

NEGATION AND NEGATIVE FACT IN WESTERN AND INDIAN LOGIC

Negations and negative propositions are very important subjects of discussion in philosophy. There are serious ontological, epistemological and logical problems concerning negations which have been widely discussed in Indian philosophical schools. In western philosophy, both modern and contemporary, as also in contemporary logic we find very little discussion of the ontological problems relating to negation. The epistemological problems concerning the significance of negative propositions however are discussed in detail by early modern logicians like Bradley, Bosanquet etc. and by contemporary logicians like Russell, Ramsay, Ayer etc. As to the logical problems relating to negations and negative propositions there is not much to be learnt from contemporary logic. The law of double negation, the law of duality or DeMorgan's law, Nature of universal and particular negations and Relations of equivalence holding between certain negations are perhaps all the logical issues that we find discussed in any modern logical treatment of negation. In contrast with this, Indian logic deals with a large number of important logical issues concerning negation. These, for example, are the issue of the logical structure of negation, the different scopes of negation, the nature of the counterpositive of negation, the different types of relational and non-relational determinants of the counterpositiveness relating to negation and so on. In this paper it is intended to give a brief account of the discussion of some of the ontological and logical issues relating to negation which fill the pages of the logical treatises of the Navya Nyāya or the Neological school of India. This school originated in thirteenth century A.D. in the Bihar state of India where the first great Indian formal logician by name Gaṅgeśopādhyāya wrote his monumental and voluminous treatise on formal logic known as *Tattvacaṁtāmaṇi*. There are many other logical treatises of lesser importance like

Muktāvali, Tarkasamgrahadīpikā etc. all of which discuss the problems of negation. The following brief account is based on the information available in all these works on the new logic.

First we take up the ontology of negation. A clarification needs to be made before presenting the following discussion of the ontology. The word 'Negation' is used in two different senses which must be clearly distinguished from each other. The first sense of the word is 'absence'. In this sense negation is just the absence of an entity at a place or time. The other sense of negation is 'negative statement' 'negative proposition' or 'negative assertion or judgement'. Very often these two senses of the word are confused with each other. For example in symbolic logic the symbol ' \sim ' is used for symbolising negation so that if a symbolic expression like $\sim P$ is formed by attaching the symbol ' \sim ' to the symbol 'p' standing for a proposition, then the expression would have to be taken to stand for 'the negation of the proposition symbolised by 'p''. Here negation cannot be taken in the sense of negative assertion or proposition. If it were so taken the law of double negation cannot hold. The expression formed by attaching two negation symbols to 'p' would then stand for 'the assertion or proposition which is the negation of the assertion or proposition which itself is the negation or the proposition negating the proposition 'p''. Now the original proposition 'p' and the proposition or assertion negating the negation of 'p' cannot be in any sense identical with each other although absence of the absence of a thing can be identical with the thing. So to identify the double negation of a proposition with the proposition does not seem to be correct although these could be regarded as logically equivalent to each other. Further even if the negation-symbol is taken to represent the assertion or proposition negating the proposition represented by the propositional symbol it does not become clear whether the negation intended is primary or secondary (of the proposition symbolised). On one alternative, only the predicate in the proposition would stand negated of the subject of the proposition while on the other alternative the proposition as a whole would stand negated or cancelled. The third meaning of mere absence is of course quite inapplicable to the proposition. But to distinguish the above two senses of the negation-symbol two different symbols need to be used.

After this essential clarification we turn to the ontology of

absence or negation (we shall be using these terms synonymously unless otherwise stated). Four different types of negation have been listed by Indian logicians. These are called 'Anterior negation, Posterior negation, Relational or occurrence- negation and Natural or being-negation or difference. The beginningless non-existence or absence of a thing before it comes into being is called the anterior negation of the thing. This absence has no beginning but it comes to an end with the origination of the thing of which it is the absence. The absence of a thing which comes into being as soon as the thing is destroyed is called its posterior negation. This absence has a beginning but no end. A thing once destroyed is never reborn. If the parts of the destroyed thing are put together a new thing similar to the original thing may be produced but not the original thing itself. The absence or non-occurrence of a thing at a certain place or locus when it exists elsewhere is known as its relational or occurrence-negation. For example the book in the shelf is not present on the table so the book is absent on the table. Similarly a blue lotus does not have the red colour of the red rose, so the red colour or the red rose may be said to be absent or non-occurent in the blue lotus. Lastly, a tree is different from a stone which means that there is the absence of the identity of the stone in the tree. This absence of the identity or the being of one thing on another is called their 'mutual difference.'

