

# Existence and Necessity

J.-M. Kuczynski

# Existence and Necessity

J.-M. Kuczynski, PhD

[1.0 Necessity and possibility properties of statements, not objects](#)

[1.1 Existence and non-existence properties of propositions, not of objects](#)

[2.0 Necessity does not come in degrees](#)

[3.0 No necessary \*a posteriori\*](#)

[4.0 Propositional necessity as microstructural truth: some preliminary concepts](#)

[4.1 Propositional necessity as microstructural truth](#)

[4.2 Necessity as high-resolution structural truth](#)

[5.0 Quine's denial of informal analytic truth: preliminary concepts](#)

[5.1 Quine's denial of informal analytic truth](#)

[5.2 Evaluating Quine's argument](#)

[5.3 Analytic truth non-circularly definable as non-empirical truth](#)

[5.4 Quine's position self-defeating](#)

[5.5 Why Quine's position entails that nothing can confirm anything](#)

[6.1 Knowledge of necessary truth a prerequisite for knowledge of contingent truth](#)

[6.2 Why NT is a broken argument](#)

[7.0 Analytic truth vs. formal truth](#)

[7.1 Empirical vs. pseudo-empirical truth](#)

[7.2 Analytic knowledge of principles vs. empirical knowledge of the fact that certain sentences \*express\* those principles](#)

[7.3 Analyticity vs. triviality](#)

[7.4 No synthetic non-empirical truths: an outline of an argument](#)

[7.5 Formal truth](#)

[7.5.1 Quine on formal truth](#)

[7.5.2 Why formal truth  \$\neq\$  topic-neutral truth](#)

[7.5.3 An alternative analysis of formal truth](#)

[7.5.4 What is a logical constant?](#)

[7.6 analytic truth  \$\neq\$  formal truth](#)

[7.7 Conceptual analyses never expressed by formal truths](#)

## 1.0 Necessity and possibility properties of statements, not objects

A modal statement is one that says what *could* be the case or what *must* be the case. Here are some examples of such statements:

- (1) *Triangles must have three sides.*
- (2) *It's possible to make money without selling out.*
- (3) *There's no way anyone could have survived that fall.*
- (4) *Assuming that Bob has fifty cars, he must have at least some money.*
- (5) *John's becoming stronger was an inevitable consequence of his lifting weights all summer.*

For any proposition P, it's necessarily the case that P iff (if and only if) it's not possible that not-P; and it's possible that P iff it's not necessarily the case that not-P. ("Iff" is short for "if and only if.") It's necessarily the case that Jim is in the barn iff it's not possible that Jim is not in the barn; and it's possibly the case that Jim is in the barn iff it's not necessarily the case that Jim is not in the barn.

There are no impossible objects—no objects that couldn't possibly exist. And there are no possible but non-actual objects— and no objects that could exist but don't. Possibility and impossibility are properties of propositions, not of objects. For example,

- (6) *Square circles cannot possibly exist*

says that the proposition

- (7) *There are objects that are both square and circle*

cannot possibly be correct. (6) doesn't make the self-contradictory claim that there exists some object  $x$  such that  $x$  is a square circle and such that  $x$  cannot exist. And

*(8) Happiness is a possibility for Jim, even though he's still miserable*

says that, even though Jim is now miserable, the proposition

*(9) Jim is happy*

could be true. (8) doesn't make the absurd claim that there exists some  $x$  such that  $x$  is Jim's as of yet nonexistent happiness and such that  $x$  could exist.

## 1.1 Existence and non-existence properties of propositions, not of objects

The points just made concerning the concepts of possibility and impossibility are to be understood in terms of more general points concerning the concepts of existence and non-existence.

Nothing doesn't exist. There exists no  $x$  such that  $x$  doesn't exist. Statements that, given their surface-structures, appear to be attribute non-existence to objects in fact attribute falsity to propositions. A story will make this clear.

An unscrupulous person claims to have been attacked. In reality, he wasn't attacked; but, for whatever reason, it's to his advantage for people to believe otherwise. He describes his non-existent assailant to a police sketch artist. The resulting sketch is distributed across the nation. If we say that the sketch depicts a nonexistent person, we're saying that there exists some person who doesn't exist who it depicts. But that would be absurd. The sketch is better thought of as saying: *there is somebody having such and such features*, these being the features that a person *would* have to have *if* he were to fit the sketch. Though false, that *statement*—that **existence-claim** obviously exists.

Similarly, the cartoons that brought Fred Flintstone and Bart Simpson into our homes can be thought of as making false statements of a similar kind. In the case of Fred Flintstone, that statement might be something along the lines of: there exists a boorish man who has pet dinosaur named "Dino," a wife named "Wilma," etc. In the case of Bart Simpson that claim might say something along the lines of: "there exists a bratty boy who torments his oafish father with his loveable shenanigans (etc.);" All of these *statements* exist; they're simply not true; nothing answers the descriptions encoded in them. And *that* is the real meaning of "Fred Flintstone/Bart Simpson doesn't exist." The real meaning is clearly not some absurd claim to the effect that there exists some non-existent thing.

*(E) There exists some object  $x$  such that  $x$  cannot exist and therefore does not exist.*

## 2.0 Necessity does not come in degrees

Here is a view about modality that is false, as we'll see in a moment, but is nonetheless a useful starting point<sup>[1]</sup>:

*(DN) There are different degrees of necessity. "Squares have four sides." This is necessary in the strongest sense. The very idea of a square's failing to have four sides is an incoherent one.*

*"Metal expands when heated." This is not as necessary as "squares have four sides," since the idea of a universe in which metal didn't expand when heated is not incoherent. But, given that it describes a law of physics, and is therefore utterly unalterable, it clearly has a high degree of necessity.*

*"After surgery, people are unusually prone to get infections and must be given antibiotics to stave them off." There is clearly some sense in which this is necessarily true. An immunologically normal person who wasn't more prone to get infections after surgery is a medical impossibility. And, unless he qualified his point very heavily, a professor of medicine who denied this would be misleading his students. But this statement clearly isn't as necessary as the others.*

DN is false. There are only two degrees of necessity: having it completely and lacking it completely. When we say that P is "more necessary" than Q, we're saying something about the conditions that must hold for those statements to be true; we're saying that the conditions that must hold for the first to be true are weaker than those that must hold if the second is to be true. "Squares have

four sides” is maximally necessary, because it holds *unconditionally*. In any universe at all, no matter how mass-energy is distributed in it, that statement is true.<sup>[2]</sup> So *no* condition has to be met for that statement to be true. Or, to think of it another way, the only conditions that have to be met are maximally weak: they could be thought of as limiting cases of conditions that are trivially satisfied by any distribution of mass-energy. And to say that “metal expands when heated” is “less necessary” than “squares have four sides” is to say that the former could to be true in a wider class of circumstances than the latter. And, obviously, to say that “after surgery, people are unusually prone to get infections” is “less necessary” than “metal expands when heated” is to say that the former could fail in a wider class of circumstances than the latter. So there aren’t really degrees of necessity. Something is either necessary or it isn’t. But some statements (e.g., “two is bigger than one”) need less help from others to be true—those are the “highly necessary” ones. Others (e.g., “people who wear hats are bad drivers”) need a little more help—those are the “less necessary” ones.

