

Vagueness and Identity in David Lewis'  
Account: Foundation for a Relaxed  
Epistemology?

by

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## Abstract

The problem of vagueness and the problem of identity have received immense attention in the history of logic, philosophy of language, and semantics. David Lewis' modal realism also includes these problems. Particularly, there are two claims in this thesis: firstly, a survey on Lewis' epistemology shows that the nature of his epistemology is relaxed and secondly, his stance on the problem of vagueness and the problem of identity set the foundation for that relaxed epistemology, especially when he advocates the thesis of semantic indecision in the problem of vagueness, and partial identity and almost identity thesis in the problem of many. A study of Lewis' ontology, epistemology, and semantics altogether in terms of the issues of identity and vagueness establishes both claims clearly.

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## 1 Introduction

The problem of vagueness and the problem of identity are two prevalent issues in metaphysics and epistemology. They have enriched the scope of epistemology in numerous ways. David Kellogg Lewis' treatment of vagueness is significant in his modal realism. He also acknowledges the problem of identity in this regard. Again, his advocacy of elusive knowledge establishes a moderate version of epistemology in comparison with to two extreme versions of epistemology, fallibilism and infallibilism.

A reflection on general issues of vagueness in details will help us to clarify Lewis' stance on vagueness; at the end, it will help us to find the epistemological ground of Lewis. The aim of my thesis is to show how Lewis' view on identity and vagueness creates the foundation for a relaxed epistemology<sup>1</sup>.

Vagueness is a significant issue of concern in the realm of knowledge, starting from everyday use of language to the language of logic and science. The classical sorites paradox is one version of vagueness. We find a number of other versions of vagueness: borderline cases and blurred boundaries for example. By examining Lewis' account of vagueness we can clarify his stance on epistemology as long as he is one of the proponents of epistemic vagueness. Moreover, this investigation will also help us to demonstrate how his account of vagueness makes the ground for a flexible epistemology. Furthermore, Lewis' stance on the problem of identity also sets the ground for his epistemology. Regarding the problem of many, he brings in the discussion of 'partial identity', 'relative identity', and 'almost identity' which

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<sup>1</sup> The term 'Relaxed epistemology' is used in a rough sense to mean some sort of point of view on epistemology in which infallibility does not necessarily result in scepticism. This means, this view is more relaxed than infallibilism, but not fallibilism.

establishes a strong foundation for his epistemology. A thorough investigation in these areas is needed in order to understand the nature of Lewis' epistemology.

Some of the leading ideas about vagueness, which will be discussed at greater length in part 2, include: many valued logics, supervaluationism, and contextualism. Timothy Williamson considers the vague propositions as either true or false, but he claims that we are ignorant of the truth values of vague propositions. His view is called 'the epistemic view' of vagueness. Stephen Schiffer deals with the objects we mean and believe with their reference and truth values. Furthermore, Kit Fine also takes the notion of vagueness in its semantic aspect. He formulates the supervaluationistic solution to the problem of vagueness.

The problem of vagueness is accompanied by the problem of identity. Lewis' account of vagueness is supplemented with the discussion of identity, though he is unwilling to treat identity as a distinct problem. Still, he has spent pages talking about vagueness in terms of identity of objects and individuals. In fact, he distinguishes between the so-called problems of identity with the problem of mereological composition.<sup>2</sup> From that sense, it will not be surprising at all if Lewis' account of vagueness is paraphrased under the title of 'Ontological Vagueness'. However, the identity issue is very important in order to understand vagueness as well as Lewis' epistemology, which is evident in his combination of supervaluationism and almost identity thesis in 'Many, but Almost One' and the counterpart theory in *On the Plurality of Worlds*. A closer look at the discussion of identity and vagueness reveals that Lewis' stance in his

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<sup>2</sup> 'Problem of mereological composition' refers to the question of whether objects may have different parts in different possible worlds.

modal realism serves as the foundation for a flexible epistemology. This becomes evident in his ‘Elusive Knowledge’. In the thesis, exploring the writings of Lewis, I **claim that Lewis’ epistemology is relaxed, and** his view on identity and vagueness creates the foundation for the relaxed epistemology.

Lewis’ account of vagueness advocates the supervaluationistic solution. This solution talks about the semantic indecisiveness of predicates. According to this view, despite the semantic indecisiveness of predicates, we can construct true statements with that of predicates. In the valuation process, the true statements are also subject to error. From that point of view, Lewis’ account of vagueness is a preamble to a flexible epistemology. Moreover, Lewis’ view on identity also creates the foundation for a relaxed epistemology. Regarding the problem of many, Lewis supports the almost identity thesis. According to this thesis, two things are not identical; rather they can be almost identical. Hence, identity embraces degree and an object may have identity with less vagueness or with more vagueness. For example, we call something ‘cloud’ if it satisfies almost every condition to be defined as cloud. Now, if a thing is an ‘almost thing’ and we can form true statements with the ‘almost thing’, then this stance of Lewis also makes the ground for a relaxed epistemology. This claim becomes evident if we examine Lewis’ ‘Elusive Knowledge’. To claim the knowledge as elusive, Lewis does not advocate fallibilism; rather he makes another important claim in which he starts with infallibilism that does not result in scepticism. At the end, Lewis becomes the proponent of elusive knowledge and makes the fundamental conclusions from his account of vagueness and identity.

In Part 2, I investigate the fundamentals of vagueness and identity in general. This investigation will help us to understand the common and major issues regarding

vagueness and identity. It will also help us to make a comparative study with Lewis' account. Part 2 consists of major solutions to the problem of vagueness and identity in brief, from the ancients to the moderns. Part 3 focuses on the account of Lewis on the identity issue in particular. This part consists of several conclusions of Lewis in which he explicitly talks about the problem of many. Regarding the identity issue, the ontological aspect of identity is given great importance to show how it serves to construct Lewis' epistemological ground. Part 4 especially deals with Lewis' account of the problem of vagueness and modal realism in the light of *On the Plurality of Worlds*, *Counterfactuals* and 'Many, but Almost One'. Part 4 describes the major ways in which Lewis acknowledges the problem of vagueness; vague-precision distinction, and vagueness in counterfactuals for example. His advocacy of the supervaluationistic solution and the semantic indecisiveness of vague predicates are emphasized greatly in order to clarify its connection to Lewis' epistemology. The epistemological stance of Lewis is discussed in the conclusion part to grasp the nature of his epistemology. His advocacy of elusive knowledge is centre here to show the link between Lewis' ontology and epistemology. This part of the thesis examines Lewis' account of vagueness and identity altogether and shows how it sets the ground for a relaxed epistemology.

In the next chapter I have discussed some of the issues on vagueness and identity. The issues are significant to clarify Lewis' point of view. In fact, this chapter shows how the problem of vagueness and the problem of identity were addressed throughout the history of philosophy. Though, initially, I begin with the classical sorites paradox, I bring the discussion of the solution of the problem of vagueness that has been done in



recent years. In order for a clear concept of the problem of vagueness, supervaluationism, many valued logics, and contextualism are discussed in brief.

## 2 Fundamentals of Vagueness and Identity

A gentleman recently asked me to meet him the next day in the afternoon. I was planning the schedule for the next day. At the first glance everything was going on well until I discovered that I thought I clearly understood the meaning of ‘afternoon’, which indeed I did not! However, upon further reflection I had number of problems in my mind. I considered how in my country, the term ‘afternoon’ encompasses the time between noon and evening. I even began thinking of ancient time measurements; for example, ‘noon’ as the time when your shadow is on your toes, ‘afternoon’ as the time when the length of the shadow starts elevating. I realized that had I been asked to meet at 1:00 pm or 2:00 pm for example, rather than ‘afternoon’, I would not have been confused; the term ‘afternoon’ is vague and ‘1:00 pm’ is precise, I realized.

The problem of identity dates back to the ancients and has always been one of the problems in the history of metaphysics and epistemology. The problem of personal identity, especially, created numerous issues in the realm of ethics, philosophy of mind, and philosophy of language. The problem of identity has a new aspect when it is discussed with the problem of vagueness. For an example, the question of whether there can be any degree of identity is a significant question in the problem of vagueness. The problem of vagueness and the problem of identity include some important issues which are relevant to the current discussion.

### 2.1 Vagueness, Identity, and Related Issues

Analytic tradition of philosophy has contributed a great deal regarding the issues of vagueness and identity. Both epistemological and metaphysical aspects have been focused in this regard. Before going details to the epistemology of David Lewis, it would be better to discuss some related issues first.

We find a number of vague phenomena in the ordinary usage of language as well as in philosophical discussions. A typical way to begin the philosophical discussion about vagueness is to begin by pointing out the vague predicates of languages. Though, in one sense, almost all of the predicates of a given language can be treated as vague. However, philosophical interest in vagueness only includes some special and general features of vagueness. Nicholas Smith mentions three main features of vagueness:<sup>3</sup>

1. Borderline Cases
2. Blurred Boundaries
3. Sorites Paradox

**Borderline Cases:** The predicate ‘tall’ clearly applies to some subjects, basketball players for example, and clearly does not apply to some subjects, pygmies for example. But, there are borderline cases to which the predicate ‘tall’ neither applies nor does not apply clearly; vagueness appears there. Even empirical verification cannot add something significant to solve these problems of borderline cases.

**Blurred Boundaries:** The predicate ‘heavy’ does not indicate a class of objects precisely to which it applies or does not apply. That means, there is no sharp boundary to call something ‘heavy’ or ‘not heavy’. Or, say in a colourful image, there may not have a clear distinguishable point between red and purple. Moreover, sometimes it might vary context to context.

