

## PHASE OF LOGICAL ATOMISM

- This phase features a turn to ideal language analysis and logical atomism developed by Bertrand Russell and Ludwig Wittgenstein.

### Clarification of term

- Logical atomism is the theory that reality is analyzable into fundamentally simple, indivisible, and mutually independent objects or facts.

## THE CORE STANCES OF THE MAJOR PROPONENTS

### i. Bertrand Russell

- Russell defines “logical atomism” as *the last residue in analysis* (i.e., *logical atoms and not physical atoms*).
- Sequel to this stance, he distinguished between **atomic propositions** and **molecular propositions**.
- An atomic proposition is a declarative statement that asserts that something has a certain quality (e.g., “The car is red”) that could be true or false.
- An agent cannot break such a sentence into other simpler sentences.
- Thus, each atomic proposition has a corresponding atomic fact that is knowable to a human agent through direct acquaintance and contact with corresponding sense data.

- A fact exists in the world and makes a proposition corresponding to it either true or false.
- For example, the proposition “It is raining” is true if it is raining in the actual sense.
- According to Russell, atomic facts are the simplest kinds of facts consisting of quality or relation by certain particulars expressed by a verb.
- A simple atomic fact, for instance, features a certain quality like the Red-Car example above.

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- Such a fact is known as a *monadic fact* since it involves a particular, relation, and a quality.
- However, there may be a combination of a relation, universal, and more particulars (*dyadic*, *triadic*, *quadratic*, and *n-adic* facts).
- For instance, a dyadic fact involves two things and a relation (e.g., ‘A is next to B’).
- A triadic fact involves three things and a relation, e.g. ‘A gives B to C’ etc.
- Russell names the process of discovering an atomic proposition and facts as “logical analysis.”

- A **molecular proposition** is a proposition that contains other propositions, which you may call their atoms.
- That means that molecular proposition contains atomic propositions merged by logical connectives.
- Some of the connectives include disjunction like *or*, conjunction like *and*, implication like *something follows from* [ $(\alpha \models \beta$  means that  $\beta$  follows from  $\alpha$ ) etc.
- For example, '*p and q*' is a molecular proposition whose truth value depends on the propositions *p* and *q* separately.

- The proposition “The weather is cloudy today, and Kenneth brings an umbrella” is true, provided they (i.e., the propositions) are true separately.
- Thus, the truth-value of a molecular proposition is a function of the truth-values of its component atomic propositions.
- This stance means that the truth or falsity of the proposition ‘ $p$  or  $q$ ’ depends upon two facts, one of which corresponds to  $p$  and the other to  $q$ .
- Let us look at the table of truth.

# TABLE OF TRUTH (CONJUNCTION AND DISJUNCTION)

P	Q	$P \wedge Q$
T	T	T
T	F	F
F	T	F
F	F	F

For example:  
The teacher is in the class and he is teaching

P	Q	$P \vee Q$
T	T	T
T	F	T
F	T	T
F	F	F

For example:  
It is either the seminarian is in the class or he is in the library

## Evaluation

- Quantum physics (Leptons, quarks, and Preon) displaces Russell's theory since atoms are no longer the smallest particle of an entity.

## Summary

- Russell's stance on logical atomism proceeds in two directions.
- First, there is a breakdown of sentences containing precise descriptions of things in the world (i.e., a kind of horizontal analysis, which starts from the level of things in the world and ends there).

## Ludwig Wittgenstein (1889-1951)

- Wittgenstein's logical atomism is contained in his work entitled *Tractatus Logico-Philosophicus* (1921).
- In this work, he draws a sharp contrast between things we express and show.
- According to him, the proposition a sentence expresses is a set of possible worlds (i.e., those worlds the proposition describes truly and falsely) [cf. Lee 2011:77].

