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Logic: A supremacy/Domination-Reinforcing Hammer or a Consciousness-Raiser?

Samuel Akpan Bassey
 Department of Philosophy,
 University of Calabar, Eta agbor Road,
 540271, Calabar, Cross River State, Nigeria.
Email: samuelbassey15@yahoo.com

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ABSTRACT

The epistemic norms endorsed by mainstream epistemology are truth, objectivity, and rationality. These norms need scrutiny. We could begin by locating gender bias in logic. There, however, happen to be feminists who deny that logic is hegemonic. They investigate the liberatory potentials of logic. This work embodies the points of view of both kinds of feminists, namely, of those who consider logic to be essentially tyrannical and also of those who find it innocuous and benevolent. This research is carried out because logic requires an elaborate investigation since it is integrally related to epistemology. In this work, I try to defend the emancipatory interpretation ultimately. I argued that it is possible to absolve the logic of the responsibility of domination.

Keywords: Logic, Feminism, logic of mutuality, Marginalization.

INTRODUCTION

Noretta Koertge argues that sexism functions in logic in two ways (Nickles 2012). First, sexism is rampant in the way logical principles are instantiated, and second, logic is inherently sexist. In teaching logic, authors like Copi, Kalish, Suppes, Lewis Carroll, and the like resort to exercises and examples that reflect contemporary cultural attitudes. This is borne out by the following examples, applied to explain Venn diagrams, truth tables, or formal proofs. These examples either exclude girls or women from cerebral work or objectify them without restraint and respect. The following examples will amply illustrate this point:-

- a) "a good husband is always giving his wife new dresses" (Carroll 1958, p. 121).
- b) "Who so findeth a wife findeth a good thing" (Clarke 1837, p. 754).
- c) "All successful executives are men" (Villalon 1949, p. 5).
- d) "Single women are decorous only if they are chaperoned" (Hesse-Biber 2011, p.

- 55).
- e) “Women without husbands are unhappy unless they have paramours” (Patai & Koertge 2003, p. 152).
 - f) “If either red-heads are lovely or blondes do not have freckles, then logic is confusing” (Suppes 2012, p. 64).

Mainstream linguistic philosophers may trivialize the sexist allegation by distinguishing mention and use. Analytic philosophers also would reinforce their contention by claiming language to be fully impersonal and value-neutral. The examples under consideration, they would maintain, do not designate a specific woman or women in general. The emphasis is on the form of the propositions. The form is the crucial concern of logic, not content or the information conveyed by the proposition expressed in a specific form. However, Logic is relative to and contingent upon epistemological traditions. Logicians like Copi, Carroll, Kalish, Suppes, and others, are attuned to the dominant epistemologies. They view the world through the eyes of the dominant epistemologists. This explains the genesis of their conception of women, manifest in the examples cited above. But logic can be understood as a consciousness-raiser since an involved analysis of logic or reason reveals that dominant epistemology and logic yield distorted accounts about gender categories only when power intervenes. In their pristine, uncolonized capacity, they are not unfair to women. An analysis of the nature of beliefs throws light on how false beliefs are brought about by the presence of power if those who yield power are not vigilant. To begin with, the apparent oppressiveness of norms of rationality needs to be expounded.

FEMINIST PHILOSOPHERS ON DOMINANT LOGIC

As pointed out by Shefali Moitra (2002) feminist philosophers are not convinced that the distinction between form and content in predicate logic liberates the propositions from their misogynic associations. She argues that a sentence that is just mentioned but not used, may also be discriminatory from the point of view of gender justice. This may be so because language is not context-transcendent or impersonal, as believed by mainstream philosophers of language. Language reflects the world of beliefs and activities of the speaker. The replacements of the term “servant” by “domestic help” or the term “negros” by “Afro-Americans” fail to rehabilitate the dignity of the household caretaker or the racially discriminated individual because the change in designators is not accompanied by a corresponding shift in the attitude or world of belief of the language users. Similarly, there is no reason why these propositions, which are utterances, traceable to male speakers of dominant logic, can be construed as gender-neutral. The world of beliefs of the male practitioners of dominant logic is yet to demonstrate any change concerning women. Their beliefs and activities still centre around the uncritically accepted faith that women are justifiably objectifiable, and men, being rational, alone are eligible to carry out intellectual and efficient administrative work. Women have not ceased to feel uncomfortable by these examples. They try to protect themselves from the assaults of these propositional acts on them by developing various defense mechanisms. They may pretend to ignore these hints by remaining silent. In this way, they merely encourage a politics of silencing. They may also alter their personalities to counter these linguistic invasions.