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<sup>3</sup>Nicholas JJ Smith, *Vagueness and degrees of truth*. (OUP Oxford, 2008) 1

Sorites Paradox: There is an ancient puzzle that states the peculiar nature of some predicates. It begins with some type of questions like; ‘how many grains does it take to make a heap?’ or ‘how many hairs does it take to make a man to call not-bald?’ Sorites Paradox refers back to a contemporary logician of Aristotle named Eubulides who was also famous for the other six paradoxes. The Greek word sorites comes from the word soros which means ‘heap’. Though, the paradox of the question ‘how many hairs does it take to call a man not bald?’ is also considered as same sort of sorites paradox. Sorites paradox has been formulated in numerous ways. One of the famous formulations begins with the questions ‘does one grain of millet make a heap?’, ‘does two grains of millet make a heap?’, and ‘does three grains of millet make a heap?’ or, ‘does 1000000 grains of millet make a heap?’ and finally, ‘how many grains of millet does it take to make a heap?’. The answer of the last question may make someone committing a paradox. Because, it has been seen from the first three questions, additional one grain of millet each time does not make a heap. Therefore, 1000000 grains of millet will not make a heap. But the fact is not so. This is the puzzle. The same thing can be said about the bald man puzzle. If one hair is removed from someone’s head, it will not make him bald. Removing another hair will not make him bald either. Thus, each time removing one hair does not make that man bald. But, we know that strands of hair are finite and consequently that man will become bald. This paradox was also formulated in stoic logic. One of the formulations runs as follows in Williamson’s articulation.

1 is few

If 1 is few then 2 are few

If 2 are few then 3 are few

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If 9,999 are few then 10,000 are few

10,000 are few

Sorites paradox in the above case makes it hard to reconcile with the fact that there is no difference between 1 and 10,000 to the definition of few.

To understand vagueness clearly, we can compare it with some other related phenomenon:

Vagueness and ambiguity: There are basic differences between vagueness and ambiguity. An ambiguous term expresses several meanings; an ambiguous sentence expresses several thoughts. Let us take an example of a vague predicate that makes a vague sentence. The sentence 'Frank went to the bank' expresses both propositions 'Frank went to a river edge' and 'Frank went to a financial institution'. The predicate 'bank' is neither a borderline case nor does it lack a sharp boundary. Rather, it simply expresses several meanings. Hence, it is lexically ambiguous, not vague. Again, there might be syntactical ambiguity in a sentence as well.

Vagueness and generality: There are general terms and they are distinguishable from the vague predicates. In the sentence ' $X > 45$ , where  $X$  is an integer';  $X$  is a general term which can mean any integer greater than 45. A palmist or fortune-teller often prefers using general or metaphorical terms so that it covers a vast area to have a higher probability of being true. 'You have gone through several storms in your

voyage of life; especially the last three years' might make someone recalling a couple of bad memories of his life. This has nothing to do with vagueness, this is simply an over-generalization.

Vagueness as semantic indecision:

Lewis claims that vagueness is semantic indecision. Vague predicate is in a state of indeterminacy. Once Lewis approves the semantic aspect of vagueness, he leaves the ontological aspect of vagueness. In Lewis' view, the objects are not vague; rather the cognitive role regarding the objects and the linguistic expressions of objects may contain vagueness sometimes.

The only intelligible account of vagueness locates it in our thought and language. The reason it's vague where the outback begins is not that there's this thing, the outback, with imprecise borders; rather there are many things, with different borders, and nobody has been fool enough to try to enforce a choice of one of them as the official referent of the word 'outback'. Vagueness is semantic indecision.<sup>4</sup>

Vagueness as the lack of well-defined extension of predicates:

A vague predicate lacks well-defined extension. Say for example, the predicates tall and red have extension without any sharp boundaries according to their meaning, use

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<sup>4</sup> David K. Lewis, *On the plurality of worlds*. (B. Blackwell, 1986.) 212

in a sentence, and context. Hence, these predicates indicate vagueness. On the other hand, classical logic denies any fuzzy or vague boundaries for a predicate.<sup>5</sup> Vagueness is in conflict with classical logic in this regard.

Vagueness and imprecision: Vagueness can be well understood by the concept of imprecision. It is customary to propose precise predicates as opposed to vague predicates. Frege and Quine's attempt to formulate a formal language for logic is from a motivation of avoiding vagueness and acquiring precision in reasoning.

Philosophical Interests in vagueness:

Not all the features of vagueness are of interest to philosophical discussion. The problem of vagueness has its influence on logic and language. The Law of Excluded Middle which states that 'every statement is either true or false' is at stake for the sorites paradox. A statement with a vague predicate might be both true and false at the same time. Law of Non-contradiction, which states that there cannot be a case where a proposition and its negation are both true at the same time, also faces critical circumstances because of this paradox. Vagueness matters in moral reasoning as well. Rosanna Keefe mention of Bernard Williams to judge the implication of sorites paradox, one of the versions of the problem of vagueness, in morality. For example, abortion after conception of nine months is considered morally wrong. If we apply the sorites paradox in the case of abortion we find that there is no difference in abortion after conception of one month and nine months.

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<sup>5</sup> Aristotle, in his *Categories*, claims that if either substance or differentiae form the predicate, they are predicated univocally; a predication of substance and differentiae without any scope of fuzziness or vagueness.

Consider the principle [S3] if it is wrong to kill something at time  $t$  after conception, then it would be wrong to kill it at time  $t$  minus one second. And suppose we agree that it is wrong to kill a baby nine months after conception. Repeated applications of [S3] would lead to the conclusion that abortion even immediately after conception would be wrong.<sup>6</sup>

Regarding the moral concern in the above case, there is no difference between having an abortion after conception of two days and after the conception of five months. Thus, the problem of vagueness challenges moral reasoning. Again, the study of vagueness can be of great help for any research activity. Advancement regarding the vagueness of a research topic makes a substantial advancement of the research program itself. In order to sketch out the fundamentals of vagueness, we need to know its types. Discussion of the following two types mostly is noticed in the literature of vagueness.

Types of Vagueness: Metaphysical and Epistemic view of vagueness

The epistemic view of vagueness: The epistemic view to vagueness affirms that vagueness is all about the way we represent the world in language. Vagueness is a semantic indeterminacy.

The metaphysical view of vagueness: The metaphysical view affirms that there are vague objects in the world. For example, the Sahara desert has no precise boundary. Hence, ontologically Sahara exists as a vague object.

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<sup>6</sup>Rosanna.Keefe, Theories of vagueness.(Cambridge University Press, 2000) 8



The above discussion draws the major aspects of vagueness in general. Now, the philosophical approaches to vagueness can be considered.

### Vagueness, Many-valued Logics, and Supervaluationism

If we consider three features of vagueness, future contingent statements will fall under the blurred boundaries category. This means, the truth-value aspect of vague statements are taken into consideration in this category. Aristotle's 'sea battle argument' is one of the popular arguments to indicate the problem of future contingent statements. The truth-value of future contingent statements like 'there will be a sea battle tomorrow' is undetermined; hence these types of statements are treated as vague statements. Numerous reactions regarding Aristotle's formulation of future contingent statements have been found throughout the history of philosophy. In the history of logic, there are both the supplementary and the rival approach to the classical logic that has been formulated.<sup>7</sup> The supplementary approach treats the classical logic as incomplete and offers additional semantics to accommodate vague statements like future contingencies. On the other hand, alternative or rival approaches consider the classical logic as incorrect and offer completely new semantics to accommodate almost all types of propositions, which classical logic fails to accommodate. Let us consider the problem of future contingent statements:

There will be a sea battle tomorrow

The above statement does not possess a truth value until the event, sea battle, takes place. The question comes, how is it possible to form an argument with this type of

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<sup>7</sup> In *Deviant Logics*, Susan Haack mentions of two groups in which many-valued logics or intuitionist logic are considered as supplementary to classical logic whereas modal logic is considered as rival or alternative of classical logic.

statement? One response to this problem is a formulation of many valued logics or fuzzy logics. Fuzzy logics affirm multiple truth values for any statement. That means, rejection of the Principle of Bivalence is the main feature of fuzzy logics. The Principle of Bivalence states that a proposition is either true or false. A proposition must have either of these two truth values. But, future contingent statements clearly reject the law by possessing no truth value of that kind.

From the point of view of truth value, future contingent statements do have the same standard like other vague statements.

- a) He is tall
- b) There will be a sea battle tomorrow
- c) It is raining here now

There are also attempts to explain the problem of vagueness distinguishing vague statements from declarative sentences, eternal sentences, proposition, indexical etc.

The principle of bivalence states that a proposition is either true or false. A proposition must have either of these two truth values. But, future contingent statements clearly reject the law by possessing no truth value at all.

Assigning a new truth value:

One solution to the problem of vagueness is to assigning a new truth value for vague statements. We find different semantics and systems of non-standard logic in this regard. Jan Łukasiewicz is one of the proponents of three valued logic. Let us discuss his three valued logic:

*Jan Łukasiewicz's three valued logic:*

Jan Łukasiewicz assigns a third truth value ‘indeterminate’ for vague statements in addition to ‘true’ and ‘false’. The indeterminate status of a vague statement helps him to construct a truth table for three valued logic. Ascribing the truth value 1, 0,  $\frac{1}{2}$  for true, false, and indeterminate respectively Łukasiewicz formulates the following truth table:

p	q	$\sim p$	p.q	$p \rightarrow q$
1	1	0	1	1
1	$\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{2}$
1	0	0	0	0
$\frac{1}{2}$	1	$\frac{1}{2}$	$\frac{1}{2}$	1
$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1
$\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
0	1	1	0	1
0	$\frac{1}{2}$	1	0	1
0	0	1	0	1

Logicians do appreciate the attempt of multi-valued systems to incorporate the statements with tense. It seems easy to form a three-valued truth table, but it is complex if the values are more than three. We do not find any problem to construct a truth table where the conjunction of p and q is false if either or q is false, true otherwise. For example, the conjunction of ‘Hitler was a German’ and ‘Hitler committed suicide’ is true as long as the both conjunction are true. But, it becomes

more complex to construct the truth table with indeterminate truth value. For example, the conjunction of 'Hitler was a German' and 'Hitler was suffering from influenza'; where the truth value of second conjunct is indeterminate and subject to investigation. Now it becomes complex and controversial whether the conjunction of the above conjuncts is true or indeterminate. This becomes even more critical when we work on with implication with indeterminate truth value. Nevertheless, there is philosophical controversy regarding the indeterminate truth values. It is a big question whether indeterminate truth values represent any distinct truth values at all. Regarding the future contingents, Aristotelian logic articulates that 'there will be a sea battle tomorrow' is neither true nor false until the event takes place. In addition, in classical logic the disjunction of future contingent is always true. That means, 'either there will be a sea battle tomorrow or there will not be a sea battle tomorrow' is necessarily true in classical logic. But, three valued logics, Lukasiewicz's system for example, does not hold the latter part.

