

**QUANTIFICATIONAL PARITY AND VERNACULAR DISPARITY  
[ALL : WITH “ANY,” “EACH” AND “EVERY”, “SOME” WITH  
“AT LEAST ONE”]**

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It is a matter of great concern of logic in general whether it enables us to cope up with the richness of ordinary standard language. Quantification logic is not free from this charge. In quantification logic one may cast doubt whether simple application of the use of quantification is adequate of capturing all the logical relevant features involved in the vernacular use of the particles of quantification. The same problem is raised in sentential logic by claiming whether the logical functors, viz, ‘.’ (dot), ‘v’ (vel) etc. are enabling to cope-up with their ordinary standard employment of and, or, etc. As far as vernacular disparity of language particles are concerned the doubt seems to be plausible. Although it is true that P.F. Strawson in his book *Introduction to Logical Theory*<sup>1</sup> has made a painstaking attempt to reflect the pros and cons of logical parity between logical constants (functors), viz, ‘.’, ‘v’, ‘ $\supset$ ’, ‘ $\sim$ ’, ‘ $\equiv$ ’ with their ordinary (vernacular) standard employment of ‘and’, ‘or’, ‘if-then’, ‘not’ ‘if and only if’, he does not pay much attention to the quantification import of language particles, such as, *all*, *each*, *any*, *every* etc. In his book Strawson was of the opinion that the logical constants did not cope-up with the richness of ordinary standard employment of *and*, *or* etc. In quantification logic it is found that by circumventing vernacular disparity of language particles logicians are prone to admit quantificational parity among language particles. In quantification logic the language particles *all*, *each*, *every* and *any* have been apprehended with regard to universal quantifier, namely, (x). On the other hand, the language particles ‘some’ and ‘at least one’ have been rated with regard to existential quantifier, such as, ( $\exists$  x). For example, the

propositions *All men are mortal* and *Any man is mortal* have been logically paraphrased as: For all values of  $x$  if  $x$  is a man then  $x$  is mortal. In symbol:  $(x)(Mx \supset Nx)$  ( $Mx$  stands for:  $x$  is a man and  $Nx$  stands for:  $x$  is mortal). Again the propositions: *Some men are mortal* and *At least one man is mortal* have been logically paraphrased as; For some values of  $x$  such that  $x$  is a man and  $x$  is mortal. In symbol:  $(\exists x)(Mx.Nx)$ . From the logical point of view the technique thus stipulated is not difficult to follow. It is found that the initial word of a sentence is started by either any, every, or each then it should be translated into sentence of the form all, and if the initial word of a sentence is started either by the word 'some' or by the word 'at least one', then it should be translated by existential quantifier. But as far as vernacular use of the particles of quantification is concerned there underlies some genuine problem. The problems are: Is simple application of the theory of quantification capable of capturing all the logical relevant features involved in the vernacular use of the particles of quantification? Are ordinary language particles, such as, all, every etc. have the same quantification import so that they can be rated in the same logical voice? In what sense 'any' can be equated with 'all' when 'any' is logically paraphrased in terms of universal quantifiers? These and many more burdens are related to this paper. Here I shall first of all explain the quantification parity among all, each, every, and any. Then I shall pass on to discuss the vernacular disparity of these language particles. Finally, I shall focus on an important issue in what sense logicians are prone to regard the ordinary word some as at least one. Let us pass on to explain these in turn.

## I

### ***Quantification Parity Of Language Particles : All, Every Each***

It is well known to all of us that in predicate logic the language particles, *all*, *each*, *every*, and *any* have been equated with universal quantifier, viz.  $(x)$ , and some and at least one can be equated with existential quantifier, viz.  $(\exists x)$ . As far as symbolic form is concerned a proposition starting with the initial word all can be logically equated with the proposition starting with the initial word *each*, *every*, or *any*. For example, the proposition 'All men are mortal' has been logically paired either with the proposition

'Each (every) man is mortal' or with the proposition 'Any man is mortal'. Similarly, a proposition starting with the initial word some can be logically paired with the proposition initially starting with the word at least one. For example, the proposition 'Some men are mortal' can be logically paired with the proposition 'At least one man is mortal'. One reason for this incorporation is that logicians seem to have believed that the proposition initially containing the particle *all* logically implies the proposition initially containing either the particle each (every) or the particle 'any'. Or in other words, the language particles 'each', 'every', 'any' are nothing but the *part of the meaning of* 'all'. Similarly, the proposition initially starting with the particle 'some' logically implies the proposition initially starting with the particle 'at least one'. Or one can say that the particle 'at least one' is part of the meaning of the particle 'some'. Consequentially, it is thought that the logical force of one particle sustains the logical force of another particle. Let us examine in what sense one particle upholds the logical force of another particle.

