-136.

: "Causation and explanation", American Philosophical Quarterly. 23,(1986),pp.143-154.