### 3.0 No necessary *a posteriori*

In 1969, Saul Kripke gave a now famous series of lectures in which he argued that there are non-analytic necessary truths. Here, in my words, is Kripke's argument ("KA" for short):

*(KA) The ancients referred to the last celestial body (besides the Sun) to disappear from the morning sky as "Phosphorous" (or, to be precise, they referred to it with an expression whose Anglicization is "Phosphorous"), and they referred to the first celestial body to appear in the evening sky as "Hesperus" (same qualification). The former is Venus and so is the latter, and the former is therefore identical with the latter. The ancients didn't yet know this; and they went for a very long time having no idea that some one celestial body appeared in the evening sky before any other and disappeared from the morning sky after any other. But eventually they found this out. What they found out isn't trivial, of course; it isn't in the same category as the fact that Hesperus is identical with Hesperus. What they discovered is a non-trivial, empirical fact.*

*Henceforth, "FES" and "LMS" will be our abbreviations for the predicates "first celestial body to appear in the evening sky" will be abbreviated as "FES" and, respectively, "last celestial body (besides the Sun) to disappear from the morning sky."*

*Contrary to what it is extremely tempting to believe:*

*(HIP<sup>[3]</sup>) "Hesperus is Phosphorous"*

*does not have the same meaning as*

*(S\*) “the LMS is identical with the FES.”*

*It will take a moment to make it clear why this is so.*

*Let P be the proposition expressed by HIP. As we just saw, empirical investigation was needed to establish the truth of P; so P is an empirical truth and is therefore non-analytic. It’s important to keep the distinction between HIP and P in mind. The ancients didn’t have any feelings about the English sentence “Hesperus is identical with Hesperus.” And, in making the astronomical discovery that we’ve been discussing, what they found out had nothing to do with HIP—or any other sentence. It was an astronomical, not a linguistic, discovery. This point is crucial.*

*If HIP has the same meaning as S\*, then P is identical with the proposition meant by S\*. And the latter is equivalent with the proposition that:*

*(P\*) exactly one thing is an LMS and exactly one thing is an FES, and nothing that has the one property lacks the other.*

*And the same is true of P, supposing that S\* and HIP express the same proposition.*

*In light of these points, consider a world W\* satisfying the following conditions. W\* is semantically just like our world. (Two worlds or*

situations are “semantically identical” if the rules that govern word-usage in the one coincide with those that govern it in the other.) So, in  $W^*$ , people speak English. But, in  $W^*$ , Venus isn’t the LMS or the FES. In  $W^*$ , because of some cataclysm that didn’t occur in our world, Mars is the LMS, and Mercury is the FES. So, in  $W^*$ , “the LMS” picks out Mars, and “the FES” picks out Mercury. This follows from the fact that  $W^*$  is semantically just like our world. (If John McCain had become President in 2008 instead of Barack Obama, “the U.S. President” would, given the semantic rules that we use, refer to McCain. But, given those very same rules, “Barack Obama” would still refer to Barack Obama. In other words, if  $x$  is the person who in our world is referred to as “Barack Obama,” “Barack Obama” would refer to  $x$  in  $W^*$ . Similarly, if Mars were the LMS, as opposed to Venus, “the LMS” would, given the semantic rules that we use, refer to Mars. But given those same rules, “Venus” would still refer to Venus. In other words, if  $x$  is the planet that in our world is referred to as “Venus,” “Venus” would refer to  $x$  in  $W^*$ .)

“Venus,” like “Barack Obama,” is thus a rigid designator. If  $x$  is what “Venus” in fact refers to,  $x$  is what “Venus” would refer to in any world semantically like ours. But “the LMS,” like “the current U.S. President,” is not a rigid designator; it refers to different things in semantically identical situations. (It used to refer to Carter; now it refers to Obama. But the semantic rules governing that expression haven’t changed in the least in the mean time.) In general, proper names are rigid designators. “Hesperus” and “Phosphorous” are proper names. Therefore, unlike “the LMS” and “the FES,” they are rigid designators. So as long as the semantic rules of English haven’t changed, there is some one object  $x$  such that:

(i) *Each refers to x; and, therefore, such that*  
(ii) *Each of <Hesperus has phi> and <Phosphorous has phi> is true exactly if x has phi,*  
*a corollary being that*  
(iii) *“Hesperus is Phosphorous” (HIP) is true exactly if x is identical with x.*

*It is obvious that, for any object x, the proposition x is identical with x is necessarily true. But it's equally obvious that the proposition expressed by HIP is empirical and, therefore, non-analytic. Therefore, HIP expresses a non-analytic necessary truth.*

### **3.1 Kripke's argument evaluated**

This argument involves a massive non-sequitur, which the following story exposes. I meet a man. We shake hands. I obviously see what he looks like. He tells me that his name is “Hesperus.” (Without worrying about the details, let's assume that I know him to be telling me the truth.) In this context, there is some individual x such that I am learning that:

*(HX) “Hesperus” is x's name.*

But *what* I am learning must be distinguished from the information *through which I am learning it*. The information relayed to me by my senses isn't confined to HX. It would be absurd to think otherwise. That information

is more along the lines of:

*(BHX) There is some individual x such that x is standing right in front of me (in my office in Richmond, VA) at this moment (3:00 P.M., March 13, 2009) and such that x has such and such characteristics (he has a mustache, he's over 6-feet tall, etc.) and such that I am being told, by x himself, that "Hesperus" is x's name.*

So there is some x such that "Hesperus" merely labels x. "Hesperus" doesn't have for any part of its meaning anything having to do with the property of being over 6 feet, having a mustache, being in this or that place at this or that time. But the information *through which* I learn whom "Hesperus" labels *does* concern such properties. That information is descriptive; a certain person x is visually represented, and thus described, to me as having certain characteristics (over 6-feet tall, etc.); and, with the help of this information, it is also being made clear to me that "Hesperus" names x. But that descriptive information is not *itself* a part of the semantic rule that, with its help, I am learning—that is to say, it is not itself any part of HX. HX is extremely threadbare; it merely puts a label on a certain object. So the just-mentioned descriptive information has no place in the *semantics* of "Hesperus"; its relevance is confined to the pre-semantic act of assigning it to the right object. That information isn't semantic; it's *pre-semantic*.

The following evening, I receive a phone call. I don't recognize the caller's voice. The caller is obviously using a voice-modulation device, giving it a metallic, threatening sound. And threaten is just what he does; for he says "if you don't move out of town, I'm going to kill you. By the way, my name is Phosphorous." I look at my caller ID; and, sure enough, the call

is from one “Phosphorous.”