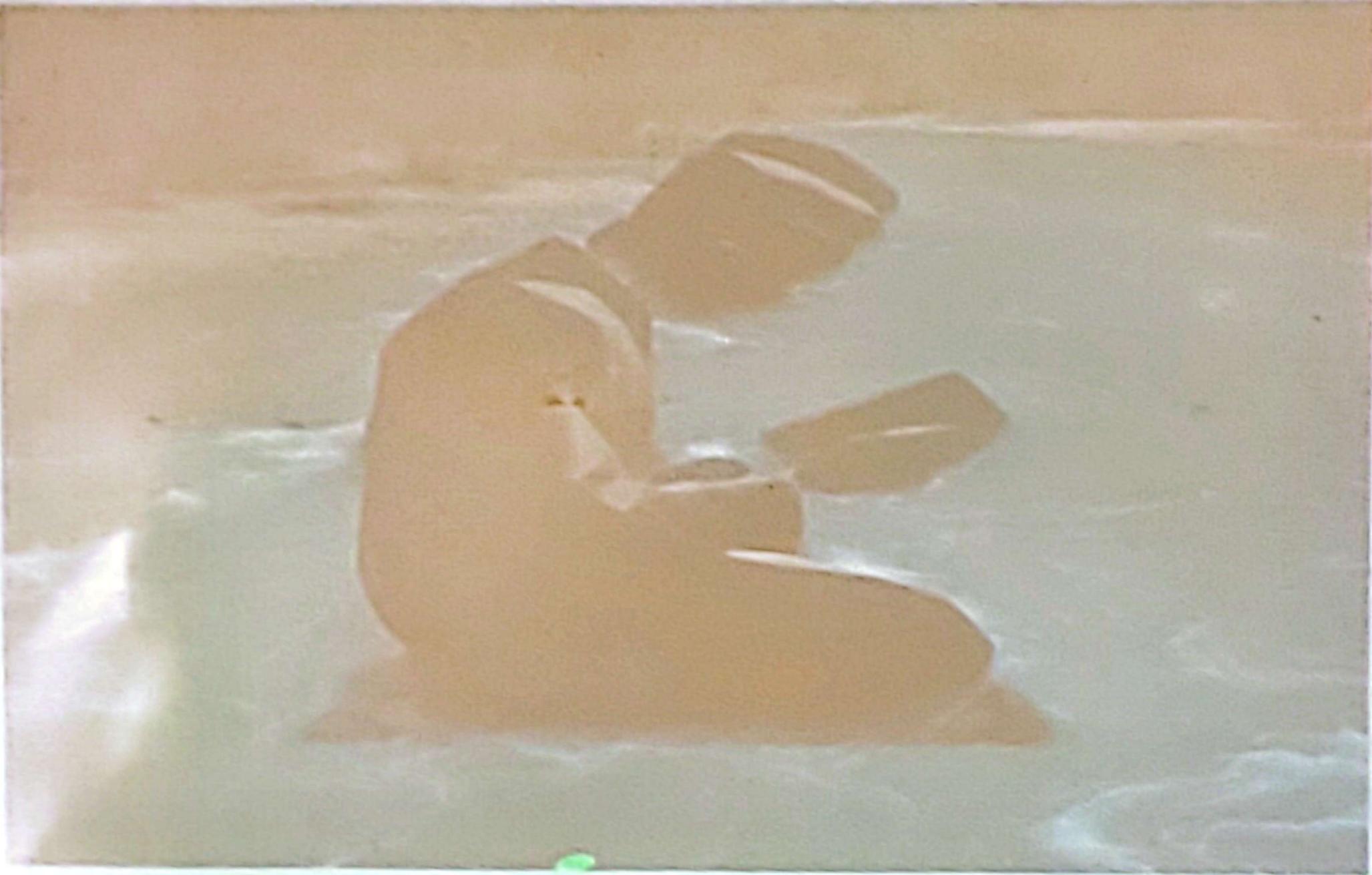
- For example, the proposition that *Trump will bomb the Islamic terrorists in Nigeria soon* is a truism in one possible world, while the proposition that *Trump will not bomb the Islamic terrorists in Nigeria* is false in another possible world.
- So, there are possible worlds that make a proposition true and possible worlds that make it false.

