



---

Rationality, Argumentation and Embarrassment: A Study of Four Logical Alternatives  
(catuskoṭi) in Buddhist Logic

Author(s): V. K. Bharadwaja

Source: *Philosophy East and West*, Vol. 34, No. 3 (Jul., 1984), pp. 303-319

Published by: [University of Hawai'i Press](#)

Stable URL: <http://www.jstor.org/stable/1398631>

Accessed: 06/11/2013 13:19

---

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at  
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



*University of Hawai'i Press* is collaborating with JSTOR to digitize, preserve and extend access to *Philosophy East and West*.

<http://www.jstor.org>

**V. K. Bharadwaja Rationality, argumentation and embarrassment:  
A study of four logical alternatives (*catuṣkoṭi*) in Buddhist logic**

In this paper I shall consider several interconnected issues centering around the four logical alternatives (*catuṣkoṭi*) in Buddhist logic which, it seems to me, involve questions of rationality, argumentation, and philosophical embarrassment. It is my contention that philosophers who have worked in this area of Buddhist logic during the past fifty years or so have not faced these issues squarely. In their work, they show either an obsession with logic,<sup>1</sup> or a tilt in favor of the Inexpressible,<sup>2</sup> or have felt a certain level of philosophical embarrassment<sup>3</sup> while discussing them. Let me state these issues:

*One:* In the early Pāli Buddhist literature we find (a) not only expressions “There is a next world” and “There is no next world” but also the forms “There is and is not a next world” and “There neither is nor is not a next world”<sup>4</sup>, and (b) “The world is finite,” “The world is infinite,” “The world is both finite and infinite,” and “The world is neither finite nor infinite”.<sup>5</sup> There are two features of these examples (a) and (b): (1) Regarding them as a subject/predicate form of statement, what is in question in (a) is the existence of the next world (the subject term) in each one of these four expressions; while in (b) the existence of the world, the subject term, is not in question; what is in question is whether or not the world is finite. (2) In both (a) and (b), four logical possibilities have been taken into account: affirmation, negation, both affirmation and negation, and neither affirmation nor negation. These four possibilities have been historically called *catuṣkoṭi*, and philosophers have taken upon themselves the task of explaining them, the question being as to how it is that Buddha, the Enlightened One, rejected each one of them.<sup>6</sup> Nāgārjuna exploits this rejection as a form of argumentation against his critics and opponents.<sup>7</sup> There is a vast historical gap between the date of the Buddha and the date of Nāgārjuna; yet when one reads Nāgārjuna’s works one is surprised by the similarity between his work and that of the Buddha—in the formulation of the four alternatives and their systematic rejection.<sup>8</sup>

*Two:* Nāgārjuna is said to have held no thesis or philosophic position of his own on the grounds that he rejects each one of the the four possible alternatives and that he himself says that “he has no thesis of his own or no position to defend.”<sup>9</sup> The question, however, is that if he has no thesis of his own to defend, then what is he doing? Is he engaged in *vitā*,<sup>10</sup> a form of debate in which one is concerned only with refuting the opponent’s thesis but not with establishing one’s own? An affirmative answer to this question is “an embarrassment to the philosophers,”<sup>11</sup> however “useful and effective a philosophic method”<sup>12</sup> it may prove to be.

*Three:* The above two become issues only when we think that both Buddha,

V. K. Bharadwaja is a member of the Department of Philosophy at the University of Delhi.

AUTHOR’S NOTE: *I am deeply indebted to Professors S. S. Barlingay, R. C. Pandeya, and Mahesh Tiwari, and to Kanchana for their kind comments and criticism of an earlier draft of this paper. However, I alone am responsible for any mistakes in it.*

*Philosophy East and West* 34, no. 3 (July 1984). © by the University of Hawaii Press. All rights reserved.

the Enlightened One, and Nāgārjuna, the Mādhyamaka philosopher, were concerned with the Inexpressible. “‘All things are void’ is not a proposition. It only expresses the Inexpressible with the help of the conventional truth. The real language here would be silence.”<sup>13</sup> Or, as Ramchandra Pandeya puts it: Since none of the four alternatives have been asserted, the question of their denial does not arise such that “if there be any reality, it cannot be expressed in terms of four *koṭis*.”<sup>14</sup>

I will discuss these issues one by one. My plan is as follows: First, I will pick up one or two major positions on each one of these issues and examine them in detail. My strategy is to take into account the context in which these issues make their maiden appearance; to draw important distinctions, like the one between different types of questions; to indicate the role which the Buddhists assign to denying each one of the four possible alternatives in order to reject the opponent’s position; and finally to outline the conceptual framework within which both the Buddha and Nāgārjuna are operating. In the course of my argument I suggest that both argumentation and embarrassment presuppose a certain analysis of the concept of rationality which to my mind is too narrow to go with the sense in which we say that ‘man is a rational animal’.

In the early Pāli Buddhist literature,<sup>15</sup> four types of questions have been differentiated. (1) There are questions which ought to be explained categorically. For example, to the question “Is form impermanent?” the answer is “Yes, it is.” To the question “Is the world full of suffering?” the answer is “Yes, it is.” To the question “Does everyone die?” the answer is “Yes, everyone dies.” These are questions which are clear in respect of both syntax and semantics and which therefore are answered categorically. The Buddhists call them *pañha ekam-savyākaraṇīya*.<sup>16</sup> (2) Then there are questions which ought to be answered with a counter question. For example, the question “Is consciousness a person’s soul or is consciousness one thing and the soul another?” is responded to with a counter question “What do you take to be the soul?” The Buddhists call them *pañha paṭipucchavyākaraṇīya*.<sup>17</sup> (3) A third type of question is those that should be set aside. For example, the question “Will the Tathāgata live after his death or not?” is a question which is to be set aside. Such questions are called *pañhaṭhapanīyo*.<sup>18</sup> (4) The fourth type of question is those which ought to be explained analytically and then answered. For example, to the question “Are all human beings reborn?” the answer is “Some are and some aren’t.” Questions like these are called *pañha vibhajjavyākaraṇīya*.<sup>19</sup> In the case of the fourth type, adequate specification, clarification, and analysis are required before these questions are answered correctly. For my purposes, two types of question are important: the first type of question to which a categorical answer is possible, and also is generally given; and the third type of question, those questions which are to be set aside—that is, the *ekamsa* and the *ṭhapanīya* questions. The remaining two types of question require clarification and analysis but they are both askable and answerable affirmatively or negatively as the case may be. The questions of evidence—

whether that evidence is analytic or empirical or whether it is of some other admissible kind of evidence—are definitely relevant to the truth and falsity of their answers.

