Seminar 6: The Linguistic Theory of the Apriori

Logical empiricists including Schlick, Carnap, Hahn, and Ayer claimed that analytic sentences are true in virtue of meaning alone. It was said that one could know such a sentence to be true simply by understanding it. When it came to logic and mathematics, which were claimed to be analytic, it was not clear what this meant. It was not assumed that every analytic sentence, including every mathematical truth, is trivially recognizable by anyone who understands it -- in the sense of understanding its words and phrases plus the semantic import of its syntactic constructions. Nor, since analyticity was supposed to *explain* apriority, could one define analyticity as the property of being a sentence one could, in principle, come to know to be true by deducing a priori consequences of the information provided by one's understanding of the sentence.

Nevertheless, the general idea was something like that. According to Carnap, to understand a language was to know the conventions governing its expressions. These were tacit stipulations from which it followed, without appeal to further empirical information, that certain sentences are true, and certain rules of inference for generating sentences from other sentences are truth-preserving. On this picture, an analytic sentence is one the truth of which can be derived from the conventions one learns when one learns the language. Because no mention of *apriority* is explicitly made in this account of analyticity, it was thought that the latter could, without circularity, be used to explain the former. That was questionable.

It was also assumed that because analytic sentences are true in virtue of meaning, the state the world is in makes no contribution to their being true. By contrast, the truth value of any synthetic sentence is always the product of what it means—the way it represents the world as being—plus the way the world really is. It is true iff these two factors coincide. The challenge was to find a way of understanding this contrast that would vindicate the idea that analyticity *explains* necessity. The idea may be illuminated using an analogy due to Gillian Russell.[1] If you know what it is to multiply by zero, then you know, when given zero plus another number to multiply, that it is irrelevant what the other number is. It's not that multiplication doesn't always require two arguments; it does. It's just that when one argument is zero, the other argument plays no role in the calculation. Similarly, one might think, the truth value of a sentence is always a function of two arguments, its meaning and the state of the world. It is just that when the first argument is the meaning of an analytic sentence, which state of the world is selected as the second argument is irrelevant. Any such sentence is true at all possible world-states, and so is a necessary truth, but the *reason* for this is that the world-states play no role in the calculation. The meaning of the analytic truth is sufficient by itself. Admittedly, one might still wonder whether all necessary truths are analytic, but the logical empiricists were happy, following Wittgenstein, to say that they are.

They also followed the *Tractatus* in holding that for a sentence to *say* anything, for it to provide any information, is for its truth to exclude certain possible states that the world could be in. Since necessary truths don't do that, they say nothing; and since they say nothing about the way the world is, the way the world is makes no contribution to their being true. They also invoked a related idea. Being empiricists, they believed that all knowledge about the world requires empirical justification based on observation and sense experience. Since a priori truths can be known without such justification, they must not be about the world. Thus, the logical empiricists reasoned, the world must play no role in determining that these statements are true. Rather, their truth must be due to their meanings

1Gillian Russell (2008). *Truth in Virtue of Meaning*. Oxford: Oxford University Press.

alone. In short, the tractarian reasoning identified the necessary with the analytic, while the logical empiricist reasoning identified the a priori with the analytic. In theory these could have amounted to different identifications, but in practice they didn't. There was no disagreement between Wittgenstein and the logical empiricists about this because for them, the necessary, the a priori, and the analytic were one.

For the logical empiricists, there was no explaining how we can know any truth to be necessary without appealing to the notion of truth in virtue of meaning. Without analyticity, they could make no sense of the idea of knowing that something is true and would have been true no matter which possible state the world was in. Surely we don't examine all possible world-states and evaluate the statement against them one by one. If, on the other hand, the truth of a statement is guaranteed by its meaning alone, then in knowing its meaning we are in a position to come to know that it must be true, no matter what. In short, knowledge of meaning was supposed to explain knowledge of necessity – both in the sense of knowing, of any necessary truth p, that it is true and in the sense of knowing that p is necessary.