Fuzzy logic:

Three-valued logic recognizes an extra value 'indeterminate' which has been shown in the above truth table, whereas fuzzy logic acknowledges degrees of truth value between true and false. It can also be said that fuzzy logic solves some problems of three-valued logic. A fuzzy set will determine a set of truth value of the predicate tall where the subject will qualify to any degree of the truth of its predicate.

[T]here are infinitely many degrees of tallness, which we may indicate with values between 0 and 1 inclusive.  
Gina Biggerly, at 6'7", is tall to degree 1 (i.e., clearly

tall ), while Tina Littleton, at 4' 7", is tall to degree 0 (clearly not tall ). Mary Middleford, at 5'7", is perhaps tall to degree .5—smack in the middle between being tall and being not tall; Anne, at 5'8", is perhaps tall to degree .6: somewhat closer to tall than to not tall. Crystal, at 5'2", is perhaps tall to degree .1—not as clearly not tall as Tina, but almost there.<sup>8</sup>

Thus fuzzy logic offers a solution to the problem of vagueness considering the degrees of truth and certainly avoids some shortcomings of three-valued logic.

Supervaluationism:

We have found one solution to the problem of vagueness by assigning extra truth value in three-valued logic and fuzzy logic. The narrow sense of epistemic vagueness is silent about the undecided or indeterminate realm of the extension of the predicates. Epistemic vagueness admits that there is indeterminate extension of predicates. For example, the predicate 'bald' has extensions in which its instantiations can be true, false, and indeterminate. Epistemic vagueness in its narrow sense, does not attempt for a valuation of the extensions of predicates. Supervaluationism is an attempt to say something about that undecided zone.

Motivation for Supervaluationism:

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<sup>8</sup>Merrie Bergmann, *An introduction to many-valued and fuzzy logic: semantics, algebras, and derivation systems.* (Cambridge University Press, 2008) 176-177

To avoid the problems regarding truth-functionality of predicates, supervaluationism offers a 'non-truth-functional' semantic for vagueness. At the same time, it affirms the truth-value gaps. That means, if we take the sea-battle argument of Aristotle, then supervaluationism affirms that the statement 'there will be a sea-battle tomorrow' simply lacks the precision. From the point of view of borderline cases, vague predicates possess an indeterminate extension for any object. The truth-value gap is better visible by the example of blurred boundaries. What is the distinctive position between red and pink? It cannot be the case that an object is both red and pink; rather, it is certainly, at a point, red and certainly, at another point, pink. By no means, is it 'neither red nor pink'. Hence, it affirms a gap in which its truth value is undecided. Supervaluationism not only recognizes the truth-value gaps and its indecisiveness but also it attempts a precisification of this indecisiveness. It has the motivation to determine the super-truth and super-false for a given vague condition. Supervaluationism is motivated to preserve the classical logic. Especially, the Law of Excluded Middle, which asserts that there is no third truth value except true and false, is preserved in supervaluationism. On the other hand, supervaluationism denies one of the important principles, the Principle of Bivalence. The Principle of Bivalence asserts that every sentence is either true or false. But, supervaluationism affirms that there can be sentence which is 'neither true nor false'; vague sentence in other words. Again, supervaluationism clearly accepts the Law of Non-contradiction which states that no sentence is both true and false at the same time. These diverse features of supervaluationism have made the theory an attractive one.

We find a number of formulations of supervaluationism in the discussion of semantics and logic. Kit Fine considers vagueness as a 'deficiency of meaning'. Any expression

can be vague if it is capable of having meaning. Fine also considers the extensional vagueness, deficiency of extension; and, intensional vagueness, deficiency of intension. He finds extensional vagueness in terms of the truth-value gap. He writes,

Extensional vagueness is closely allied to the existence of truth-value gaps. Any (extensionally) vague sentence is neither true nor false; for any vague predicate  $F$ , there is a uniquely referring name  $a$  for which the sentence  $Fa$  is neither true nor false: and for any vague name  $a$  there is a uniquely referring name  $b$  for which the identity-sentence  $a = b$  is neither true nor false. Some have thought that a vague sentence is both true and false and that a vague predicate is both true and false of some object.<sup>9</sup>

Kit Fine thinks that a vague sentence can be made more precise. Of course, when a vague sentence becomes precise, it is not vague anymore; it possesses a truth value. But, the original vague sentence does not possess any truth value at all; it is ‘neither true nor false’.

Penumbral Connection and Supervaluationism:

Kit Fine defines the logical relation ‘*penumbral connection*’ between pairs of indefinite sentences. ‘*Penumbral connection*’ can be well understood by the example

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<sup>9</sup>Kit Fine, Vagueness, truth and logic.(Synthese 30.3) 266

of blurred boundaries. Red and pink are definitely two distinct colours and they do not overlap. We might not know the exact boundary where red becomes pink, but we certainly know that at some point it is red and know that at some point it is pink. It is necessary that there is no point where the colour is both red and pink. Rather, it is better to say that there is a penumbral connection between these two related concepts red and pink. The way of defining '*penumbral connection*' can be called supervenience.

Lewis is one of the proponents of supervenience who shows that, following Van Fraassen, the problem of many can be solved by supervenience. However, in addition, Lewis combines the almost identity thesis<sup>10</sup> with supervenience in order to show another successful solution of the problem of many. Supervenience concedes the unmade semantic decision of predicates. Necessarily we do not need to make the semantic decision in order to carry on the exploration of knowledge; we can utter true statements regardless of semantic decision. We may not yet be decided whether the predicate 'mountain' includes some small peaks around it, but we can utter the true statement 'the mountain is so high'. The question comes, what is it that makes us able to meaningful true utterance? In Van Fraassen's formulation, as Lewis states, we do have intended interpretations for every predicates in languages and this is how we make meaningful statements regardless of semantic indecision. According to this view, if a statement is true from all aspects of its intended interpretations, then the truth value of the statement is super-true. If a statement is false under all aspects of its intended interpretations, then it is super-false. Lewis' support of Van Fraassen regarding supervenience will be discussed elaborately in part 5. The concept of

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<sup>10</sup> A thesis that claims that two things are not identical but almost identical



super-true and super-false can also be discussed by the precisification of the extension of predicates. Supervaluationism accepts the undecided extension of vague predicates. At the same time, it recognizes the super-true/super-false status of a precise predication. Fine says,

...that a vague sentence is true if and only if it is true for all ways of making it completely precise.<sup>11</sup>

Kit Fine formulates the supervaluationistic semantic for vagueness in his article called "Vagueness, truth and logic." In his article he defines the truth condition.

...vague sentence is true if it is true for all admissible and complete specifications. An intensional version of the theory is that a sentence is true if it is true for all ways of making it completely precise (or, more generally, that an expression has a given Fregean reference if it has that reference for all ways of making it completely precise). As such, it is a sort of principle of non-pedantry: truth is secured if it does not turn upon what one means. Absence of meaning makes for absence of truth-value only if presence of meaning could make for diversity of truth-value.<sup>12</sup>

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<sup>11</sup>Kit Fine, Vagueness, truth and logic.(Synthese 30.3) 265

<sup>12</sup>Kit Fine, Vagueness, truth and logic.(Synthese 30.3) 278

Fine explores almost every aspects of supervaluationism including the vagueness of borderline cases, higher-order vagueness, problem of truth conditions, and other related issues regarding vagueness.

The above survey on different views of vagueness will help us to clarify Lewis' idea on vagueness with a comparison. Lewis' account of vagueness will be analyzed more elaborately in Part 3.

The problem of identity has many aspects in the writings of different philosophers in different times. 'Ship of Theseus' is a famous example of the problem of identity. We find ancient philosophers like Heraclitus, Socrates, and Plutarch who are concerned about the problem. In modern period, among other philosophers, Thomas Hobbes discusses the problem elaborately. Hobbes' main concern is to distinguish between identity and difference. Taking out the old planks of a ship and replacing them with new planks means a new ship can be built. Again, the old ship can be rebuilt with the old planks. The question comes, which ship should be considered as original? The problem may include the questions: whether identity is determined by the quality of a thing; whether identity is determined by the form of a thing; and, whether identity is determined by the matter of a thing. Hobbes gives a solution that the ships are partly same and partly different. In fact, this sort of solution creates the starting point of another problem in logic and semantics. The question comes, is it possible to have partial identity of a thing?

Lewis has not given any distinct theory of vagueness of its own necessity. But, we can extract different fragments from his various writings. Before analyzing Lewis' account of vagueness, it would be helpful to have a closer look to his modal realism.