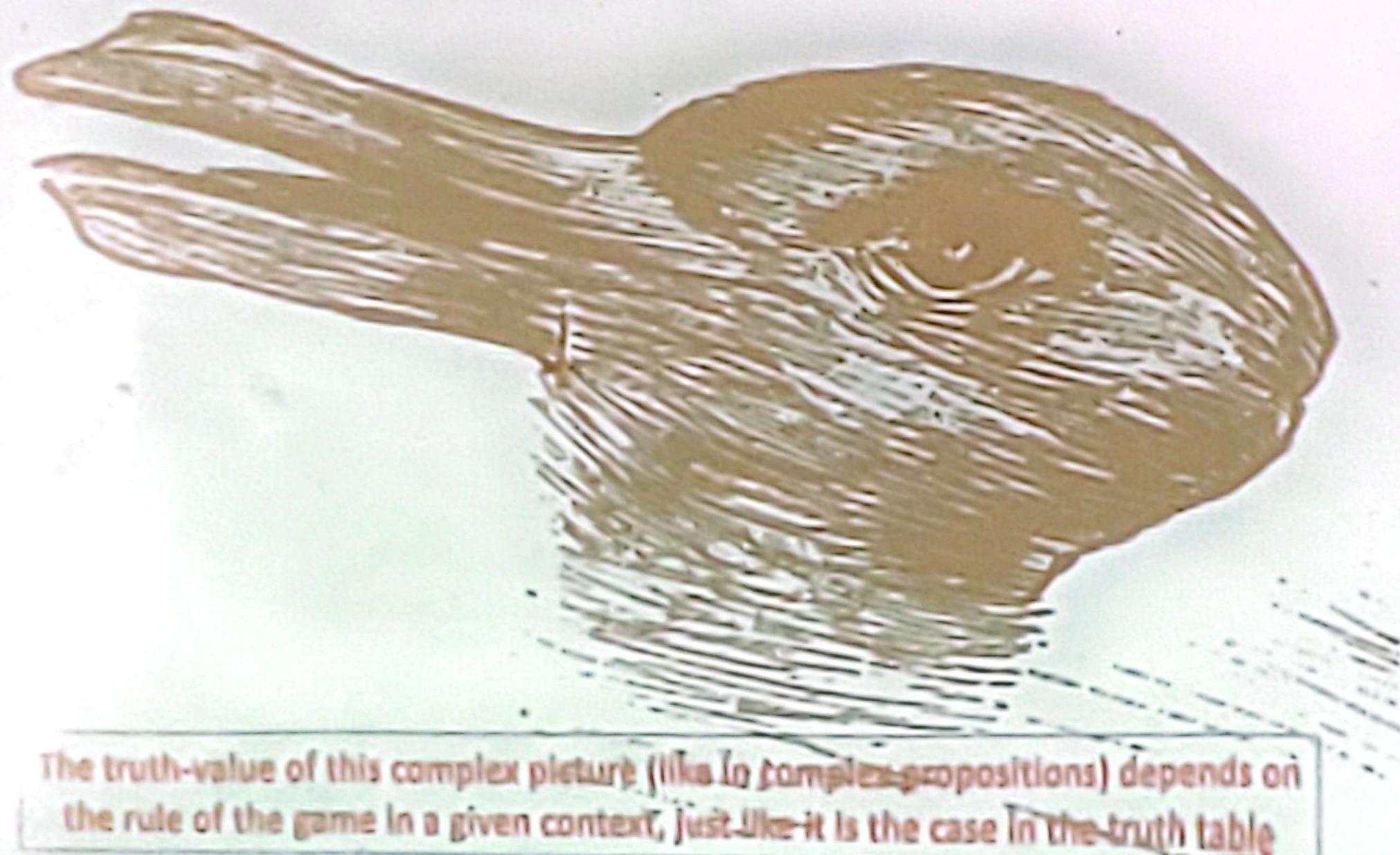
- So, language (i.e., propositions and thoughts) represents (expresses) reality or frames how we perceive the world in a ‘logical space.
- This stance means that a proposition is a model of reality (i.e., it refers to reality or points to some aspects of reality) as we imagine, since it describes a state of affairs (possible worlds).
- Hence, with propositions, we make ourselves understood.
- Therefore, misunderstanding only arises due to wrong or ambiguous representations of reality in language.
- Wittgenstein also argues that we picture (show) facts to ourselves in our thoughts and communications as in elementary or atomic propositions.

- So, worldly items correspond and are related to the elements in our utterances (expressed by our propositions) as in elementary propositions (i.e., picturing facts).
- Language, therefore, pictures facts and communicates what could be right or wrong in logical space (i.e., expresses and shows facts).
- The term “logical space” refers to a world of signs which is related to reality.
- Reality for Wittgenstein means the “existence and non-existence of states of affairs (possible worlds).”

