CHAPTER V

INDUCTION AS SELF-SUPPORTING DEVICE

Can it not be claimed that we are justified in using induction and in relying upon inductive conclusions because induction 'works'? Every natural science is based on inductive conclusions in some sort or other and everyone knows how successful science is. Scientific method, which uses induction, works. The assumption is that what has already worked will continue to work in the future. Unfortunately, this type of solution to the problem of induction is not satisfactory. It is simply not true that induction works or is successful. What we actually know is that it has worked on a number of occasions in the past or that it has been successful on a number of occasions in the past. Can we say that it will be successful in the future? We donot know. Indeed, the problem seems to be that we have no reason to think that induction will be successful in the future.

It is often claimed that we do have a very good reason for supposing that induction will be successful in the future because its success lies in its success in the past. But this argument will not be satisfactory since to argue that induction will be successful because
it has been successful is to argue inductively. So when we argue in this manner, we use induction to justify itself. This means that we argue circularly and hence fallaciously.

This type of justification is known as the inductive justification of induction. Two eminent recent writers viz; R. B. Braithwaite and Max Black support this justification. Regarding this justification of induction both Braithwaite and Max Black have given almost similar opinions and on the basis of their similarity I would stress upon the views of Max Black, rather than those of Braithwaite, in this chapter.

Both the thinkers claimed that inductive justification of induction is not circular in the ordinary sense for the conclusion of an inductive justification of induction is one of the premises from which the conclusion is derived. Rather this justification is circular in the sense that the conclusion asserts the correctness of the rule of inference by which it is reached. These thinkers claimed that circularity of this kind is not vicious, that is to say, it does not spoil the cogency of an argument.

Max Black has given some characteristic views of some philosophers who believe that any attempt to justify induction by self-supporting argument must beg the question. It is Hume who says that it is impossible to argue from the past experience to the future as it is founded on the principle of resemblance rather than the principle of causation. So it is begging the question. Russell also says,
the inductive argument from the past to the future is always based on the principle of begging the question.²

Reichenbach thinks that though inductive inference has been successful in the past experience, it is impossible for us to infer that it will be successful in future experience. Though the inference is based on induction still it is circular. Its validity is based on the principle that it claims to be true.³

Max Black establishes two different views, which he has thought as the impossibility of advocating by these thinkers. The first one is that 'no inductive argument ought to be regarded as correct until a philosophical justification of induction has been provided; and hence,

induction must not be used in the attempt to provide such a justification.⁴

To him this view is distinguished from the second view in which he holds;

if all inductive arguments are conducted according to one and the same inductive rule, inductive inference in support of that rule is bound to be circular.⁵
At the first sight both these views seem to be similar but the contention of the second is different from the first one. Max Black says that though the second argument looks self-evident yet it is mistaken.

He opines that a true conclusion about matters of fact can be achieved sometimes by the use of inductive rules. Common-sense also believes in the inductive rule to the future, which is free from any error. But the process to pass from the success in the past to the probable success in the future is itself using an inductive rule, hence the argument is said to be circular. He assumes that inferences governed by some inductive rule can attain true conclusions. An inference which pass from this fact to the probable reliability of that rule in the future is called by M.Black

“a second-order inference”. 6

M.Black further holds that there is a difference between the rule, which governs the “second-order” inference, and the rule whose reliability is to be affirmed. As long as this difference persists between them, there will be no appearance of circularity. But when the same rule whose reliability is affirmed in the conclusion and is also governed the “second-order” inference makes appearance of the vicious circularity. An inference is said to be a self-supporting inference when it is established and interpreted properly. This inference can satisfy all the
conditions, which are necessary for a legitimate inductive inference. But if all inductive arguments are conducted according to one and the same inductive rule, inductive inference in support of that rule is bound to be circular. Some features of inductive arguments are formulated by M. Black in the following way:

(1) In no inductive argument is the conclusion entailed by the premises.
(2) An inductive argument may indicate the degree of support that the premise gives to the conclusion.
(3) Some inductive arguments are "correct" i.e., the conclusion in question is established (perhaps with an indicated degree of support) by the premise.
(4) A correct inductive argument may have a true premise and a false conclusion.
(5) Every correct inductive argument belongs to a class of arguments (call it the "associated class") all of which are correct, and every incorrect argument to a class all of which are incorrect.
(6) All the members of a class of
associated arguments conform to the same rule of argument.