Lest it may be thought mere scholasticism to formulate so many types of negation it would be pertinent to briefly mention here some of the reasons for which Indian logic has admitted this diversity of negations. Anterior negation (or absence of a thing preceding its origination) has been accorded entitative status because without it the contingency of repeated origination of a thing cannot be avoided. For example when all the causal conditions relating to the production of a certain pot are present the pot comes into being. If this pot is destroyed and reduced to a lump of clay then another pot can be produced from the same material. If it is asked, 'why isn't the original pot itself produced by the material which happens to be the same?'. The pot that is produced after the destruction of the original one is similar to the latter but not the same. Very often the same raw material is used to produce different specimens of the same thing by destroying the specimens produced earlier. These specimens cannot be identical despite being quite similar to each other. What

prevents the specimens being the same is the prior occurrence of a similar specimen. What this means is that for a thing to be produced or to come into being it is essential that it should have been absent or non-existent prior to its birth. This nonexistence is of the kind called 'anterior negation' and not posterior negation or destruction. When some material is remoulded into the shape of a thing fashioned earlier out of the same material and destroyed afterwards, it is the destruction and not anterior negation of the previous thing that precedes the new production. Thus the non-availability of the anterior negation of the earlier thing prevents its repeated production. About posterior absence or destruction there is no dispute. Destruction is a commonly recognised type of absence. If its reality is not admitted then things will never be destroyed or despite their destruction they will continue to exist.

The third kind of negation called relational negation or occurrence-negation though commonly recognised as real negation, its nature is not fully understood even by those who have thought about negation. In the two examples cited above only occurrence-negation is mentioned. In one case it is the occurrence-negation relating to an object like book and located on the table that is referred to. In the other example it is the quality of red colour whose nonoccurrence in the blue lotus is referred to. As simply occurrence-negations these two negations appear to be alike. But if we look closely we shall find that the denied occurrences in the two cases are of different types. The occurrence of the book either in the shelf or on the table is determined by the relation of conjunction while the occurrence or incidence of the red colour in the red lotus or red rose is determined by a relation which is different in nature from conjunction. This relation is called the relation of inherence or 'samavaya' in the Sanskrit terminology of Indian logic. One of the relata of this relation cannot exist without the other relation though this cannot be said of both the relata of the relation. There can be different kinds of occurrences of things depending upon the nature of the relations that determine the occurrences. The occurrence of things (or more precisely events) in time are referred to in statements like 'x' was born on such and such a date'. The occurrence of birth at a certain date is a different kind of occurrence than the occurrence of the birth at a certain place. The relations determining the temporal and spatial characters of the same occurrence are different from each

other. So while negating the occurrence of a thing or event at some locus or other it is necessary to mention the relation determining the occurrence at the locus.

Mutual negation is the fourth type of negation. It is commonly known as difference. The being of one thing excludes the being of others, so the beings of different things may even be said to be absent in each other by the identity-relation. But since there is no common usage that anything occurs even in itself by the identity-relation some logicians do not regard identity as an occurrence-determining relation. Mutual negation in their view is only a special type of occurrence-negation which has the essential property of the thing negated as its counterpositive. For example, a pot and a tree are mutually different not because there is no occurrence of the pot on the tree or the tree on the pot but because potness does not occur or inhere in the tree or treeness in the pot.

Different views regarding the existential status of negation are advocated by Nyāya, Mīmāṃsā and other schools of Indian philosophy. Nyaya logicians hold that negation is as real-though not positively-as any positive entity. But they do not admit that negation occurs anywhere by the same relation by which any positive entity occurs. Some other thinkers regard negation as just a temporary aspect of the locus where it occurs and still others take negation to be identical with its locus. There are also thinkers who treat negation as a nonentity. According to certain thinkers of the Mīmāṃsā school the negation of a thing is the same as the affirmation of a thing or things opposed to the thing negated. We are just mentioning these different metaphysical viewpoints regarding the entitative status of negation without discussing them because the most important and interesting aspect of negation which is not known outside the pale of Indian philosophy is the logical aspect and this we are going to elucidate in this paper.