A.J. Ayer tries to explain this in *Language, Truth, and Logic.*

> Having admitted that we are empiricists, we must now deal with the objection that is commonly brought against all forms of empiricism; the objection, namely, that it is impossible on empiricist principles to account for our knowledge of necessary truths. For, as Hume conclusively showed, no general proposition whose validity is subject to the test of actual experience can ever be logically certain [i.e. to be something which, by its very nature, can only be true, and for that reason, can be known without appeal to empirical facts for justification]. No matter how often it is verified in practice, there still remains the possibility that it will be confuted on some future occasion. The fact that a law has been substantiated in n – 1 cases affords no logical guarantee that it will be substantiated in the n^{th} case also, no matter how large we take n to be. And this means that no general proposition *referring to a matter of fact* can ever be shown to be necessarily and universally true. It can at best be a probable hypothesis.[2]

Ayer here contrasts being probable with being logically certain, which he identifies with being necessary and knowable a priori. When he speaks of a universal generalization that "refers to a matter of fact" he means one the truth of which depends on some *contingent* matter of fact. The reasoning is this: If a universal generalization makes a claim about the way the world actually is, then its truth depends on the contingent truth of all its instances. Since each of these can be known to be true only by experience, the future course of which we cannot know in advance, the generalization cannot be known with probability 1, and so, can neither be necessary nor knowable a priori. He concludes:

> And this, we shall find, applies not only to general propositions, but to all propositions which have a *factual content.* They can none of them ever be logically certain [i.e., necessary and knowable a priori].[3]

His point is that if p is necessary, then it is knowable a priori, and hence has no factual content. The implication here is that if p has no factual content, then the world makes no contribution to its truth, in which case its truth must be due to its meaning alone. This is made clear a few pages further on.

> There is no need to give further examples. Whatever instance we care to take, we shall always find that the situations in which a logical or mathematical principle might appear to be

2 A.J., Ayer (1936 [1946]), *Language, Truth, and Logic*, 2nd.ed. London: Gollancz p. 72 my emphasis.

3 Ibid., p. 72, my emphasis.

> confuted are accounted for in such a way as to leave the principle unassailed. And this indicates that Mill was wrong in supposing that a situation could arise which would overthrow a mathematical truth [i.e. in denying that mathematical truths are necessary and apriori]. The principles of logic and mathematics are true universally *simply because we never allow them to be anything else*. And the reason for this is that *we cannot abandon them without contradicting ourselves, without sinning against the rules which govern the use of language*, and so making our utterances self-stultifying. In other words, *the truths of logic and mathematics are analytic propositions or tautologies*.[4]

According to Ayer, necessary truths are true no matter what state the world is in *because* they are true in virtue of meaning; similarly, they are knowable a priori, without appeal to empirical evidence for justification, *because* this knowledge is knowledge of meaning. There is no philosophical mystery in our being able to know what we have decided our words are to mean. And surely, Ayer thought, there is no mystery in the idea that the truth of a sentence may follow, and be known by us to follow, entirely from our decisions about meaning. Thus, he thought that he had found a philosophical explanation of our a priori knowledge of necessary truths, which otherwise would have been problematic.

Did the Logical Empiricist Account of Apriori Knowledge Rest on a Mistake?

Analyticity, truth in virtue of meaning, is a property of things that have meaning – sentences. If sentences express non-linguistic propositions, those propositions can be analytic only in the derivative sense of being expressed by sentences that are. By contrast, when we speak of necessary truths as *statements* or *propositions* that are true, and would have been true no matter which possible world-state the universe was in, we cannot straightforwardly identify these statements or propositions with sentences used to express them. Since the meaning of a sentence is a contingent feature of it, there is no sentence that would have been true no matter which possible world-state the universe were in, because if the universe were in certain of those states, the sentence would mean something other than what it actually means. A similar point holds for a priori truths, thought of as those knowledge of which does not require justification by empirical evidence of any sort. Since knowledge of what sentences mean is never a priori in this sense, knowledge of their truth is never a priori either. Thus, a priori knowledge *that so and* can never be a priori knowledge that any sentence is true.

