Philosophy $2^2 3^3$: Intuitions and Philosophy
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Library 209

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Class 3 - Positivism

I. Positivism, empiricism, and the new logic

Logical positivism is sometimes characterized as British empiricism plus logic.
While this characterization is an oversimplification, the core idea is correct.
Like Locke and Hume, the positivists attempted to establish a foundation for knowledge, a systematic justification for our scientific beliefs, that relied on sense experience.
Hume and Locke were content to imagine how all our knowledge could be grounded in sense experience.
Hume used empiricist principles to rule out claims which we had no reason to believe could be justified by our experience.
The positivists, in contrast, tried actually to trace the line between science and sense data.
Instead of seeing empiricist principles as merely negative, limiting the scope of knowledge, they attempted the positive reconstruction of our knowledge.

The positivists were encouraged to take on the positive project by the nineteenth- and early-twentieth-century developments in logic, from Frege, Russell, and Wittgenstein.
The empiricists of the modern era had, in particular, a weak account of our mathematical knowledge.
Mill, in the nineteenth century, even went so far as to claim that our mathematical beliefs were the result of enumerative induction, a view which Frege attacked famously.
According to Frege, mathematics is really just an extension of logic, and thus analytic.
Hume's weak claim that mathematics was just the relation of ideas thus got an extended, plausible interpretation.
The culmination of the positivist's project was Carnap's 1928: *The Logical Structure of the World* or *Aufbau*.
Carnap had been a student of Frege's in Jena, Germany.
In the *Aufbau*, Carnap attempts to develop scientific theory, using the tools of logic, out of sense-data, or sense experiences.
If the project in the *Aufbau* were to succeed, Descartes's dream of a firm foundation for science could be achieved without appeal to anything like rational insight (or intuition).

The logical positivists were responding in large part to Hegelian idealism, and speculative metaphysics generally, which had taken root in Europe after Kant.
Like Hume, they were intent on ridding philosophy of what they deemed to be pseudo-problems, pseudo-questions, meaningless language, and controversial epistemology.
Focused on science, they derided such concerns as:

A. The meaning of life
B. The existence (or non-existence) of God
C. Whether the world was created, with all its historical remnants and memories, say, five minutes ago
D. Why there is something rather than nothing
E. Emergent evolutionary theory, and the elan vital
F. Freudian psychology
G. Marxist theories of history

The positivists presented a verificationist theory of meaning, inspired directly by Hume and Locke.
Hume believed that for a term to be meaningful, it had to stand for an idea in one's mind that could be traced back (in some sense) to an initial sense impression.
The verification theory says that for a sentence to be meaningful, it must be verifiable on the basis of observation.
Any sentence which is unverifiable, like any of the examples A-G above, is meaningless.
The positivists welcomed scientifically legitimate (i.e. verifiable) reformulations of some traditional philosophical problems, even some of which seemed like metaphysical nonsense.
For example, Newton and Leibniz had argued over the question of whether space were relational or absolute; see the Leibniz-Clarke correspondence.
The absolute/relational debate persisted through Kant's defense of the absoluteness of space, and it appeared essentially metaphysical.
The positivists were able to interpret the question so that it had empirical, scientific meaning.
An early influence on positivism, the scientist and philosopher Ernst Mach, had argued against absolute space on positivist principles.

> No one is competent to predicate things about absolute space and absolute motion; they are pure things of thought, pure mental constructs, that cannot be produced in experience. All our principles of mechanics are...experimental knowledge concerning the relative positions and motions of bodies... No one is warranted in extending these principles beyond the boundaries of experience. In fact, such an extension is meaningless, as no one possesses the requisite knowledge to make use of it. (Mach, *Science of Mechanics*, 280; cited in William Craig, *Time and the Metaphysics of Reality*, p 124)

Einstein's theory of relativity provided evidence for the relativity of space to an inertial frame of reference.
The theory made testable and verifiable claims, which allowed the positivists to transform the old, metaphysical debate into a legitimate, scientific one, decided in favor of relational space.

While some metaphysical questions could be re-cast as scientific ones, the positivists believed that many philosophical problems, like the problem of free will, could be dissolved, rather than solved.
The challenge for the positivists was to clarify what it meant to verify a sentence.
This challenge turned out to be more difficult than it seemed, and led, along the way, to the development of the philosophy of science as a significant independent discipline.
Our concern is mainly with the epistemological project that can be seen in the work that inspired the positivists.
Positivism was developed in and around Vienna between WWI and WWII, by philosophers inspired by Wittgenstein's *Tractatus Logico-Philosophicus*.