In this context, there is some individual  $y$  such that I am learning that:

*(PX) “Phosphorous” is  $y$ ’s name.*

PX merely registers the fact that a certain name is associated with a certain object. It doesn’t say anything (else) *about* that object. It doesn’t say whether that object is tall or short, friendly or unfriendly. PX is exceedingly threadbare. But the information *through* which I am learning PX is very different from PX itself. *That* information—that *pre-semantic* information—is along the lines of:

*(BPX) There is some individual  $y$  such that, a moment ago (7:00 P.M., March 14, 2009),  $y$  rang me; such that, using a voice-modulation device to disguise his voice,  $y$  is making threatening statements; and such that I am being told, by  $y$  himself, that “Phosphorous” is  $y$ ’s name.*

Here must we repeat (*mutatis mutandis*) what we said a moment ago. There is some  $y$  such that “Phosphorous” merely labels  $y$ . “Hesperus” doesn’t have for any part of its meaning anything having to do with the property of talking on the phone with me at a certain time, or of using a voice-modulation device, or of making threats. But the information *through which* I learn who “Phosphorous” labels *does* concern such properties. That information is descriptive; a certain person  $y$  is perceptually represented, and thus described, to me as having certain characteristics (calling me at a certain time, making certain statements, etc.) and, with the help of this information, it is also being made clear to me that “Phosphorous” names  $x$ . But that descriptive

information is not *itself* a part of the semantic rule that, with its help, I am learning—that is to say, it is not itself any part of PX. PX is extremely threadbare; it merely puts a label on a certain object. So the just-mentioned descriptive information has no place in the *semantics* of “Phosphorous,” its relevance is confined to the *pre-semantic* act of assigning it to the right object. That information is entirely *pre-semantic*.

But such *pre-semantic* information can have an incalculably profound effect on what is (non-semantically; i.e., non-literally) *conveyed* by utterances. A continuation of our story makes this clear. Right after getting the upsetting phone call, the police call. For some reason, they know about the phone call. They say to me:

(A<sub>1</sub>) “*Phosphorous is a professor of political science.*”

There is some *y* such that A<sub>1</sub> does nothing more than affirm the innocuous proposition that:

(A<sub>2</sub>) *y is a professor of political science.*

But under the circumstances, what will be conveyed to me is some much richer proposition along the lines of:

(A<sub>3</sub>) *There is some individual y such that, a little while ago (at around 7:00 P.M., March 14, 2009), y rang me; such that, using a voice-modulation device to disguise his voice, y is making threatening statements; such that I am being told, by y himself, that “Phosphorous” is*

*y's name; and, finally, such that y is a professor of political science.*

The pre-semantic information embedded in BPX affects what I *take away* from the policeman's utterance of  $L_1$ , even though it is no part of its literal meaning. For exactly similar reasons, the pre-semantic information embedded in BHX affects what I would *take away* from an utterance of:

*(B<sub>1</sub>) "Hesperus is an avid tennis player."*

There is some  $x$  such that  $B_1$  does nothing more than affirm the descriptively impoverished proposition that:

*(B<sub>2</sub>)  $x$  is an avid tennis player.*

But under the circumstances, what that utterance conveys to me is some much richer proposition along the lines of:

*(B<sub>3</sub>) There is some individual  $x$  such, a couple of days ago (March 13, 2009) at about 3:00 P.M.,  $x$  is standing right in front of me (in my office in Richmond, VA); such that  $x$  has such and such characteristics (he has a mustache, he's over 6-feet tall, etc.); such that "Hesperus" is  $x$ 's name; and such that  $x$  is a political science professor.*

We need only add one finishing touch to our story to see what's wrong with Kripke's reasoning. The police arrest Phosphorous. They ask me to

come down to the station to talk to them. They point to Phosphorous (who is handcuffed) and say: “that’s Phosphorous.” Phosphorous, I now see, is none other than Hesperus. The man I see is the mustachioed man I met a few days earlier. The police then say: “Phosphorous also goes by the name of Hesperus. His legal name is ‘Hesperus Phosphorous.’ But he tends to introduce himself as either ‘Hesperus’ or ‘Phosphorous.’ In any case, *Hesperus is Phosphorous.*” The italicized sentence is none other than HIP, of course.

Given what we’ve already learned, it’s obvious that there is some *one* individual *z* such that this utterance of HIP is true exactly if:

*(K) z is identical with z.*

Any proposition of that form is trivial. It is always trivial to say of an object that it is identical with itself. But by obvious extensions of what we said a moment ago, when I hear the policeman’s utterance of HIP, what I *take* away from it—what it (non-literally) *conveys* to me, given the pre-semantic information at my disposal—won’t be at all trivial, as it will be along the lines of:

*(K<sub>2</sub>) There is some individual x such, a couple of days ago (March 13, 2009) at about 3:00 P.M., x is standing right in front of me (in my office in Richmond, VA; such that x has such and such characteristics (he has a mustache, he’s over 6-feet tall, etc.); such that “Hesperus” is x’s name; and such that x is a political science professor; and there is some individual y such that, a few hours ago (at around 7:00 P.M., March 14, 2009), y rang me; such that, using a voice-modulation device to disguise*

*his voice, y is making threatening statements; such that I was told by y himself that “Phosphorous” is y’s name; and such that y is a professor of political science; moreover, I have just learned from the police that x is y.*

$K_2$  is an empirical proposition; it isn’t analytic; a fortiori it isn’t trivial. *But it’s also a contingent truth.*  $K$ , on the other hand, *is* a necessary truth. *But it’s also analytic.* So we don’t have *anything* that is both necessary *and* non-analytic.

Kripke and, after him, many others have professed to find many examples of non-analytic necessary truths; but in each case, an exact analogue of the argument just given shows a confusion similar to the one just identified to be at work. In each case, semantics is being confused with pre-semantics. A defense of this claim is provided in my book *Content-externalism*.

#### 4.0 Propositional necessity as microstructural truth: some preliminary concepts

The primary modal concepts are necessity, possibility, impossibility, and contingency. All of these can be understood in terms of the concept of necessity.  $P$  is possible iff not- $P$  isn't necessary.  $P$  is impossible iff not- $P$  is necessary.  $P$  is contingent iff neither  $P$  nor not- $P$  is necessary.

Whether all modal concepts can be understood in terms of this one concept depends on how inclusive one's conception of modality is. Like Bas van Fraassen (1989), I believe that the property of being probably true is a modal property—that, indeed, for any number  $n$ , the property of being probable to degree  $n$  is a modal property. It's an open question whether the concept of probable truth can be understood in terms of that necessary truth. I'm inclined to think that it can be, given how natural it is to think of necessity as a limiting case of probable truth. But until this is resolved, it can't be said that *all* modal notions can be understood in terms of the concept of probability. But there's no denying that necessity is the most important modal concept.

But what *is* necessity? One plausible answer is this: necessary truth is analytic truth; necessity is analyticity. "Squares have four sides" is "analytic," or "analytically true." Indeed, *all* analytically true statements are necessarily true. So it's obviously worth looking into the idea necessity *is* analyticity. Many deny this (for reasons that we'll discuss in a moment); but many, including the present author, hold it. But different authors use the word "analytic" to mean different things, and we must make it clear how we will be using it before we can evaluate the proposal that necessary truth is analytic truth.