First, there is the relation of counterpositiveness. Holding between the negation and that of which it is the negation. This relation is called-rather mis-called-as truth-functionality in modern logic. The counterpositive and its negation exclude each other. So they are related by the relation of counterpositivity. If one is true the other is false. It is a relation of opposition which does not hold between

propositions and all their truth-functional compounds. So we have to give a special name to the relation of negation and the negated. Further as explained above the counterpositivity of negations is determined in different ways. The negation of a pot on a table example is not just the simple negation of a pot. It is the negation of the conjunctive occurrence of a pot on the table. The negation of the blue colour say, on a brown table on the other hand is not the negation of the conjunctive occurrence of blue colour as in the previous case. It is the negation of the inherent-occurrence of the blue colour because the colour of a thing is never conjoined with any material object. Only two material objects can be conjoined with each other. Relations have always to be taken into consideration while analysing the nature of a negation. Various relations like conjunction, inherence, temporality, spatiality, qualificerness, self-identity etc. are listed as possible determinants of counter-positivity by Indian logicians. Without determining relation, the counterpositivity of a counterpositive to its negation (or the truth-functional-relation between the negated and its negation) cannot be maintained. A book occurs on the table by the conjunctive relation although it being non-inherent in the table, its absence also may be said to occur there. So the bald statement that is often made that 'not 'P' is the truth-function or negation of 'p' is not quite correct. Even with regard to the same relation like conjunction it will be found that both the occurrence by conjunction of a thing and its absence are located in the same locus. In the above example it is found that the book lying on the table occupies only a small space of the table the rest of the space on the table remaining vacant. So we can say that the book is in conjunction with the table so far as a certain part of the table is concerned but it is also not conjoined with the table so far as certain other parts of the table are concerned.

From relational determinants we now turn to property-determinants of the counterpositivity of negations. Let us take two instances of negation to elucidate this point. A book is a material substance. So the negation of a book can be described even by the statement, 'A material substance is not on the table' as it is done by the simple statement 'A book is not on the table'. The vast logical difference between the two statements which are intended to refer to the same entity is quite obvious. It cannot be said that the difference consists in the fact that the reference of the words 'a

material substance' is rather vague while that of the word 'A book' is quite definite. In some other sentence the use of the words 'a material substance' can well be deemed to have very definite reference. Besides it is irrelevant to the consideration of the nature of a negation to distinguish the references of the words 'a book' and 'a material substance'. The question to be answered is, what is the difference between the negation of 'a book' and the negation of 'a material substance'. That there is a great difference between these two negations cannot be denied. If there is no book on a table but say a claypot, even then the negation of 'a material substance on the table' cannot be asserted although the negation of a book there can well be asserted. This distinction between the two negations may be supposed to be due to the fact that like relations different properties also determine the counterpositivities of negations. Thus in the negation of a book on the table the book which is the counterpositive is such in its capacity of a book although it is also a material substance. But in the other negation the book and other things too figure as counterpositive only in the capacity of material substances; so in the first case 'bookness' and in the second 'material substanteness' would be the property-determinants of the respective counterpositivities of the two counterpositives. Thus to define a negation at least two things, namely the relational determinant and the property-determinant of the counterpositivity of the negation need to be mentioned.

In some cases it becomes necessary to specify the property-determinant even of the property-determinant in order to correctly define the negation involved. Let us take two instances of negation like 'A red-coloured object is not here' and 'A coloured object is not here'. A red-coloured object is also a coloured object but these two negations are quite different from each other. The property-determinant of the counterpositivities of these negations is the same, namely, 'the property of being a colored object'. ('Being an object that is colored red' is included within this property). If despite this fact there is distinction between these two negations it is due to the fact that in one case the second-level-property-determinant is 'redness' and in the other case the second-level-property determinant is 'colourness'. Since 'redness' and 'colourness' are two different properties the negations involving these different second-level determinants cannot be the same.

Now a word about the law of double negation which is supposed to apply to all negations. In view of what has been said about the different types of determinants involved in the structures of negations it would have been obvious that the law of double negation cannot apply to all negations without suitable modification. To illustrate this point let us take 'the negation of the negation of a pot in which the first negation is of the occurrence of the pot by the conjunctive relation while the second negation is of the occurrence of the first negation by the temporal relation. The temporal relation is the relation by which all non-eternal things are supposed to be related with each other and with time. (Even a negation is temporally related to every non-eternal thing by this relation). Now let us see if the above negation of negation is equivalent in scope with the pot in order to find out if they can be identical with each other. The pot is conjoined only with the table, so its occurrence by the conjunctive relation excludes everything other than the table. The negation of the pot however is temporally related to every contemporary thing (excluding the eternal entities. In the view of Indian logicians nothing can be said to be contemporary with eternal entities). So the negation excludes past and future as well as eternal things from its scope. Thus the scope of the conjunctive occurrence of the pot and that of the above kind of double negation of it are absolutely divergent. This shows that the law of double negation cannot apply in this case.