Consider first the *ṭhapanīya* kind of question. A *ṭhapanīya* question is one which is to be set aside. Jayatilleke sees in this type “a modern parallel in the kind of questions which the Positivist dismisses as meaningless and therefore unanswerable.”<sup>20</sup> The question, however, is: “What is the criterion by applying which a certain question is said to be set aside? One answer which Buddhaghosa gives is that a *ṭhapanīya* question is “a question which ought not to be explained and which ought to be set aside on the ground that it was not explained by the Exalted one.”<sup>21</sup> But as Jayatilleke observes: “This is not very helpful, for he is virtually saying that these questions ought to be set aside because they have been set aside by the Buddha.”<sup>22</sup> Buddhaghosa’s position thus amounts to accepting the authority of the Buddha, an authority which even the Buddha himself did not regard as unchallengeable, and this is philosophically very embarrassing. We do need a criterion to tell a *ṭhapanīya* from a *ṭhapanīya* question.

Broadly, there are two different criteria for identifying a *ṭhapanīya* question: (1) the pragmatic criterion and (2) the logical criterion. As regards the pragmatic criterion Jayatilleke observes: “These questions were ‘to be set aside’ (*ṭhapanīya*) on pragmatic grounds since belief in any of the possible answers was considered irrelevant and otiose for our purpose.”<sup>23</sup> Here the parable of the arrow is relevant. The parable is designed to bring home the idea that what is important is giving urgent medical attention to the one who is shot with the arrow. Questions such as “Who shot the arrow?” are left to be answered later, when an inquiry into the incident is conducted. In the context of inquiry, these questions are both askable and answerable; but in the context of giving urgent medical aid to the victim, they are irrelevant.

The *second* is the logical criterion. A *ṭhapanīya* question is either (a) misleading in form, violating the logic of meaningful syntax and thus rendered meaningless, or (b) it is conceptually impossible for us within a given conceptual framework to assign truth values, true or false, to any answer given to it. Take, for instance, the question whether the *Tathāgata* will exist after death. An answer to it is classified as one of the *avyākata* theses<sup>24</sup> (which we shall discuss presently). From a logical point of view, it should be possible to say that any one of the four alternatives is true. The possible alternatives are (1) ‘Yes, it is the case’, (2) ‘No, it is not the case’, (3) ‘It is both the case and not the case’, and (4) ‘It is neither the case nor not the case’. But, on the Buddhist view, none of the four alternatives “fits the case” (*upeti*). To say that the *Tathāgata* exists after death does not fit the case; that he does not exist after death does not fit the case; that he exists and does not exist after death does not fit the case; that he neither exists nor does not exist after death does not fit the case.<sup>25</sup> When each of the four possible alternatives is rejected, then within the context in which the question is asked, one obvious conclusion is that it is not possible to answer the question “Does the *Tathāgata*

exist after death?" This possibility is not empirical; and one is led to surmise that it involves logical and conceptual confusions—for instance, having a good syntax grammatically but semantically having a result that is a meaningless sentence like "The Taj Mahal is kind to people who visit it" or an unaskable question like "Is the father the female parent?" The question, for example, "Where does the flame of a candle go to when it is *blown out*?"<sup>26</sup> is one which does not admit a meaningful answer because it is based on a conceptual confusion of two distinct logical concepts. (It is interesting to observe that in the early Pāli Buddhist texts an exactly similar example is given. Compare "This fire in front of you, which has gone out, in which direction has it gone?")<sup>27</sup> The question thrives on the mistaken syntactical similarity with another question like "Where do I go when I fall sick?" The second question is perfectly meaningful while the first is incomprehensible. The second admits of a perfectly meaningful answer while the first does not.

There is another type of question which is regarded as "inappropriate" (*na kalla*) and<sup>28</sup> which, like the *thapanīya* questions, is also set aside on the grounds that it is "literally meaningless."<sup>29</sup> For example, "What is decay and death and of whom is this decay and death?"<sup>30</sup> is an inappropriate question; it is a misleading question to ask "Who feeds on the food of consciousness?" Both are examples of inappropriate, improper questions (*na kalla pañha*).<sup>31</sup>

I said earlier that questions of the first type, namely, the questions which ought to be explained categorically, raise a special problem about the logical status of their answers. To a question of this type like "Is the world full of suffering?" the categorical answer is "Yes, the world is full of suffering." What is the logical status of this answer? Regarded as an empirical statement or an unrestricted empirical generalization it is patently false. But for Buddha, the Enlightened One, it is true with absolute certainty. And we shall see later that his answer to this question is one of the fundamental constituents or presuppositions of the Buddhist conceptual framework. As such, it may be said, it is either analytically true or the question of its truth or falsity within that framework simply does not arise. The only question one can ask about it is "Why after all *should we accept* this statement that the world is full of suffering as true?" And there is all the difference in the world between saying (1) that a statement *S* is true and saying (2) that *S* is accepted to be true. (1) may be a good reason for (2), but it need not be; and from (2), (1) need not follow. Besides, the reasons for (1) need not be the reasons for (2) and conversely also.<sup>32</sup> The question "Why after all should we accept that the world is full of suffering?" is external to Buddha's conceptual framework; and it is decidable on grounds of pragmatic considerations only.<sup>33</sup> Such considerations may not be regarded as *rational* in the narrow sense of the word "rational," the sense in which giving reasons for the truth of a statement is being rational. But, all the same, they are not irrational, either, for they concern and take into account the reasons for accepting the statement to be true. They

involve a necessary reference to our aims, motives, and purposes, to our values, commitments, and concerns, and even to our aesthetic considerations, like simplicity and elegance. In Carnap's terminology<sup>34</sup> such questions are external and not internal to the Buddhist conceptual framework. However, I disagree with Carnap on the point that only because external questions cannot be answered within the given linguistic framework, their answers must be analytically true with respect to the framework. To my mind, they need not be, and in fact they are not analytically true. The statement that the world is full of suffering is not analytically true; rather it expresses our commitments,<sup>35</sup> and whether these commitments are moral, intellectual, or philosophical will depend upon the type of conceptual framework within which we operate.