Sometimes that word denotes a property of sentences; other times, it denotes a proposition of propositions. A *sentence* is analytic if, given only what it means, it must be true. So "squares have four sides" is analytic. Given *only* what

it means, it couldn't possibly be false. A *proposition* is analytic if it's non-empirically true. So the *proposition* that squares have four sides is analytic. No conceivable state of affairs could make it false. We will use the word "analytic" to denote a property of *propositions*, not sentences.

When examining the concept of analyticity, one must make it clear at the outset whether one is talking about sentences or propositions. Otherwise one won't be able to produce a coherent analysis of that concept. This is because there are analytically true *sentences* (or, strictly speaking, sentence-tokens) that have contingent propositions for their meanings. If, at this very moment, I were to say "I am here now," my utterance couldn't fail to be true. Given only the semantic rules that assign truth-conditions to that utterance, it's a logical impossibility that it should be false. But *what it is that I'm saying* could very well be false. Given that I am JMK, that I'm in Richmond, and that it's now March 13, 2009, I am, in producing such an utterance, attributing to JMK the property of being in Richmond, VA, on March 13, 2009. And, quite obviously, it's *not* a necessary truth that I be in that place at that time. Similarly, if I say "I am not here now," my utterance is analytically false: given *only* its semantics—given only what the semantic rules are that assign truths-conditions to it—it's logically impossible that it should be true. But what it is saying *could* easily have been false; I might not, after all, have been in Richmond, VA, at this very time. It isn't in virtue of what it's saying that a given token of "I am here now" ("I am not here now") must be true (false); it is in virtue of how it is saying it. But it *is* in virtue of what it is saying that a token of "any case of knowledge is a case of true belief" must be true. This shows that there are two very different kinds of sentence-analyticity.

It also shows that sentence-analyticity diverges from proposition-analyticity and, more generally, that sentence-logic diverges from proposition-logic. In other words, the logical relations that propositions bear to one another don't

always parallel the logical relation that the corresponding sentences bear to one another. The two sets of interrelations can diverge quite dramatically. (Credit for this astonishing insight goes entirely to P.F. Strawson.) So it's important to bear in mind that, in what follows, the word "analytic" refers to a property of propositions, not sentences. (Later we'll discuss how it is exactly that analytically true (false) sentence-tokens can have contingent truths (falsehoods) for their meanings.)

The word "analytic" is ambiguous in another, equally important respect. As some philosophers use it, "analytic" is synonymous with "trivial" or "tautologous." So "there are 3 feet in a yard" is "analytic" because it's trivial—because, basically, it says nothing. But as other philosophers use that word, analytic truths are often decidedly *non*-trivial—for example, "a class is infinitely large exactly if it can be into a one-one correspondence with a proper subset of itself." When non-trivial truths are described as "analytic," what is meant is that they are non-empirically true. This is what we will mean by it, as earlier stated.

There is one last ambiguity to deal with. As some philosophers use it, the word "analytic" is synonymous with "formally true." Formal truth is a property of *sentences*. It's the property of being "syntactically" true.<sup>[4]</sup> A sentence is "syntactically true" if any sentence having the same syntactic form is true. So "either John is tall or John is not tall" is formally true, and thus analytic (in one sense of the word), because every sentence having the form "either P or not-P" is true. This obviously isn't how we'll be using the term "analytic," given that, as previously stated, we're using it to pick out a property of propositions, not sentences. (Propositions don't have syntax. Syntax is a property of complex *expressions*. Propositions aren't expressions.)

A final note: even though sentence-analyticity diverges from proposition-

analyticity, the two ultimately coalesce. What does it mean to say that, although the proposition it encodes is synthetic, a given token of “I am here now” is analytic? It means that, the semantic rules of English being what they are, the proposition that any given token of “I am here now” is true is analytic. (Given that any token  $t_1$  of “I” refers to the person who utters  $t_1$ , that any token  $t_2$  of “now” refers to the time at which  $t_2$  was uttered, and so on, it follows that a token  $t$  of “I am here now” couldn’t be false.)

## 4.1 Propositional necessity as microstructural truth

Analytic propositions are true no matter what. The proposition:

*(GG) either grass is green or grass is not green*

cannot fail to be true. It doesn't matter what happens or what natural laws govern what happens. Why is this? What is it about GG that makes it incapable of being false? A natural proposal is to say that GG is *structurally* true. In other words, given what its constituents are, along with how those constituents are put together, it cannot fail to be true. All structural truths are analytic truths. Analytic truth is truth in virtue of structure.

This proposal is almost correct, but not quite. Analytic truth is truth in virtue not just of structure but also of *substructure*. It isn't merely in virtue of its structure that:

*(ACK) any case of knowledge is a case of true belief*

is analytic; the structures of its *constituents* are involved. Some propositions *structurally* just like ACK are false (e.g., any case of knowledge is a case of false belief). At the same time, there are false propositions that are *substructurally* just like ACK (e.g., "any case of true belief is a case of knowledge"); and it's obviously because its structure differs from theirs that, unlike those propositions, ACK is analytically true. Analyticity is truth in virtue of structure *along* with substructure. Analytic truth is, as we'll put it, high-resolution structural truth.

Before we can see what exactly this means, or why it holds, we must make a few non-controversial, but also non-trivial, points about language. Languages are evaluated in terms of how much *expressive power* they have—in other words, in terms of how much can be said in them. The expressive power of a language is to be understood not only in terms of how many propositions can be expressed, but also in terms of how *varied* those propositions are. A language that can express the propositions *snow is white*, *it is true that snow is white*, *it is true that it is true that snow is white*, and so on, can express infinitely many propositions. But its expressive resources are minimal; and some other language that can express only a thousand propositions, not a single one of which entails a single one of the others, will grossly exceed the expressive capabilities of the first. And that's why, when assessing the expressive potency of a language, the relevant question isn't so much "how many propositions can it express?" as it is "how much redundancy is there within the set of propositions that it can express?"

These points may be obvious, but they have a non-obvious consequence, namely: as a rule, sentential structure mirrors propositional structure; propositions must have structures similar to those of the sentences that represent them. This doesn't mean that each proposition's structure is perfectly represented by those of all the sentences that express it. (In fact, this is impossible, given that sentences with different structures can express the same proposition.) It doesn't even mean that any proposition's structure is perfectly represented by that of *any* of the sentences that express it. Here's what it does mean: to the extent that the sentences of a given language *fail* to mirror the structures of the propositions they express, that language is expressively frozen. So if L and L\* are any two languages, then *ceteris paribus* L's expressive power exceeds L\*'s to the extent that the structures of L-sentences do a better job than those of L\*-sentences of mirroring the

structures of the propositions they represent.