(7) In order for an inductive argument to be correct, the rule to which it conforms must be reliable.

(8) From any inductive rule there may be derived a corresponding principle.

(9) If a principle corresponding to a rule is true, it is a contingent truth not a necessary one. A sound inductive inference need not involve the formulation of the rule governing the argument used.

(10) There is no single rule governing all correct inductive arguments.

He says that these features of inductive argument are necessary in order to find out the correctness of the view that inductive support for induction is circular. He further makes a distinction between an inductive argument and an inductive inference. An inductive inference is that:

in which the premise is asserted by the speaker and treats the premise as a reason for asserting the conclusion.
The process of asserting the conclusion from the assertion of premise is known as an argument and the soundness of the inference depends on the legitimate use of the argument. Max Black finds that Hume, Russell and Reichenbach assume:

any induction will be sound if it can be shown to be true or probably true by a single supreme inductive principle, which governs all correct inductive argument.9

He also says that it is not easy to find out such a single principle for which many alternative principles are advanced by different writers. He thus proposes two rules in order to find out the definiteness.

Max Black’s original example of a legitimate self-supporting inductive argument is of the following:

(a): In most instances of the use of R in arguments with true premises examined in a wide variety of conditions, R has been successful.

Hence (probably):
In the next instance to be encountered of the use of R in an argument with a true premise, R will be successful.

The rule of inductive inference
mentioned in the premise and the conclusion of the argument above is:
R: To argue from most instances of A's examined in a wide variety of conditions have been B to (probably). The next A to be encountered will be B.
Thus the second-order argument (a) uses the rule R in showing that the same rule will be 'successful' (will generate a true conclusion from a true premise) in the next encountered instance of its use.¹⁰

M. Black does not intend to call the rule R to be a 'supreme rule' of induction from which all other inductive rules can be derived. He never claims rule R as a wholly acceptable rule for inductive inference. In order to illustrate the logical problems, which arise in connection with self-supporting arguments, the rule R and its associated argument (a) are said to serve.

Inductive arguments, which are governed by rule R, vary in strength in accordance with the number and variety of the favourable instances in the premise. This R though categorically allows us to assert a certain conclusion yet the strength of this assertion varies with the character of the evidence. On the basis of this we can say that when the number of observed instances of the evidence is small and the relative frequency of favourable instances is more than half, the
strength of the argument may be close to zero. But when a conclusion is justified by a very large sample of observed favourable instances, the strength of the argument will be maximum. M.Black says that he uses the word ‘probably’ in the rule R to mean variability of the strength of its corresponding argument(a). This variability in strength is an important fact by which inductive arguments differ from deductive arguments. In deductive argument we never conceive any intermediate case, the deductive argument either must be valid or invalid. But in the inductive argument the case is different. A legitimate inductive argument may still be very weak though its conclusion may properly be confirmed on the basis of evidence supplied. Black says;

appraisal of an inductive argument
admits of degrees.\textsuperscript{11}

Again, regarding to inductive rules we can apply the same view. A deductive rule is different from inductive rule. A deductive rule is also either valid or invalid. But the inductive rule is what may be called a degree of reliability. Hence Black says;

appraisal of an inductive rule admits of degrees.\textsuperscript{12}

Black, further, says;
the second-order argument (a) supports the rule R, I am claiming that the argument raises the degree of reliability of the rule, and hence the strength of the argument in which it will be used; I have no intention of claiming that the self-supporting argument can definitively establish or demonstrate that the rule is correct.

In his “Problems of Analysis” Black has also presented another self-supporting argument with a more sweeping conclusion of the general reliability of the corresponding rule. He thus proposes two rules in order to find out the definiteness. These are as follows:

$$R_1: \text{To argue from all examined instances of A's have been B to all A's are B.}$$

$$R_2: \text{To argue from most instances of A's examined in a wide variety of conditions have been B to (probably) the next A to be encountered will be B.}$$

Of these rules, the first rule, which is advanced by Max Black, is necessary for the justification and the second rule is necessary so that we can have atleast one example of rule governing
arguments by which the conclusion gets a greater or lesser degree of support from the premise. But these rules are not clearly formulated and thus some troubles are faced by some thinkers in understanding the rules.