Mainstream interpretation of communication is unilateral. It considers the power of semantic authority to be concentrated in the speaker only. Women, who are silenced in significant discourse, are seldom speakers and lack semantic authority. Moitra (2002) points out the absurdity inherent in this unilinear approach to conversation. She thinks that ideally the hearer and the speaker of the statement concerned jointly constitute the communication setting. Power is distributed equitably in this entire setup. It is not concentrated in the speaker alone. Women, who are constituents of this entire conversational or dialogical backdrop, are required to assert semantic authority, needed to define or set up meanings of words. The experience of marginalization peculiar to women is qualitatively different from that of the privileged and powerful man. Women may speak in a different voice from that of men. To be able to understand this feminine voice, it is necessary to take the lived, intimate experiences of women seriously and sympathetically. The contents generated by the lived experiences of the marginalized, however, cannot meaningfully be communicated in the framework of a mechanistic language, governed by rules.

The Eurocentric, logo-centric “speaking to . . .” (Suppes 2012, p 43) mode of communication is restrictive. It confines experiences to conform to existing tools of logic. It excludes vocabularies and linguistic styles typical to women and other marginalized groups from the purview of meaningful discourse as unintelligible. Women are obliged to communicate in the male-determined logical parlance. The mode of communication known as “speaking with . . .” (Bekkum *et al.*, 1997, p. 43) allows the semantic authority to women by legitimizing a plurality of perspectives, allowing lived and embodied experiences of women to be expressed. This, however, cannot be achieved merely by broadening the available logical tools. A different concept of language is necessitated. The language here is conceived as an interpretive procedure, concerned with human personality, and respect for others. Community membership, too, is taken into account. This recognition is beneficial to the acquisition of semantic authorship by women.

The women’s movement, however, is appreciated by Koertge for having aroused consciousness among students. They are now able to identify the distastefulness of the above kinds of examples. Logicians can avoid the above-mentioned charge by drawing a boundary between form and content. A more substantial challenge, however, awaits logicians. It consists in the charge of sexism, that penetrates the formal structure of logic itself. Nye is well known for throwing light on the sexist dimension of classical logic. Nye’s first objection is against the formalization involved in the translation of ordinary sentences into the standard form of categorical propositions. Women find this repugnant, as it appears to them to divest logical statements of their real-life import as well as of their subtler and metaphorical richness. Koertge quotes Nye from her *Words of Power* (2008), where Nye asserts that “the philosopher who combs the tangles from language must also be a butcher who trims away the fleshy fat of ordinary talk to leave the bare bones of truth” (Hesse-Biber 2011, p. 75). Practitioners of mainstream logic would, however, answer that logic is pure syntax, not semantics. Another factor, sensed by Nye to be responsible for making women feel outlandish in logic-lectures is that logic concentrates unduly on form, marginalizing subjective and causal factors. This concern is reflected in her proposal to reject logic wholesale, as it creates artificial forms of language like syllogism —

believed to be oppressive to women. It pays to settle the question of whether such a complete rejection of content is commendable.

It is highly improbable that syntax has nothing to do with content. The pure syntax is an abstraction based on imagination. Examples of unrestricted oppression of women in logic textbooks stated above are hardly coincidental. Similarly, examples choosing men as subjects also do not assign duties requiring administrative efficiency purely coincidentally to them. The form is not the exclusive relevant consideration in these examples. They reflect existing western patriarchal beliefs concerning men and women. The fact also that women react spontaneously to these examples in the way they do establish that in these cases, form alone is not significant. Form and content are only theoretically separable, not in real-life situations. Syntax, in concrete, actual circumstances, is semantics-impregnated. The historical context in which the logic of abstraction makes its presence felt is described in the following way by Nye: “Desperate, lonely, cut off from the human community which in many cases has ceased to exist, under the sentence of violent death, wracked by desires of intimacy they do not know how to fulfill, at the same time tormented by the presence of women, men turn to logic” (Shew & Garchar 2020, p. 86). Such a description of a logician is strongly counterintuitive. It does not appear prudent to rule logic out wholly on the strength of this charge brought by Nye.