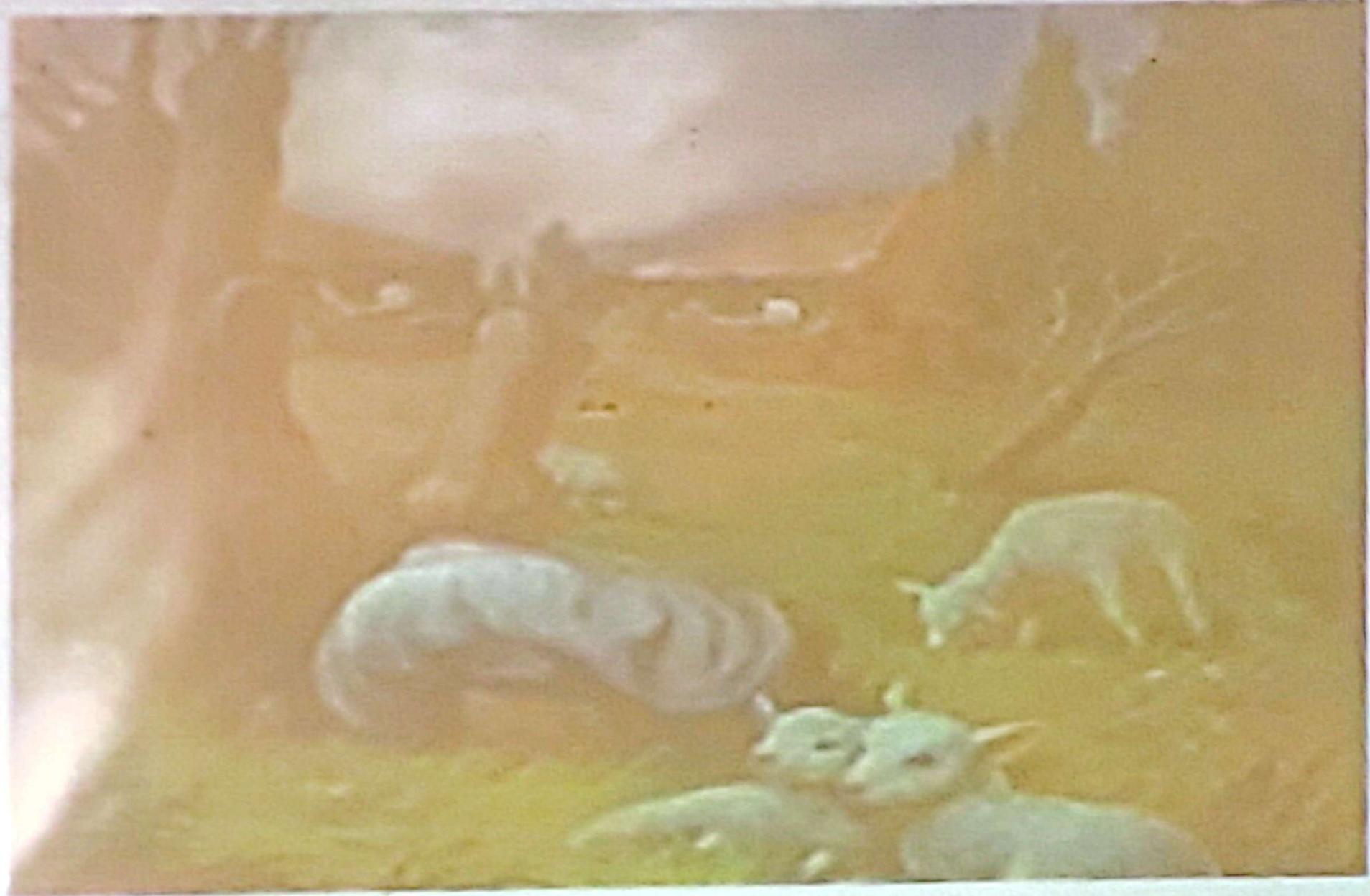
- We have the possibility of combining certain objects in a state of affair just like in complex propositions (i.e., logical synthesis of elementary propositions).
- So, some of our utterances, which express our propositions contain “surface grammar” (the way the word is used in the sentence structure) and “depth grammar” (i.e., the profound meaning/ language game)
- The latter (i.e., depth grammar) means that a word or even a sentence has meaning only as a result of the "rule" of the "game" being played (like the rules we use to decipher truth value of a proposition in truth table)

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- The latter (i.e., depth grammar) means that a word or even a sentence has meaning only as a result of the "rule" of the "game" being played.
- Just like the pictures below, propositions have meaning when analysed within context (i.e., when we play by the rules).