This is a *prima facie* problem for logical empiricism. Whether or not it can be overcome depends on how one understands its claims that ascribe necessity and apriority to "statements." Carnap gives us insight into this in *The Logical Syntax of Language.* There he distinguishes *the material mode* of speech from *the formal mode*, endorsing the latter for logical and philosophical analysis.[5] Since *it is a necessary truth that…* and *it is knowable apriori that…* are "indirect discourse," and so, examples of the material mode, they must be translated into "direct discourse," which is a species of the formal mode. For example, he translates (1a) into (1c) via the intermediary of (1b) (which is also in the material mode).

1a. Charles said (wrote, thought) that Peter was coming tomorrow.

b. Charles said (wrote) a sentence which means that Peter is coming tomorrow.

4 Ibid., p. 77, my emphasis.

5 Rudolf Carnap (1937). *The Logical Syntax of Language,* trans. of (1934a) by Amethe Smeaton with expansions by the author. London: Routledge and Kegan Paul.

c. Charles said (wrote) the sentence 'Peter is coming tomorrow' (or a sentence of which this is a consequence).

About this, he says:

> The use of the indirect mode of speech is admittedly short and convenient, but it contains the same dangers as other sentences of the material mode. For instance, *sentence [1a], as contrasted with [1c], gives the false impression that it is concerned with Peter, while in reality it is only concerned with Charles and with the word 'Peter'*. When the direct mode of speech is used, this danger does not occur.[6]

According to Carnap, (1a) gives the false impression of being about Charles and Peter, when in fact it is really about Charles and the name 'Peter'. Because Carnap takes this to be so, he thinks that (1c) captures what (1a) really means while avoiding the false suggestions to which (1a) gives rise. This is incorrect. Consider a counterfactual possibility in which Peter's comings and goings, and Charles's thoughts about them, are the same as they are at the actual world-state, but Peter—the one whose arrival is reported by our use of (1a)—is named 'Bill' and either no one is named 'Peter' or someone else is. Although the statement made by our actual use of (1a) would be true were that counterfactual possibility realized, the statement made by our actual use of (1c) would be false. Thus what is stated by our two uses is different. In addition, one can know, of the statement made by our use of (1a), that it is true, without knowing, of the statement made by our use of (1c), that it is true, and conversely. Thus, what Carnap has offered can't be an analysis of (1a).

Although the intermediate translation target (1b) doesn't suffer from every problem with the putative analysis (1c) of (1a), it shares some. Suppose that on Wednesday Charles assertively uttered either "He is coming the day after tomorrow," or "He is coming on Friday," using 'he' to refer to Peter. Then (1a) will express a truth if uttered on Thursday. By contrast, (1b) will express a falsehood if uttered on Thursday because neither the sentence 'He is coming the day after tomorrow' nor the sentence 'He is coming on Friday' means that Peter is coming tomorrow. (Although uses of sentences containing indexicals may change truth values from one context of utterance to the next, the linguistic meanings of the sentences used don't change.) What we need is something like *Charles used a sentence to assert that Peter is coming tomorrow.* But this takes us back to indirect discourse.

Carnap's "analysis" of (2a) is (2c).

2a. Charles knows that if Peter is coming tomorrow, then Peter is coming tomorrow.

b. Charles is warranted in accepting some sentence which means that if Peter is coming tomorrow, then Peter is coming tomorrow.

c. Charles is warranted in accepting the sentence 'if Peter is coming tomorrow, then Peter is coming tomorrow' (or a sentence of which this is a consequence)

Since this "analysis" shares the problems of the previous analysis, it can't be accepted. However, one who did accept it would naturally take knowledge of the meaning of the sentence 'If Peter is coming tomorrow, then Peter is coming tomorrow'--i.e., knowledge of the Carnapian semantic conventions governing it—to warrant accepting that sentence. From here, it is a short step to the linguistic theory of the a priori. *All that remains is to take apriori knowledge to be knowledge justified solely by virtue of understanding sentences*, and to take sentences like (3c) to be "analyses" of sentences like (3a).