Plumwood (1993) thinks that undue emphasis on the problem of abstraction desensitizes the philosopher to the damage incurred by the instrumental and colonizing forms of rationality – which function as the root of significant political and economic discrimination. These much more objectionable forms of rationality have not much to do with abstraction. In addition, by grounding language on personal experience to counter the abuses of abstraction, much of what is of value to knowledge is liable to be lost. Plumwood (1993) writes,

The area of intellectual activity potentially destroyed by such a programme to eliminate abstraction and anything which departs from ‘normal’ language begins to look alarmingly large – not only mathematics and large areas of science – but computer programming, statistics, economic models, and no doubt a great deal more we might not want to lose (p. 439).

The efficiency of these enterprises is enhanced by formalization. They have not much to do with concrete, personal experiences. Feminists need to specify when to highlight abstraction and formalization, and when to emphasize particular lived experiences. Criticism should be sharply aimed at objectionable forms of rationality – not a reason per se.

Another objection brought against logic by Nye and other feminists is that it reinforces reductive programmes like logical positivism – which silences other forms of speech, based on lived experiences of women. Plumwood points out that this criticism is also not directed against the whole of logic, but at the dominant concepts used in logic, particularly at its definition of negation, which is unusually resourceful in constructing “the dualized other” as the target of various kinds of oppression. The objection raised by Nye loses much of its efficacy, once the plurality of modern logical systems is recognized. Nye targets classical two-valued logic. Alternative logical paradigms are not equally vulnerable to objections raised by her. Systems of logic like modal and intensional ones ascribe a much more restricted role to two-valued reason

than is done by classical or dominant logic. These forms of logic, instead of playing a normative and silencing role, by recommending universal laws of thought, are constructed on the analogy of natural languages. They develop in stark opposition to such reductive systems of thought. Plumwood (1993) maintains that against the backdrop of such a variety of logics, among them systems even accommodating contradiction, reductive programmes may be said to bear “approximately the same relation to logic as scientism does to science” (p. 440).

Plumwood accuses philosophers like Nye of being themselves responsible for constructing a monolithic kind of logic by suppressing diversity and multiplicity of logical systems. A complete rejection of logic rules out the possibility of more discriminating types of feminist criticism against logic itself than the general objection of abstraction and normativity. The intuitive self-evidence of classical logic, as also the pretences of naturalness of hierarchical dualism edified by it, the value-neutrality and timelessness it proclaims for itself, can be put to question. Hierarchical dualism is an unnatural bifurcation of reality into superior and inferior categories, in which dualism is viewed as necessary and unavoidable. The Western social and cultural parlance has historically been determined by hierarchical dualism so thoroughly that its presence is no longer identifiable as a constructed phenomenon to the observer. Feminists discern the presence of social selection by the dominant group in the valorization of classical logic.

THE CONCEPT OF NEGATION CLASSICAL LOGIC

The concept of negation classical logic privileges is supported by an elite perspective, as this account helps in perpetuating phallocentrism and similar oppressive tools of thought. Feminists lay bare the deep dualistic component of the traditional account of reason and endeavour to restructure an account of negation that treats otherness in less oppositional and exclusionary terms. Nye (1994), however, is suspicious of the possibility of “politically correct . . . non-poisonous logic” (p. 4) that upholds critical thought. She expresses her doubt by saying: “My question is whether logic even in its current more modest analytic form – a study of what counts as reason doesn’t keep some of its poison” (p. 4). Noretta Koertge, however, asserts that on occasions, logic truly functions as a hammer. When viewed from the point of view of modus ponens, there happens to be no escape from the consequences, however unsavory, if entailed logically by an accepted set of premises. Koertge points out pertinently that if the conclusion is intolerably unpalatable, it is always possible to fall back on the rule of modus tollens. Modus tollens is the rule that if an apparently logically sound argument leads to an unacceptable or false conclusion, there is certainly something wrong in the premises.

Modus ponens and modus tollens, incidentally, are elementary forms of argument. The validity of these argument forms is intuitively obvious. Whenever any particular argument conforms to these forms, they are necessarily valid. Modus ponens and modus tollens function as rules of inference, with the help of which proofs of the validity of more involved, complicated, and obscure types of argument can be constructed. Traditional logic recognizes nineteen such rules. Modus ponens can be expressed as having the following form:

1. A

2. $A \rightarrow B$

3. $\therefore B$

It sanctions the truth of any conclusion, q , provided that p is true.

Modus tollens is more restrictive. It asserts,

1. $A \rightarrow B$

2. $\neg B$

3. $\therefore \neg A$

If p is an obnoxious fact, it can easily be denied by identifying an absurdity inherent in q . Logic can be likened to a tiny, sharp needle in this capacity. By the application of it, dominant deductive systems can be overthrown, provided that it is possible to detect any fault, however minute, in any of the premises constituting it.