Assuming an office having five honest officers. Let us again presuppose that the names of the officers are : x, y, z, u and v. Now if it is admitted that sentences in which the initial word is being started with 'any', 'every' and 'each' and hence are taken to be translated into sentences of the form 'all' then we have the following sentences which are supposed to be logically equivalent with one another:

- 1) All officers in this office are honest.
- 2) Each officer in this office is honest.
- 3) Every officer in this office is honest.
- 4) Any officer in this office is honest.

Propositions [1] to [4] are logically equivalent with each other and can be symbolised in terms of universal quantifier, '(x)'. They are logically paraphrased as: Given any individual whatever if he is an officer then he is honest. In this proposition the relative pronoun 'he' occurred in two places refer back to the individual and they have the same indefinite reference. Accordingly, they may be replaced by 'x', where 'x' stands for an individual variable, and the proposition can be rephrased as: Given any x, if x is an officer in this office then x is honest. It appears that the proposition

under consideration is conditional (hypothetical). It is a law-like statement as it is not at all related with existential import. It does not lose its sense even if the class of officers under consideration is thought to be empty. It presupposes, but not entails, that for any values of  $x$ , if  $x$  is an officer then  $x$  is honest. So this hypothetical proposition can logically be paraphrased as: Given any  $x$ , if  $x$  is an officer in this office  $\supset x$  is honest. Symbolically,  $(x) (Ox \supset Hx)$  (where  $Ox$  stands for  $x$  is an officer in this office,  $Hx$  stands for  $x$  is honest)

Here the symbolic schema  $(x) (Ox \supset Hx)$  is regarded as a closed sentence (proposition). We have an open sentence such as  $Ox \supset Hx$  from the closed sentence by applying UI on it. Likewise we can return back to the closed sentence from the open sentence by applying UG on it. Here the variable  $x$  in the open sentence refers to any individual or officer in this office. But importantly, it is supposed to refer to them *one at a time* and the application of  $(x)$  means that what the open sentence says of  $x$  is true of all officers in the office taken them *one at a time*. Here the phrase *one at a time* is important to be understood. It means either 'any at a time', 'each at a time', 'every at a time'. It is important to be noticed here that although the language particle 'all' is used in the sense of collectivity, it reveals from the logical analysis that this collectivity is sustained via distributivity. The variable  $x$  in the open sentence acts as, as Rescher puts it, 'a shorthand synopsis of a multiplicity of statements'<sup>2</sup> comprising an infinite set of results each of which has been proved separately. The open sentence will remain true in each (every) or any substitution of the individual variable ' $x$ '. It will remain true if it is substituted either by  $x$ ,  $z$ ,  $u$  or  $v$ . This means that if  $Y$  is an officer in this office then  $Y$  is honest, if  $Z$  is an officer in this office then  $Z$  is honest, if  $U$  is an officer in this office then  $U$  is honest, and if  $V$  is an officer in this office then  $V$  is honest. In this sense it can be shown that for any values of  $x$ , if  $x$  is an officer in this office then  $x$  is honest. This makes sense to say that *each (every) or any* officer in this office separately (distributively) proved as honest and by way of proving each officer as honest we have a collective set of results by which we claim that 'all of the officers in this office are honest'. In this sense the language particle 'all' is logically squared with either 'each', 'every', or 'any'. In this process 'each', 'every', or 'any' will reach to 'all' by examining

*one by one* distributively. Let us pass on to examine the vernacular disparity of language particles.