## 2.2 Lewis' Modal Realism

There are some motivations for Lewis to construe possible world semantics. He appreciates the necessary truth-possible truth distinction by means of possible worlds. In modal logic, a proposition is necessary if it is true in every possible world and possible if it is true in at least one possible world. Thus all bachelors are unmarried is true in all possible worlds and therefore an example of necessary truth. To work on counterfactuals is another motivation for Lewis. Possible world semantics takes into account the state of affairs if things have gone in different ways. Above all, Lewis is keen to acknowledge the realm of belief in parallel with epistemic viewpoint. Regarding the content of thought, not only the class of epistemically accessible worlds but also the class of doxastically accessible worlds is taken into consideration. As an advocate of modal realism Davis Lewis attempts to sketch out an ontology of possible worlds. He claims the plurality of worlds in order to extend the scope of philosophy of language, philosophy of science, philosophy of mind, and semantics. As a modal realist, Davis Lewis believes in the existence of possible worlds in its own right. He begins one of his articles by saying,

I believe that there are possible worlds other than the one we happen to inhabit. If an argument is wanted, it is this. It is uncontroversially true that things might be otherwise than they are. I believe, and so do you, that things could have been different in countless ways. But what does this mean? Ordinary language permits the

paraphrase: there are many ways things could have been besides the way they actually are. On the face of it, this sentence is an existential quantification. It says that there exist many entities of a certain description, to wit 'ways thing could have been'. I believe that things could have been different in countless ways; I believe permissible paraphrases of what I believe; taking the paraphrase at its face value, I therefore believe in the existence of entities that might be called 'ways things could have been' I prefer to call them 'possible worlds'.<sup>13</sup>

Lewis' argument claims the existence of possible worlds in a strict sense.<sup>14</sup> He starts with the paraphrase of what we believe in the first place, and then he goes further with the explanation of the ways a world might be. Though, claiming the existence of possible worlds in a strict sense seems implausible at the first glance, Lewis convinces his reader with a comparison of some other alternative theories with his own theory, ersatz realism for example. He states how Hilbert was right to call the set theoretic universe a paradise for mathematicians; how the mathematicians explore knowledge in the realm of abstract entities.<sup>15</sup> Lewis seeks a paradise for philosophers, which is

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<sup>13</sup> David K. Lewis, "Possible Worlds." Contemporary Readings in the Foundations of Metaphysics (1998) 96

<sup>14</sup> As Robert C Stalnaker calls Lewis' theory an 'extreme modal realism' in his article titled 'Possible Worlds' whereas he prefers to call his own theory a moderate one.

<sup>15</sup> David K. Lewis, On the plurality of worlds. Vol. 322. (Oxford: Blackwell, 1986) 3

even concrete in nature. Meaning, he believes in the realm of possible worlds not in abstract sense, but rather in the way an actual world exists.

Lewis takes actuality as an indexical. When someone calls his own world as actual, it refers to the place and time of the utterance.

Our actual world is only one world among others. We call it alone actual not because it differs in kind from all the rest but because it is the world we inhabit. The inhabitants of other worlds may truly call their own worlds actual, if they mean by 'actual' what we do; for the meaning we give to 'actual' is such that it refers at any world *i* to that world *i* itself. 'Actual' is indexical, like 'I' or 'here, or 'now': it depends for its reference on the circumstances of utterance, to wit the world where the utterance is located.<sup>16</sup>

Lewis seeks an economical ontology for modality and investigates whether ersatz realism works better or not. Stating the abstract-concrete distinction he compares Linguistic ersatzism, pictorial ersatzism, and magical ersatzism. For example, the linguistic ersatzism part, it has been discussed whether the possible worlds are reducible entities like a set of propositions. W. V. Quine's offer, in 'Propositional Objects', of understanding propositional attitudes in terms of mathematical entities, and Carnap's state-description proposal are examined as well.

Ersatz modal realism admits of only one concrete world and strictly denies the existence of any other world or other-worldly individuals in all possible senses.

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<sup>16</sup> David K. Lewis, "Possible Worlds." *Contemporary Readings in the Foundations of Metaphysics* (1998): 97.

Division of abstract and concrete makes space to accommodate possible worlds in ersatz realism. Even, common sense opinion does not have any disagreement with this proposal. Mathematics deals with abstraction and there is no obstacle for metaphysics to deal with abstract entities. The ersatz program is all about abstract representations of worlds. There are also actualized and unactualized worlds; only the actualized world represents the concrete world correctly. Ersatz modal realism primarily focuses on the distinction of concrete-abstract, actualized-unactualized worlds, and their representations. Firstly, it presumes that we can talk about an abstract world like a concrete world; hence, there is no point to restrict the domain of modal realism within concrete world. Secondly, ersatz modal realism emphasizes the representation of world. The abstract worlds are capable of representing the concrete world. Abstract entities are both representations and representatives. As representations, it is possible to make discourse on abstract entities, and as representatives they represent what they were supposed to represent. The abstract representation is possible for both worlds and individuals.

However, this is not the only case that Lewis' possible worlds are concrete and ersatz worlds are abstract. To make the distinction clear Lewis offers to investigate three versions of ersatz modal realism. He shows that the ersatz project is not as successful once we trade off the ontology of concrete worlds for duplicates; and he calls his own view 'genuine modal realism' differing with Stalnaker's depiction as 'extreme modal realism'.

Part 2 has sketched out the fundamental problems regarding vagueness and identity in general. Different versions of vagueness have been discussed with reference to Kit Fine and Timothy Williamson. In addition, the problem of vagueness has been

compared with similar concept like generality, ambiguity etc. Part 2 also surveys different solutions to the problem of vagueness as well. A brief account of three-valued logic, fuzzy logic, supervaluationism, contextualism, and semantic indecisiveness has been given in order to make an intense survey to Lewis' account. Again, the problem of identity is also discussed in part 2 in order to understand its relation to the problem of vagueness. The account of Lewis' modal realism has been discussed to have the adequate background to work on his concept of vagueness, identity, and epistemology.

Now, in the next part, the focus will be on the problem of identity. Lewis discusses 'partial identity' and 'relative identity' regarding the ontological status of objects. Nevertheless, he discusses the identity issue with mereological composition which brings in the problem of trans-world identity. Lewis offers his counterpart theory as a solution of the problem of trans-world identity of objects. The whole discussion will be helpful to construe Lewis' stance on the problem of identity, and epistemology in general.

### 3 On Identity

Lewis' epistemological and metaphysical point of view includes the discussion of identity. His stance on identity sets the ground for a relaxed epistemology which will be demonstrated in this part.

Though, Lewis is unwilling to treat the identity issue as a problem, we cannot overlook some related questions with regard to the problem of vagueness.

The first question is whether saying 'two things are identical' is self-contradictory. On the one hand, by declaring 'two things', it means that there are two separate things, and on the other hand, the word identical means that the two things are the same. So, how is it possible that there are two things and they are exactly the same? Either this is a contradiction or the word identical is treated in a loose meaning. However, the loose sense of the word identical does not posit any philosophical problem, but avoids the real problem. This issue has a long rooted origin in the philosophy of antiquity. Heraclitus' philosophy claims that everything is one. His argument indicates the primal point of all objects. If everything is born out of a single substance, say fire, then everything has a single identity at the end. This is not a problem for us anymore as we have already made substantial developments in the philosophy of language. We have numerous theories on meaning, predication, and proposition. The plurality of objects, at least in proposition or in predicates, is taken for granted in order to carry on philosophical discourse. Therefore, Heraclitus' doctrine of oneness does not create any problem for identity at all.

Heraclitus' doctrine of change can also be taken into consideration when we talk about identity. One cannot step twice in a river because the river loses its identity in every



moment. If everything is changed in every moment, then how can we talk about identity at all? Not only the river changes in every moment, but also the person who is about to step in the river changes in that very moment. Cratylus' consideration is even more extreme when he states that one cannot even step once in a river as everything is changing in every moment. There is no identity at all for any moment. To return to Aristotle who indicates that in the doctrine of change they inferred knowledge in terms of the sensible world. They have their propositions by observing the sensible world. When they observe the change in the sensible world they see only the changes of quality around our surroundings and ascribe this change on the whole. But, as a matter of fact, it is not possible to observe even a substantial part through sensation. The doctrine of change infers knowledge to be sensation, explaining everything out of sensible world. Two problems arise here: (1) confusing between essence or form of a thing with its accidental qualities, and (2) committing the fallacy of composition, ascribing the property of the part of a whole on the whole. In addition, opposing the view of sense perception Aristotle says "*It is in respect of its form that we know each thing*"<sup>17</sup>. The form refers to the essential quality of a thing. Hence, the doctrine of change does not posit any problem for identity as well. Despite the changes in every moment, we name and predicate the things. If we consider this problem in its metaphysical aspect, we may come up with disappointment and confusion. Rather, whether names or predicates are vague for the changing characteristic of their respective objects are worth discussing. Therefore, there exists an identity issue if and only if we consider the doctrine of change in terms of vagueness.

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<sup>17</sup> Richard McKeon. The Basic Works of Aristotle.(New York: Random House, 1941) 746

When we talk about the changes of an object over time, we face the problem of vagueness. There is a similar problem if we consider the spatial aspect. There are two ways in which this problem can be addressed: (1) there is plurality of worlds and the worlds may overlap to conceive an object, which creates the problem of identity for that object (2) the object may have parts in different worlds, which is called trans-world objects. This trans-world identity of objects is not meant in its weak sense. Meaning, trans-worlds are not like trans-planet or trans-country concepts. However, Lewis has a strong position against overlapping of worlds, and at the same time he rejects the trans-world identity of individuals. He describes the trans-world identity as one of the mere oddities. But, in the rejection of overlapping of worlds and trans-world identity of individuals, we have issues to discuss if it is considered in a relation to vagueness. There can be a discussion on the question whether the trans-world individuals are vague. It should be noted that Lewis does not refute the existence of trans-world individuals; rather he has given less importance of the ontological aspect of trans-world individuals. The identity of trans-world individuals in terms of vagueness is still an important issue.

The problem of many deserves special attention to identity and vagueness. Though the problem of many creates a metaphysical appeal to the philosophers, especially when we talk about the accidental-essential distinction and actual-potential distinction, it has to do with identity and vagueness as well.

This problem is better formulated in Lewis' Many, but Almost One. He states P. T. Geach' paradox of 1001 cats in this paper.