6 Carnap (1937), p. 292, my emphasis.

3a. Charles knows *a priori* that if Peter is coming tomorrow, then Peter is coming tomorrow.

b. Charles is warranted in accepting some sentence which means that if Peter is coming tomorrow, then Peter is coming tomorrow, *simply by understanding its meaning*.

c. Charles is warranted in accepting the sentence 'if Peter is coming tomorrow, then Peter is coming tomorrow' *simply by understanding its meaning* (or by understanding some sentence of which this is a consequence).

With this we see one line of reasoning that might have made the linguistic theory of the a priori appear plausible to Carnap and other logical empiricists. But, if this, or anything like it, was the basis for the doctrine, then the linguistic theory of the a priori rested on two mistakes—its faulty analysis of indirect discourse reports, and its replacement of the traditional conception of apriority as *that knowledge of which doesn't require justification by empirical evidence,* with *that which one is warranted in accepting merely by understanding it.*

An Alternate Route to the Linguistic Theory of the Apriori?

To get the linguistic theory of the a priori off the ground, without making the mistakes just indicated, one must recognize that when one says that *it is necessary, and knowable apriori, that all squares are rectangles,* what is said to be necessary and knowable a priori is not the sentence 'All squares are rectangles,' or any other. The challenge is to explain, how, in light of this, one is supposed to move from the claim that S is analytic to the claim ⌜it is necessary/knowable a priori that S⌝. With this in mind, consider the following argument, which begins by letting S be an analytic truth that expresses the proposition p.

(i) Since S is analytic, an agent can know that S expresses a truth by learning what it means.

(ii) The agent will thereby know the metalinguistic claim q –*that S expresses a truth*—on the basis of the evidence E provided by the agent's experience in learning the meaning of S.

(iii) Since the agent has come to understand S, the agent will also know, on the basis of E, that S expresses p (and only p).

(iv) Combining (ii) and (iii), the agent will thereby know, on the basis of E, that p is true. Since p follows from this claim, the agent will be in a position to come to know p.

(v) However, the claim that E justifies —by ruling out possibilities in which it is false—is not p, but q.

(vi) Since p can be known without justifying evidence ruling out possibilities in which it is false, there must be no such possibilities.

(vii) So, if S is analytic, p must be necessary, and (by the present reasoning) capable of being known to be so; p is also knowable a priori, since knowledge of p doesn't require evidence justifying p.

Though one might be fooled by this reasoning, if it were left implicit, the problems with it—apart from (i), which we here accept for the sake of argument—can be clearly identified. The most obvious difficulty concerns the knowledge of p reached at step (iv). Any agent who comes to know p by this route will know it *aposteriori*—by appealing to the empirical evidence E used at steps (ii) and (iii) to justify the agent's conclusions. In such a case the agent's actual knowledge of p will be *aposteriori* whether or not p is *knowable* apriori.

Worse, p will be knowable a priori only if there is a *different,* non-empirical, route to such knowledge. This undermines the point of the linguistic theory. For if there is another way of coming to know p, independent of one's knowledge of language or any other empirical truths, then the fact that p is expressed by an analytic sentence *plays no role in explaining the apriority of p.* One could, then, afford to grant that an agent's knowledge of p could arise by the empirical route sketched in steps (i)–(iv). If it did, the agent would know p *aposteriori* even though p can also be known a priori. Even if the picture of knowing an a priori truth by this a posteriori linguistic route might partially explain the appeal of the linguistic theory of the a priori, it does nothing to vindicate it.

This means that even if there are analytic sentences, in the sense in which the logical empiricists understood that notion, we still have no way of using such sentences to explain *any apriori knowledge*--let alone all of it. Now notice that the reasoning described in the argument by which an agent comes to know both p and the necessity of p requires the agent to employ *apriori logical knowledge independent of the linguistic conventions governing sentence S,* about which the agent is reasoning. So, even if there were no other problems with it, the argument would presuppose much of what the linguistic theory purports to explain. This last point was the focus of the W.V.O. Quine's 1936 paper "Truth by Convention," which was to become, more than a decade after its publication, the historically most influential critique of the linguistic theory of the a priori. It is the subject of the next section.