## II

The most striking and of course obvious vernacular difference among the particles under consideration is that 'any' and 'all' are used in the sense of plurality and 'each', and 'every' are used in the sense of singularity. This distinction is, of course, a grammatical one. Grammatically, the language particles 'each' and 'every' are followed by the singular form of the noun and the language particles 'all' and 'any' are followed by the plural form of noun. Of course, some logicians cast doubt over the grammatical form of sentence as they seem to have believed that the apparent grammatical form of a proposition may not be its real form. For them the real form of a proposition lies submerged and it can only be revealed if the proposition under consideration is to be analysed with regard to logical syntax. May be it is true that the grammatical form of a sentence occasionally fails to reflect its true logical form, but this does not mean that it loses its base totally. Let us examine the following propositions:

- 1) All men are mortal.
- 2) Any man (men) is (are) mortal.
- 3) Each man is mortal.
- 4) Every man is mortal.

Look at the verb form of the above propositions. It seems clear that the language 'all' is used in the sense of plurality, whereas 'each' and 'every' are used in the sense of singularity. The language particle 'any' plays dubious role as it can be used both in the sense of singularity as well as plurality.

It also seems clear from the above that in the proposition (1) the language particle 'all' designates a collective force. It asserts that the class of men collectively belongs to the class of mortality. The proposition (2) plays a dubious role. If 'any' is used in the sense of plurality (two or three or four.. etc.) then it means to say that the class of two or three men belongs to the class of mortality. But if 'any' is used in the sense if singularity, then it is, of course, used in the sense of distributivity. But the propositions

(3) and (4) are used in sense of distributivity. Each of them says that each men separately or distributively *included* in the class of mortality.

Another important disparity between 'all', 'each', 'every' on the one hand and 'any' on the other hand is that 'all', 'each', and 'every' are determinate, but 'any' is indefinite and indeterminate. Let us again consider the earlier example:

All officers in this office are honest.

Each officer in this office is honest.

Every officer in this office is honest.

Here 'all' in the first sentence is used in a determinate manner as it includes five officers in this collectively. 'Each' and 'Every' are very much definite as 'each' means one by one, while 'every' means or stresses exhaustiveness. But what do we actually mean by uttering the sentence:

Any officers in this office are honest.

Does it mean 'any two' or 'any three' or 'any four' officers in this office? Certainly, it may be used to mean either any one of the following:

Any one officer in this office is honest.

Any two officers in this office is honest.

Any three officers in this office is honest.

Any four officers in this office is honest.

This makes sense to say that 'any' varies from sentence to sentence. But can we say that 'Any five officers in this office are honest'? Certainly not as the office is being comprised of only five honest officers. It appears that 'any' has no specific sense. It may be used in different sentences to mean different officers. But it has a limitation in the sense that unlike 'all' it lacks exhaustiveness.

Another pivotal disparity among language particles is that 'each' and 'every' without exception or reservation connote existence. 'Any' never connotes existence. 'All' plays double standard rule as it by itself never connotes existence but when it (all) is combined with definite articles or demonstrative pronouns, it connotes existence. Here we consider a few examples from Strawson's book *Introduction to Logical Theory*.<sup>3</sup>

According to Strawson the statement 'All the books in his room are by English authors' seems to be absurd if the room referred to has no book at all. In this statement the language particles 'all' co-exists with a definite article 'the' and hence it connotes existence. Again consider the classic example given by Strawson. The statement. "All moving bodies not acted upon by external forces continue in a state of uniform motion in a straight line' may well be true even if there never have been or will be any moving bodies not acted upon by external forces.'<sup>4</sup> Similarly the statement: "All human beings free from bacteria are not free from disease" has been regarded as true if there is nothing as a human being free from bacteria. In these statements the language particle 'all' does not go with any definite article and hence it is used without existential commitment. One may, of course, express reservation regarding these statements claiming that since they are law-like statements or statements stating principle, the question of their truth or falsity in terms of existential commitment simply does not arise. But we do not regard this charge as substantive since it can be possible for us to cite an example which will no longer be regarded as a law statement and in which the language particle 'all' does not co-exist with any definite article. The statement. "All message you might have sent would have been intercepted" is very much admissible inspite of the obvious vacancy of existential import. In this statement 'all' is used without a definite article. But the statement : "All the messages you sent were intercepted"<sup>5</sup> can not be accepted without admitting existential import. In the first statement the particle 'all' is not backed up by the definite article 'the', but in the later statement the particle 'all' is so backed up. Our all important observation is that as far as existential import of the language particle 'all' is concerned whether a statement is law-like statement or not a law-like statement is not decisive. What is conclusive is to notice whether in a statement the language particle 'all' is backed up by a definite article or not. If 'all' is co-existed with a definite article, then it will connote existence, otherwise it does not. Let us call on to 'each' and 'every'.