Here's the idea. Let  $L^*$  be a language that has only simple symbols. So the  $L^*$ -sentence for "snow is colder than water" is some single, syntactically simple symbol, the same being true of every other  $L^*$ -sentence. Obviously, there's no limit to what  $L^*$  can express, since there's no limit in principle to how many primitive symbols can belong to a language. But, since each symbol belonging to  $L^*$  is simple, it's necessary to *add* a new symbol to  $L^*$  every time one wants to make a point that isn't the literal meaning of one of its simple expressions. Nothing could be said in  $L^*$  that hadn't been said before: it would be impossible to express *discoveries*. Symbols would have to be added *ad hoc* to say anything new. But given a language  $L$  that has many ways of combining its primitive symbols into complex ones, its expressive capabilities will dwarf those of  $L^*$ , so long as the number of primitive expressions belonging to  $L$  rises above a certain, extremely small minimum number.  $L^*$  is totally inflexible.  $L$  is highly flexible, and can do a lot with a little. Other things being equal, the extent to which one language's expressive resources exceed those of another is directly proportional to the extent by which sentences of the one language exceed their counterparts in the other in respect of syntactic complexity.

There is only one viable explanation of this last fact: Syntactic structure mirrors propositional structure. The syntactic devices that endow a language with expressive flexibility correspond to the relations by which propositions are constructed out of their constituents and, in particular, by which propositions are constructed out of other propositions. Thus, we can confidently say that the (syntactic) structures of sentences tend to mirror those of the propositions they express.

## 4.2 Necessity as high-resolution structural truth

We can now say what it means to say that analytic truth is high-resolution structural truth. Given the reasoning just presented, the sentence “either grass is green or grass is not green” must have a structure similar to GG. But, by that same reasoning, GG’s structure probably differs from the structure of:

*(GA) grass is green and grass is not green.*

But GA is not analytically true. (It’s analytically false.) Given that GA is false and has the same structure as GG, it cannot possibly be solely in virtue of its structure that GG is true. But we don’t just want to give up on the idea that analytic truth is structural truth. An analytically true proposition is *ipso facto* true no matter what contingencies obtain. This entails, or strongly suggests, that it is always in virtue of something *inherent* in it that a proposition is analytically true, and it’s hard to see how the relevant property could fail to be structural in nature. It’s obvious that, in the case of GA, what’s causing the trouble is that the concept of conjunction (the concept of *and*) is occupying the place that, in GG, is occupied by the concept of disjunction (the concept of *or*). Taken together, these points suggest that it is in virtue of its structure *along with* the structure of one of its constituents—viz. the concept of conjunction—that GG is analytically true.

So it’s not quite right to say that analytic truth is structural truth. At the same time, it isn’t quite right to identify analytic truth with *substructural* truth. The proposition:

*(NG) it’s not the case that grass is green or grass is green*

is equivalent with the proposition that grass is not green. Thus, NG is contingently false. But it has the same constituents as the analytically true GG, and is thus substructurally identical with it, even though it's structurally very different.

This suggests that for a proposition to be analytically true is for it to be true in virtue of its structural *and* its substructural properties. In other words, given a proposition's structure along with the structures of its constituents, it's settled whether or not that proposition is analytically true. Thus, a *high-resolution* representation of a proposition's structure settles whether or not it's analytic. (A "low-resolution" representation would be one that failed to disclose substructure.) Thus, *analytic truth is high-resolution structural truth*—and so, therefore, is necessary truth, given that it's identical with analytic truth.

## 5.0 Quine's denial of informal analytic truth: preliminary concepts

In this section, all references to “analytic” truth are to sentential analytic truths; we will be discussing analytically true sentences, not analytically true propositions.

W.V.O. Quine (1951) says that, with a few trivial exceptions, there is no such thing as sentential analytic truth. To understand exactly what it is that he holds, and why he holds it, we must first make some background points.

Consider the following sentence:

*(ST) “If Smith is tall, then it is not the case that Smith is not tall”*

Obviously you can't replace “Smith” with “therefore” or “red.” The result would be syntactically ill-formed nonsense. Thus, such replacements would not be “grammatically admissible.” But you *can* replace “Smith” with “Jones” and “that person.” Such replacements *would* be grammatically admissible, that being why:

*(JT) “If Jones is tall, then it is not the case that Jones is not tall”*

is a perfectly grammatical sentence.

JT is what results when the occurrences of “Smith” in it are made *uniformly*. In other words, JT is what results when, not just one, but *all* of those occurrences are replaced with the same thing. The following sentence, by contrast, is what results when only *one* of the occurrences of “Smith” in ST is replaced with “Jones” (“NU” is short for “not uniform”):

(NU) *“If Jones is tall, then it is not the case that Jenkins is not tall.”*

Thus, a syntactically well-formed sentence S cannot be false if it is the result of uniformly replacing the occurrences in ST of “Smith” (or, for reasons analogous to those just given, of “tall”) with some other expression.

In general, a sentence S is *formally* true if there is some expression E occurring in S such that no syntactically well-formed sentence S\* is false if S\* is what results when the occurrences in S of E are uniformly replaced with occurrences of some other expression.

It’s generally held—and the present author himself holds this—that there are *informal* analytic truths. Consider, for example, the following sentence (“JTB” is short for “justified true belief”):

(JTB) *“One can’t know something without believing it.”*

JTB is analytically true. Given *only* a knowledge of what it means, one knows (or is in a position to know) that it is true. It isn’t like “there are nine planets,” which, if true, can be established only on the basis of experimental data. No—JTB is *inherently* true. The denial of it (“one *can* know something without believing it”) is prevented, by its very own meaning, from being true; and it (JTB) is *required* by its very own meaning to be true.

But JTB isn’t *formally* true. If you replace “know” with “doubt,” the result is a false sentence. In fact, given *any* expression in JTB, replacing it (in a uniform and grammatically admissible manner) with some other expression results in falsehood. For example, the sentence “one can’t deny something without affirming it” is a false sentence that results from replacements of the sort just described.

It seems pretty clear, then, that there are informal analytic truths. And this is what most analytic philosophers hold, including the present author. But Quine denies it. Quine thinks that, apart from formal analytic truths, there are *no* analytic truths. This thesis of his is famous, and so is his argument for it.

## 5.1 Quine's denial of informal analytic truth

Here is Quine's argument. Consider the sentence:

*(B) Bachelors are unmarried men.*

If any sentence is analytic, (B) is one of them. According to Quine, if (B) is analytic, that is in virtue of the fact that “bachelor” and “unmarried man” are synonyms. Quine says that *whenever* a sentence is analytic, that is because it holds entirely in virtue of some synonymy relation.

Quine then asks the following question: What is it for two expressions to be synonyms? Quine gives the following (correct) response: It is for them to be such that inter-substitutions of them preserve meaning. “Foe” and “enemy” are synonymous because you cannot change sentence meaning by replacing “foe” with “enemy.” Put another way, “foe” and “enemy” mean the same thing because, if a sentence S contains an occurrence of “foe,” and that occurrence is replaced with an occurrence of “enemy,” the resulting sentence has the same meaning as S.

Let me explain what this last sentence means. Consider the sentence: “Smith is a foe.” Now replace the word “foe” with “enemy.” What results is “Smith is an enemy.” The sentence “Smith is an enemy” has precisely the same meaning as “Smith is a foe.”