The Overthrow of the Linguistic Theory of the Apriori

The linguistic theory of the a priori rested on two bits of knowledge its proponents took to be unproblematic—(i) knowledge of what we have decided our words are to mean, and (ii) knowledge that the truth of certain sentences *follows from* our decisions about what the words they contain mean. But there is a problem located in those words. Clearly we don't stipulate the meanings of all the necessary/a priori/analytic truths individually. Rather, it must be thought, we make some relatively small number of meaning stipulations, and then draw out the *consequences* of those stipulations for the truth of an indefinitely large class of sentences. What is meant here by *consequences*? Not wild guesses or arbitrary inferences, with no necessary connection to their premises. No, by *consequences* the logical empiricists meant *logical consequences knowable apriori to be true if their premises are true.* But now we have gone in a circle. According to these philosophers, all a priori knowledge of necessary truths—including our a priori knowledge of the necessary truths of logic—arises from our linguistic knowledge of the basic conventions, or stipulations, that we have adopted to give meanings to our words. But to derive this a priori knowledge from our linguistic knowledge, one has to appeal to an antecedent knowledge of logic itself. Either this logical knowledge is a priori or it isn't. If it is a priori, then some a priori knowledge is not explained linguistically; if it is not a priori, then our knowledge of logic isn't a priori. Either way, the linguistic theory of the a priori fails. That, in a nutshell, was one of the central arguments of Quine (1936).[7] Although not fully appreciated when published, this argument eventually became a classic, and is now widely known for its powerful critique of the program of grounding a priori knowledge in knowledge of meaning.

The defenders of the linguistic conception of the apriori wanted to know how we know various logical and mathematical truths. For example, they wanted to know how we know

[7] Quine, W.V.O. (1936). "Truth by Convention." In O. H. Lee, ed., *Philosophical Essays for A. N. Whitehead*, New York: Longmans; reprinted in Quine, *Ways of Paradox,* New York: Random House, 1966, 70–99.

that for all x, if x is a rectangle with four equal sides, then x is a rectangle with four equal sides. Well, it was thought, to know that is just to know the proposition expressed by a logical truth of the form *If p, then p,* and, surely, anyone who knows the meaning of *if, then* plus the meaning of the sentence replacing 'p', will know that proposition to be true. Granted, such a person will know the proposition to be true. But what does that have to do with knowing what *if, then* means? Perhaps he knew that proposition all along for reasons having nothing to do with knowledge of meaning. To combat this idea, the proponent of the linguistic coneption of the *apriori* has to explain what exactly it is to know the relevant meaning, and how it is that knowledge of that meaning is put to use in coming to know the proposition (which doesn't mention language at all).

The standard move was to claim (i) that logic is true by convention, and hence analytic, and (ii) that, therefore, knowledge of logical truth is nothing more than knowledge of meaning. (Similarly for knowledge that certain inferences are truth-preserving.) But we still haven't answered the question. To see this, suppose I were to introduce a simple logical language L by listing some predicates and names used in forming atomic sentences, plus the logical constants '&', 'v', '$\rightarrow$', '$\sim$' and '$\forall$', and the variables 'x', 'y', etc. Imagine that you already understand the names and predicates, but that the logical symbols are new to you. I next go on to endow the logical symbols with meaning by making a complicated stipulation of the following sort: Let these logical symbols of L mean whatever they have to mean to make true every sentence of each of the following forms

$(A \vee \sim A)$, $(A \rightarrow A)$, $[(A \,\&\, B) \rightarrow B]$, $[A \rightarrow (A \vee B)]$, $[\sim(A \,\&\, B) \rightarrow (\sim A \vee \sim B)]$, $[(A \,\&\, (A \rightarrow B)) \rightarrow B]$,$[\,\forall x\, Fx \rightarrow Fn]$, $[\forall x\, (Fx \rightarrow Gx) \,\&\, Fn) \rightarrow Gn]$, etc.

