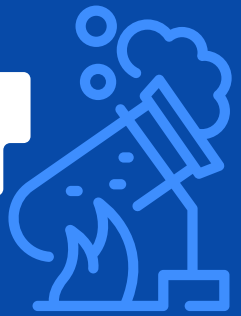


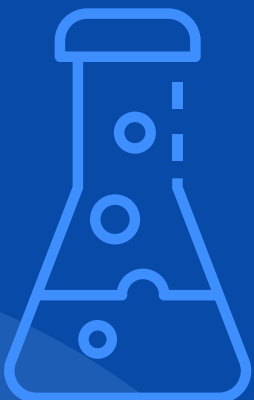
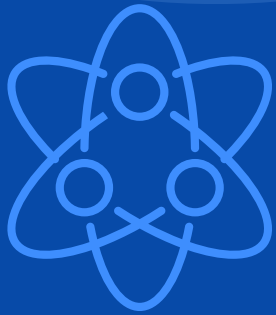
PHILOSOPHY



OF



SCIENCE



70

12 FEB 2024



UNIVERSITY OF IBADAN
DIRECTORATE OF AFFILIATED INSTITUTIONS
BIGARD MEMORIAL SEMINARY, ENUGU

2021-PHI-003 Candidate's Number (write very clearly)
 300 LEVEL Level of Study
 ARTS Faculty/College
 PHILOSOPHY Department/Course

PHIL OF SCIENCE Title of Paper
 12TH FEB 2024 Date

*Examination (insert official title)
 of the Examination for which you
 have entered, as it appears at
 the head of the question paper*

DIRECTIONS TO CANDIDATES

1. Write on both sides of the pages (except in Mathematics)
2. Begin each answer on a fresh page
3. Write the number of each question at the top of each page.
4. All rough work must be crossed through, and enclosed within this cover.
5. If supplementary books are used, they must be fastened a; together at the end of this book and inside the cover. Answers must not be written on the supplementary books unless all the leaves in this book have already been used.
6. In your own interest you should enter in the space provided below, the numbers of the questions which you have attempted (with sub-sections where necessary).
7. In no circumstances must answer books used or unused, be removed from the Examination Room by a Candidate.
8. Candidates are warned that importance is attached by the examination to accuracy and clearness of expression.
9. Please note that there is severe penalty for cheating at any examination.

NUMBERS OF THE ANSWERS

in the order in which they have been written.

6, 2, 4

All students of the University of Ibadan are expected to show academic integrity at all times. Understanding this, I solemnly declare that I shall not be involved in any malpractice including soliciting, giving, receiving or using unauthorised aid in this examination.

[Signature]

Signature of student

For Examiner's
Use Only

Question No.	Mark
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6	17
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2	15
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4	16
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Total...	48
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Total 72

Scientists tend to tackle problems through verifying or falsifying or disproving theories and working on a new work in order to find solutions to problems. Hence, this method can be used in tackling the issue of problem of demarcation.

Problem of demarcation entails the altercations among philosophers and scientists on what should be considered as a science and what should not be considered as a science. This entails what makes sciences what it is and what makes non science not to be science.

Different scientist and philosophers have argued and propounded theories about this issue of problem of demarcation in philosophy of science.

In response to this problem, two schools of thought emerged which are the verificationists and the falsificationists. They used the theories of verificationism and falsificationism to counter the problem.

Verification theory

Verification theory emerged in response to the problem of demarcation in science. This theory was formed by the logical positivists in Austria which includes Rudolf Carnap,

Otto Neurath, Moritz, Hans Reichenbach, Schlick and A.J. Ayer. This theory entails these philosophers are also called the great circle of Vienna.

This theory entails that a statement must in principle be empirically verifiable in order to be meaningful and Scientific, that is for a statement to be empirically verifiable, it must contain these characteristics

- ① It must be meaningful
- ② It must be Scientific
- ③ It must be true.

In a broader sense, verificationism refutes metaphysics, ethics, psychology etc. In the verification theory, to ascertain the originality of a statement, you go in search of the truth. Example, all ravens are black. This is a meaningful statement and therefore should be true because it can be verified by observation and Scientific processes. Therefore going in search of the truth is a one of the main characteristics of verificationism.

Thus, the verification theory is in an agreement of Aristotle's idea of what only what is seen can be tested.

Falsification Theory

Falsification theory emerged also as a response to the problem of demarcation in Science but with the view of countering the

55



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12 FEB 2024

Bms/IB/3019

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PHILOSOPHY

Faculty/College

Department/Course

PHILOSOPHY OF SCIENCE

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12-02-2024

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in the order in which they have been written.

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Signature of student

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Question No.	Mark
1	17
6	15
2	15
Total 24	
17	
Total 71	

Total...