There is a distinction between *vyākata* and *avyākata* questions. In the early Pāli Buddhist literature we come across four questions which have been characterized as *avyākata*. "*Vyākata*" means "analysed, explained, clear, comprehensible."<sup>36</sup> Thus a *vyākata* question is well-analyzed, explained, clear, and comprehensible such that a meaningful answer to it can be given within the conceptual framework in which it occurs. The question is both askable and answerable within that framework. It is not a *ṭhapanīya* question, a question which is to be set aside. Given the types of questions we have enumerated and differentiated, all questions other than the improper ones (*na kalla pañha*) and those that are to be set aside (*thanānīya pañha*) fall within the range of *vyākata* questions. The questions which are to be set aside need to be differentiated from those that are improper or misleading. An improper question (*na kalla pañha*) is to be set aside on the grounds that it is "literally meaningless."<sup>37</sup> I shall call them unaskable questions. The question 'What is decay and death and of whom is the decay and death?'<sup>38</sup> and the question 'Who feeds on the food of consciousness?'<sup>39</sup> are improper and misleading questions. They are questions "which are suggested by the grammar of the language but which give or imply a false or distorted picture of the nature of reality."<sup>40</sup> This feature of *na kalla* questions shows that they form a proper subset of *ṭhapanīya* questions. But then what is the differentia of *na kalla* questions?

Both types of questions are those which are to be set aside. Both types are grammatically well-formed also. The two may be differentiated on the grounds that while a *na kalla* question is either improper or misleading, a *ṭhapanīya* question is set aside (a) on the strength of pragmatic considerations formulated on the lines of the parable of the arrow, or (b) on logical grounds with respect to (i) that any answer to them fails to fit the case (*upeti*) and (ii) that any answer to them results in an *avyākata* thesis. Besides, the kind of response which they evoke would differentiate a *na kalla* from a *ṭhapanīya* question. In the case of *na kalla* questions, "all four of the logical alternatives may be false,"<sup>41</sup> but these questions are not to be treated as *ṭhapanīya* since they have been categorically answered. The Nikāyas distinguish between the two types by using the formula

'*mā h'evam*' (do not [say] so) for all the four alternatives of a *ṭhapanīya* question, while in the case of *na kalla* questions, "the usual negation '*no h'idam*' (it is not so) is used for each of the four alternatives."<sup>42</sup>

We have said above that any answer to a *ṭhapanīya* question results in an *avyākata* thesis, a thesis which is unanalyzed, unexplained, is not clear, and is incomprehensible. Such a thesis broadly is of two types: first, that which affirms or denies the existence of the nominatum<sup>34</sup> of the subject term, and second, that which, while presupposing the existence of the nominatum of the subject term, affirms or denies a certain predicate of it.<sup>44</sup> An example<sup>45</sup> of the first type is:

- (A) (1) There is a next world  
 (2) There is no next world  
 (3) There is and is not a next world  
 (4) There neither is nor is not a next world

In (A) it is the *existence* of the next world which is affirmed in (1), denied in (2), both affirmed and denied in (3), and neither affirmed nor denied in (4). An example<sup>46</sup> of the second type is:

- (B) (1) This world is finite  
 (2) This world is infinite  
 (3) This world is both finite and infinite  
 (4) This world is neither finite nor infinite

There are other examples of *avyākata* theses; but the difference between them as in (C) below is in terms of the subject and the predicate chosen in a given context; or, as in (E) below, the difference is in terms of the contrary or contradictory predicates affirmed or denied of the subject. An example<sup>47</sup> of (C) is as follows:

- (C) (1) The soul is identical with the body  
 (2) The soul is different from the body  
 (3) The soul is both identical with and different from the body  
 (4) The soul is neither identical with nor different from the body.

Here in (C), if (1) through (4) are regarded as subject-predicate forms of the statement, then the difference between (B) and (C) is in the particular subject and predicate chosen in a given context. From the logical point of view, formally there is no difference between (B) and (C).

- (D) (1) The Tathāgata exists after death  
 (2) The Tathāgata does not exist after death  
 (3) The Tathāgata both exists and does not exist after death  
 (4) The Tathāgata neither exists nor does not exist after death.<sup>48</sup>

In (D) as in (A) the existence of the nominatum of the subject term is affirmed in (1), denied in (2), both affirmed and denied in (3), and neither affirmed nor denied in (4). An example of (E) is as follows:

- (E) (1) The soul is happy  
 (2) The soul is unhappy

- (3) The soul is both happy and unhappy
- (4) The soul is neither happy nor unhappy

Here in (E) the predicates affirmed or denied of the subject in (1) through (4) are contrary and not contradictory.<sup>49</sup> An example in which the predicates are neither contrary nor contradictory<sup>50</sup> is as follows:

- (F) (1) The goal can be attained by knowledge
- (2) The goal can be attained by conduct
- (3) The goal can be attained by both knowledge and conduct
- (4) The goal can be attained by neither knowledge nor conduct.

Any example in which the predicates are contradictory is the same as (B) or (C) above. In my discussion, I will restrict myself to the forms (A) and (B) only. From the logical point of view, it is the (A) and (B) forms which are interesting and not the others—at least so it seem to me. The theses (1) through (4) in both (A) and (B) are *avyākata* theses. The questions to which they are answers are *thapanīya* to be set aside. In both (A) and (B) each one of the four logical alternatives is rejected. This form of rejection, at the hands of Nāgārjuna,<sup>51</sup> developed into “a very useful and effective philosophic method”<sup>52</sup> called the *prasamga* form of argumentation,<sup>53</sup> that is, the argument by *reductio ad absurdum*.<sup>54</sup>

What are we to make of the rejection of each one of the four logical alternatives? The ground cited for the rejection is that none of the alternatives fits the case (*upeti*). As far back as 1917 Poussin<sup>55</sup> treated the four logical alternatives (*catuṣkoṭi*), as “a four branched dilemma” of Buddhist dialectic.<sup>56</sup> He believes that it violates the law of contradiction. He writes: “Indians do not make a clear distinction between facts and ideas, between ideas and words; they have never clearly recognized the principle of contradiction. Buddhist dialectic has a four branched dilemma: Nirvāṇa is existence, or non-existence, or both existence and non-existence, or neither existence nor non-existence. We are helpless.”<sup>57</sup> I wish that Poussin had realized that the old Aristotelian three laws of thought are the mark of human rationality (and on Leibniz’ reckoning,<sup>58</sup> even God could not violate them—in particular the law of contradiction), and it does not matter whether a human being is white, black, brown, yellow, or red. For this reason, if for no other, I do not agree with Poussin that Indians, if they are rational enough, have violated the law of contradiction in rejecting each one of the four logical alternatives. Anyway, Poussin was puzzled about the structure of *catuṣkoṭi*, and he found himself helpless to understand it. But he need not have despaired so very much about it.

