CHAPTER II

SOME ASSOCIATED PROBLEMS
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

all interested in the claim that the structure of the actual or the real world is like that 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. A process has the notion of change built into it; it goes on. What is change? 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 ontological 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 and 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 straightforward empirical interpretation of the concept of "event" in the examples from learning theory of psychology, and in the example, from Kinematics or phoronomy. 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


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 other 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 tends to 0; while the degree 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 0, it may called total determinism, while when the degree of freedom is infinite, it may be called total freedom. 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 length of the history and the width 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 not going to give a detailed analysis of it.\(^9\) Our intention here is not to develop a metaphysics.

\(^8\)EU, p.49
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 open' on two successive occasions, or a pair of successive occasions, temporally adjacent to each other.
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 groups 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

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. $P.V = a \text{ constant}$. 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

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.

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 caught 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 may 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 necessary factor 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.\textsuperscript{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

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, though 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\textsuperscript{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' occur then the disjunction must necessarily be true, i.e., at least one or the disjuncts must have taken place.

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

\textsuperscript{3} von "Wright, G.H. The Logical problem of Induction, p.66.
\textsuperscript{4} Stebbing, L. S. A Modern Introduction to Logic, p.271
as \((S \rightarrow A)\). 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: 

\[ \neg N \rightarrow \neg A \]

OR

\[ \neg (\neg N \land A) \]

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". This necessary and 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".\textsuperscript{6}

Mill's well known position on this subject is: 
"... nothing can 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."\textsuperscript{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

\textsuperscript{6} The Encyclopadia of Philosophy, Vol.2, Col.1, p.63
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".  

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

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.\(^\text{10}\)

A recent and detailed discussion of 'causes and conditions' is given by J.L. Mackie, in his article "causes and conditions"\(^\text{11}\). He has analysed the concept of cause in terms of the condition concepts. He says:\(^\text{12}\)

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

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


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 well-known book Cement of the Universe, Mackie somewhat alters his view and argues that a cause is necessary and sufficient (in the circumstances) for the effect.

The causal statement permits us to extract the corresponding counterfactual 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 counterfactual 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', and 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 counterfactual 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 conditional.¹

The counterfactual conditionals thus points to some sort of a "necessary" connection between the consequent and antecedent on the counterfactual conditional.

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 referred to by the counterfactual conditional. Since a counterfactual conditional asserts something about some hypothetical situation it can 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 refereed to that they 
do not require any attention. What we consider are 
situations which 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 been thunder. The moment we accept any causal statement as true, we are 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 those 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 counterfactual 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 and 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 of the opinion that the concept of non-logical necessity as suspect and unsound. But philosophical logicians have now become quite familiar with the view that the logically necessary and possible is only a species of a more comprehensive genus within which a variety of forms of necessity and possibility may be distinguished. The concept of 'natural necessity' as a middle thing between logical necessity on the one hand and empirical generality on the other has been introduced by the philosophical logicians of today.

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 are always irreflexive and never reflexive.

DIRECTION OF CAUSATION

Logicians distinguish necessary and sufficient conditions and 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 'N$p'$. We actually get a series of identities:

$scea as :-$

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

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 $N$p, 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 laugh" 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 kind 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 easy 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.

The problem of the causal asymmetry has been occupying a central stage in the arena of philosophical debate for the last few decades. The problem of understanding the differences between causes and effects is the problem of causal asymmetry or causal priority. Some philosophers are on 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.

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).
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 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 incoming heated makes the sun shine upon it in 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.  

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