Nye's strongest and most characteristic objection to logic consists in her assertion that logic is conditioned by the historical context in which it originates, as also by the personality of the author. Since its inception in Greek thought, its advance through the medieval ages and its current status, it has been shaped by male biases and has been unmistakably sexist. She adduces as examples works associated with Aristotle, Abelard and with that of the twentieth century stalwart of logic, Frege. Bracketing Hitler and Frege together, Nye concludes that logic is ultimately insane. The application of logic to action that Frege recommends, helped Hitler in ostracizing Jews. If Jews are a mongrel race, they must be exterminated. Mongrels are living in defiance of the law of excluded middle, and hence, do not deserve to exist. "A thought like a hammer" demanded instant obedience to the laws of logic. It has to be understood that all that Frege wants to convey is that thought must follow logic, to be consistent. Nye interprets him otherwise. The law of excluded middle is a highly general law of logic, presupposed in all consistent thought. Classical logic recognizes three basic laws.

The law of identity asserts if p then p – whatever p is understood to represent. The law of non-contradiction (not both p and $\sim p$) segregates the class of things represented by p from the class represented by $\sim p$ (Parekh 2009). The law of excluded middle cancels any intermediate possibility that an entity can be neither p nor $\sim p$. It lays down that every possible actual thing must be either p or $\sim p$. Any mongrel race violates the rule by allowing overlap between two actually exclusive categories. A host of objections can be raised against this interpretation of logic. In the first place, it may be questioned whether the context of discovery is relevant to justification at all (Chernov 2002). Feminists, however, more or less agree that even the most stringent devices, like those adopted by the logical and post-logical positivists, are incapable of resisting the infiltration of contextual factors of discovery into the texture of the theory. They do not accept the a priori origin of the laws of thought and logic. Yet the possibility, however thin, persists that though such factors influence the content of the theory in question – the validity of the theory remains untouched by such factors, provided that the position is well argued for.

Plumwood (1993) considers the instrumental and colonial forms of rationality as charged with dualism, and therefore, with an oppressive potency. Plumwood shows how this oppressive form of rationality, entrenched in the definition of negation of classical logic creeps into and vitiates predominant social and political structures, institutions and forms of knowledge. It renders the other, the feminine in this context, totally powerless and devoid of agency. She points out after the imagery of the Venn

Diagram that $\sim p$ allows p passively to penetrate into itself and control its behaviour unconditionally. This interpretation of the relation between the two perpetuates domination of the other by the self. Venn Diagrams, incidentally, are named after the nineteenth-century English mathematician John Venn, who introduced these diagrams. They may be used either for representing categorical propositions of standard form or for testing the validity of syllogistic inferences. In their former application, these diagrams comprise two intersecting circles, The portion external to the circles represents $\sim p$. (\bar{P}) and $\sim \sim P$.

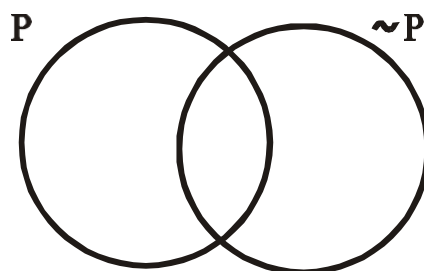
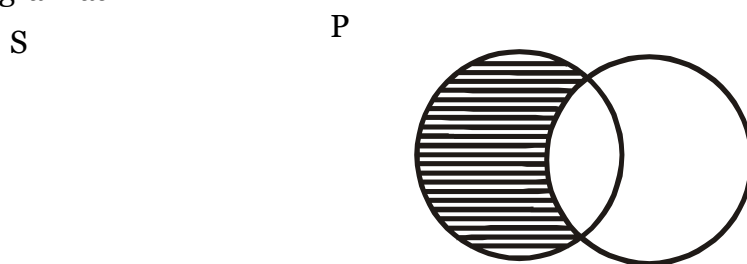