Mrs. Rhys Davids<sup>59</sup> calls the rejection of the four logical alternatives “Laws of Thought.” She writes: “The import of a number of terms is set out, usually in dichotomic division but sometimes in the distinctively Indian method of presenting the by-us so called Laws of Thought thus, Is *A B* & If not, is *A not B*? If not, is *A both B and not B*? If not, is *A neither B nor not B* (in other words is *A* a chimera)?”<sup>60</sup> She regarded the rejection of the second and the third alternatives

as an assertion, respectively, of the law of contradiction and the law of excluded middle.<sup>61</sup> Mr. B. M. Barua agrees with Mrs. Rhys Davids but makes the bold statement of calling all four logical alternatives the four laws of thought. He says: “These are in their application to propositions:

1. (If  $A$  is  $B$ ),  $A$  is  $B$
2.  $A$  cannot be both  $B$  and not  $B$
3.  $A$  is either  $B$  or not  $B$
4.  $A$  is neither  $B$  nor not  $B$ ”<sup>62</sup>

It needs little argument to point out Mr. Barua’s logical folly. One tends to agree with Jayatilleke that the contentions of both Mrs. Rhys Davids and Mr. Barua, that the four logical alternatives are laws of thought, are equally fantastic. Buddha, the Enlightened One, was not interested in asserting logical truths or inconsistent statements in rejecting any one or all of the four alternatives. Mr. Barua’s construal of the rejection of the fourth alternative as an assertion of the law of double negation is beyond comprehension, as it does violence to the common sense and logic that we have learnt from the cradle.<sup>63</sup>

P. T. Raju’s interpretation<sup>64</sup> of the rejection of the *catuṣkoṭi* alternatives reduces to this: Each one of the four logical alternatives is about the *śūnya* (void), which in mathematics means ‘zero’. He writes “Zero is the quantity of which all the four alternatives are denied: it is neither positive, nor negative.”<sup>65</sup> To my mind, this is an assertion which is the least illuminating; and it turns out to be identical with what was to be analyzed, explained, and made clear, the *analysandum*. Besides, Raju makes mistakes like conflating the Buddhist notion of *avyākata* (“un-analyzed, unexplained, unclear, and incomprehensible”) with the Jaina notion of *avaktavya*<sup>66</sup> (“indescribable”), on the one hand, and with the Śāṅkara Vedāntic notion of *anirvacanīya* (“indefinable”), on the other, a reading which, to my mind, is unwarranted and misplaced. Richard Chi<sup>67</sup> seeks to analyze the four logical alternatives in terms of the first-order functional calculus. He utilizes the truth functional logic also when and where this adds to clarification. This is an admirably effective approach. He opines that if one keeps apart the different *levels of truth* and the different *points of view*, the so-called puzzle about the rejection of the four logical alternatives does not arise.<sup>68</sup> Suppose, however, that all four alternatives are denied one and the same subject at the same level of truth and from the same point of view; then the puzzle does arise.<sup>69</sup> How is it possible to negate all four logical alternatives simultaneously? This problem, of course, explains de la Vallee Poussin’s helplessness; but at the same time it cries out for a satisfactory solution. Chi’s observation that Buddha, the Enlightened One, tackled the four logical alternatives by “not a rejection by negation but a rejection by silence” is noteworthy.<sup>70</sup> Yet, logically, *catuṣkoṭi* remains a puzzle; and there must be some way to solve it. Chi mentions one tack suggested by Jayatilleke<sup>71</sup>—to construct a solution utilizing the notions developed in the many-valued logics of Lukasiewicz and Lobochevsky—but Chi himself does not

offer a solution to the puzzle on these lines. Instead, utilizing L. E. J. Brouwer and A. Heyting’s Intuitionistic negation operator, he formulates the four logical alternatives as

$$(1) p \quad (2) \neg p \quad (3) p \wedge \neg p \quad (4) \neg p \wedge \neg \neg p.$$

And there he stops.<sup>72</sup> Chi’s own solution has quite an affinity with Jayatilleke’s solution of the problem of *catuskoṭi*. The core of Jayatilleke’s thesis is that we treat not-*P* (in the four alternatives) as the contrary and not the contradictory of *P*. He writes: “We maintain that the proposition, *natthi paro loko*, should according to its context be treated as the contrary and not the contradictory of *atthi paro loko* despite linguistic form.”<sup>73</sup> Chi exploits the notion of *contrary negation* as found in the Intuitionistic logic and reformulates the four logical alternatives so that they could be denied simultaneously.<sup>74</sup> In a way, Chi’s solution is a reformulation of Jayatilleke’s in the strictly formal logical terminology of the Intuitionist logicians.<sup>75</sup> The value of this sort of solution has implications for the methodology to be employed in the study of Buddhist logic. This, however, is an independent topic which I do not propose to investigate in this paper.

Let us call the operator “ $\neg$ ” Boolean negation operation and the operator “ $\sim$ ” de Morgan negation. Unlike de Morgan negation, Boolean negation has properties such that

$$A \ \& \ \neg A \ \text{entails } B,$$

and that

$$\neg A \ \& \ (A \vee B) \ \text{entails } B.^{76}$$

The idea of Boolean negation originated in the semantical contexts of relevant logics; but it can be discussed in the context of a four-valued semantics. The motivation for Belnap was to “devise an effective logic for computers (mechanical question-answering systems) to use when there is a real risk that the data-base from which answers to questions are to be inferred may be inconsistent.”<sup>77</sup> The four values used are:

$$T(\text{true}) \quad F(\text{false}) \quad B(\text{oth}) \quad N(\text{one})$$

‘T’ represents the case in which the person has been told about a certain sentence *S* that it is true but has not been told that it is false; ‘F’ when he has been told that *S* is false but not told that it is true; ‘N’ when the person has not been told anything; and ‘B’ when the person has been told both that *S* is true and also that *S* is false.”<sup>78</sup> On this interpretation of ‘T’, ‘F’, ‘N’, and ‘B’, using the Morgan negation operation

$$(1) \sim T = F \quad (2) \sim F = T \quad (3) \sim B = B \quad (4) \sim N = N$$

we can use, on the said four values, Boolean negation operation and get:

$$(1) \neg T = F \quad (2) \neg F = T$$

(1) and (2) behave the same way as in the case of the operation  $\sim$  of de Morgan negation; but (3)  $\neg B = N$ , and (4)  $\neg N = B$ . Here (3)  $\neg B = N$  will mean something like this: “If a sentence  $A$  is marked as both true and false, then  $\neg A$  cannot be marked as true, since in order for this to be the case it would have to be that  $A$  is not marked as true (but it is). And similarly  $A$  cannot be marked as false since then  $A$  would have to be not marked as false (but it is). So  $A$  must be marked as *None*.”<sup>79</sup> Similarly, justification can be given for  $\neg N = B$ . Belnap and Dunn remark: “In a nutshell, the difference between  $\sim$  and  $\neg$  would seem to be that  $\sim$  is a kind of ‘internal’ negation, whereas  $\neg$  is a kind of ‘external’ negation.  $\sim A$  might be read as ‘ $A$  is false’, whereas  $\neg A$  should be read as ‘it is not the case that  $A$  is true’.”<sup>80</sup> But then how are we to understand “not” in a given context? For, we have made intelligible Boolean negation ( $\neg$ ) in terms of de Morgan negation ( $\sim$ ). Given this situation, ordinarily the distinction between  $\neg$  and  $\sim$  collapses—so much so that  $\neg$  is understood in terms of  $\sim$  only—and “so we have only one kind of negation after all.”<sup>81</sup> If this is so, then even the Boolean negation  $\neg$  cannot be employed with advantage over other alternative interpretations given in terms of de Morgan negation to solve the centuries old puzzle of *catuskoṭi*.