Further, in order to support both R₁ and R₂ principles, Max Black also formulated two other supporting inductive arguments namely a₁ and a₂. These self-supporting arguments are arranged in such a way that a₁ is said to be governed by R₁ and a₂ is by R₂. These are follows :- (as formulated by Max Black)

(a₁): All examined instances of the use of R₁ in arguments with true premises have been instances in which R₁ has been successful.

Hence:
All instances of the use of R₁ in arguments with true premises are instances in which R₁ are successful.

(a₁₁): R₁ has always been reliable in the past.

Hence:
R₁ is reliable.

(a₂): In most instances of the use of R₂ in arguments with true premises examined in a wide variety of conditions, R₂ has been successful.

Hence (probably):
In the next instance to be encountered of the use of $R_2$ in an argument with a true premise; $R_2$ will be successful.

But the following argument is more preferable than the above (a$_2$) one.

(a$_{22}$): $R_2$ has usually been successful in the past.

Hence (probably): $R_1$ will be successful in the next instance.$^{15}$

Max Black first considered the possibility that whether these self-supporting arguments may beg the question. But it is found that this view is totally rejected because neither of them is deductively valid, even there is no conjunction of the premises and the denial of the conclusion results in a self-contradiction. Thus it follows that neither of them is deductive and as such neither of them can beg the question.

Again Max Black tries to show that self-supporting arguments can be correct. According to him every argument, which is similar to $R_1$, and having a true premise, will also have a true conclusion. Thus in this case as well as in all other application of $R_1$ that

from a true premise no false conclusion can be followed and as such an argument will be said to be
correct.\textsuperscript{16}

He claims that there is no reason to assume that self-supporting inference cannot be correct. Max Black expresses as:

R.B.Braithwaite is one of the very few writers who do not think that inductive justifications of induction are viciously circular.\textsuperscript{17}

Braithwaite expresses his view in the following way:

I can say no more than that the account of objective validity of an inference which has been given is in terms of the right working of an inference-machine, and that the implicit circularity only arises from the inference-machine becoming self-conscious about the way in which it operates. The predictionist can offer to the circularity-mongering critic two alternatives—a weak subjective sense of reasonableness with no suspicion of circularity, or a strong sense of reasonableness, objective as well as subjective, with no explicit circularity but with an implicit circularity which depends essentially upon the inferrer being regarded as an inference-machine, and the validity of his
inference depending upon his operating, qua inference-machine, according to an efficient mode of operation (with the rider that, if the inferrer believes that he, qua inference-machine, is operating efficiently, that belief is self-rationalizing). If neither of these alternatives, nor the third alternative of the purely objective sense of reasonableness, satisfies the critic, and if he is not prepared to be satisfied by one sense of reasonableness in some contexts and another in other contexts but still demands a method of establishing the effectiveness of an inductive policy which is not to be obtained by following an inductive policy, he must be told outright that what he is demanding is that the effectiveness of an inductive policy should not be an empirical proposition. But if so, induction would be deduction, there would be no inductive problem to puzzle our heads over.¹⁸

Thus there would be no problem of induction.

M.Black does not follow this view of Braithwaite. He is of the opinion that an inference when satisfies certain "epistemic conditions"¹⁹ must be
regarded as legitimate or reasonable. But still we may find the possibility that such self-supporting argument could not be legitimate because in the satisfaction of epistemic conditions the circularity may enter. M.Black advises to satisfy these conditions before using a self-supporting argument. To him these conditions are stringent. As though they are stringent they were found to be satisfiable without being circular.

Next problem to M.Black is that when is the use of an inductive rule legitimate? He says that inductive rules are not self-evidently reliable, nor can their reliability be deduced from self-evident truths. Even though there is something in inductive rule which is relevant to self-evidence in deductive reasoning. Some inductive rules may be inherently true but again there is the possibility that they are not reliable. Inductive rules, which we generally use, must inspire confidence. But some critics of inductive reasoning hold that in believing such a rule will lead to an error.