Let S and S\* be *any* two sentences that are exactly alike *except* for the fact that, in the place where S contains the word “foe,” S\* contains the word “enemy.” What we just said about “Smith is an enemy” and “Smith is a foe” is true of S and S\*. And that is why “foe” and “enemy” are synonyms. Inter-substituting synonyms doesn't change sentence-meaning—and for two

expressions to be synonymous just *is* for them to be such that inter-substituting them doesn't ever change sentence-meaning.

But, Quine asks, what is it for two sentences to have the same "meaning"? What is it for "Smith is an enemy" and "Smith is a foe" to mean the same thing? According to Quine, for two statements to have the same meaning is for them to be *analytically equivalent*. In other words, it is for them to entail, and be entailed by, exactly the same statements.

Let me illustrate this last point. "Smith is an enemy" entails "Smith is somebody who is attempting to do me ill," and so does "Smith is a foe." The statement "Smith is somebody whose sole objective in life is to make my life as unpleasant as possible" entails "Smith is an enemy," and it *also* entails "Smith is a foe." Given *any* statement S that entails "Smith is an enemy," S *also* entails "Smith is a foe"; and given *any* statement S\* such that "Smith is an enemy" entails S\*, "Smith is a foe" *also* entails S\*. Thus, "Smith is an enemy" and "Smith is a foe" entail, and are entailed by, exactly the same statements—and that, according to Quine, is what it is for them to have the same meaning.

But notice that we have gone in a circle. We defined analyticity in terms of synonymy. A recap will make this clear:

1. (B) is analytic because "bachelor" and "unmarried man" are synonyms: in general, if a sentence is analytic, that is because it holds true entirely in virtue of some synonymy relation.

We then defined synonymy in terms of sameness of meaning:

2. For two expressions to be synonymous is for them to be such that inter-

*substitutions of them preserve sentence meaning.*

But we then defined sameness of meaning in terms of analyticity:

*3. For two statements to have the same meaning is for them to be analytically equivalent. In other words, it is for them to entail, and be entailed by, exactly the same statements.*

1 defines analyticity in terms of 2 and, thus, in terms of synonymy. 2 defines synonymy in terms of 3, and thus in terms of analyticity. Thus, analyticity has been defined in terms of itself. We have gone in a vicious circle. Thus, Quine concludes, the concept of analyticity is viciously circular and therefore incoherent and, consequently, there is no such thing as analytic truth: all truths are synthetic.

## 5.2 Evaluating Quine's argument

First of all, Quine is wrong to hold that analyticity is to be understood in terms of synonymy. Consider the sentence:

*(T) The unique number  $n$  such that  $n = 2$  if the interior angles of a Euclidean triangle add up to  $180^\circ$  and  $n=3$  otherwise is identical with the unique number  $m$  such that  $9^m = 90$  minus 9.*

(T) is analytic. It isn't empirical. No empirical knowledge, over and above such as is needed to know what meaning it bears, is required to know whether it's true. So it's true in virtue of what it means and is thus analytic. (To be sure, unlike some analytic sentences, it isn't *formally* true. But since the very thing that Quine is trying to show is that there is no informal analytic truth, he cannot, without assuming the truth of the very thing he's trying to show, claim on those grounds that T is not analytic.) So if Quine is right, T holds in virtue of some synonymy relation. What, in this case, would the relevant synonyms be? Presumably they would be:

*(\*) "The unique number  $n$  such that  $n = 2$  if the interior angles of a Euclidean triangle add up to  $180^\circ$  and  $n = 3$  otherwise"*

and

*(#) "The unique number  $m$  such that  $9^m = 90$  minus 9."*

But even though they *refer* to the same thing (namely, the number two), (\*) and (#) obviously don't have the same *meaning*; and Quine is therefore wrong to say that, if there are analytic truths, they always hold in virtue of synonymy relations.

### 5.3 Analytic truth non-circularly definable as non-empirical truth

Quine's larger point seems to be that there is no non-circular definition of the term "analytic truth." But that is false: a sentence is analytic if (a) it is true and (b) it does not hold in virtue of *empirical* facts. Put simply: analytic truth is non-empirical truth. "Circles are figures of uniform curvature" is true and, moreover, it holds, not in virtue of empirical facts (i.e., not in virtue of how objects are *in fact* shaped), but in virtue of facts about the structures of the properties *circle*, *curvature*, and so on. Of course, being a nominalist, Quine would reject the idea that there are non-empirical truths. (After all, a nominalist believes that everything is spatiotemporal: there are no platonic entities and thus no properties.) But in attempting to establish that all truths are synthetic, Quine is, in effect, trying to *establish* that there are no empirical truths. For an empirical truth is, by definition, one that can be learned only through observation and therefore cannot be learned through any non-sensory modality such as conceptual analysis. So Quine would be guilty of begging the question were he to say that, since all truth is empirical, it is not an option to define "analytic" as "non-empirically true."

## 5.4 Quine's position self-defeating

Also, the view that there are no analytic statements is self-defeating.<sup>[5]</sup> The statement:

$(\wedge)$  *There are no empirical statements*

is equivalent to the statement:

$(\wedge\wedge)$  *for all values of S, the statement nothing follows from S follows from the statement S is a statement.*

In other words, if you say that there are no analytic statements, you are saying that nothing follows from any statement. But if you say *that*, then you are saying that the statement *nothing follows from S* follows from the statement *S is a statement*. Thus, the view that there is no analytic truth entails that *there is* analytic truth, and is therefore self-refuting.

## 5.5 Why Quine's position entails that nothing can confirm anything

There is another reason to hold that, contrary to what Quine says, there are in fact analytic truths. To say that there is no analytic truth is to say that all truths are empirical truths. For the sake of argument, let us suppose that all truths are indeed empirical. In that case, given any two statements  $S_1$  and  $S_2$ , it would be an *empirical* question—one to be decided observational grounds—whether  $S_1$  supported  $S_2$ ; and, supposing that  $S_1$  did support  $S_2$ , it would be an empirical question to what degree it did so.

This means that, for any values  $m_1$  and  $m_2$ , and for any observations  $A_1 \dots A_n$ , it would be an empirical question whether or not:

*(S<sub>3</sub>) Observations  $A_1 \dots A_n$  confirm to degree  $m_1$  that  $S_1$  confirms  $S_2$  to degree  $m_2$ ,*

were correct. And it means that, for any value  $m_3$ , and for any observations  $B_1 \dots B_o$ , it would be an empirical question whether or not:

*(S<sub>4</sub>) observations  $B_1 \dots B_o$ , confirm to degree  $m_3$  that observations  $A_1 \dots A_n$  confirm to degree  $m_1$  that  $S_1$  confirms  $S_2$  to degree  $m_2$ ,*

were correct. And so on *ad infinitum*. Thus, the supposition that all truth is empirical is viciously regressive. Thus, if there is no analytic truth—that is, if all truth were empirical, then nothing could confirm anything and, as

Laurence Bonjour (1998) puts it, all inquiry would “grind to a halt.”