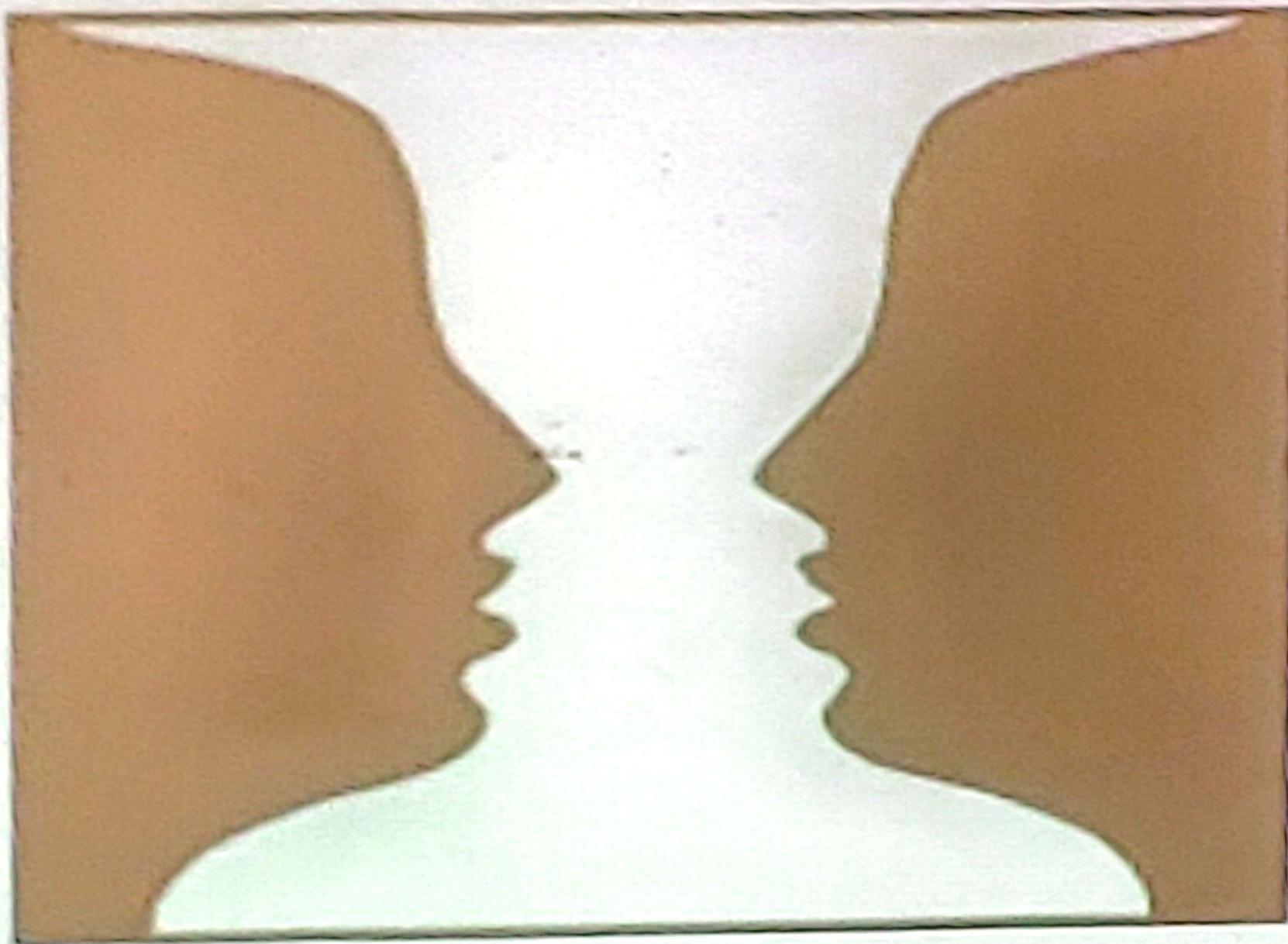




The truth-value of this complex picture (like in complex propositions) depends on the rule of the game in a given context, just like it is the case in the truth table







- Drawing on the above, one can summarise Wittgenstein's stance as follows:
- Many philosophical problems stem from misunderstandings of language, which mirrors the world through "logical form" (especially for atomic propositions).
- He also asserts that the boundaries of language define the limits of the world.
- Thus, philosophical confusion arises when words are taken out of their usual contexts, which shape how they are used in various "language-games."
- Let us look at his core theses.

## Wittgenstein's Core Theses

- (i) Every proposition has a unique final analysis that reveals it (i.e., the proposition) to be a truth function of elementary propositions (*Tractatus* 3.25, 4.221, 4.51, 5).
  - A truth function is a function where both the input and the output are truth values (true or false).
    - For instance, Lawrence wants to be a catholic priest and does not believe he will embrace celibacy.
    - “Lawrence believes he was called to be a catholic priest” is true
    - “Lawrence does not believe that he will embrace celibate life” is false.
    - In both cases, each component sentence is false, but each sentence formed by prefixing the phrase “X believes that” differs in truth value (see the truth table below).

## TABLE OF TRUTH (CONJUNCTION AND DISJUNCTION)

P	Q	$P \wedge Q$
T	T	T
T	F	F
F	T	F
F	F	F

Lawrence believes he will called to be a Catholic priest

P	Q	$P \vee Q$
T	T	T
T	F	T
F	T	T
F	F	F

Lawrence does not believe that he will embrace celibate life

- ii. The elementary propositions assert the existence of atomic states of affairs (3.25, 4.21)
- iii. Elementary propositions are mutually independent — each one can be true or false independently of the truth or falsity of the others (4.211, 5.134);
- (iv) Elementary proposition is the immediate combination of semantically simple symbols or “names” (4.221);
- (v) Names refer to items wholly devoid of complexity, so-called “objects” (2.02 & 3.22);
- (vi) Atomic states of affairs are combinations of these objects (2.01).