We must seek some other tack in order to solve the puzzle, or look at it once again in order to be sure what it really is. To do this I will take into account the context in which the four logical alternatives are rejected, and the purposes which are achieved by rejecting them. The considerations which led this kind of rejection to transform itself into the *prasamga* form of argument<sup>82</sup> will not be out of place here. In this connection, to repeat, consider the (A) and (B) types of the *avyākata* theses:

- (A) (1) There is a next world  
 (2) There is no next world  
 (3) There both is and is not a next world  
 (4) There neither is nor is not a next world

and

- (B) (1) This world is finite  
 (2) This world is infinite  
 (3) This world is both finite and infinite  
 (4) This world is neither finite nor infinite.

The alternatives (1) through (4) in both (A) and (B) are answers to *ṭhapanīya* questions; and the answers are *avyākata* theses. The questions are *ṭhapanīya*, since in each one of them at the same time a *na kalla* question is involved. Further, these alternatives are not negated or denied but they are rejected. The alternatives are rejected by *mā' h evam* (do not [say] so), and not by *no h' idam* (it is not so). The *avyākata* theses are to be set aside, so the rule says (*Avyākatāni thāpitāni*).<sup>83</sup> Jayatilleke writes: “When the four alternatives happened to be those of a *ṭhapanīya*

*pañha* or a meaningless question all four alternatives were rejected rather than *negated* because the question in each of the alternatives was not considered to be a proper question (*kalla pañha*).<sup>84</sup> Jayatilleke shows remarkable insight when he says that “Raju and Bahm have therefore misdescribed<sup>85</sup> their nature as far as the Pāli Canonical position is concerned by calling this doctrine that of ‘four cornered negation’ when it ought properly to be called ‘four cornered rejection’.”<sup>86</sup> I fail to understand why Jayatilleke did not follow this important insight but remained obsessed with treating the *avyākata* theses from a logical point of view exclusively. If we look at them carefully we find that by characterizing them *avyākata* (unanalyzed, unexplained, unclear, incomprehensible) we legislate ourselves out from being in a position to say whether or not each one of them is true or false. Their appraisal in terms of truth and falsity is possible only if we have criteria for their factual evaluation. But where are the criteria? We find them nowhere. The alternative for us is to *reject* them and set them aside (*thapanīya*).

In a moral context “*avyākata*” means “neither good nor bad.” In this sense “*avyākata*” is used to denote what is “neutral” in moral contexts where “what is indeterminate” (*avyākata*) are acts which are neither good nor evil.<sup>87</sup> Jayatilleke suggests that if we extend this application of *avyākata* to any one of the four logical alternatives in (A) and (B), we would like to say that the *avyākata* theses are logically indeterminate in the sense of being neither true nor false. There are no criteria for their factual appraisal. Nor perhaps can there be any; for their logical status is indeterminate. Given this situation we cannot deny or negate them since we could do this only by presupposing a certain set of criteria for their factual evaluation. In the absence of some methodological conceptual framework within which alone their factual relevance and appraisal is possible, we can only *reject* them, set them aside.

We do not reject a theory in a vacuum,<sup>88</sup> not least an *avyākata* thesis. For rejecting an *avyākata* thesis, we need a framework of criteria. Fortunately, in this case we have one in the conceptual framework of the Four Noble Truths. This is shown by the parable of the arrow. Differentiating *avyākata* from *vyākata* theses, Buddha, the Enlightened One, remarks: The *avyākata* questions are not answered (they are *thapanīya*) and the *avyākata* theses are rejected (they too are *thapanīya*) because they are “not useful, not related to the fundamentals of religion, not conducive to revulsion, dispassion, cessation, peace, higher knowledge, realization, and Nirvana.”<sup>89</sup> Given this, I shall call it the pragmatic criterial framework in which the *avyākata* questions and the *avyākata* theses are rejected, set aside (*thapanīya*), not negated or denied. Logic is not relevant here. For, where there is neither affirmation nor negation nor inclusion or exclusion of both, what role does logic have to play? Both logic and the obsession with logic, taking logic to be the only form of rationality, are to be set aside as irrelevant. The *catuṣkoṭi*, which has been considered an “insoluble problem for centuries,”<sup>90</sup> simply is nor a problem. We saw logic in it where there was none. The result: the problem was

not susceptible of solution on the logical plane. Once things are put in their proper, natural place, the problem simply ceases to be a genuine problem.<sup>91</sup>

The *catuṣkoṭi* and the rejection of each one of the four logical alternatives have become in the hands of Nāgārjuna “a very useful and effective philosophic method,”<sup>92</sup> called the *prasamga* or the *reductio* form of argumentation.<sup>93</sup> In using this form of argumentation, the reasoner or “the debator may have no thesis of his own or no position to defend.”<sup>94</sup> In this connection, Nāgārjuna is frequently quoted as saying: “If I had any proposition, then this defect would be mine. I have, however, no proposition. Therefore, there is no defect that is mine.”<sup>95</sup> On the face of it, this way of argumentation is indeed “an embarrassment to the philosophers.”<sup>96</sup> The structure of this method of argumentation is as follows: We consider each one of the four possible logical alternatives (*catuṣkoṭi*) and reject it as untenable. The function is to show that any philosophical position can be shown to be logically discrepant, for it can be stated exclusively in terms of the four possible logical alternatives, each one of which is (or can be) easily rejected. Consider for example:

- (G) Things are not originated by themselves;  
 Nor are they originated by others;  
 Neither by both; nor without cause;  
 Therefore, there is no origination.<sup>97</sup>

and,

- (H) *Nirvāṇa* is not an existent;  
*Nirvāṇa* is not a non-existent;  
*Nirvāṇa* is not both an existent and also a non-existent;  
*Nirvāṇa* is not neither an existent nor a non-existent.<sup>98</sup>