The rules, which we use in legitimate inductive inferences, may raise the degree of reliability. An inference in which there is no perfect reliability can be an inference in which a degree of reliability is used. As such the self-supporting argument in support of the rule may be used in favourable cases in an inference that raises the degree of reliability of the rule. In this way that inductive procedures may, in favourable cases, be “self-correcting” M.Black says,
this self-supporting justification of induction is not an attempt to justify induction because we never believe in the assumption of one single supreme principle of induction.\(^{22}\)

The self-supporting defense of induction cannot be free from controversies. The most important controversy is that it is lacking clarity in using inductive rule.

W. E. Salmon puts some objections against the self-supporting argument as circular, which M. Black has already refuted. Max Black says that the objections, which are raised by W. E. Salmon against the foregoing conception, can be summarised as follows:

The so-called self-supporting arguments are .... circular in the following precise sense: the conclusiveness of the argument cannot be established without assuming the truth of the conclusion. It happens, in this case, that the assumption of the truth of the conclusion is required to establish the correctness of the rules of inference used rather than the truth of the premises, but that makes the argument no less viciously circular. The circularity lies in regarding the
facts stated in the premises as evidence for the conclusion, rather than as evidence against the conclusion or as no evidence either positive or negative. To regard the facts in the premises, as evidence for the conclusion is to assume that the rule of inference used in the argument is a correct one. And this is precisely what is to be proved. If the conclusion is denied, then the facts stated in the premises are no longer evidence for the conclusion. 23

M. Black has given reply to these objections. His replies are arranged in three different points. The first point is:

the conclusiveness of the argument cannot be established without assuming the truth of the conclusion. Salmon’s reference to ‘conclusiveness’ smacks too much of the appraisal of deductive argument. 24

But Black replies that conclusiveness actually deserves by the deductive argument and as such it must be correct or legitimate. But the rule of induction must reliable and should lead from true premises to true conclusion. To him:
the correctness of an inductive argument could only depend upon the truth of the conclusion if the latter asserted the reliability of the rule by which the argument was governed. But in our argument (a) the case is different Salmon is plainly mistaken if he thought that the falsity of (a)'s conclusion entails the incorrectness of the rule by which (a) is governed.\textsuperscript{25}

The second point, which seems to be objectionable, is the word "established". Black says that if "established" is synonymous as "proved by a deductive argument" then the answer must be that

the correctness of (a) cannot be established. But again, a correct inductive argument in support of the rule governing (a) can surely be established without assuming the conclusion of (a).\textsuperscript{26}

Thirdly, Salmon says,

to regard the facts in the premises an evidence for the conclusion is to assume that the rule of inference used in the argument is a correct one.\textsuperscript{27}
Max Black says that the rule of inference, which we use in inductive argument, is always treat as correct. If it were not so then the process of inference could never get started.

Peter Achinstein, another critic, attacks the claim of M. Black that the rule of circularity is not vicious, because it does not spoil the cogency of an argument. Achinstein also says that he neither finds Salmon’s formulation sufficient to expose circularity nor Black’s attempt to defend argument. He thus tries to reopen the issue that any justification of a principle of induction with reference to the success of that principle in the past involves circularity and hence illegitimate.

Achinstein says;

when any argument is proposed for the purpose of showing that a certain proposition is probable, the correctness or validity of the argument, and hence of the rule of inference which governs the argument, is obviously assumed. Now to claim that a non-deductive rule of inference is correct or valid is to imply, at least for one thing, that the rule will generally be successful, and in particular, that it will probably be successful in the next instance of its use, i.e., that in the next argument with
a true premise the rule afford an inference to a conclusion that is probably true. ²⁸

M. Black believes that the fact that an inductive argument in order to be correct the rule of induction to which it conforms must be reliable. Though the claim that a non-deductive rule of inference is correct or valid does not mean that it will be successful definitely in its next application. It does mean that it will be probable. If the non-deductive rule does entail unsuccessful then the rule cannot be shown to be incorrect.