- These theses are atomistic in nature (although he did not use 'logical atomism') since his stance encompasses the breakdown of things into simpler components.
- Moreover, he argues that we can unveil the ultimate constituents of reality through *logical analysis*.
- However, he underscores that such analysis would lead to an infinite regress if we do not see objects as independent facts that constitute reality.

## Appraisal

- First, Wittgenstein's claim that expressions have meaning only in logical proposition excludes other forms of expression such as music, art (like the duck-rabbit figure), dance, etc.
- That means we also communicate our thoughts, feelings, and emotions through the latter forms of expression.

- Secondly, no dimension of language (not even Wittgenstein's logical space) is superior to the other.
- Moreover, the medium of language (i.e., communication) is also crucial in facilitating clarity and understanding.
- Wittgenstein's insinuation that we can think only what we can picture or cannot think what we cannot picture, is absurd.

## Summary

- Wittgenstein and Russell believe that analyzing the nature of representation and logical relations opens the way to understanding major philosophical problems in epistemology and metaphysics.
- The value of Wittgenstein's stance depends on the detailed working out of his symbolic theory, which is complex to comprehend.

## PHASE OF LOGICAL POSITIVISM

- Introduction
- This phase in analytic philosophy emerged in the second and third decades of the twentieth century in Austria and Great Britain.
- However, more of its proponents are in Austria, led by Moritz Schlick.

## Clarification of term

- Logical positivism (logical empiricism or neo-positivism) is a theory developed in the 1920s to rid philosophy of its metaphysical, non-scientific impurities (cf. Aigbodioh 1997: 115).
- Some logical positivists confine knowledge to factual assertion and empirical methods of science.
- The uniqueness of this phase in analytic philosophy lies in the unique combination of mathematical logic with empiricism by the proponents, thereby giving new interpretation to mathematical propositions.

- Indeed, mathematical logic provided the technical basis for the positivist as is the case with Plato's, Pythagorean, Spinoza's, and Leibniz's theories.
- The theory also revived the early modern empiricism of John Locke, George Berkley, and David Hume.
- It also focused on eliminating metaphysical language from philosophy (like Wittgenstein and Russell), determining language's function in ethical discourse, and identifying the differences between the formal truth of logic and mathematics and the factual truth of empirical sciences.
- The proponents of this stance constituted themselves to what is known as the Vienna Circle under the leadership of Prof Moritz Schlick (1882-1936).

## Core Thesis and Thrust of Argument

- The proponents of this theory aimed to *rid philosophy of its metaphysical and non-scientific impurities by deploying principles such as the verification principle.*
- There was also focus on determining language's function in ethical discourse, and identifying the differences between the formal truth of logic and mathematics and the factual truth of empirical sciences.
- The core proponents of this stance belong to the Vienna Circle under the leadership of Prof Moritz Schlick.