Cat Tibbles is alone on the mat. Tibbles has hairs  $h_1, h_2, \dots, h_{1000}$ . Let  $c$  be Tibbles including all these hairs; let  $c_1$  be all of Tibbles except for  $h_1$ ; and similarly for  $c_2, \dots, c_{1000}$ . Each of these  $c$ 's is a cat. So instead of one cat on the mat, Tibbles, we have at least 1001 cats- which is absurd.<sup>18</sup>

### 3.1 Partial and Relative Identity

Is identity absolute or relative? P. T. Geach denies absolute identity and offers the doctrine of relative identity. Thus, the paradox of 1001 cats can be solved by identifying each cat with a relation to another cat, 'this cat is almost same as that cat'. This relative identity can be analyzed from two points of view: with a relation to the contexts, and with a relation to other things. A criminal's identity is determined by the facts, both negative and positive, of his life which is related to crimes. Lewis writes,

If an infirm man wishes to know how many roads he must cross to reach his destination, I will count by identity-along-his-path rather than by identity. By crossing the Chester A. Arthur Parkway and Route 137 at the brief stretch where they have merged, he can cross both by crossing only one road.<sup>19</sup>

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<sup>18</sup> David K. Lewis, "Many, but almost one." (Ontology, Causality and Mind (1993)) 24

<sup>19</sup> David K. Lewis states this quotation from his Identity of Persons in Many, but almost one. p. 31

That means, identity is determined through a pragmatic approach. Thus, we know Immanuel Kant as the writer of three important Critiques of philosophy whereas his neighbour might know him merely as a punctual fellow. A scientist in front of an apprentice does not identify a scientific phenomenon by means of technical jargons; rather he would try to present it in such a way so that an apprentice might grasp it. The cognitive role is on the table as long as we admit mind dependent identity. Mind independent and mind dependent identity are separate metaphysical issues. Now, if the identity of objects is determined in terms of the relationship they hold, we must confront the question whether the objects are the same or different. 'Same' and 'different' are too broad to grasp, rather it would be easier to grasp if we are more precise. Say, instead of asking 'is it the same cat as *c*?' we may ask 'is it the same cat ignoring the discernible facts?' We are more comfortable to answer the later question, but this does not solve the paradox. Lewis finds a lack in Geach's solution. Lewis says that there are identity simpliciter of spatial and temporal objects. That means, the identity can be determined considering the temporal and spatial segments. Thus, the 1001 cats of the paradox are different cats in terms of hair. In the same way, 'qualitative identity is identity simpliciter of qualitative character. Starting from feline tissue we can go further to any quality in order to determine the identity of a thing. In Lewis' sense, Geach does not acknowledge identity simpliciter in his solution when he uses the expression 'same cat'.

The doctrine of partial identity acknowledges the parts of the whole to determine the identity. It emphasizes the difference between identical and distinctness in a flexible manner. Generally, if two things are distinct, they share no parts in common. But, things can also be almost identical and almost distinct. Among the 1001 cats there

may be two cats say,  $c_{34}$  and  $c_{35}$  that are almost identical whereas  $c_1$  and  $c_{1000}$  are almost distinct;  $C_{34}$  and  $C_{35}$  overlap almost everything whereas  $c_1$  and  $c_{1000}$  overlap very few characteristics. 'The cats are many, but almost one'. Lewis says,

The things are not entirely identical, not entirely distinct,  
but some of each. They are partially identical, partially  
distinct.<sup>20</sup>

The solution of partial identity fails to grasp every aspect of the quality of a thing. It is not possible to determine the identity of a thing by a comparison of the qualities of two things. Moreover, we can easily be derailed to the process of 'almost identity' as long as both the number and extension of qualities are infinite.

### 3.2 Identity and Mereological Composition

In the third section of the fourth chapter of *On the Plurality of Worlds*, Lewis begins his discussion with the notion of possible worlds in terms of temporality and spatiality. However, it should be mentioned that he refutes the overlapping of worlds in the previous section. He says,

I cannot altogether accept the formulation: anything can coexist with anything. For I think the worlds do not overlap, hence each thing is part of only one of them. A dragon from one world and a unicorn from a second world do not themselves coexist either in the dragon's world, or in the unicorn's world, or in a third world. An attached head does not reappear as a separated head in

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<sup>20</sup> David K. Lewis, "Many, but almost one." (*Ontology, Causality and Mind* (1993)) 33

some other world, because it does not reappear at all in  
any other world.<sup>21</sup>

There may be the existence of different temporal worlds in past, present and future. Milesian philosophers and Pluralists' account of multiple worlds can be an example of this sort.<sup>22</sup> These temporal worlds can be explained in terms of both objects and facts. Again, we can talk about the mereological composition of objects of those temporal worlds; or we can talk about what goes on in those worlds as well. The worlds can be thought of as a spatial collection of object with distinct characteristics.

Weak Sense of Trans-world Identity:

Lewis discusses both the strong sense and weak sense of trans-world identity of individuals. The weak sense can be discussed in terms of spatiality. The river Ganges belongs to both India and Bangladesh. The countries do not overlap, they have precise borders. It is a trans-boundary river. The identity of the river can also be defined as trans-state identity. The Ganges consists of parts in both countries. I can think of a world where Ganges belongs to India, I also can think of a world where the Ganges belong to Bangladesh.

The weak sense of trans-world identity of individuals can also be discussed in terms of temporality. The person I was at the age of ten, twenty years ago, and the person I am right now shares the same identity. Though, I belong to two different temporal worlds of two different times, 1993 and 2013. After one hour from now I shall belong to another temporal world where everything will be changed. The worlds do not overlap.

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<sup>21</sup> David K. K. Lewis, *On the plurality of worlds* (Vol. 322. Oxford: Blackwell, 1986) 96

<sup>22</sup>Atomists like Leucippus and Democritus believed in the existence of momentary multiple worlds. Anaximander in Milesian school also believed in the simultaneous series of worlds which appear and disappear.

I share my different parts in different times in different worlds. I lack one of my properties as a graduate student at MUN in 2000. Perhaps, I will possess a property of being a PhD student at Queen's in 2015. Throughout my life, I shall conceive identity in different temporal worlds. The question comes, am I a trans-world individual in different times and is Ganges a trans-world river in different places?

Strong Sense of Trans-world Identity:

Strong sense of trans-world identity of individuals refers to the acceptance of overlapping of worlds. But, Lewis denies overlapping of worlds because it causes the problem of accidental intrinsic properties.<sup>23</sup> He says,

[T]rans-world identity' in the truest sense - overlap of worlds - creates a disastrous problem about the accidental intrinsic properties of the alleged common parts. But when we therefore reject overlap of worlds, we need not reject trans-world identity in the lesser...<sup>24</sup>

Clearly, he mentions that it is not necessary to reject the trans-world identity of individuals along with overlap of worlds.

### 3.3 Identity and Vague-precision Distinction

Another important question Lewis asks is whether we can call Tibbles a vague cat and all  $c_2, \dots, c_{1000}$  precise. In Lewis' view, this vague-precise distinction does not solve the problem of many as well. He says,

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<sup>23</sup> If somebody, say Humphrey, leads a double life as part of two different worlds we do not have any intelligible way to differ his properties in the worlds, both essential and accidental.

<sup>24</sup> David K. Lewis, *On the plurality of worlds* (Vol. 322. Oxford: Blackwell, 1986) 218

This new dualism of vague objects and their precisifications is, again, unparsimonious and unnecessary. The problem it was made to solve might better be solved another way. It is absurd to think that we have decided to apply the name ‘Tabbles’ to a certainly precisely delimited object; or that we have decided to apply the term ‘cat’ to each of certain precisely delimited objects. But we need not conclude that these words must rather apply to certain imprecisely delimited, vague objects. Instead we should conclude that we never quite made up our minds just what these words apply to.<sup>25</sup>

Does this ‘semantic indecision’ solve the problem of many? If we need not make any decision then it is a different issue. But, are we able to make any decision at all?

### 3.4 Identity and Counterpart Theory

Lewis’ counterpart theory is meant to solve the problem identity especially after investigating the trans-world identity of individuals and overlapping of worlds. Can an individual live a double life, say, Humphrey who wins and the same Humphrey who loses? Is it possible to have different properties in different worlds that constitute one Humphrey? Lewis finds problems not in the inter-composition of objects among the worlds, but rather in the way ‘the common part of two worlds is supposed to have different properties in one world and in the other’. In fact, there may be a common

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<sup>25</sup> David K. Lewis, *Many, but Almost One* (Ontology, Causality and Mind (1993): 23-42.) 27



part of the same object in to different worlds just as Siamese twins may have a common hand. The problem happens when we tend to philosophize the identity of Herbert Humphrey or of a common part between worlds. Lewis differentiates between intrinsic and extrinsic properties in this respect. There are some qualities, say, winning presidency of Humphrey or wearing a fur hat that is subject to the relation to other things around him; but his shape, colour and size are intrinsic. Still, these intrinsic qualities are accidental as well. He might be taller than he is, or he might have a different colour. If this is the case, then, 'Humphrey is 6 feet tall', and 'Humphrey is 7 feet tall' both are true if it is the same Humphrey; a contradiction as well. There is remedy to get rid of this contradiction: 'Humphrey is 6 feet tall according to the world x' and 'Humphrey is 7 feet tall according to the world y'. Lewis argues that the added modifier does not help in this regard. There are some other cases too: firstly, a tower can be square on the third floor and round on the fourth floor. Modifiers can help to distinguish the segment of the floors and eliminate the contradiction. But, it is not possible in Humphrey's case; we are talking about the whole-Humphrey. Secondly, it can be argued that different worlds represent Humphrey in a different way. But, again, we are talking about genuine modal realism, not ersatz modal realism. Thirdly, we may say that a man can be both father and son because he bears different relations for his identity. These three cases do not help to solve the Humphrey problem as stated above. How are we to decide on the accidental intrinsic properties of Humphrey in different worlds regarding his identity? Lewis offers his counterpart theory to solve the problem of accidental intrinsic, which is presented in the problem of trans-world identity of individuals in Lewis' *On the Plurality of Worlds*.