It is claimed that 'each' and 'every' connote existence and their existential commitment can be grasped easily. Is it not absurd to say that 'Each (Every) book in this room is written by English' author if there is no book found in the room? Certainly it is. Suppose somebody has claimed

that 'Each (Every) child of John is asleep'. In what circumstance the person has claimed this assertion? Naturally, he would not claim it unless he believed that John had children who were asleep. Suppose the person was mistaken as John had no children. What, then, we think about the person's statement: 'Each (Every) child of John is asleep'. Should we say that the statement under consideration is true or false. We should not. Rather it is reasonable to claim that the statement is senseless or pointless and the question of its truth or falsity simply does not arise. That statement is to be meaningful and hence may be considered as either true or false, if it has been admitted beforehand that John has children. Likewise the statement: 'Each (Every) book in this room is written by English' author is supposed to be meaningful (true or false) if it has been admitted that there are books in the room. Let us pass on to 'any'.

It is observed that unlike 'each', 'every' and 'all' along with definite article, the question of existential presupposition in the case of 'any' simply does not arise. The statement: 'Any book in this room is (are) written by English author (s) does not lose its sense if no books are found in the room. The logical force of this statement is conditional (hypothetical). It asserts that if there is (are) any books (s) in the room then it (they) is (are) written by English author (s)'. The statement is based on a presupposition, but not an entailment. The logical implication of this statement is that 'if the books are not written by English author then they are not books found in this room. It makes sense to say that any object fulfilling the condition specified by the antecedent is subject to the condition spelled out by the consequent. It asserts that if a thing satisfies the former it also satisfies the latter. Our all important observation is that when the language particle 'all' is used by itself, it will act as a law-like statement and hence it lacks existential import. In this sense 'any' is paired with 'all'. 'Any' is used as a law-like assertion, an open hypothetical. "Any' proposition, says Vendler, "is an unrestricted warranty for conditional statements or forecasts and ... for contrary-to-fact conditions."<sup>6</sup>

Since 'any' is unrestricted, an open hypothetical the logical behaviour of the language particle, unlike 'all', 'each' and 'every', is very much indifferent to the size of its immediate scope. It is hard to decide how many individuals the language particle 'any' means when it is used in the



sentence like: 'Any apple in the basket is red'. It possesses a dubious limitation. It renders one's freedom of choice vacuous. What the statement: 'Any doctor will tell you that cloroquine prevents malaria' means? Apparently the statement seems to be a conditional like the following: If you ask any doctor, he will tell you that cloroquine prevents malaria. You may perhaps be satisfied if you are going to ask so many doctors of which every one of them informed you that cloroquine prevents malaria. So the statement: 'Any doctor will tell you that cloroquine prevents malaria' is to use a bland warranty for conditional predications. It depends on you whether you would like to ask any doctor or not. If you ask Dr. Robinson he will tell you the same thing. if you pick 100 other doctors and ask them, they will tell you that cloroquine prevents malaria. And if you do not ask anyone, you do not use the blank. What is important to be noticed here is that by uttering the sentence 'Any doctor will tell you that cloroquine prevents malaria; one does not make a statement which ascertained as either true or false. Nor does he make predication which can be rated as either correct or incorrect. What he really is to use a blank guarantee for conditional predications which may be reliable or not, confirmed or disconfirmed. But by uttering such statement, the utterer throws a challenge which may be accepted or not. If anybody is willing to take this offer he would be satisfied by the sentence: You may select any doctor you may trust, you may consult with them as many as you please, and if none of them is disagreed then you may arrive at a conclusion that the statement under consideration holds good. This again is confirmed that in the above case one may apply his freedom of choice, he may take advantage, as he likes, of the indifference of the number of the doctors. Since the freedom of choice is open in case of 'any' particle, the particle in one sense is incomplete. It has no sharp boundary and as a matter of fact the principle of complete verification is absolutely abhorrent in 'any' sentence.