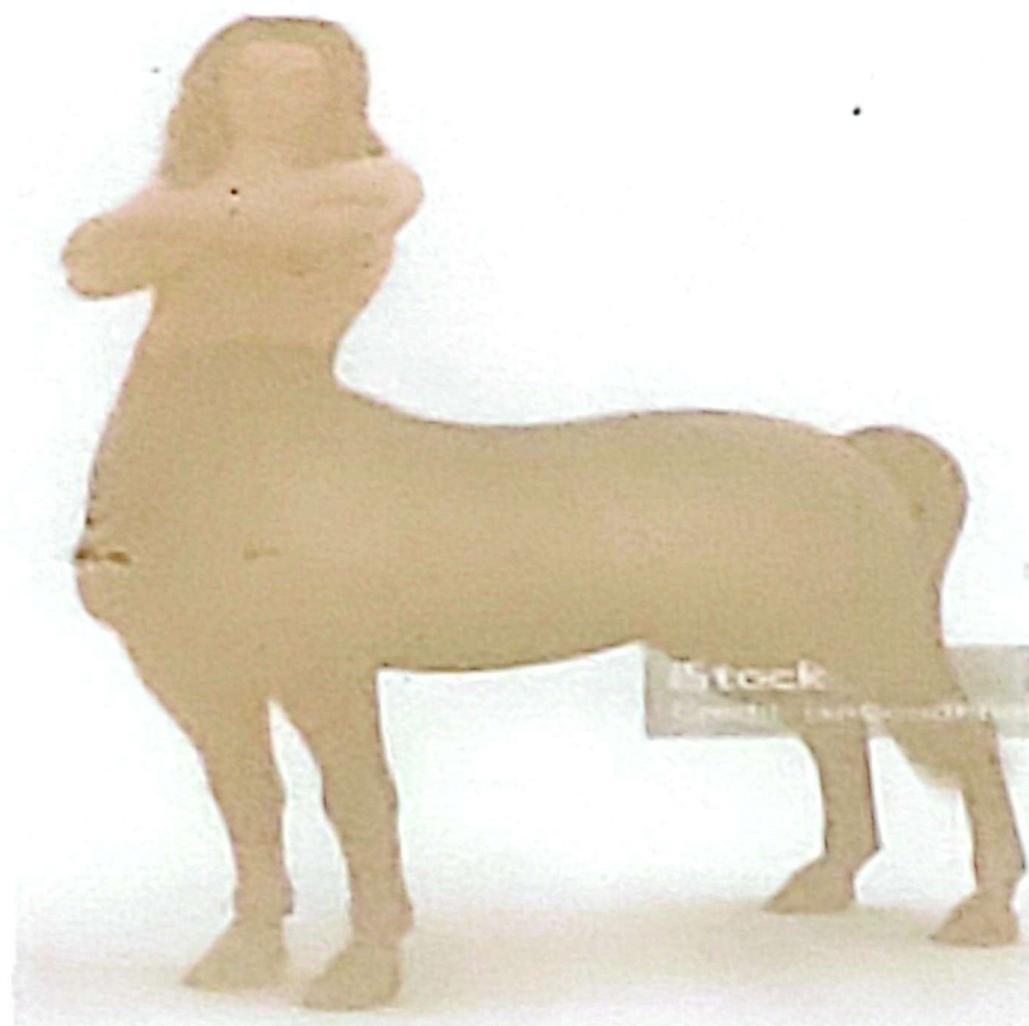
## Standpoints

- The logical positivists focused on setting out sufficient conditions or rules for a statement to be meaningful, true, or false.
- According to them, a statement is significant/meaningful *if and only if* it is verifiable by appeal to experience or logical proof, since we know the method by which the latter can be verified.
- For instance, the statement "there is water in Mars" is meaningful and verifiable because we know the method by which the statement can be verified.

- However, this is not applicable to metaphysical statements (like God is love) because we do not know the means of verifying this statement, since it is idealistic in nature.
- So, there is generally a strong sense and a weak sense of verifiability.
- Both admit of verification or falsification--through one's encounter with "experience."
- Let us examine the stances of three prominent scholars in this phase, with emphasis on their own versions (variants) of verifiability.

- Moritz Schlick, for example, insisted on the narrow sense of verifiability.
- A narrow sense of verifiability is when a statement becomes meaningful to an agent because it expresses a particular state of affair to the agent, who understands the meaning of the words in it.
- What makes a proposition meaningful?
- A proposition becomes meaningful when what it expresses is given in the proposition or statement.

- That means that the agent must conceive and specify the conditions that make the statement true or false.
- Thus, verification is *logically possible* (*verifiable in theory*) even though verifying the statement is *technically impossible* (*verifiability in practice*):
- For example, verifying that a centaur runs faster than my car is logically possible but technically impossible.



- Other thinkers abandoned Moritz's narrow sense of verifiability due to its restrictiveness and endorsed a wider sense of verifiability.
- The wider sense of verifiability encompasses direct (in practice) and indirect verifiability (in theory).

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- Other thinkers, like Rudolf Carnap and Alfred Ayer, thought that Moritz Schlick's narrow sense of verifiability was restrictive; hence, they endorsed other senses of verifiability.
- Let us take a look at Rudolf Carnap's notion of verifiability.

- Rudolf Carnap gave a transformed version and upgraded perspective on logical positivism.
- In his influential works, *The Logical Syntax of Language* (1934) and *Meaning and Necessity* (1947), he developed the theoretical apparatus for this analysis, which promotes the anti-metaphysical claim of the earlier positivists.
- According to him (just like other logical positivists such as Otto Neurath), philosophical problems often stem from the misuse of language, which could be resolved via analysis of language to make it (language)meaningful.

- Hence, his verifiability criterion emphasises the meaningfulness and meaninglessness of a proposition.
- In other words, a meaningful proposition is a verifiable proposition, while a meaningless proposition is not verifiable.
- Drawing on this, he “insisted on making extensive use of the tools of modern logic (i.e., a purified logical language similar to that of Frege) to build new linguistic frameworks defined by explicit rules” (Lee 2011: 86).