In counterpart theory, everything has its counterpart in other worlds. Thus, I have a counterpart in some other worlds who is not writing, Humphrey has a counterpart in some other worlds who has won the presidency election. We do not need to appeal to ersatz realism for this representation of counterparts. Lewis says,

A genuine world might do it by having Humphrey himself as a part. That is how our won world represents, concerning Humphrey, that he exists. But for other worlds to represent in the same way that Humphrey exists, Humphrey would have to be a common part of many overlapping worlds, and somehow he would have to have different properties in different ones. I reject such overlap, for reasons to be considered shortly. There is a better way for a genuine world to represent, concerning Humphrey, that he exists. Humphrey may be represented in absentia any other worlds, just as he may be in museums in this world.<sup>26</sup>

Some other issues of identity include actual-potential distinctions and accidental-essential distinctions in their discussion. Actual-potential distinctions can also be helpful to solve the paradox of 1001 cats. The cat might have been existent in numerous possible ways among which only one cat has been actualized. The cat on the mat we refer to in our world is the only cat, and  $c_1$  to  $c_{1000}$  are all possible cats in

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<sup>26</sup>David K. Lewis, *On the plurality of worlds* (Vol. 322. Oxford: Blackwell, 1986) 194

possible worlds. In Aristotelian metaphysics, potency comes first then actuality. A piece of wood has the potency of being a chair; similarly, a chair has the potency of being a three legged chair. We cannot validly call a piece of wood a chair until it has been actualized and we cannot call  $c_1$  a cat either until it has been actualized.

However, the actual-potential distinction does not play any role for identity if we consider actuality as an indexical, as Lewis puts it. But, of course there is something to say about the mereological composition of objects in different worlds. The question comes whether it is possible to have different parts of an object in different worlds. In other words, the question comes whether there is any trans-world identity.

There are accidental and essential qualities in objects. Say, in Tibbles example,  $h_1, h_2, \dots, h_{1000}$  refers to the accidental quality and the cathood refers to the essential quality of Tibbles. The question is whether accidental qualities are considered to determine the identity of an object. Aristotle's *Metaphysics* clearly leaves the accidental qualities for special sciences and declares that the sole task of philosophy is to investigating on the essential qualities of objects. However, the accidental-essential distinction becomes crucial regarding the problem of many, especially when we talk about identity. If only essential quality is meant to be a matter for identity, then we do not have any paradox at all. Even temporal parts of objects do not matter for the identity as long as essential quality is the same in all times. In fact, accidental-essential distinction refers to a broader sense and it has been analyzed through Lewis' *Many, but Almost One* in a precise manner.<sup>27</sup> For example, partial identity thesis

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<sup>27</sup>Problem of accidental intrinsic also covers this issue.

investigates whether differing only in some hairs, i.e. differing in accidental qualities, can make a different identity of the cat Tibbles.

## 4 On Vagueness

Different philosophers consider the problem of vagueness significant in its own right. They offer different solutions for the problem as well. Lewis does not take the problem of vagueness as a distinct issue in its own right; rather he acknowledges the problem in his several writings on epistemology and semantics. He does not formulate any theory of vagueness; rather he advocates some traditional theories of vagueness in order to establish his modal realism. These scattered writings of Lewis help us to have an overall picture of vagueness.

### 4.1 How Does the Vagueness Issue Matter?

Lewis' main attempt is to formulate possible world semantics in order to benefit philosophy of language and philosophy of logic. However, he also acknowledges the problem of vagueness in some of his writings with respective issues. One of the main tasks of possible world semantics is analyzing language in its modal aspect. How is the truth value of an utterance, or of a proposition determined? What is the role of utterance event, propositional attitudes, context, and role of speaker-hearer? How does language prevail in the resolution of vagueness? What are the things and what do we mean exactly? If an utterance is true under some semantic conditions, and false under some semantic conditions, then the role of language is to specify semantic conditions for sentences by which we have a meaningful communication eliminating any sort of vagueness.

Though, many commentators are comfortable to discuss Lewis' account of vagueness in their metaphysical framework, Lewis has clearly stated that vagueness is in our thoughts and language. He has refused the vague existence of any object. The Sahara is not a vague desert with an imprecise border; rather, there are many candidates of Sahara with imprecise borders and we yet to decide which one should be given the name Sahara. Does compositional analysis of Sahara help? Is Sahara a trans-world entity? Does Sahara share its different parts in different possible worlds? What sorts of things are included in the definition of Sahara? The discussion of mereological composition is related in this regard. Mereological composition may mean the composition of the object itself; better to say 'quantification over possible worlds' so that it denotes our intuition, thought and language. Quantification over possible worlds can be restricted or unrestricted. Lewis shows that if the quantification is restricted, then the existence of trans-world individual is not possible. A restricted quantification would limit the whole mereological composition within one world. 'It is possible for something to exist iff it is possible for the whole of it to exist.' Restricted quantification does not allow the composition of Herbert Humphrey who wins the presidency and who loses. Now, if the quantifier is unrestricted, then trans-world individual is possible; trans-world composition is the composition among the possible worlds. But, restricted quantifier or restricted mereological sum does not allow that. Hence, in restricted manner, a trans-world individual is an impossible individual. Lewis himself admits that this argument does not deny the significance of trans-world identity of individuals. He calls this 'impossible individuals' a mere terminological stipulation. However, as the quantifier is unrestricted, we can go further with the problem of trans-world identity and vagueness.

A thing may have its parts in different worlds. Lewis considers the problem of restricted quantifiers. Let us take the example of Herbert Humphrey; numerous things and events can be considered as his mereological parts, e.g. waving his hand, wearing a fur coat, having six fingers on his left hand, or say, some distantly related phenomenon. The problem is: there is no principle in accordance with our intuitive desiderata by which we can select only the relevant parts of Humphrey. Therefore, if there is any restriction on mereological composition, it will be a vague restriction. Because of the vagueness in the restricted quantifier we may not be able to know whether composition occurs or not; so, we do not have any option but to keep it restricted. In Lewis' view,

... if composition obeys a vague restriction, then it must sometimes be a vague matter whether composition takes place or not. And that is impossible.<sup>28</sup>

Once we talk about quantification, we are talking about quantification in language; specifically, utterance, sentence, or proposition. Lewis confirms, 'The only intelligible account of vagueness locates it in our thought and language.' He intends to investigate whether composition takes place or not, whether there are trans-world individuals without any sort of vagueness. And, once we allow an unrestricted composition, we must allow trans-world individuals. But, the question comes, in what sense can this be called 'trans-world individual'? Granting the unrestricted composition, Lewis reformulates the counterpart theory in terms of trans-world identity of individuals.

Are Trans-world Individuals vague?

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<sup>28</sup> David K. Lewis, *On the plurality of worlds* (Vol. 322. Oxford: Blackwell, 1986) 212

An unrestricted composition allows the possibility of trans-world individuals. Does this liberal point of view keep any space for vagueness? First of all, from the ontological point of view, there is no vague object, as Lewis says. The Sahara desert may have an imprecise border, but this does not mean that the Sahara itself is a vague object. Let us go back to the Humphrey example, or ask ourselves whether Humphrey is or whether we are trans-world individuals. Having different parts in spatiotemporal extension, or the overlapping of worlds has already been refuted by Lewis and a counterpart theory is proved. So, it is clear that we are not trans-world individuals having different parts in different worlds. But, what happens if we accept trans-world individuals in terms of counterpart relation? It should be mentioned that Lewis refutes the ersatz program and gives his counterpart theory. It is not the case that we have other worldly abstract representations. Rather, we may have other worldly concrete counterparts. Lewis offers stage theory regarding this issue. We may say that we have counterparts in other worlds, Humphrey has counterpart in other worlds who might have won the presidency election. Unrestricted composition allows us to conceive of 'Humphrey' and Humphrey 'winning the presidency' in some possible worlds. Now, if Humphrey does not have a precise extension, then we are forced to accept Humphrey as 'vague Humphrey'. Again, it is not the case that I endure throughout different times, thus, I am a trans-world individual and I am vague. This interpretation is a mere oddity, as Lewis says. Rather, I might have counterparts in other worlds and in that sense I might be called a trans-world individual; vagueness persists only when we are not prepared enough to make the precision. The next question comes, whether we need to decide on precision.

Lewis acknowledges some issues of vagueness in 'Many, but Almost One'. In the paradox of 1001 cats, why it is not possible to conclude that Tibbles is a vague cat, and

Cats are precise cats? Lewis thinks that we do not have a correct concept of the so called 'vague objects'. There are three possible ways to think of vagueness in its spatial extent: Multiplicity, ignorance, and fade-away. We may think of an object which has multiple precisification, Tibbles for example. We have already discussed the reason for which this dualism of vague and precise is not acceptable. Another way that we may think of vague objects is that they have an extension about which we are totally ignorant. We do not know the limit of the extension of the Sahara desert. Lewis talks about another possible picture of vague objects, fade-away picture. An object may have a degree of its extension, blurriness of a colour for example. We never know the exact point in which the colour red becomes pink. Or, say we may not be able to select the most intense red colour from a red blurry picture. In Lewis' sense, none of these pictures give a correct concept of a vague object.

Besides these, Lewis acknowledges the problem of vagueness in a supervenience solution in order to solve the problem of many. He also discusses the problem of vagueness with regard to counterfactuals.

## 4.2 Supporting Supervenience

On the question of vagueness, Lewis supports Van Fraassen's supervenience solution. In this view, semantic indecision does not leave us in any problem. We can have true statements where there has not been any decision made about the predicate's extension. For example, 'a famous architect designed Fred's house' can be uttered true regardless of whether the garage is included with the house or not. Lewis states van Fraassen's interpretation of super-true and super-false.



Call a sentence super-true if and only if it is true under all ways of making the unmade semantic decision; super-false if and only if it is false under all ways making those decisions; and if it is true under some ways and false some others, then it suffers a super-truth-value gap.<sup>29</sup>

The question arises, how is the utterance ‘a famous architect designed Fred’s house’ true whence its predicate’s extension is undecided? According to a supervaluationistic solution, we have an intended meaning for all predicates and words in our languages. In fact, the intended interpretation is not a single interpretation of a predicate but a range of interpretations. This is how the predicate ‘house’ may have an interpretation with garage or without garage, with lawn or without lawn. Cultural phenomenon and context is important to determine the range of intended interpretations. Oriental culture may include some elements in the interpretation of ‘house’ whereas occidental culture may not include those elements. Every intended interpretation adds something more to the extension of a predicate. Now, a sentence is called super-true if it is true under all of its intended interpretations, super-false if it is false under all intended interpretations.