None of these four possible logical alternatives is applicable to *nirvāṇa*. They are not *upādeya*<sup>99</sup> in relation to *nirvāṇa*. The idea underlying (G) is that everything, whether mental or material, is without an intrinsic nature (*niḥsvabhāva*).<sup>100</sup> If this is so, then saying (1) that some material thing is produced, or saying (2) that some material thing is not produced, are equally the result of conflating the category of “production” with the category of “material thing.” The two categories, which are conceptually different, cannot be logically combined in the way that they are combined in (1) and (2). Syntactically (1) and (2) are correctly formed expressions, but semantically they are *avyākata* and hence *thapanīya* (unanalyzed, unexplained, unclear, and incomprehensible, and therefore to be set aside). Similarly in the case of (H), the underlying idea is that the category of ‘*nirvāṇa*’ and the category of ‘existent thing’ have been conflated in the given four possible logical alternatives, with the result that each one of the alternatives, though syntactically correct, is *avyākata* semantically and hence to be set aside. This reasoning follows the rule, namely, that the theses which are *avyākata* are to be set aside (*avyākatāni thapitāni*).

Apparently, the *avyākata* theses are indeed correct from the ordinary language

point of view. Anybody who rejects a certain thesis in this way must have a certain criterial framework within which he is operating, as we have said earlier. In the case of Nāgārjuna, the framework is definitely not that of formal logic, for in his view, these are both *avyākata* and *thapanīya*. Nor is his framework that of the methodology of empirical knowledge (*pramāṇas*). He accepts only two criteria of knowledge (*pramāṇas*): observation (*pratyakṣa*) and inference (*anumāna*). He uses them to decide whether a certain piece of information gained observationally or inferentially is true or false. But in the case of questions about (a) dependent origination (*pratītyasamutpāda*), (b) voidness (*śūnyatā*), and (c) *nirvāṇa* he rejects the applicability of the *pramāṇa* methodology.<sup>101</sup> If I am right in this thinking, then three things become apparent:

First, Nāgārjuna regards (a), (b), and (c) as the constituents of the conceptual framework within which he is operating when he is engaged in arguing against his critics and opponents. He cannot be said to be arguing against his critics in a vacuum. Matilal is mistaken when he says that “the debater may have no thesis of his own or no position to defend.”<sup>102</sup> One can indeed regard (a), (b), and (c) as *axioms* or the *presuppositions* of Nāgārjuna’s philosophical thought, constituting the background of his arguments against his critics.

Second, *nirvāṇa* is a way of looking at things. It is a conceptual style (*drṣṭi*).<sup>103</sup> One develops this conceptual style by way of understanding dependent origination (*pratītyasamutpāda*) and voidness (*śūnyatā*). Hence, in the case of *nirvāṇa*, the question whether *nirvāṇa* is an existent or not simply does not arise. And, once you have this conceptual style (*drṣṭi*), all questions concerning origination and nonorigination, and so forth become irrelevant and need to be set aside.

Third, Nāgārjuna’s argumentation, at the same time, works within the conceptual framework of the Four Noble Truths. Being a Buddhist, he cannot, and in fact he does not, give it up.<sup>104</sup> So he says: “All things prevail for him for whom this voidness prevails. Nothing prevails for him for whom voidness does not prevail.”<sup>105</sup>

In fact, in Nāgārjuna’s thought, all three are interconnected; (a) dependent origination (*pratītyasamutpāda*), (b) voidness (*śūnyatā*), and (c) *nirvāṇa* constitute the conceptual framework  $F_1$  within which he is operating. The aim is to develop the *nirvāṇa drṣṭi* or the *nirvāṇa* conceptual style. This aim is equally well achieved if the conceptual framework  $F_2$  of the Four Noble Truths is accepted; and Nāgārjuna does operate within this framework<sup>106</sup> also. Within the framework  $F_2$  the *avyākata* theses are set aside on pragmatic grounds of *dharma*; but with respect to the framework  $F_1$  they are rejected on the grounds that within  $F_1$  the four possible logical alternatives become *avyākata* theses, and outside the framework they make no sense. The ordinary language does permit them; but within Nāgārjuna’s conceptual framework  $F_1$  they are to be set aside as being external to the framework. However embarrassing it might be to the philosophers, neither formal logic nor the methodology of empirical knowledge can be said to be relevant for an adequate understanding of the so called problem of *catuskoṭi*.