- Such rules (his meta-language), he argued, determine how sentences of language can be constructed so as to make it (the sentence) meaningful by deploying grammatical rules (**formation rule**) and explaining how we infer other sentences from a given sentence (**transformation rule**).
- So, everyone, he said, is at liberty to build his own logic and system or forms of language (**explicandum**) so long as it (i.e., the system formed) facilitates clarity (**explicatum** or explication or language schemas).
- It is on this ground that his distinction between **true and pseudo-statements** (i.e., meaningful and meaningless statements) becomes intelligible.

- Furthermore, he also argued that philosophy can be entirely independent of metaphysics and that the verifiability principle is the criterion for testing the genuineness of meaningful statements of fact.
- So, the verifiability principle helps us classify a statement as meaningful (like empirical statements) or meaningless (metaphysical statements).
- Meaningful statements (protocol statements) are primitive since they report immediate observations that do not justify other elementary statements.

- In summary, we can say that Carnap is of the opinion that philosophical problems arise from the misuse of language and that they can be solved through logical analysis.
- Such analysis requires the deployment of modern logic—similar to Frege's—to build explicit linguistic systems defined by rules for sentence formation and inference.
- For him, anyone can create his or her own logical system, which promotes clarity (verifiable).
- This is also applicable to primitive and meaningful statements that report immediate observations without the need for further justification.

- Alfred Ayer notes in his work entitled *Language, Truth, and Logic* that his views were derived from the doctrines of Russell and Wittgenstein and those of philosophers of the Vienna Circle.
- He distinguished between strong and weak senses of verification.
- **Strong sense of verification**, for him, applies to anything that can be verified conclusively by observation and experience.

- Weak sense of verification applies to statements that we can probably verify.
- That is, their truth and meaningfulness are logically possible in future but not immediately.
- So, verification is possible practically (observation), in principle (theoretically), in a strong sense (if the truth can be established conclusively and factually in experience), and in a weak sense (not directly verifiable but it is probable).

- The latter senses of verifiability, which he also calls the wider sense of verifiability, encompass direct verifiability of propositions in practice by observation and also indirect verifiability of the same in principle (i.e., in theory).
- Some of these sentences include: general statements, historical statements about an inaccessible past, etc.
- Example 1: If we do not nip the menace of the Fulani Herders in the bud now, there will be the extermination of many tribes in Nigeria in the future.
- Example 2: The precise number of diamonds on the table before the robbers killed her is unknowable to me right now.

- Ayer also emphasised that philosophy should provide knowledge of reality that transcends the world of science and common sense since some of our (moral) utterances are purely psychological (non-cognitive).
- They (i.e., moral utterances) express and arouse emotions, not beliefs.
- So, expressing them is like saying, “Boo on x!” (Huemer 2005: 225), where x represents the action that an agent disapproves of.

- The exclamation-mark, Ayer argues, “adds nothing to the literal meaning of the sentence.
- It merely serves to show that the expression of it is attended by certain feelings in the speaker” (Ayer 1936: 107).
- Hence, to say that “it is morally wrong to torture innocent people” is the same as saying “Boo on torturing innocent people.”
- Such moral judgment merely expresses an agent's sentiment of disapproval of the act of torturing innocent people.

## Evaluation

- One of the major criticisms of this theory is that the Verifiability principle cannot be verified.
- Moreover, there are a lot of metaphysical thoughts in their stances which undermines their objective to rid philosophy of all metaphysical jargon.
- Inherent in their standpoint is the difficulty of understanding some of their views and the problem of reductionism (i.e., reducing the criterion of meaning and understanding to the verifiability principle).
- Again the scope of the verifiability is delimited to the present since it cannot account for the future.
- For instance, the proposition that "all men are mortal" may be true as of now, but it may be that on 1<sup>st</sup> January 2024 (t), an immortal man will be born.
- That is to say, the verifiability of the proposition "All men are mortal" in fact amounts to "all men born before the time t are mortal but not after that."

## Summary

- The logical positivist aimed to eliminate all metaphysical and abstract sentences they consider meaningless.
- Secondly, the proponents of this theory and method confine knowledge to factual assertions, which can be verified practically (observation), in principle or narrowly (theoretically), in strong sense (if the truth can be established conclusively in experience), in weak sense (not directly verifiable but probable) and in a wider sense (both in practice and theoretically).
- The distinctiveness of this phase lies in its attention to mathematics and logic and its emphasis on linguistic aspects of traditional philosophical problems.