NUMBER ONE

OUTLINE

- Introduction
- The Meaning of Models.
- Models as representation of Categories.
- Models as representation of Phenomenon.
- Schools of Thought.
- Classification of Models.
- Crisis of representational style of Model.
- Importance of Models
- Conclusion.

INTRODUCTION.

Models are very important tools, this is because it makes it easier for the understanding of scientific development. It is also an important instrument because it makes it possible to recognize, understand and develop principles.

We are going to examine the meaning of models, its schools of thought and the Crisis of representational style of model.

THE MEANING OF MODEL

Models are representational categories which captures aspects of the universe or nature or reality. Models represent phenomenon and theories. For instance the mathematical formula; $\text{Force} = \text{Mass} \times \text{Acceleration}$ ($F = MA$), is a representation of all the events in the world where force is shown.

- Models represent: basically two fundamental functions
1. Models can be a representation of ^{a selected part} an aspect of the world, depending on the nature of phenomenon.
 2. Model can be a representation of theories, that is it interprets the laws and axioms of that theory.

MODELS AS REPRESENTATION OF CATEGORIES

Models as representation of Categories would be discussed under two aspects

1. Model as representation of Theories
2. Models as representation of Object of reality.

MODELS AS REPRESENTATION OF THEORIES

Theories are statements about aspects of the natural world which has undergone several experimentation and still holds to be true.

A ^{Theory} Model is become a model, if that theory is generally accepted and has proven indisputable such that it stands out as a standard for formulating and enacting others. Hence a theory must be able to interpret other theories, bring out the consequences for it to be a model.

MODELS AS REPRESENTATION OF OBJECT OF REALITY.

Model represents things in the physical world, that is reality. As a representation of an object it captures the fundamental properties of the object while abstracting ~~irrelevant~~ irrelevant things. This can be Mathematical,

conceptual, or physical representation.

MODELS AS REPRESENTATION OF ^{PHENOMENON} MODEL

Here models represent phenomena. Phenomena are the emphasis here, however the issue is how models can represent non empirical phenomenon. This invariably leads us to the Schools of thought in models.

SCHOOLS OF THOUGHT

There are basically two schools of thoughts in models which helps to decipher what models represents. They are.

1. Empiricism
2. Realist.

1. EMPIRICISM.

Empiricism is a philosophical school of thought which argues that ^{knowledge} models should ~~represent~~ only be derived from experience, that is through the senses. For them, models should represent only things that are observable to the senses. Hence whatever the senses cannot observe should not be represented. The empiricist are against non-empirical representation of things.

REALIST

The realist school of thought argues that non-empirical realities should be represented by models. This is because, since models have been defined as capturing aspects of the universe, it should then be able to

represent all realities even if they are idealized or simplified.

CLASSIFICATION OF MODELS.

Models are classified basically into two groups:

1. Linguistic Models
2. Non Linguistic Models.

LINGUISTIC MODELS

Linguistic Models is a classification of models, which deals with the use of language to represent or capture aspects of realities. It is a descriptive use of language to capture reality. For instance; Mathematics.

NON LINGUISTIC MODEL

Non Linguistic Models is a classification of models, which deals with the use of ~~some~~ objects to capture or represent reality. It is also called a concrete or objective model. The aim of non linguistic model is to reduce the excessive use of language in models. eg. Picture sketches.

It is important to note that whether models are linguistic or non linguistic has been a debate in philosophy of science. However, I would propose a non linguistic models because the human mind adapts and recognizes images easier than words.

Clear
Ideas ✓

CRISIS OF REPRESENTATIONAL STYLE OF MODELS

The crisis of representational style of models, deals principally with whether models should be an exact representation of an object or not. That is whether a model should be an exact or not? What is the best way to modelize an object. This crisis is referred to the problem of exactitude and Simplicity.

EXACTITUDE.

The proponents of this group poses that a model should be an exact representation of the object ~~is~~ of reality. This poses a problem, which is - If a model is an exact representation of a model, how do you differentiate it from the original object, How do you distinguish which is a model and which is the original object. Exactitude make a model to lose its nature as model.

SIMILITUDE.

The proponents of this group are of the opinions that a model should not be an exact representation of an object of reality. However, this seems to solve the problem of this crisis but it still has its own problems; this has to do with how similar should a model be to the object which it is representing such that it does not become an exact representation of that object and still maintain its status as models.

Importance of Models.

The following are the importance of models.

1. It makes understanding easier and faster.
2. It helps to interpret and reduce the use of language.
3. It enables communication and education.
4. It can serve as the basis for hypothesis.

EVALUATION AND CONCLUSION

Models are very important in the development of Science. However, I strongly believe that models should be able to represent non empirical things, this is because it would bring reality closer to man and enable for easy understanding. Secondly the use of language in models should not be totally removed, this is because language is still important in enabling communication, however I would prefer non linguistic models.

A good grasp and understanding of how models functions would ~~and~~ enhance understanding of reality in the world.