## NOTES

1. Archie J. Bahm, "Does Seven-Fold Predication Equal Four Cornered Negation Reversed?" *Philosophy East and West* 7, nos. 3 and 4 (October 1957 and January 1958): 127–130; Richard S. Y. Chi, *Buddhist Formal Logic* (London: The Royal Asiatic Society of Great Britain and Ireland; sold by Luzac and Co., Ltd., 1969); Mrs. Rhys Davids, "Logic (Buddhist)," *Encyclopaedia of Religion and Ethics* (New York: Charles Scribner's Sons, 1926), vol. 8, p. 133; K. N. Jayatilleke, *Early Buddhist Theory of Knowledge* (London: George Allen & Unwin Ltd., 1963; reprint, Delhi: Motilal Banarsidass, 1980) (hereafter cited as *Early Buddhist Theory*); P. T. Raju, "The Principle of Four-Cornered Negation in Indian Philosophy," *The Review of Metaphysics* 7 (1953–1954): 694–713 (hereafter cited as "Four-Cornered Negation"); Richard H. Robinson, "Some Logical Aspects of Nāgārjuna's System," *Philosophy East and West* 6, no. 4 (January 1957): 291–308; St. Schayer, "Altindische Antizipationen der Aussagenlogik," in *Studien zur indischen Logik*, Extrait du Bulletin de l'Academie Polonaise des Sciences et des Letters cracovic (1933), p. 93; and R. D. Gunaratne, "The Logical Form of Catuskoṭi: A New Solution," *Philosophy East and West* 30, no. 2 (April 1960): 211–239 (hereafter cited as "Logical Form"). Gunaratne offers a vehement defense of the application of formal logic (including set theory) to *catuskoṭi* statements whose structure, he insists, is isolable and can be given a consistent interpretation. He tends to reject Alex Wayman's view expressed in his article "Who Understands The Four Alternatives of the Buddhist Texts?" (*Philosophy East and West* 27, no. 1 (January 1977) (hereafter cited as "Who Understands?"): 3–21), that after all it may be "hazardous and probably contraindicated to apply symbolic logic" (p. 5) without reservations to *catuskoṭi*. My own position lends support to Wayman's view *vis à vis* Gunaratne's.
2. Ramachandra Pandeya, "The Logic of *Catuskoṭi* and Indescribability," in his *Indian Studies in Philosophy* (Delhi: Motilal Banarsidass, 1977), pp. 89–103 (hereafter cited as "Logic of *Catuskoṭi*"); T. R. V. Murti, *The Central Philosophy of Buddhism* (London: George Allen & Unwin, 1955). Observe in this connection Richard S. Y. Chi's remarks in his article "Topics on Being and Logical Reasoning" (*Philosophy East and West* 24, no. 3 (October 1974): 298): "After many years of dispute, I still think that Murti's view on this subject is the right one" (hereafter cited as "Topics on Being").
3. B. K. Matilal, *The Logical Illumination of Indian Mysticism* (Oxford: Oxford University Press, 1977; reprint, New Delhi: Oxford University Press, 1978) (hereafter cited as *Logical Illumination*).
4. Jayatilleke, *Early Buddhist Theory*, p. 134.
5. Chi, *Buddhist Formal Logic*, p. 161.
6. As in note 1 above.
7. Nāgārjuna's *Madhyamaka-śāstra* and *Vigrahavyāvartani*, Buddhist Sanskrit Texts No. 10 (Darbhanga: The Mithila Institute of Post-Graduate Studies and Research in Sanskrit Learning, 1960). For an English translation of the latter work, see Kamaleswar Bhattacharya, *The Dialectical Method of Nāgārjuna (Vigrahavyāvartani)* (Delhi: Motilal Banarsidass, 1978) (hereafter cited as *Dialectical Method*).
8. Wayman, "Who Understands?" p. 15. "Nāgārjuna, in the matter of the *catuskoṭi*, is heir to and the continuator of teachings in the early Buddhist canon (in Pāli, the four Nikāyas; in Sanskrit, the four Āgamas.)"
9. Matilal, *Logical Illumination*, and *Vigrahavyāvartani*.
10. *The Nyāya Sūtras of Gotama*, translated by Satisa Chandra Vidyabhusana; reprint, New Delhi: Oriental Books Reprint Corporation, 1975; Matilal, *Logical Illumination*; Chi, "Topics on Being," p. 295.
11. Matilal, *Logical Illumination*.
12. *Ibid.*
13. Bhattacharyya, *Dialectical Method*.
14. Pandeya, "Logic of *Catuskoṭi*."
15. *Āguttara Nikāya*, 5 vols., ed. R. Morris and E. Hardy (London: Pāli Text Society, 1885–1900); F. L. Woodward and E. M. Hare, trans., *The Book of the Gradual Sayings*, 5 vols. (London: Pali Text Society, 1932–1936).

16. Jayatilleke, *Early Buddhist Theory*, pp. 281–283.
17. *Ibid.*, p. 287.
18. *Ibid.*, p. 288.
19. *Ibid.*, p. 281
20. *Ibid.*, p. 287.
21. *Ibid.*, p. 288.
22. *Ibid.*, p. 288.
23. *Ibid.*, pp. 288, 274.
24. *Ibid.*, pp. 471–476.
25. *Majjhima Nikāya*, 3 vols., ed. V. Trenkner and R. Chalmers (London: Pali Text Society, 1948–1951), 1.486; I. B. Horner, trans., *Middle Length Sayings*, 3 vols. (London: Pali Text Society, 1954–1959); R. Chalmers, trans., *Further Dialogues of the Buddha*, 2 vols. (London: Pali Text Society, 1888); K. E. Neumann, trans., *Die Reden Gotamo Buddha's aus der mittleren Sammlung Majjhimanikāyo*, vols. 1 and 2 (Leipzig, 1896–1900).
26. Ludwig Wittgenstein, *The Blue and Brown Books* (Oxford: Basil Blackwell, 1958), p. 108.
27. *Majjhima Nikāya*, I. 487.
28. Jayatilleke, *Early Buddhist Theory*, p. 292.
29. *Ibid.*
30. *Ibid.*
31. *Ibid.*
32. G. E. Moore, *Principia Ethica* (Cambridge: Cambridge University Press, 1903), chap. 5; V. K. Bharadwaja, *Naturalistic Ethical Theory* (Delhi: University of Delhi Press, 1978).
33. Rudolf Carnap, *Meaning and Necessity*, 2 ed. (Chicago: University of Chicago Press, 1956).
34. *Ibid.*
35. Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (London: Routledge & Kegan Paul, 1958).
36. Vaman Apte, *Sanskrit English Practical Dictionary* (Poona: Prasad Prakashan; reprint, 1977). Richard Chi, in “Topics on Being,” mistranslates the Sanskrit “*avyākṛta*” as “inexpressible” (p. 296). See Apte’s *Dictionary*. *Avyākata* is Pāli of Sanskrit *avyākṛta*. It means “unanalysed, unexplained, incomprehensible.”
37. Jayatilleke, *Early Buddhist Theory*, p. 292.
38. *Ibid.*
39. *Ibid.*
40. *Ibid.*
41. *Ibid.*
42. *Ibid.*, p. 293.
43. Bertrand Russell, “On Denoting,” in *Contemporary Readings in Logical Theory*, ed. I. Copi and J. Gould (New York: Macmillan Company, 1967).
44. G. Frege, “Sense and Nominatum,” and P. F. Strawson, “On Referring,” in Copi and Gould, eds., *Contemporary Readings in Logical Theory*; Saul Kripke, *Naming and Necessity* (Oxford: Basil Blackwell, 1972).
45. Jayatilleke, *Early Buddhist Theory*, p. 335.
46. *Ibid.*, p. 340.
47. Chi *Buddhist Formal Logic*, pp. 158–159.
48. *Ibid.*
49. *Ibid.*
50. *Ibid.*
51. Nāgārjuna’s *Vigrahavyavārtani*.
52. Matilal, *Logical Illumination*, p. 17.
53. *Ibid.*, p. 18; Th. Stcherbatsky, *The Central Conception of Buddhism and The Meaning of the Word “Dharma”* (Reprint, Delhi: Motilal Banarsidass, 1970), p. 22.
54. Matilal, *Logical Illumination*, p. 18.
55. Louis de La Valle Poussin, *The Way of Nirvāṇa* (Cambridge: Cambridge University Press, 1917), p. 111.
56. *Ibid.*, p. 111.

57. *Ibid.*, p. 111. See also F. J. Hoffman, "Rationality in Early Buddhist Four Fold Logic," *Journal of Indian Philosophy* 10, no. 4 December 1982): 309–337 (hereafter cited as "Rationality").

58. Bertrand Russell, *History of Western Philosophy*, 1st ed. (London: George Allen and Unwin Ltd., 1946), 2nd ed. (1961), the chapter on Leibniz, pp. 563–576.