The characteristic relation by which negation is supposed to occur in its loci is called 'Svarupa' which means self-relation. No positive entity is supposed to occur anywhere by this relation. But negation can occur even by other relations like the 'temporal' in loci other than its natural loci. For example in the above instance the negation of the conjunctive relation of a pot has everything other than the table-in which the pot is located-as its natural loci by the self-relation. But even on the table where the pot is present the negation of the pot can occur by the temporal relation. (The table being one of the contemporaries of the negation). If the occurrence of the negation by its characteristic relation is taken into consideration then the loci of this occurrence would be found to be exactly those that are excluded by the occurrence of the pot by the conjunctive relation. So the negation of such an occurrence of the first negation would be exactly coexistent with the pot and thus the law of double negation would have application in this case. The law therefore needs

to have revised formulation in the following manner. 'A thing and its double negation are identical if the second negation of the thing negates the occurrence of the first negation by its natural relation viz. the self-relation whatever may be the relation of the occurrence of the thing negated'.

Now we consider an extension of the concept of relational determination of counterpositivity. The relation by which a thing occurring in a certain locus excludes its negation from that locus is the relational determinant of the counterpositivity of that thing. Now there are relations which do not and cannot determine the occurrence of a thing anywhere. The relation of conjunction in respect of the generic universal is such a relation. The generic universal cannot be conjoined with anything. So one can say that the generic universal is nowhere present by the conjunctive relation and that therefore the negation of the generic universal by the conjunctive relation has universal scope. Nothing is excluded from the scope of such a negation. Here conjunction happens to be the determinant not of the occurrence of the universal but of its absolute non-occurrence (by this relation). The universal does not exclude anything by this relation although it is the counterpositive of its negation. We have thus the concepts of determining-relation and counterpositivity extended so as to cover the cases of the negations of universal scope. It is because a thing is present nowhere by a certain relation that its absence is present everywhere. We may thus have negations of universal scope of everything if a relation incompatible with the nature of a thing is chosen as its counterpositivity-determinant.

A further extension of the idea of counterpositivity-determination is in the direction of a property-determinant which is incompatible with the nature of the counterpositive entity. This comes about in this way. A book on philosophy, for example, finds place on a shelf reserved for philosophy-books in a library only as philosophy-book, and not as a novel. As a novel the philosophy-book cannot have a place anywhere, which means that in the capacity of novel the philosophy-book cannot have a place anywhere in the universe. So the absence or negation of the philosophy-book whose counterpositivity is determined by the property of 'being a novel' is universally present. Such an absence having universal scope can be had of each and everything. A tree exists anywhere only as a

tree and not as a pot. A pot exists on the ground only as a pot and not as tree. So, as a tree the pot is absent everywhere, even the locus it exists on.

A question may here be asked, 'If there can be such negations, can't there be negations of non-existent things like the chimera. The sky-lotus etc.? Such negations would be absolute as their counterpositives do not occur anywhere by any relation as they are absolutely non-existent. The difficulty in admitting such negations is that the admission entails some kind of existence of the very things that the negations are intended to negate. Even for absolute negation to be significant there has to be there the counterpositive of the negation which is negated. If therefore one unreal like the chimera is admitted as existent, then other unrels like the barren woman's son, mirage-water etc. would all have to be admitted as existent. There will not be any end to the list of such diverse unreal existents.

Anticipating this consequence of the admission of absolute negations the majority of Indian philosophers have denied the reality of absolute negations. They interpret or analyse the negation which is of the form of existential negation as a predicative negation. So, 'there is no barren woman's son', 'means on such interpretation that 'no male child is given birth to by a barren woman' or 'a barren woman does not give birth to a male child'. Both the subject and the predicate in these negations are real and the denial of the predicates is also real.

The foregoing elaboration of the concept of negation is just an indication of the different aspects of negation investigated by Indian logicians, specially those belonging to the neological school. A detailed and more sophisticated treatment of the subject needs a large-sized monograph wholly devoted to the analysis of the logical structures of different types of negation.

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