On the basis of the above consideration we can precisely sort out the vernacular disparity among language particles in the following ways:

- 1) 'Each' and 'Every' are associated with singular noun (with a subtle distinction that 'each' means one by one, but 'every' means completeness or exhaustiveness). 'All' is accompanied by a plural noun.

'Any' plays dubious role.

2) Since 'each' and 'every' are hanged around with singular noun they denote distributivity. 'All' denotes collectivity. 'Any' plays dubious role.

3) 'All', 'Each' and 'every' are definite, complete, but 'Any' is indefinite and incomplete. The principle of verification is repugnant to 'Any' and 'All', but the principle of verification is not sickning to 'Each' and 'Every'.

4) 'Each' and 'Every' do possess existential import. 'All by itself has no existential import, but 'All' backed up by a definite article has existential import. 'Any' has no existential import. As far as existential import is concerned 'Any' can be paired with 'All by itself'. Likewise 'Each' and 'Every' can be paired with 'All backed up by definite article'.

Upto now we have examined quantification parity and vernacular disparity of language particles 'all', 'each' and 'any'. Let us pass on to the next section to examine the logocal significance of considering the language particle 'some' as 'at least one'

### III

In ordinary standard grammar the language particle 'some' has played a dubious role. At times it bears the implication of singularity and at times it carries the implication of plurality. This is made clear by focussing on the verb 'to be'. Let us consider the following propositions:

- 1) Some man is beautiful.
- 2) Some man are beautiful.

In proposition (1) the language particle 'some' is backed up by a singular noun 'man' followed by a singular form of to be verb 'is'. But in the proposition (2), The language particle 'some' is backed up by a plural noun 'men' followed by a plural form of the verb 'are'. The first proposition is logically equivalent to the proposition: At least one man is beautiful, and proposition (2) is logically equivalent to the proposition: More than one man are beautiful.

But very interestingly in logic the language particle 'some' has been taken or interpreted as 'at least one' irrespective of its meaning. One may

simply cast doubt about the logical interpretation by saying that it hardly bears the ordinary force of the language particle 'some'. It seems absurd to say that 'Some men are playing there' logically means 'At least one man is playing there'. The ordinary implication of the statement 'Some men are playing there' is, of course, meant 'More than one man is playing there'. But logicians have regarded 'some' as 'at least one'. One reason for this consideration is to overcome the ambiguity of the ordinary word 'some'. Logic by its very nature can not cope-up or live up with ambiguity. It requires precision and accuracy. Logicians have thought that there is no inconsistency in considering the ordinary word 'some' as 'at least one'. For them the phrase 'at least one' is nothing but the meaning of the word 'some'. But the fact is that whatever the logical force of the phrase 'at least one' may have, ordinarily it can be equated with 'some' when 'some' is squared with 'more than one'.

Should we say at this juncture that logicians have failed to apprehend this problem? If there is any mistake on the logician's part, it is the mistake committed by the logicians deliberately. Logicians, of course, do not consider it a mistake. Rather they would consider it a reservation of the ordinary word 'some'. They put a reservation on the ordinary word 'some' so as to consider it as 'at least one'. If they do not interpret 'some' as 'at least one', then the principle of contradiction between A and O propositions as well as between E and I propositions has to be sacrificed. It is claimed that without the principle of contradiction no other principle of the traditional interpretation of the *Square of opposition of Propositions* has been retained. But the principle of contradiction has been retained only by imposing some stipulation on the ordinary word 'some'. If the ordinary word 'some' is not to be taken as 'at least one' but to be taken as 'more than one', then the principle of contradiction has to be ruled out. Let us examine in what sense the principle of contradiction has been retained if the ordinary word 'some' is taken as 'at least one', and the principle of contradiction has been dropped out if the ordinary word 'some' is taken as 'more than one'.