59. Mrs. Rhys Davids, "Logic Buddhist," p. 133.

60. *Ibid.*

61. *Ibid.*

62. B. M. Barua, *A History of Pre-Buddhistic Indian Philosophy* (Calcutta, 1921; reprint, Delhi: Motilal Banarsidass, 1970), p. 47.

63. For a different line of criticism, see Jayatilleke, *Early Buddhist Theory*, pp. 334–336. Also see, for some other attempts to solve the so-called problem of *catuṣkoṭi*, Bahm, "Does Seven-Fold?"; Wayman, "Who Understands?"; Hoffman, "Rationality"; Gunaratne, "Logical Form"; and Shosun Miyamoto, "The Logic of Relativity as the common Ground for the Development of the Middle Way," in *Buddhism and Culture*, ed. Susumu Yamaguchi (Nakano Press, 1960), pp. 67–68.

64. Raju, "Four-Cornered Negation."

65. *Ibid.*, p. 702.

66. For a clarification of the Jaina notion of *avaktavya* see V. K. Bharadwaja, "The Jaina Concept of Logic," *Indian Philosophical Quarterly* 9, no. 4 (July 1982): 363–375.

67. Chi, *Buddhist Formal Logic*, pp. 156–163.

68. *Ibid.*, p. 161.

69. *Ibid.*, p. 162.

70. *Ibid.*

71. Jayatilleke, *Early Buddhist Theory*, pp. 333–346.

72. Chi, *Buddhist Formal Logic*, pp. vii–ix. He writes:

The *catuṣkoṭi* has been considered an insoluble problem for centuries. In December 1967, I read a paper ("A Tentative Solution to the Problem of Four Corner Negation") at the University of Chicago, which I believe solves the problem. The solution depends on applying Bertrand Russell's vicious-circle principle and my explanation of "unavoidable mistakes," namely, "under cultural circumstances *x*, a mistaken theory *y* is inevitable." The paper is unmanageable in length and needs further revision: it will appear as an article. For the moment, I can only say that it corrects my earlier explanation of the *catuṣkoṭi* which is erroneous. (pp. vii–ix of his Foreword [1968] to his *Buddhist Formal Logic* (1969).

Observe also change in his position reflected in his article "Topics on being and Logical Reasoning," pp. 293–300.

73. Jayatilleke, *Early Buddhist Theory*, p. 343. For Jayatilleke's own solution of the problem, see pp. 333–346.

74. In 1974, Richard Chi came out with the thesis that "Buddhist logic belongs to strictly conventional two-valued logic" ("Topics on Being," p. 297), that he had made a "mistake by comparing *catuṣkoṭi* with intuitionism" (p. 297), and that "the subject of *catuṣkoṭi* ... is not at all 'Buddhist logic'" (p. 298). Having said this, he tends to subscribe to T. R. V. Murti's view, and adds: "As a matter of fact, *catuṣkoṭi* is applicable to metaphysical speculations only" (*ibid.*, p. 298).

75. See L. E. J. Brouwer and A. Heyting's work on Intuitionistic logic.

76. Nuel D. Belnap, Jr., and J. Michael Dunn, "Entailment and the Disjunctive Syllogism," *Contemporary Philosophy I*, ed. G. Floistad (The Hague: Martinus Nijhoff Publishers, 1981), pp. 337–366 (hereafter cited as "Entailment"). See also J. M. Dunn, "Intuitive Semantics for First-degree Entailments and Coupled Trees," *Philosophical Studies* 29 (1976): 149–168, and Nuel D. Belnap, Jr., "A Useful Four-valued Logic," in J. M. Dunn and G. Epstein, eds., *Modern Uses of Multiple-valued Logic* (Dordrecht: D. Reidel Publishing Co., 1977).

77. Belnap and Dunn, "Entailment," p. 342.

78. *Ibid.*, p. 342.

79. *Ibid.*, p. 343.

80. *Ibid.*, p. 343.

81. *Ibid.*, p. 345.

82. Matilal, *Logical Illumination*, pp. 16–18.

83. *Majjhima Nikāya*, I. 426.

84. Jayatilleke, *Early Buddhist Theory*, p. 346.
85. Ibid.
86. Ibid.
87. *Dhammasaṅgani*, ed. E. Muller (London: Pali Text Society, 1885); Jayatilleke, *Early Buddhist Theory*, p. 355.
88. Ludwig Wittgenstein, *On Certainty* (Oxford: Basil Blackwell, 1969).
89. *Majjhima Nikāya*, I. 431; Jayatilleke, *Early Buddhist Theory*, p. 357.
90. *Chi Buddhist Formal Logic*, p. vii.
91. Ludwig Wittgenstein, *Philosophical Investigations*, 3rd ed. (New York: The Macmillan Company, 1968).
92. Matilal, *Logical Illumination*, p. 17.
93. Ibid., pp. 16–17.
94. Ibid., pp. 16–19. Also compare Chi, “Topics on being.”
95. Bhattacharya, *Dialectical Method*, p. 23.
96. Matilal, *Logical Illumination*, p. 16.
97. *Buddhist Formal Logic*, p. 159.
98. Nāgārjuna’s *Madhyamaka-śāstra*, chap. 25, *Kārikās*, 3, 4, 5, 7, and 8.
99. Compare the Pāli expression “*upeti*” (‘fits the case’).
100. Nāgārjuna’s *Madhyamaka-śāstra*.
101. Nāgārjuna’s *Vigrahavyāvartani*, stanzas 24 to 34.
102. Matilal, *Logical Illumination*, pp. 16–19. Also compare Chi, “Topics on Being,” p. 295.
103. Richard Chi seems to translate “*dr̥ṣṭi*” as “dogmatism” (“Topics on Being,” p. 296). I agree with him that it is hard to find an English synonym for “*dr̥ṣṭi*.” But, then, “dogmatism” won’t do; “a way of looking at the world” or “a point of view” are better synonyms.
104. Alex Wayman has this important insight when he writes: “the four Noble Truths have been a basic ingredient of Buddhist thinking and attitude” (Wayman, “Who Understands,” p. 10). And, again, “Nāgārjuna, in the matter of *catuṣkoṭi*, is heir to and the continuator of teachings in the early Buddhist canon” (Wayman, *ibid.*, p. 15).
105. Nāgārjuna’s *Vigrahavyāvartani*, stanza LXX.
106. In fact, the two frameworks  $F_1$  and  $F_2$  can easily be shown to be essentially one. The line of argument in that case will be that the framework of the four Noble Truths undergoes linguistic mutation at the hands of Nāgārjuna, as a historical development, into the framework of dependent origination, voidness, and *nirvāṇa*. (This, however, forms the subject of another paper.)