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**NYĀYA INFERENCE—DEDUCTIVE-INDUCTIVE
PATTERN**

The purpose of the present paper is to make a review of Dr. Jagat Pal's article "Nyāya inference: Deductive or Inductive" published in the *I.P.Q.*, Vol. XX, No. 3, July, 1993.

At the outset I appreciate Dr. Jagat Pal for rightly pointing out the misconceptions about the notions of deductive and inductive inferences. He is right in saying that 'in deductive inference the premises, if true, provide absolute guarantee for the truth of the conclusion'. This is definitely the main characteristic of a valid deductive inference. But without putting any argument the author simply says that "this given definition of deductive inference cannot be used as the criterion for characterising inferences in *Nyaya* as deductive" (p. 265).

Again, Jagat Pal is right in saying that "in inductive argument the premises, if true, provide a good reason or evidence (but not conclusive) for the truth of their conclusion". This is definitely the main characteristic of an inductive argument. But, once again, without putting any argument the author simply says that "this given definition of inductive inference cannot be used as criterion for characterizing inferences in *Nyāya* as inductive" (p. 266).

In course of his discussion Dr. Jagat Pal rightly says that the premises and conclusion of a valid deductive argument always stand in the relationship of implication or entailment, and it is because of this reason, premises with negation of conclusion always imply contradiction. I do agree with the author in this respect. But I beg to differ from him when he says "the *Nyaya* inference

is not a deductive inference because the premises of Nyāya valid inference with negation of the conclusion never imply contradiction.” (p. 266) It can be shown with the help of rules of formal logic that the premises of Nyāya valid inference with the negation of the conclusion do imply contradiction. Let us take the stock example of Nyāya valid inference.

All smoky objects are firey.

This hill is smoky

This hill is firey

To translate the above argument in the language of predicative logic:

- | | |
|---------------------|-------------------------|
| 1. (X) (Sx→Fx) | |
| 2. (∃ x) (Hx . Sx) | (∃ x) (Hx . Fx) |
| 3. ~ (∃x) (Hx . Fx) | Negation of conclusion. |
| 4. (x) ~ (Hx . Fx) | 3, Q. E |
| 5. Ha . Sa | 2, E. I. |
| 6. ~ (Ha . Fa) | 4, U. I. |
| 7. Sa → Fa | 1, U. I. |
| 8. ~ Ha V ~ Fa | 6, De. M. |
| 9. Ha → ~Fa | 8, Impl. |
| 10. Ha | 5, Simpl. |
| 11. Sa . Ha | 5, Com. |
| 12. Sa | 11, Simp. |
| 13. Fa | 7, 12, M. P. |
| 14. ~ Fa | 9, 10, M. P. |

Thus, in the above deduction taking the negation of the conclusion as a premise we reach contradictory statement namely, 'Fa' and '~Fa'. So, it is a gross mistake to think that premises of Nyāya valid inference with negation of conclusion never imply contradiction. And as the premises of a Nyāya valid inference with negation of its conclusion imply contradiction (what we have seen in the above deduction), the premises and the conclusion of a valid Nyāya

inference always stand in the relationship of entailment or implication. So, the *Nyāya* inference is obviously a deductive pattern of argument. In other words, *Nyāya* inference is deductive in the sense that formal consistency is maintained in it.

Though formal consistency is maintained in *Nyāya* valid argument the *Naiyāyikas* are less formal than the western logicians. Because, the *Nyāya* inference does not have to do with abstract relationship among terms, where the abstraction is free from all questions of reference. To a western logician the inference "all animals are horses, all horses are bipeds; therefore, all animals are bipeds" is formally valid, though unsound.

The unsoundness does not, in his view, detract from the logical interest of the example as instantiating a valid form of inference. But to a *Naiyāyika* this example is a *Nyāyābhāsa*, i.e., something which is only apparently an argument but really is not. In other words, it is an ill-formed argument because its members are known to be false. This is why along with formal consistency, the *Naiyāyikas* seek material truth in an argument. To achieve this end they introduce *udāharaṇa Vākya* in the third step of the five membered syllogism which runs as follows :

1. This mountain is fire-possessing
2. Because it is smoke-possessing
3. Whatever is smoke-possessing is fire-possessing, like kitchen and unlike lake.
4. This mountain, since it possesses smoke, possesses fire.
5. This mountain is fire-possessing.

The third step "whatever is smoke-possessing is fire-possessing" is a universal synthetic proposition which expresses an invariable concomitance between smoke and fire. Such a universal synthetic proposition can be established only by the method of induction like agreement in presence, agreement in absence and non-observation of contrary instances. Moreover, when the *Nyāya* method of assessing inferences in practice is carefully studied, it becomes quite apparent that the assessment of validity is a matter of trying to detect

subtle errors in adducing evidence for the constituent judgements and not of comparing the inference with abstract models to see if it instantiates one of the valid forms of inference.

Thus, on the one hand, the *Nyāya* valid inference is deductive because its premises and conclusion always stand in the relationship of entailment, though it does not have to do with abstract relation among terms, and the assessment of the validity of it is not a matter of comparing it with abstract models to see if it instantiates one of the valid forms of inference. On the other hand, a *Nyāya* valid inference is inductive because it seeks material truth of the conclusion by introducing *Udāharaṇa Vākya* as one of the premises which is established by inductive methods and the assessment of validity of it is a matter of trying to detect errors in the adducing of evidence for the constituent judgement.

M. Hiriyanna and C. D. Sharma viewed *Nyāya* inference from the angle considered above and that is why they call it inductive-deductive pattern of argument. In fine, I will ask Dr. Jagat Pal if *Nyāya* argument is neither deductive, nor inductive, not inductive-deductive, then what type of argument is it? Is there any fourth type of argument which is not deductive, not inductive or not inductive-deductive and in which *Nyāya* inference can be categorised? If there be so, what are its validity conditions? Dr. Jagat Pal viewed deductive and inductive arguments as diametrically opposite of each other because of their opposite characteristics and because of this reason he thinks that in an inference two inferential processes of opposite character cannot be applied together. I think that though deductive and inductive processes have contrary characteristics, they are not mutually exclusive and one is not independent of the other. J. S. Mill in his *A system of Logic* says that the deductive method cannot work unless it starts with a problematic induction or inductions per simple enumeration. Exactly in the same spirit Braithwaite suggests that every generalisation has to be accommodated within the deductive system. In his *Scientific Explanation* Braithwaite argues that the Hypothetico-deductive method is that of deducing the hypothesis in question from higher-level hypotheses which have themselves been inductively established. This, I think, is strong enough to prove that deduction and induction

are interdependent. So, the *Naiyāyikas* have done nothing wrong in making inference by both the processes of induction and deduction.

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