*'some' means 'at least one'*

If the ordinary language particle 'some' has been logically taken as 'at

least one', then from the proposition 'Some men are beautiful', we have the following table:

(I) At least one man is beautiful	(E) No men are beautiful
T	F
F	T
(O) At least one man is not beautiful	(A) All men are beautiful
T	F
F	T

It appears from the above truth-table that if the language particle "some" is taken as "at least one" then the principle of contradiction between "A" and "O" as well as "E" and "I" holds good. If "I" is true then unquestionably "E" is false and if "I" is false then "E" must be true. Again if "O" is true then "A" is unquestionably false and if "O" is false then "A" must be true. But if the ordinary language particle "some" has been interpreted as 'more than one', then from the proposition under consideration we have the following table:

*'some' means 'more than one'*

(I) More than one man is beautiful	(E) No men are beautiful
T	F
F	U
(O) More than one man is not beautiful	(A) All men are beautiful
T	F
F	U

It is clear from the above table that the principle of contradiction has not been held back. If both I and O propositions are supposed to be true then we have the contradictory truth value in E and A respectively. But if both I and O are supposed to be false then we do not have the contradictory truth value in E and A respectively. Here if I is held to be false then E is undetermined, and again if O is held to be false then A is undetermined. The proposition 'More than one man is beautiful' is held to be false under two possible circumstances, viz, (1) Just one man is not beautiful, and (2) All men are beautiful. Now on the basis of these assertions

we have the following table.

The falsity of 'I' means:	
(I) Just one man is beautiful	(E) No men are beautiful
F	U
(2) No men are beautiful	(E) No men are beautiful
F	F
(1) Just one man is not beautiful	(A) All men are beautiful
F	U
(2) All men are beautiful	(A) No men are beautiful
F	F

The above table again confirms that from the falsity of I and O proposition we do not have the contradictory truth value in E and A respectively. Ambrose and Lazerowitz<sup>7</sup> have said that we are not in a position to say that the falsity of I and O implies the truth of E and A respectively. Thus it can be said that if the ordinary language particle 'some' has been logically interpreted as 'more than one' then the contradictory form of 'some' is to be 'none'.

Up to now we have examined the quantification parity and vernacular disparity among language particles. Then we have explored the logical significance of the ordinary word 'some' to have been taken as 'at least one'. We have seen that logic has failed to reconcile the richness of ordinary language. But we do not think that the failure of this reconciliation of the richness of ordinary language is the failure of logic. Ordinary language is very much rich as well as contextual. Logic is not so much rich like ordinary language and it remains context free in most cases. Since ordinary language is rich, contextual and in most cases the terms of ordinary language play dubious rule, logic cannot harmonise with it. The very nature of logic is to assert something precisely and accurately. The ordinary word 'some' as we saw is ambiguous as it acts both as to denote singular as well as plural noun. Logicians would like to interpret it as 'at least one' and thereby impose a stipulation on it. One motive, of course, lies behind it. But this does not mean that logic is unable to analyse the concept 'more than one.' With the help of the concept of identity one can easily symbolize the concept

of 'more than one'. If it is presupposed that by the phrase 'more than one' we mean 'at least two', then we have the proposition, "At least two men are beautiful". This proposition can be symbolized like this:

$$(\exists x) (\exists y) (Mx. Bx. My. By. x \neq y)$$

It means that there is at least one  $x$  and there is at least one  $y$  such that  $x$  is a man and  $x$  is beautiful and  $y$  is a man and  $y$  is beautiful and  $x$  is not identical with  $y$ . The history of logic has witnessed an advancement. Logic has been trying to reconcile as well as attempting to make a close attachment with ordinary language. But logic does not or even perhaps cannot negotiate with the ambiguity of ordinary language. Logic attempts to overcome the ambiguity of ordinary language and by way of doing this logic puts forward to make a close attachment with the standard employment of ordinary language. There is no urgency to close-up with all varieties of ordinary language. Quantification logic attempts to make a parity among language particles which are no longer inconsistent with each other. Failing to reconcile vernacular disparity does not ignore quantificational parity of language particle.

#### NOTES

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