Fig 1

The empty two-circled diagram does not yet represent a proposition, for it fails to assert either the presence or the absence of the members of the concerned classes. The existence of members of a class is indicated by the insertion of an X. The non-existence of members is designated by shading out the portion concerned. While I and O propositions have at least one member, A and E propositions stand for null classes. A proposition of the form "All bananas are fruits" signifies that the class constituted by non-fruit bananas has no members. If S is taken to represent the subject or bananas and P is taken to represent the predicate or fruits in this proposition, the latter can symbolically be translated into the Boolean formula $S\bar{P} = 0$. This can be represented in the diagram as



$$SP = 0$$

Fig 2

Since an A proposition does not include its predicate, the dualized other of the subject, it is not of much use in representing irresoluble or hierarchical differences. Binary

opposition is brought out most effectively by an E proposition, constituted by the subject and the class opposed to it. ($P. \sim P$). It indicates that the combination of P and $\sim P$ is a null class. The combination is impossible. An E proposition of the form “no men are women” distributes both its terms, i.e., takes both the subject class and the predicate class in their entirety. It expresses a negative, radically exclusive relation between the two. The Boolean algebra that symbolizes this relation is $P. \sim P = 0$. As a consequence of such reasoning the class constituted by the admixture of men and women has no members.

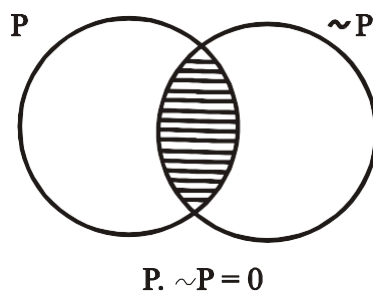


Fig 3

In Plumwood’s coinage, if P symbolizes the class of men, then women, being hierarchically opposed to the class of men, should be represented as $\sim P$. Judged from the point of view of hierarchical dualism, a more appropriate Boolean expression would be $P. \sim P = 0$, rather than $SP = 0$. The class woman is a negation of the class man. In this case, the predicate class is a class complementary of the subject class. The relation of negation happens to be very rigid in classical logic. Venn Diagrams are discussed within the purview of classical logic only. They are based on the same uncompromising construal of negation referred to by Val Plumwood. If women are negations of men then they lack the attributes of men. Men are defined as active and autonomous in mainstream accounts, women are the absences of autonomy. They are submissive. They are absences of activeness. Women are, therefore, dependent and passive. $\sim P$, representing the class of women, is as passive as the class it represents in the Venn Diagram metaphor. The circle which diagrams $\sim P$ (predicate class, women) in the Venn Diagram, passively allows the circle diagramming P , the subject class or men, to penetrate into its territory — though it does not share any reciprocity, interaction or mutuality with P . The Venn Diagram metaphor throws light on the lack of agency of women in defining and determining what kind of relationship it seeks to build with its overpowering gender counterpart.

The weak truth-interchangeability conditions of classical logic are responsible for the victory of instrumental reason over the alternative, fairer versions of rationality. Classical logic permits indiscriminate substitution of whatever true proposition for any true proposition, provided that implicational relations are preserved. This encourages the interchange of means smoothly — provided that the coveted effect is safeguarded. Means, however, can be fair or otherwise. In classical logic, the end consists in the preservation of the validity of an implication. An implication is valid in all cases, save in the case where a true proposition entails a false one. There is, therefore, no problem in substituting any true proposition for another true one. Feminists may point out that using this imagery of implication, the

substitution of any woman by another, without justification, may be defended, provided that the end, namely, the furtherance of male interest, is safeguarded equally. The platform of this indiscriminate substitution may be the home, the place of work or any other situation. Both the end and the means in this context are objectionable. The sustenance of the specifically male, as opposed to human interest, as is commonly practised, cannot be justified by any argument of morality. Again, the means employed, namely, the substitution of one woman by any other, for vague reasons, like personal preference or greater docility or payability of lesser wage is also not acceptable.

A FEMINIST STRATEGY OF BELIEF FORMATION

Catherine McKinnon and Sally Haslanger are quoted by LaVine (2020) as maintaining that norms of rationality can be explained as serving the interests of men, by allowing men to objectify women. Objectifying someone is unethical. Any norm of the reason that objectifies women may be said to generate unwanted consequences for women. Langton asserts that any other norm that allows itself to be explained as serving anybody's self-interests and having undesirable consequences for others deserves to be condemned. The question to be taken up in this context is whether the norm of rationality determining logic is to be so condemned. An answer in the affirmative would amount to the destruction of logic. Such a replacement, however, does not appear to be irresistible. In trying to defend logic and the norm of rationality underlying it, Langton makes a distinction between the realms of actions and of beliefs. Norms of rationality pertain to beliefs. They are not directly related to actions. Actions may be explained in terms of interests and fulfillment. If something is of interest to an agent, he acts in ways to fulfill his interests. If denigration and subjugation of women is of interest to men, they would engage themselves in actions directed to bring about the domination of women. Actions mold the world. The aim of belief, on the contrary, is to represent the world truthfully. It is a property not only of good or ideal beliefs but of any belief, qua belief, to conform to the world, which is equivalent to the belief being true. A norm of rationality is a belief-forming strategem. If beliefs are concerned with truth, there could not be a belief-forming strategem that lacks interest in truth but concerns itself solely with motives, interests, or desires. A norm of rationality, consequently, is not directly concerned with desires or interests. The norm of rationality associated with logic, therefore, is not liable to be condemned on the ground that it serves the interests of men, or underrates those of women.