Achinstein attacks this claim of Black which, again, was defended by Black. But Achinstein further develops his attack. Black complains that Salmon when writes ‘the conclusiveness of argument (a) cannot be established without assuming the truth of its conclusion’ it appears that he is treating (a) to be a deductive argument. But it is mistakenly maintained by him that (a)’s conclusion must be assumed to be true when the argument is proposed. Thus Black emphasises;

the validity of (a) does not depend upon the truth of its conclusion, since the conclusion of (a) could turn out false and not impugn the validity of the rule of inference involved. ²⁹
Black's reply to the second objection raised by Salmon is that Salmon was incorrect while suggesting that the validity of (a) depends upon the truth of the conclusion of (a), it is never observed that the assumption that (a) is valid does involve the claim that (a)'s conclusion is probable. This assumption is sufficient to make (a) circular because (a) seems to show that its conclusion is probable.

The third reply of Black to the charge of circularity, which appears as the central important of his defense of argument (a), is:

Black agrees that in using rule R we assume that it is correct, but he argues, this does not suffice to expose circularity in (a). For to assume that R is correct is not to assume its correctness as a premise of the argument itself, nor as a premise of any argument used to establish the premise of (a). That is, Black seems to be maintaining, the only assumptions which could justify a charge of circularity in (a) would have to be assumptions expressed actually as premises of (a) or as premises of other arguments whose conclusions are used to support the premises of (a).  

Peter Achinstein has suggested that an
argument, which is proposed by M. Black to support an inductive rule by citing its past success, suffer from circularity. Achinstein here makes some correction to the inductive rule of Black as follows:

R: To argue from Most instances of A's examined under a wide variety of conditions have been B to (probably). The next A to be encountered will be B. The argument in favour of the rule is as follows:

(a) In most instances of the use of R in arguments with true premises examined in a wide variety of conditions, R has been successful. Hence (probably):
In the next instance to be encountered of use of R in an argument with a true premise, R will be successful. 31

Achinstein believes that the circularity lies in proposing (a) for the purpose of showing that (a)'s conclusion is probable because it is already assumed that the conclusion of (a) is probable. But Black has raised some objections on the following ground:
(a)'s conclusion is not 'probably in the next instance ... R will be successful' (T), but simply 'In the next instance ... R will be successful' (S); and, he claims, the most I have shown is that T must be assumed, not S. Hence, the spectre of circularity vanishes, he maintains, for 'even an argument that had T as an explicit premise and S as its conclusion would not be circular.'

Achinstein's statement is that in using an argument we must assume that the rule governing the argument is correct. Black says that to call this an assumption is misleading one. Again, he says that the argument in which the rule of inference employed are correct, if the argument is also to be considered correct.

But Achinstein says that when he employs certain argument he does not formulate his claim that the rule of inference employed is correct. If he were to formulate his claim, he would express it as a premise of the argument itself, on pain of infinite regress, even he never defends his claim. Further Black writes:

In using the rule of inference ( R ), we certainly treat it as correct: we could not use it if we had good reasons for suspecting it to be unreliable.
From this it is clear that Black also seems to agree with the view that we do make such assumption concerning the correctness of the rule of inference. Black finds that the term 'probable' as used by Achinstein is not clear to him. He maintains:

The sentence ‘(a)’s conclusion is probable’ would have to be exponible into a proposition relating S [(a)’s conclusion] to the premise of (a), for S is surely not probable per se, but is so in view of the facts used in (a).  

Achinstein defends his view in the following way:

(1) I cannot accept the thesis that a statement of the form ‘p is probable’ literally means ‘evidence e supports p’, or ‘p is probable relative to e’, though, to be sure, evidence is used to support the claim that ‘p’ is probable.

(2) Black’s reasoning does not establish his thesis about probability statements: of course a proposition is probable in view of the relevant facts; but this is at least equally well explained by
admitting that relevant facts are needed to support a probability statement, and does not necessitate the claim that a statement of the form ‘p is probable’ contains an ellipsis.\textsuperscript{35}

Though this controversial type of defense could overcome the objections yet it will not overcome the metaphysical problems of induction. The common people may accept it but complex philosophical questions will remain unanswerable.
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