The details of the stipulation aren't important. The idea is to make a stipulation that can be satisfied only if '$\sim$' '&', '$\forall$x' and all the other logical operators are assigned interpretations which assure that all and only those sentences of L that are standardly classified as logically true are guaranteed to be true by the meanings of the logical operators. Suppose this is possible. If some group or community decides to adopt such a stipulation as a linguistic convention governing their use of L, then it would be natural to say that the logical truths of L are *true by convention,* and hence, *analytic.*

So far so good. But what about (i) knowledge of which sentences of L are true by convention, and (ii) knowing the propositions expressed by those truths? Regarding (i), consider the sentence (4) of L, which is a counterpart of the English sentence *For all x is a rectangle with four equal sides, then x is a rectangle with four equal sides.*

4. $\forall$x (x is a rectangle with four equal sides $\rightarrow$ x is a rectangle with four equal sides)

To establish that (4) is true by convention, one might reason as follows:

P1. All sentences of L of the form $(A \rightarrow A)$ are stipulated to be true, and so are true by convention.

P2. (4) is a sentence of L of the form $(A \rightarrow A)$.

C. Therefore sentence (4) is true by convention.

Similar arguments could be given for other logical truths of L.

Each such argument has the form:

P1. All F's are G (All sentences of such-and-such a form are true).

P2. n is an F (n is a sentence of such-and-such a form).

C. Therefore, n is G (Sentence n is true).

In order to come to know that the sentence in question is true, one must *logically derive* the conclusion from the premises. That is, one must use one's antecedent logical knowledge to derive knowledge of the logical truth governed by the conventions. To do this, one must already have logical knowledge that doesn't arise from the conventions, which means that linguistic conventions can't be the source of all one's logical knowledge.

A different way of putting the point is this: In order to recognize that the premises of the conventionalist's argument justify the conclusion, one must *recognize* that if all F's are G's, and n is an F, then n is a G. The point is *not*, of course, that in order to draw the conclusion one needs to use the proposition that that if all F's are G's and n is an F, then n is a G *as a further premise*. The point is (i) that if one is to *know* the conclusion on the basis of *knowing* the premises, one must *recognize* the argument as *justifying* the conclusion, and recognizing this *counts as* knowing *that if all F's are G's and if n is an F, then n is a G.*

On either way of putting it, we see that the logical knowledge needed to derive logical conclusions from linguistic conventions doesn't itself arise from, and isn't itself explained by, knowledge of the conventions. Consequently, although (4) *is* a sentence of L that is true by convention, and although one can arrive at the knowledge that it is true by learning the linguistic conventions of L, one can do so only if one has *prior* logical knowledge. This is precisely the kind of genuine, logical knowledge that the logical empiricists promised, unsuccessfully, to explain.

The same point could be made by focusing on sentences of English that are logical truths, and the propositions they express. However, then the problem is even worse. When introducing logical constants into the new language L by stipulation, I was free to express the stipulation using antecedently understood expressions of English, including logical terms like *every*. However, if we try to imagine all the logical terms in English getting their meanings by stipulation, we are at a loss to understand how such stipulations could be expressed in the first place. Thus, it is harder to understand in what sense the logical truths of English could be true by convention in the first place.

As Quine emphasized, the philosophical project of explaining apriori knowledge as arising from linguistic conventions governing analytic sentences could not succeed. Despite Quine's arguments in "Truth by Convention," this was not widely recognized until he revisited the topic of analyticity many years later in "Two Dogmas of Empiricism," published in 1951.[8] By then, crippling difficulties with the empiricist criterion of meaning had made it obvious that there were intractable difficulties at the center of the philosophical vision of the logical empiricists.

[8] W.V.O. Quine (1951). "Two Dogmas of Empiricism," *Philosophical Review* 60:20–43.