Beliefs can be described as epistemic states, aiming to be true. The truth here is understood as the state of a belief's fitting the world. Desires or motives, however, have no such overbearing or necessary preoccupation with the truth. They involve the notion of fulfillment, as just mentioned. The fulfillment of desire comprises the adjustment of the world to fit the desires. McKinnon, however, refers to clear-cut counterexamples to the rule that beliefs fit the world. Wishful thinking and self-deception, for example, are cases where the world conforms to beliefs. The self-fulfilling beliefs of the powerful also form an exception to the rule that beliefs fit the world. Echoing philosophers like Foucault who believe that reality is constructed by discourse, McKinnon states that the beliefs of the powerful shape the world. Desiring women to be subjugated, the powerful men believe that women are constituted to be suitable to be subjugated, and they regulate the world in ways that the world arranges itself to fit their beliefs. They thereby effectively subjugate women. Also, following Langton's arguments to the core,

it dawns upon the reader that the logicians criticized at the beginning of this thesis like Copi, Suppes, and the rest, are products of a cultural environment that is accustomed to objectifying women. They are brought up in this atmosphere, which adduces endless examples of women being attributed negative qualities and also examples of women submitting to male domination without resistance – possibly out of fear.

The domination in question appears to be so natural that it does not even occur to them that the social situation in which this takes place is unusual in the sense of being constructed by power. The idea of submissiveness of women appears to them to be empirically justified. They wrongly construe themselves to be in the position of the observer who knows that withering away when watered by ammonia belongs to the essence of begonias. Their position is more like the one who falsely asserts that lyrebirds are silent. They need to follow the footsteps of the ornithologist whose careful observation reveals the lyre birds' brilliant musical acumen. Mere carefulness, however, will not be sufficient for the traditional definers of reason, because their situation is considerably more complicated than that of the ornithologist. Experiential evidence will furnish cases of domination of women infinitely. They need, as such, to transcend the threshold of observation, and ground themselves critically on reason, to find out how reason engenders true justified beliefs. As previously pointed out, beliefs are true and justified, if and only if they conform to the world on their own accord, i.e., if the world does not adjust itself actively to render the concerned belief true. The belief that women are submissive may be contingently true but never justified. The belief that essentializes this submissiveness is not even contingently true. In the majority of cases, women submit because of fear or reasons of security, not naturally. However, the belief that women are submissive may be true, but by no means justified. As abundantly elaborated, a belief is true when it fits the world. But in the case of the belief in question, power constrains the world to compromise itself to suit the belief of the dominator who exercises power.

The belief of the mainstream practitioners of logic and epistemology are reminiscent of the true but unjustified belief of Sam who is convinced that Islam will become the prime religion in times to come. It takes the manipulation of a supernatural agent to ensure the truth of his belief. But the belief of the majority of menfolk that women are submissive is not so extravagant. It needs no supernatural agency. It only needs the intervention of the socially privileged and powerful to establish the truth of what they unwittingly believe. Taking away power from the practices of logic and epistemology would enlighten them that these logico-epistemic principles are not inherently patriarchal. Once the consciousness that the world is coerced by the powerful to compromise to the demands of polarization is aroused, the insight that the opposition between the gender categories is one of non-hierarchical difference or complementarity, not of dualism, will spontaneously dawn upon the observer in question. Logic is a consciousness-raiser in the sense that the following logic minutely gives rise to the information that logic itself does not dualise or inferiorize. Only when power corrupts logic or epistemology, difference assumes proportions of dualism.