## 6.0 Why there are necessarily true propositions

First a terminological point: If a proposition is true, but it isn't necessarily true, it is "contingently true," or just "contingent"; and if a proposition is false, but it isn't necessarily false, it is "contingently false."

It seems clear that *some* truths are contingent. Gore *might* have become President in 2001. He didn't. Bush became President instead. But Bush didn't *have* to become President. So it's a contingent truth that Bush became President. In general, things don't *have* to be the way they are; they could be different. In any case, this is what we think, and it's what we'll assume in this context.

Given this assumption, we must ask the following question: Are any propositions necessarily true? Yes. Why is this? Because the assumption that no propositions are necessarily true is self-undermining. Let me now explain why.

For argument's sake, suppose that:

*(NN) No propositions are necessarily true.*

First of all, is NN itself necessarily true or not? It has to be one or the other. If NN is a necessary truth, it's a counterexample to itself and is therefore false. So let's suppose for argument's sake that NN is contingently true. In that case, it *could* be false. In other words, there is some possible world W where some proposition P is necessarily true. A proposition is necessarily true iff it's true in all possible worlds. So given that P is necessarily true in W, it follows that P is true in *every* world. Thus, P is true in our world, and P is true in every world. Thus, P is *necessarily* true in our

world, and NN is therefore false. To sum up: NN is self-defeating if it's necessarily true, and NN is self-defeating if it's true but not necessarily so. Therefore, NN is false.

*A similar argument:* if NN is true, then the statement (i) "P isn't necessarily true" necessarily follows the statement (ii) "P is a proposition," and it is therefore a necessary *truth* that (i) isn't false if (ii) is true. So NN cannot be true unless it's false, and it's therefore false.

## 6.1 Knowledge of necessary truth a prerequisite for knowledge of contingent truth

Nonetheless, some philosophers have denied that there are necessary propositions. We just considered Quine's argument for this. Given how contrived that argument is, how lacking in logical integrity and devoid of intuitive force, it's hard to believe that Quine's rejection of necessary truth was based entirely on it. Quine, one would suspect, must have had some pre-existing agenda and he constructed that argument in the hopes that it would legitimate that agenda.

Such suspicions would be correct. Throughout his long career, Quine was unrelenting in his advocacy of a particularly extreme form of empiricism.

To understand Quine's empiricism, we must note a fact about empiricism in general. Empiricism says that you know only what your senses are telling you. Unless you assume the truth of principles that cannot be learned empirically, you can't show that your perceptions correspond to any transperceptual reality. For this reason, empiricism tends to collapse into idealism, this being why Berkeley, who has a hardcore empiricist, was also an idealist.

Quine's empiricism is in some ways antithetical to Berkeley's empiricism. Berkeley was led by his empiricism to deny the non-mental. Quine was led by his empiricism to deny the mental. According to Quine, there is no observational evidence of mental states. One sees bodies. One *doesn't* see or otherwise sense-perceive mental states. Quine's position is that mental states either don't exist or are identical with the bodily behaviors that we ordinarily, and wrongly in Quine's view, believe to be *expressions* of mental states. Thus, Quine was a behaviorist. (In my book *Skepticism and the Justification of Inductive Inference*, it is shown why behaviorism is false.)

Quine also held that there is no *a priori* knowledge. There is, he believed, no knowledge that is hardwired into us and that regulates the intake and subsequent processing of sensory information. Quine also believed that our linguistic behavior can be explained on the assumption that, at birth, we are blank slates and that it is entirely through a process of Pavlovian conditioning that we come to use words in the way we do.

This doctrine is *also* known as “behaviorism.” Behaviorism in *this* sense is a psychological theory that tries to answer the question “how does a human being learn to speak a language?” Behaviorism in the other sense is a philosophical theory that tries to answer the question “what are mental states?” To avoid confusion, I’ll refer to the first doctrine as “linguistic behaviorism.”

Linguistic behaviorism is incoherent. To say “that’s a fire” and *mean* it, I must have beliefs as to what that expression means and as to what circumstances would warrant my uttering it. If I reflexively bark it out when I see a fire, I’m no more affirming that there’s a fire than I am if I start sweating in response to the heat given off by a nearby fire. These points are substantiated in my book *Semantics*.

Also, in 1957, Noam Chomsky published his groundbreaking work *Syntactic Structures*, which, along with the many other important works that Chomsky was soon to publish, made it clear that Quine’s linguistic behaviorism simply didn’t model the relevant facts. Chomsky proposed an alternative theory, according to which inborn cognitive structures are largely, though obviously not entirely, determinative of how we learn and use language. Unlike Quine’s theory, Chomsky’s is splendidly borne out by the facts.

Quine and others accused Chomsky of putting forth *a priori* theories that lacked an adequate empirical grounding. This is both false and confused. It’s

true that *according* to Chomsky's theory we have *a priori* knowledge. But it doesn't follow that Chomsky's theory is itself *a priori*. Chomsky's theory is based on empirical data; and, unlike Quine's theory, it fits that data. And even though, according to Quine's theory, there is no *a priori* knowledge, it doesn't follow that Quine's theory is itself empirically well-founded. It isn't. It's rooted in the *a priori*, and easily disconfirmed, presumption that all psychological phenomena are to be explained in the same way as the salivating of Pavlov's dog.

One of the great ironies of empiricism is that it's one of the most unempirical theories of all time. People learn languages. Dogs don't. A dog wouldn't even learn the rudiments of a language were it to experience the sensory simulations that enable a human being to master one. This shows that, unlike dogs, human beings are endowed with innate cognitive structures that enable them to derive an integrated and complex body of knowledge from such stimulations. The same point *mutatis mutandis* holds of any cognitive skill that human beings can acquire that animals cannot. Empiricism is therefore inconsistent with empirical evidence of the most blatant and widespread kind.

In any case, despite the vast and ever-growing body of evidence in support of Chomsky's anti-Quinean views, Quine stuck to his guns, and in the 45 years that passed between the publication of *Syntactic Structures* and his death, Quine didn't soften his position. Not only did he not concede that Chomsky was at all right; he didn't even concede that mental entities even exist, except to the (non-existent) extent to which they can be identified with overt behaviors. [\[6\]](#)

In any case, it's clear that Quine's rejection of analytic truth wasn't the effect, but was instead the cause, of his acceptance of the bizarre and unwieldy argument of his that we considered earlier. Quine obviously

produced that argument *ad hoc*, hoping to give his idiosyncratic form of empiricism a solid foundation. Quine's real reason for denying the existence of analytic truth lay in his staunch empiricism. All philosophers, and indeed non-philosophers, who deny the existence of analytic truth do so because they are staunch empiricists.

Thus, when authors deny that there are necessary truths, the underlying sentiment, if not the immediately operative rationale, is this:

*(NT) If they exist, necessary truths hold no matter what. They hold no matter how the world is and, therefore, no matter what observations one has. So, if they exist, they can be known independently of observation. But it is unscientific to think that anything could be known in any way other than through empirical observations. Therefore, there are no necessary truths.*

## 6.2 Why NT is a broken argument

All knowledge of the spatiotemporal world is rooted in observation. But there's more to doing science than making observations. The observations are only a means to an end, the end being the acquisition of theoretical knowledge. We'll now see that non-observational knowledge is a precondition for theoretical knowledge and also that it is always necessary truths that are known non-observationally.