II. Wittgenstein's *Tractatus*

Wittgenstein's *Tractatus* was intended, and was hailed by Russell, as the culmination of the enterprise of logical analysis begun by Frege.
We could easily spend an entire term studying the *Tractatus*.
It is fairly obscure, when read directly.
So, I have assigned a decent secondary discussion, which includes plenty of selections.
Feel free to tackle the original yourselves!

Recall that I mentioned that the empiricists both started with what might be taken as a more secure foundation than the rationalists, in relying merely on sense experience rather than on rational insight, and restricted the domain of knowledge that they had to account for.
Wittgenstein continues in this vein by seeking the limits of language, in distinguishing between what can and what can not be said.

Melchert does a good job of representing the difficulty of this project, p 610-1.
If we want to distinguish between the properties of Gary and Genevieve, we can think of a boundary line.
We perceive both sides of the line, and imagine the landscape divided.
But, how can we think about the boundary of thought?
What is outside of the boundary is inaccessible to us.

According to the picture theory in the *Tractatus*, both the world and our language consist of independent atomic elements, which are combined according to strictly logical principles.
The structure both of language and of the world is governed by strict logical rules, like those depicted in the truth tables which he originated in the *Tractatus*, §4.31.
The world is a collection of independent states of affairs.
So, if I am standing to the right of you, we have, let's say, two atomic facts (my standing and your standing) and a logical relation (to the right of) between those facts, §1.2 and §2.06 (p 615).
Language consists of atomic statements of those facts, connected (into more complex statements) by logical principles.
Language provides a picture of the world, and mirrors the world by providing logical structure which is somehow related (isomorphic to) to the structure of the world, 2.16 (p 612).

In fact, my example of atomic facts is misleading.
For, my standing in a place is not an atomic fact, it is a complex fact.
I am a complex, standing is a complex, you are a complex.
The true analysis of the world will involve analyzing these complexes into their simple (atomic) components.
Wittgenstein never gives a clear example of an atomic fact.
Russell used the example of the color of a spot in my field of vision.
The representations of such atomic facts are intended as the foundational elements for the *Tractatus*, akin to the postulates of Euclidean geometry or of Descartes's synthetic presentation of the *Meditations*.
A theory of the world that analyzed all of the myriad complexes into their atomic elements would present a veridical and secure picture of the world.
The kind of philosophy that was developed by the early Wittgenstein, under the influence of Frege and Bertrand Russell, was thus called analytic philosophy.
The name remains as a characterization of Anglo-American philosophy, despite the lack of contemporary interest in the project of analysis, in this sense.
Wittgenstein's plan was to use the new logic, including its utility for analysis, to recreate the foundations of our knowledge in language.

One of the most important advances in modern logic was its ability to characterize properties of logical truth.
In propositional logic, all logical truths are tautologies, complex statements which are true no matter the truth values of their component variables.
We might characterize these statements as necessary truths.
For Descartes, the certainty of logic and mathematics had provided essential support to his claim that our

minds have substantial content built into their structures.
From the claim that logic and mathematics are innate, it is reasonable to ask whether there are other innate ideas, including the idea of God.

Wittgenstein thinks that characterizing logical truths as necessary imbues them with too much importance.
In contrast, he calls them nonsense.
The only statements that can picture the world are those that have sense, that can be either true or false, that can picture accurately or not.
Tautologies are empty of content, §4.46 (p 617).
This is why there can never be surprises in logic, §6.1251 (p 618).
Wittgenstein supports his claim about tautologies by pointing out that they resist a foundationalist framework, §6.127.
If they can not be placed into an order, they are outside of the realm of knowledge.
But, they are not unknowable in the way that, say, God's goodness would be unknowable, or whether we have free will.
They are unknowable because they are too thin to be objects of knowledge.
They don't picture any fact.

Notice the affinity between Wittgenstein's project of providing limits to thought (or expression) and Hume's smaller house.
Like Hume, Wittgenstein wants to carefully circumscribe what we can know, and justify that, and only that.
For our purposes, the more interesting project is the justification, rather than the circumscription.

III. Positivism and foundationalism

The foundationalist justificatory project was pursued in more depth by the positivist philosophers influenced by the *Tractatus*, such as Rudolph Carnap, Otto Neurath, Moritz Schlick, and Herbert Feigl.
Their group came to be known as the Vienna Circle.
There was a similar, though less-influential, group in Berlin, centered around the physicist Hans Reichenbach, called the Berlin Circle.
The young A.J. Ayer visited Vienna from England and wrote about the movement he found there.
His *Language, Truth, and Logic* became the primary source for positivism for English-speaking philosophers, though most of the positivist's central works eventually were translated into English.
(The *Aufbau*, for example, was not available in English until 1967.)