In the paradox of 1001 cats, whatever intended interpretation we ascribe, only refers to just one cat Tibbles. Hence, ‘there is only one cat, Tibbles, is on the mat’ is super-true and the paradox is solved in this way.

Tibbles without the hair  $h_1$  is  $C_1$

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<sup>29</sup>David K. Lewis, "Many, but almost one" (Ontology, Causality and Mind, 1993) 29

Tibbles without the hair  $h_2$  is  $C_2$

Tibbles without the hair  $h_3$  is  $C_3$

In every intended interpretation of  $C_1, C_2, C_3$ , it refers to the cat Tibbles.

Lewis combines two successful solutions of the problem of many. In his view, neither of these solution alone is adequately a solution of the problem. Supervaluationism and the ‘partial identity thesis’ together help to solve the problem of vagueness. The partial identity thesis helps to a combined solution in two ways, as Lewis says. In one sense, before a supervaluationistic solution, the range of intended interpretation remains in the almost identity mood. Almost identity offers ‘almost truth’ whereas supervaluationism offers the peak of the truth, super-truth. In other words, regarding the paradox of 1001 cats, there are almost-identical-cat-candidates among which supervaluationism selects only one cat Tibbles for the reference of ‘cat’.

### 4.3 Vagueness and Counterfactuals

Lewis’ discussion of vagueness in counterfactuals also shows favour for a moderate epistemology. He recognizes counterfactuals in terms of possible worlds. In our actual world there are states of affairs and there are possible worlds, which resemble our states of affairs. We think of possible states of affairs with a relation to our actual states of affairs. When we say ‘if kangaroos had no tails, they would topple over’ we picture an actual state of affairs where kangaroos have no tails and we ascribe it to possible state of affairs. These counterfactual conditionals carry vagueness when we see them as strict conditionals. Lewis carefully distinguishes between vague terms and ill-understood terms. We can give a truth condition to vague statements; in other

words, we can resolve the vagueness. In the case of ill-understood terms, resolution of vagueness is irrelevant and unnecessary.

How do the counterfactuals contain vagueness?

If we think of counterfactuals in terms of possible worlds, then ‘if kangaroos had no tails, they would topple over’ is necessarily true (symbolized as  $\Box$ ) iff in all possible worlds kangaroos have no tails topple over. The statement is necessarily false iff in no possible worlds kangaroos with no tails topple over. If kangaroos with no tails topple over in some possible worlds and do not topple over in some other possible worlds, then it is ‘possible’ (symbolized as  $\Diamond$ ). The problem happens when we consider the accessibility relation of possible worlds. Is ‘all’ all inclusive? When we talk about kangaroos, we talk about the worlds where there are kangaroos. In other words, we talk about the possible worlds with a relation to our actual world having kangaroos with tails. Firstly, the question comes whether counterfactuals are strict implications.<sup>30</sup> Secondly, if the strict implication is based on similarity, then there is scope of vagueness. There might be different truth conditions based on the similarity relation. If the truth conditions are different, then there is scope of vagueness. The question comes; can appeal to the context solve the vagueness problem of counterfactuals? In Lewis’ view, vagueness of counterfactuals can be solved with an appeal to a different context; but, the problem remains with the counterfactuals in a single context. He says,

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<sup>30</sup> In modal logic, strict implication is introduced as a modal operator in addition to the ‘material implication’ of classical logic.

While one context may favour a delineation of baldness on which Dudley is bald, and another context may favour a delineation on which he is not, no context can favour a delineation on which he both is and is not. There is no such delineation.<sup>31</sup>

That means, there is no such resolution of vagueness in counterfactuals. In fact, resolution with an appeal to different context is not a problem here.

Vagueness in Comparative Similarity:

There are counterfactuals which can be considered in pairs rather than in isolation in order to have a better understanding of vagueness. Lewis states Quine's pair of counterfactuals.

If Caesar had been in command [in Korea] he would have used the atom bomb.

versus,

If Caesar had been in command he would have used catapults<sup>32</sup>

The antecedents of these counterfactuals are implicit. The implicit part of the antecedent can be made explicit by-

If Caesar had been in command in Korea...

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<sup>31</sup> David K. Lewis, *Counterfactuals* (John Wiley & Sons, 2013) 13.

<sup>32</sup> David K. Lewis, *Counterfactuals* (John Wiley & Sons, 2013) 66.

The antecedent of the above counterfactuals might make the hearer to think of both Caesar with modernized weapons and Caesar with primitive weapons. This happens because the speaker might think either of the characteristic similarities with all the commanders in Korea, or of the weapon-knowledge of Caesar himself. Therefore, there remains vagueness in these counterfactuals. Can this vagueness be resolved with an appeal to the context? Two things can be accomplished in this regard:

- (1) An appeal to context in order to have the real antecedent from the explicit part of the antecedent.
- (2) The explicit antecedent itself can be taken as the real antecedent.

This is how context serves to resolve the vagueness in comparative similarity. Lewis says,

In one context, we may attach great importance to similarities and differences in respect of Caesar's character and in respect of regularities concerning the knowledge of weapons common to commanders in Korea. In another context we may attach less importance to these similarities and differences, and more importance to similarities and differences in respect of Caesar's own knowledge of weapons. The first context resolves the vagueness of comparative similarity in such a way that some worlds with amodernized Caesar in command come out closer to our world than any with an un-modernized Caesar. It

thereby makes the first counterfactual true. The second context resolves the vagueness in the opposite direction, making the second counterfactual true. Other contexts might resolve the vagueness in other ways. A third context, for instance, might produce a tie between the closest worlds with modernized Caesars and the closest worlds with un-modernized Caesars. That context makes both counterfactuals false.<sup>33</sup>

Lewis emphasizes the importance of context as the resolution influence. An appeal to the context clearly is postponing judgment. Still, this postponing of judgment does not make any obstacle to the attribution of knowledge, in Lewis' sense.

#### Vagueness in Comparative Salience:

Vagueness in comparative salience is another issue of concern. If we speak of living things, we usually have animals, humans, or some other sentient beings in mind. A biologist or an environmental ethicist may include plants and other microorganisms in their consideration. Even, with the same person there are some things which are more salient than some other things according to the surroundings and state of mind. Thus, by the utterance 'a pig is grunting' the speaker does not mean all the pigs in all worlds, but a single pig within the domain of speaker's sight or attention. The same utterance in front of a pig farm will make us realize the vagueness of comparative salience more profoundly. In front of a pig farm we can utter truly,

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<sup>33</sup> David K. Lewis, *Counterfactuals* (John Wiley & Sons, 2013) 67.

The pig is grunting

The pig with floppy ears is grunting

The spotted pig with floppy ears is grunting.

Any of these three statements can be true by accident. Even, if we think of a set of the ‘things that have captured my attention now’, we might have a problem with floppy ears or a spotted pig whether they will be included in the set while speaker is seeing a pig grunting. Lewis gives a solution in this regard,

We should not take a fixed set of the things that fall within a certain fixed degree of salience. Instead we should expand the set of things under consideration, starting with the most salient things and working outward until we have expanded enough to admit something that falls under the description in question.<sup>34</sup>

The above solution resembles the semantic indecision solution of vagueness. In the case of comparative salience, Lewis is not limiting a fixed degree of salience but a range of salience. Meaning, accepting the degree of salience in terms of truth value, Lewis favours a moderate version of epistemology.

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<sup>34</sup> David K. Lewis, *Counterfactuals* (John Wiley & Sons, 2013) 123.

## 5 Conclusion: Lewis' Relaxed Epistemology:

As stated in the introduction, this thesis attempts to demonstrate two things in particular: firstly, the type of epistemology Lewis holds is flexible in nature, and secondly, Lewis' view on the problem of vagueness and identity creates a foundation for the relaxed epistemology. A general survey on Lewis' epistemology proves the first claim.

Lewis is neither a fallibilist nor an infallibilist. Fallibilism and infallibilism are two extreme views in epistemology regarding the nature of knowledge. Supporters of fallibilism say that knowledge is subject to error whereas the supporters of infallibilism say that knowledge, by definition, is infallible and there is no scope of error. Infallibilism may lead us to scepticism, as we hardly know things without the scope of error. But, Lewis takes the infallibility of knowledge as his starting point and proves that infallibility does not necessarily result in scepticism. Obviously, this is a great leap to secure the scientific and inductive knowledge.

Lewis denies the definition of knowledge as 'justified true belief'. He states ancient philosophers regarding the distinctions between opinion and knowledge as well as their attempt to define knowledge as justified true belief. One might have true belief that there is life on Mars which is not knowledge until it is justified as true. Again, one might have an accidental true opinion which is not knowledge either. Lewis denies this classical relationship between knowledge, justification and belief. Two objections he has brought into the debate. Firstly, there is no limit of justification or, no justification is adequate in order to attain knowledge. He gives a case of probability to win a lottery. He says,



Suppose you know that it is a fair lottery with one winning ticket and many losing tickets, and you know how many losing tickets there are. The greater the number of losing tickets, the better is your justification for believing you will lose. Yet there is no number great enough to transform your fallible opinion into knowledge - after all, you just might win.<sup>35</sup>

I can almost confirm that I shall lose the lottery if the number of lottery ticket is huge, and my claim will be stronger with the ratio of lottery tickets. I can believe with justification and know that 'I shall lose the lottery' which is not knowledge at all. Therefore, the lottery case shows that no justification is adequate to construct knowledge.

Secondly, justification is not always necessary. The second argument has to do with the issue that, in spite of having the fear of a deceiving demon, we still trust our memory, perception, and testimony. I do not distrust my own testimony that I am thinking right now. I do not seek for justification in this regard. We also know things historically for which we never seek for justification. We know things habitually and intuitively for which justification is not required at all. We take many things for granted for a long time; scientific axioms based on empirical verification for example. The scientific knowledge begins with an initial assumption or theorems which were proved before and we do not seek justification in that case. Hence, in every case, justification is not required in order to attain knowledge.