Power is the characteristic feature that men inhabit in a patriarchal society. The male reason is, as such, as much situated as the feminine. The social situation is entwined into the texture of the male personality as inextricably as in the case of the feminine. Hence, any norm of rationality governing logic must have reference to the

context of the individual it applies to and the values, expectations, and subjective factors that go with it. Moreover, the abandonment of the strict boundary between the male and female domains calls for a different kind of logic from the one reinforcing hierarchical dualism, which construes the opposition between men and women to be necessary, as men are naturally superior to women. A reformed logic would highlight the contingent nature of inferiorization and domination and would rule out inferiorization. Dualism could be thus dismantled and the difference would be established. Differences must not be blurred; they are real. Dualism thrives on differences. Classical rational practice, however, has been employed to distort innocent differences into hierarchical dualism. Essentialization of inferiorization is a component of dualism. It is disconcerting to acknowledge dependency on an inferiorized realm of being. As such, men, in patriarchal cultures, are in the habit of backgrounding services, utilized from the 'other'. The non-hierarchical difference does not incorporate inferiorization. If the negation of classical logic is replaced by an alternative notion of negation that only differentiates the gender categories non-hierarchically, but does not dualize, then the centre can afford to recognize the contribution and indispensability of the other, of the periphery.

Again, a non-hierarchical difference need not radically exclude the negated order. The latter, being not inferior, may be conceived as co-ordinate with, though different from, the centre. If so, areas of overlap need not be so urgently erased or cancelled. The reason, characterized by deductive rigour and mathematical precision, for example, may be typical to masculinity. Women may resort to a different kind of reasoning practice, involving verbal explanations and argumentations, analogies, concrete examples and the like. This softer kind of rational practice may even augment scientific, rigorous explanation. As such, instead of excluding women radically, utilization of this kind of feminine skill may improve the quality of scientific theory or explanation. The content of scientific theories, drawing upon feminine dispositions may be more suitable in representing feminine contentions.

The 'other', being merely different, and not a limitation, aberration or perversion of the centre, need not be estimated as incapable of defining itself independently of the centre. Definition of the other in terms of the self is undesirable. If the other can be defined in terms of itself, it can be considered to be unique, irreplaceable, and valuable for reasons peculiar to itself. Cancellation of relational definition discourages instrumentalization of the other. In the context of hierarchical dualism, the other is seen to be defined as a lack in relation to the self. If the self is defined as rational, the other is defined as non-rational or corporeal, emotional, and the like. Corporeality and similar lacks are essentialized. If an order of being is defined essentially as an aberration of reason, it is easy to justify its supervision, domination, and exploitation by a superior order of being. Being reduced to corporeality – its services can be utilized and backgrounded unscrupulously. If, on the contrary, the other is conceived as exhibiting features not inferior to, but merely different from, the self, then it can be defined in terms of positive qualities, essential to itself. Defining the other in positive terms restores the dignity of the other. Objectification or instrumentalization of the other is thus made difficult.

A non-hierarchical concept of difference would not homogenize constituents of the realm of the other. Homogenization consists in levelling subtle shades of difference among individuals constituting the periphery. Erasing all distinctions

results in a homogeneity. A population characterized as a uniform mass of negative qualities may be justifiably objectified and dominated. As pointed out, homogenization of all women as naturally submissive helps in making them conform to male erotic desires. If hierarchical dualism is replaced by non-hierarchical difference, areas of overlap between masculine and feminine domains may be acknowledged. Women need not be construed as submissive by nature, for example. There may be aggressive women. The naturalness and inevitability of domination are rendered questionable.

The dismantling of denied dependency, relational definition, radical exclusion, homogenization and instrumentalization can be expected to establish the cognitive, epistemological authority of women. Replacement of hierarchical dualism by a non-hierarchical difference presupposes necessitates an alternative definition of negation. The negation of classical logic dualizes or hyper-separates. It fails to represent overlap, mutuality, or sharing of different categories. Plumwood (1993) locates a different kind of negation in relevance logic. She refers to it as relevant negation. In the practice of relevant logic, negation is not carried out in consideration of the entire universe; that is, p and $\sim p$ are not rendered as constituents of disparate universes. Exclusion is specific to a particular aspect only, relevant to the purpose of one who engages in the operation of negation. As such, $\sim p$ may be the negation of a specific aspect of p , not of p as a whole. The negation of autonomy, for example, need not indicate complete determination or absorption, but connection. Negation, so understood, does not amount to contradiction. An individual may exhibit overall autonomy, in spite of being connected to other members of the community. In the system of relevant logic – negation of masculinity does not comprise total exclusion from the universe of men. It merely asserts difference. Women are really different from men. The difference, however, is not tantamount to hierarchical dualism. It is not equivalent to contradiction. As such, an overlap between feminine and masculine gender categories does not induce a system collapse. If so, radical exclusion need not characterize the rational practice of relevance logic. If women need not be radically excluded, they need not be construed to constitute a different universe, characterized by uniformity or homogeneity. As they are inhabitants of the same universe, they may be qualified by common qualities. Again, differences among women can be acknowledged, as relevant equivalence has the power to reflect finer distinctions between propositions expressing implicational equivalence. Erasing all differences among women and reducing them to an identical set of negatively construed qualities facilitate the subjugation of women. In the context of propositional logic, the assertion of equivalence is not sensitive to subtler differences between propositional entities between whom equivalence is asserted. If $p \vee q$, p , and q are uniform, homogeneous, differenceless. If all women are considered equivalent on account of constituting the universe of women, there need not be any difference, however subtle, among them. But relevant equivalence, being more nuanced, can preserve finer distinctions among women.