The positivists saw the picture theory as accommodating a scientific view of the world.
Scientific laws, for example, were mere generalization over, and reducible to, the separable atomic facts.

The core idea of the principle of verification is that all our legitimate claims are traceable to a core set of claims which refer only to things or events that we can experience.

> There is a class of empirical propositions of which it is permissible to say that they can be verified conclusively. It is characteristic of these propositions, which I have elsewhere called "basic propositions," that they refer solely to the content of a single experience, and what may be said to verify them conclusively is the occurrence of the experience to which they uniquely

> refer... Propositions of this kind are "incorrigible,"...[in that] it is impossible to be mistaken about them except in a verbal sense (Ayer, *Language Truth and Logic*, p 10).

Notice the foundationalism implicit in Ayer's statement, and similarly in our reading, where Ayer says that we can mis-describe our experience, but not really make a factual error.

> There is nothing in these circumstances which is allowed to count as one's being factually mistaken (36).
> There is nothing fallible about the experience itself. What may be wrong is only one's identification of it" (38).

The positivist's claim is that all of science (and philosophy) can be founded on the basis of observation statements in conjunction with the logical and mathematical principles used to regiment and derive those observations.
Claims that are not observable may be derived from the axiomatic observations, or introduced by definition.
But, all and only meaningful statements will be analytic, observable, or derivable (using logic) from observable axioms.

IV. Holism

Positivism was the last, serious foundationalist theory.
Quine's holism devastated the project.
Quine attacks the fundamental presupposition of positivism that one can make a clear distinction between an observation statement and an analytic one, a distinction rooted in Wittgenstein's distinction between sensible statements and (logical) nonsense.

> It is obvious that truth in general depends on both language and extralinguistic fact. The statement "Brutus killed Caesar" would be false if the world had been different in certain ways, but it would also be false if the word "killed" happened rather to have the sense of "begat." Hence, the temptation to suppose in general that the truth of a statement is somehow analyzable into a linguistic component and a factual component. Given this supposition, it next seems reasonable that in some statements the factual component should be null; and these are the analytic statements. But, for all it's a priori reasonableness, a boundary between analytic and synthetic statements simply has not been drawn (Quine, "Two Dogmas of Empiricism," 70).

This problem with the analytic/synthetic distinction is connected to the inter-connectedness of individual statements, their involvement with a broader theory, in contrast to Wittgenstein's atomism.

> In the language of science, and for similar reasons even in prescientific discourse, a single statement usually has no experiential implications. A single sentence in a scientific theory does not, as a rule, entail any observations sentences; consequences asserting the occurrence of certain observable phenomena can be derived from it only by conjoining it with a set of other, subsidiary, hypotheses (Hempel, "Empiricist Criteria of Cognitive Significance: Problems and Changes," 56).

Wittgenstein and the positivists presented a system on which individual sentences, pictures of states of

affairs, were verified or not, and connected only by logic into a big theory.
Hempel's claim, and Quine's, was that the meaning of a single expression is "elliptical", incomplete on its own.
It requires, for its meaning, reference to an entire linguistic framework, a theoretical context which forms the background to that expression.

> If...cognitive significance can be attributed to anything, then only to entire theoretical systems formulated in a language with a well-determined structure (Hempel, 57).

Hempel alludes to what has come to be known as semantic holism: the unit of empirical significance is not the individual sentence, but the entire theory.

The problems of atomism arise in the *Tractatus* already, in the worry about whether there really are atomic, independent facts.

> 6.3751. It is clear that the logical product of two elementary propositions can neither be a tautology nor a contradiction. The statement that a point in the visual field has two different colors at the same time is a contradiction.

Consider:

1. The spot is red and blue.
2. The spot is red.
3. The spot is not blue.
4. The spot has a color.
5. The spot is green.

Each of the elementary propositions used or presumed in 1-5 are independent.
(1 and 3 are logical products of simpler elementary propositions.)
But 1 is a contradiction.
2 and 5 are incompatible.
2 entails 3 and 4.
That is, there are logical relations among these propositions, even though they are elementary.
The world is not atomic, in the way that the *Tractatus* depicts.
See Jerrold Katz, "The Problem in Twentieth-Century Philosophy."

V. Crumbling foundations

We have looked at the most ambitious foundationalist programs, both rationalist and empiricist.
The rationalist program ran into troubles immediately, giving contentious definitions and indefensible postulates.
The empiricist program assumed that there are atomic facts to which all of our knowledge could be reduced.
But, for both kinds of projects, the starting points do not seem to have the authority that their proponents impute to them.
If the foundations are weak, we are back to the position of Descartes, at the beginning of the *Meditations*, unsure of what to believe.