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<sup>35</sup> David K. Lewis, "Elusive knowledge." (Australasian Journal of Philosophy 74.4 (1996): 549-567) 551

Therefore, when we claim to know something, we eliminate the possibilities of error. In other words, the claim of something to be known requires exploration of every possible counterexamples by which the claim could be undermined.

The definition of knowledge Lewis gives,

Subject S knows proposition P iff P holds in every possibility left uneliminated by S's evidence; equivalently, iff S's evidence eliminates every possibility in which not-P<sup>36</sup>

He elaborately discusses the definition in order to to prove that knowledge is elusive. Thus, Euthyphro can claim to know holiness if and only if he eliminates every possibility of having ignorance of the instances of holiness. In other words, when Euthyphro knows the definition of holiness, he must know every possible instances of holiness and eliminate every possible instance where he does know holiness. Now the question comes, what is the standard of elimination? Lewis brings several questions in this regard. He investigates,

[W]hat may we properly presuppose in our ascriptions of knowledge? Which of all the uneliminated alternative possibilities may not properly be ignored? Which ones are the 'relevant alternatives'? - relevant, that is, to what the subject does and doesn't know?<sup>37</sup>

When I say that a surface is flat, do I consider every possible bumps on it or do I consider every possible visual bumps on it? Now, if I ignore the non-visual bumps on

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<sup>36</sup> David K. Lewis, "Elusive knowledge." (Australasian Journal of Philosophy 74.4 (1996) 551

<sup>37</sup> David K. Lewis, "Elusive knowledge (Australasian Journal of Philosophy 74.4 (1996)) 554

it and still call the surface flat, do I ignore the alternative possibilities properly? If I ignore some bumps, say non-visual bumps, what is the principle I follow to ignore these possibilities? Lewis formulates several rules or prohibitions to determine which of all the uneliminated alternative possibilities may not properly be ignored and which are the relevant alternative possibilities may be ignored. For example, if I say that all the glasses are empty and need to be filled up, I point out all the glasses around me, not all the empty glasses of the whole world. In the same way, not all the uneliminated alternative possibilities are relevant to the ascription of knowledge. Lewis claims that science does not deal with knowledge per se; rather science's business is to deal with the process of elimination by empirical study with our senses. This is how scientific axioms are subject to revision. In an experiment, for proper reason, some uneliminated alternative possibilities can be ignored; again, for the same experiment, for proper reason, the same uneliminated alternative possibilities cannot be ignored for the sake of the exploration of knowledge. Does epistemology, the quest for knowledge, destroy knowledge? Lewis replies that epistemology does destroy knowledge temporarily, not permanently. Even if we ignore a lot, still we know a lot. The task of epistemology is to keep exploring new knowledge. Lewis has a definite stand on the revisability and degree of knowledge. He holds that knowledge is revisable and it has degrees. We may not properly ignore the possibilities of error, but still we attain knowledge. This is how we consider even the oldest scientific knowledge which was achieved without proper equipment like the moderns. The sentence 'better knowledge is more stable knowledge' says a lot about it. Now, the question comes, can we portray this sort of epistemology as 'relaxed'?

A relaxed epistemology can be understood with a comparison to a strict epistemology. If we check our everyday knowledge under the lens of strict epistemology, we find very few things to be claimed as known. A strict epistemology will reject every possibility of fallible knowledge. Taking the notion of infallibility of knowledge, a strict epistemology tends to deny any possibility of knowledge. From this sense, a strict epistemology is sort of scepticism regarding knowledge. On the other hand, epistemology in the weak sense is also dangerous in respect to knowledge because it declares that fallibilism allows possible errors in knowledge, hence, we cannot claim anything to be known. Lewis calls it the 'hard rock of fallibilism and whirlpool of scepticism'. His attempt to support a moderate ground of epistemology is neither the rock of infallibilism nor the whirlpool of scepticism, but rather, a soft and stable stream of knowledge. This moderate level of epistemology is somewhat relaxed and devoid of both extreme positions.

A relaxed epistemology allows fallible knowledge on one hand and denies infallible knowledge in its sceptic sense on the other hand. And Lewis supports the fallibility of knowledge though he starts with the proposition that infallibilism does not necessarily lead to scepticism. Supporting fallibilism may have an epistemological end as well, scepticism in other words.

The sceptic argument of epistemology says that no knowledge is above the doubt of error, therefore, we know nothing. This is extreme infallibilism. Again, fallibilism also have both extreme and moderate version. Extreme fallibilism doubts all sort of knowledge and denies the possibility of knowledge. Lewis supports Fallibilism in its moderate sense and the version of infallibilism that does not lead to scepticism. In this sense, we may know things in spite of having the possibility of error. Lewis believes it

is so because he argues that knowledge does not rely solely on the process of elimination of possible errors. There may have anomaly of 'S knows P iff S eliminates every possibility of being not-P'.

There are arguments with regard to the standards of elimination. There are arguments with regard to the questions whether we should be worried about every uneliminated alternative possibility to the ascription of knowledge. The question of context dependence comes in this regard too. Lewis does not give much importance on justification, context, presupposition, and the process of elimination as the sole basis of knowledge. Rather he points out that our standard of rationality is not perfect at all. It will not be exaggerated if I use the term almost in the context of rational consideration as Lewis used in his almost identity thesis. From that sense, our rational consideration is almost perfect. With our almost perfect standard of rationality, we might not be able to include every uneliminated possibility to the ascription of knowledge. Moreover, the process of elimination is not everything in order to acquire knowledge in Lewis' sense. Apparently, it seems that scientific and metaphysical knowledge is at stake if we take this definition of knowledge. But, a closer look at the scientific inquiries reveals that it talks about the elimination of possibilities of error considering our epistemological experience of memory, cognition, perception etc. From that sense, scientific propositions are not above the doubt of error as well. So, in scientific propositions we covertly imply the role of empiricism and induction in which it is not possible to investigate all the possible uneliminated alternatives in its proof. From that sense, if the epistemology is strict, all the scientific and metaphysical propositions are impossible; and if the epistemology is relaxed, it is possible to exercise all types of knowledge including science and metaphysics. Now the question

comes, how does Lewis' stance on identity and vagueness create a foundation for this type of relaxed epistemology?

Lewis' stance on identity issues is clearly in favour of a relaxed epistemology. Regarding the problem of many, Lewis supports the almost identity thesis. How do we know a thing if the thing is many? How can we make true statements about a thing when it is many? In other words, if a thing is many, how can we determine its identity? According to the almost identity thesis, we can claim a thing to be known when its identity is almost known. If we recall the paradox of 1001 cats, it is not the case that we know a thing from all of its aspects. A thing is almost identical to another thing. No two things are completely identical. Therefore, from the spatiotemporal point of view, a thing might have different dimensions, but that thing is almost one. The same thing happens if we consider the cognitive aspect of the knower. One's different states of mind can be responsible for the multiple identity of a thing; but, from a neutral perspective, the thing is almost one. A knower knows a thing as almost one. One can be rigid in his position that a thing is either one or many. Supporters of both one and many are in extreme positions regarding knowledge. If a thing is one, we know the thing as one from every possible way. If a thing is many, we know the thing as many from every way it can be. But, if a thing is almost one, we keep the space for error. Keeping space for error in knowledge is fallibilism. Hence, such an account of identity is sort of relaxed epistemology.

If we favour relative identity of things, we are allowing flexibility in knowledge. Identity can be determined from a pragmatic point of view too rather than only for the sake of identity itself. Thus, there is no problem if anyone recognizes a plant as a weed in one context and recognizes the same plant as a medicinal plant in another

context. Lewis supports the relative identity of a thing. If the identity is for the sake of identity itself, then it is the end point of that thing, absolute identity in other words. Absolute identity restricts every possible space for error. On the other hand, relative identity keeps the space to be revised and known in other ways. It can be redundant and unnecessary if we identify objects without considering the context. The relative identity thesis holds the final judgement for objects and appeals to the context. One thing should be noted here that Lewis is not sceptical in this regard. Rather, he favours the relative identity thesis in order to avoid irrelevancy and redundancy to the ascription of knowledge.

Lewis' counterpart theory asserts that an individual or a thing has its counterpart in other possible worlds. According to this view, individuals' identity can be determined by counterpart relations. Thus, my identity in this world is determined by this worldly states of affairs whereas the identity of my other worldly counterpart is determined by other worldly state of affairs. This is how knowledge about me can be necessary and possible and can be expressed by modal operators. By allowing possibility in knowledge Lewis advocates a relaxed epistemology.

Lewis' stance on vagueness grounds a relaxed epistemology. His account of vagueness describes the existence of vagueness in our thoughts and languages. If we take his 'semantic indecision' as a solution of vagueness, we obtain a clue of his epistemological stance too. Semantic indecision allows for the concept of a thing with an imprecise border. Lewis' advocacy of semantic indecision serves as the ground of a relaxed epistemology. Semantic indecision allows flexibility of knowledge. There are borderline cases about which we remain undecided. Still we can assert true statements about those things. We can utter true statement about Sahara desert or about the Ship

of Theseus. A rigid epistemology will deny that it is possible to have knowledge about these borderline cases. In Lewis' view, this semantic indecision cannot halt the exploration of knowledge. By allowing the scope of knowledge in borderline cases Lewis advocates a relaxed epistemology.

If we yield two premises from Lewis' account of vagueness and identity, we may form the following argument:

Vagueness: S knows P even if P is vague

Identity: S knows P even if P is almost identical to P

Therefore, S knows P even if P might include not-P

In other words, if S knows P as having the possibilities of not-P, then epistemology is somewhat relaxed. Hence, the conclusion is grounded by the above premises. Moreover, Lewis' relaxed epistemology is grounded by his account of vagueness and identity. One possible criticism is how can we claim P to be known if it includes not-P? But, it should be noted that it is not a contradiction, but rather it is contingent. The modal operator '*might*' makes the conclusion relaxed, not rigid; hence, the conclusion perfectly represents Lewis' relaxed epistemology grounded by its two premises.

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