Along with radical exclusion and homogenization, relevant negation takes care of relational definition also. The origin of relational definition can be traced to the interpretation of feminine qualities as lacks, complementarities, or perversions of masculine ones. This kind of interpretation is typical of hierarchical dualism and the definition of negation that supports it. Relevant negation does not exclude in so cursory a fashion. It does not indicate a deprivation or absence, but an additional,

different quality. In this scheme, the negation of humans is not non-human, but a human category of a different kind, viz., the feminine human. This different kind of human entity need not be defined relationally to men, because its qualities are not absences or perversions of masculine ones. It is a different kind of category and presupposes definition in terms other than, different from, additional to, those peculiar to men. Women need not depend on men for purposes of identification or definition. As the 'other', (women in this case) can be defined as an independent self, it is no longer reduced to a mere extension of the desires, interests of the centre. It can exercise constraint on the so-called self. As the negation of relevant logic lacks hierarchical features, a negated order of being is not presented as inferior to that of which it is a negation. The absence of inferiority problematizes domination and instrumentalization.

The replacement conditions of relevant logic are much stricter than those of classical logic. As previously pointed out, classical logic allows the substitution of any proposition by another, provided that the truth of the implication is preserved. This practice is reflected in the indiscriminate interchange of women, provided the efficiency of services to men is not impaired. Women, in this context, are conceived as mere means or instruments in serving the interests of men. Replacement is not at all smooth in relevance logic. Preventing the practice of positing hierarchies on existing differences and defining replacement conditions of relevance logic in much more stringent ways resist instrumentalization of the other.

CONCLUSION

The interpretation of reason or logic supported in this work deviates significantly from the definition of reason employed in the definition of knowledge, advocated in traditional epistemology. The reason, understood in the classical sense, is totally against the incorporation of contextual, subjective factors. Though Kant considers objects to conform to the mind in the origin of knowledge, the categories of the understanding enlisted by him are purely a priori in nature. Though theoretically a priori, the reason is obliged in practice to associate itself with contextual and subjective factors. Rae Langton, as such, indicates, how reason in connection with social and cultural factors, leads to true, justified beliefs, falling short of knowledge proper. She, however, believes that when reason is cleansed and purified of contextual factors, it can arrive at knowledge. In this work, on the contrary, I vouch for my preference for Val Plumwood's interpretation of reason. She recommends the replacement of the traditional definition of negation. Negation is an integral, crucial, integral component of classical logic. By disrupting the definition of negation, Plumwood brings about a major upheaval in the concept of reason or logic found in traditional epistemology.

I introduced this work with the query of whether logic is a domination reinforcer, empowered by the force of a hammer, or a consciousness raiser. After considering Plumwood's suggestions, I feel it possible to absolve the logic of the responsibility of domination. Thoughts are the objects of logic. Logic intends to police or straitjacket thoughts, to render them consistent. Even if thoughts are as real as a hammer, in the sense of being able to generate as palpable effects as a hammer in the material world does, as Frege desires, they need not oppress. It is classical logic mainly that has the potentiality of positing hierarchical dualism. But logic allows itself to be presented in more malleable forms, as suggested by Plumwood. In such a capacity,

logic functions more like a consciousness raiser. It heightens the consciousness among the marginalized that marginalization is not indispensable in epistemology. Marginalization is a political construct. The marginalized can counter-construct itself as the centre of self and voice her contentions as originators of scientific and philosophical theories. I adopt Plumwood's logic of mutuality, as a model regulating feminist epistemologies. Such logic enables a non-hierarchical concept of otherness. The other is treated as an independent centre or self, as a unique entity. Such an interpretation of the subaltern opposes the genesis of oppressive epistemologies.

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