Our senses give us raw data. Raw data is the foundation of all empirical knowledge. But data cannot interpret itself. And even if it could, it wouldn't relieve of you of the burden of having to interpret the data for yourself. For argument's sake, suppose that the data were self-interpreting, and that its self-interpretations were disclosed to you in periodic reports. Any such report would *itself* be given to you in terms of raw data that you'd have to analyze; so you couldn't even understand the report unless you already knew how to interpret the data. Second, once you did understand the report, you'd have no good reason to trust it unless you could find some independent corroboration for it. Finding such corroboration would involve coming up with your own interpretation of the data and seeing how well it matched the interpretation in the report. So even if *per impossible* perceptual data could self-interpret, one could learn nothing about the external world from those interpretations unless one could interpret the data for oneself. It is, therefore, totally incoherent to suppose that one could know on the basis of observation alone how to interpret the data of observation; and since it's totally incoherent to suppose that one could have theoretical or, therefore, scientific knowledge without interpreting the data, it is totally incoherent to suppose that any science

should be *strictly* observation-based. There is necessarily a non-observational component to the acquisition of scientific knowledge.

Interpreting data involves being able to discern abstract resemblances between different concrete situations. Doing this, in its turn, involves knowing necessary truths. Seeing that two objects are alike in respect of (e.g.) their shape involves seeing that they fulfill conditions that, if not *fulfilled* by an object, necessarily preclude it from having the shape in question. Seeing that otherwise dissimilar objects x and y are both square-shaped involves knowing that, were an object to have more sides than x or y, it would *for that very reason* fail to have the same shape as them, and it also involves knowing that, if an object had a different color from x or y, it would not *for that very reason* fail to have the same shape as them. One can't know that x and y have the same shape unless one knows that an object's having four sides *necessarily* disqualifies it from being shape-identical with those objects. In general, one cannot discern *any* abstract similarities between *any* two concrete situations unless one knows, for at least some property, what conditions *must* be fulfilled if a given object is to have that property. So knowledge of necessary truths is a precondition for being able to recognize resemblances between things. Since knowledge of such resemblances is the first, and the most rudimentary phase, of scientific endeavor, it is radically incoherent to suppose that there should be any scientific knowledge without knowledge of at least some necessary truths.

W.V.O. Quine tried to provide a rigorous proof of NT. We considered this proof in Sections 5.0–5.5 and found it to be wanting. But notice that the very idea of trying to *prove* that contention is a self-defeating one. For there are no proofs if all truth is contingent, since proving something is showing that it *must* be the case. (More accurately, to prove conclusion C on the basis of premises P is to show it to be necessarily true that if P, then C.) Thus, to

prove NN to be true is to prove it to be false. So a certain incoherence is embedded in the very idea of trying to show that there are no necessary statements.

## 7.0 Analytic truth vs. formal truth

Formal truth isn't analytic truth. We'll discuss this in this section, and we'll also see what exactly it means to describe a truth as "formal." A statement is analytically true if its negation is incoherent. "Squares have four sides" is analytic. Why? Because "squares don't have four sides" is incoherent, and so is "anything that is literate is animate." The reason being that it makes no sense to suppose that squares might fail to have four sides or that literate beings might fail to be animate.

"Right now, in 2009, Barack Obama is the U.S. President" is a non-analytic truth. This is because "Barack Obama is not President in 2009," though false, makes sense. If that sentence didn't make sense, then in 2007 it wouldn't have been reasonable to wonder whether Obama would be President in 2009. But it was.

Non-analytic truths are **empirical** truths. An empirical truth is one that can be known only through sensory observation. It is only on the basis of sense-perception that one can know that Barack Obama is currently the U.S. President. That is why "Barack Obama is currently the U.S. President" expresses an empirical truth. But it is entirely through insight into its meaning, and into its *entailment-relations*, that one knows that nothing could be to be identical with itself; that being why that truth is analytic.

In the *Critique of Pure Reason*, Immanuel Kant (1724–1804) infamously claimed that there are non-analytic (or, as he referred to them, *synthetic*) truths that can be learned in a *non-observational manner*. He was wrong, as we'll see in Section 9.2.

## 7.1 Empirical vs. pseudo-empirical truth

done must distinguish genuine empirical knowledge from analytic knowledge the acquisition of which is *triggered* by empirical knowledge. Consider the principle that:

*(DN) If a statement is false, then the negation of its negation is false.*

For example, if Smith is in Richmond, then it is false that Smith is not in Richmond. DN is one of the cornerstones of logic.

Learning DN may involve hearing or reading, and therefore seeing, some affirmation of it. But you don't learn DN empirically—that is, it isn't through sensory observation that you learn it. But, if you know DN, it is because you see that, given its meaning, it would make no sense to deny it. Sense-perceptions may well have been needed to *initiate* or *trigger* the reflections on the basis of which you learned DN. But such sense-perceptions were themselves no part of that discovery process. They were part of the *pre*-discovery process—much as turning the ignition in a car is part of the *pre*-journey, and not the journey proper. [\[7\]](#)

Given a true statement S, there is a simple test for determining whether it is empirical or analytic. If, in order to *justify* acceptance of S, you must cite empirical data, it's empirical. To justify your acceptance of the statement that Smith has gained 20 pounds in the last year, you must cite empirical data (e.g., sense-perceptions that you have had of Smith or of affirmations on the part of reliable sources as to Smith's weight situation). But your acceptance of DN can be justified only by insight into its meaning; it cannot possibly be justified on observational grounds. Of course, one might justify one's

acceptant of DN by citing the fact that one has heard some authority affirm it; and, of course, one's knowledge of that fact is observation-based. But those observations justify DN *only* to the extent that the authority figures in question understand why, for reasons that lie entirely in DN's content and having nothing to do with anything one perceives, that statement must be true. Testimony-based knowledge of analytic truths, if it exists, is parasitic on non-observational knowledge of them.

And it's doubtful whether such knowledge really exists. If I don't understand why DN is true, and I accept it only because somebody I trust does so, then I don't really know it. What *I* accept is not, it seems to me, quite what the authority figure in question accepts. That person really accepts DN. But what I accept isn't DN, and is instead some statement along the lines of: "since so and so is authoritative, and since so and so affirmed DN, that statement is probably right"—which, unlike DN itself, is empirical.

Sense-perception adds to one's knowledge in two different ways. In some cases, it does so by *transmitting* information about the external world. If I see Jim playing soccer, my visual perception adds to my knowledge by transmitting to me the correct message that Jim is playing soccer. In other cases, sense-perception merely *activates* some purely ratiocinative process. The ratiocination-activating role of sense-perceptions must be distinguished from its information-transmitting role. Empiricism, the doctrine that all knowledge is derived from the senses, is based on a failure to make this distinction. See my book *Rationalism vs. Empiricism*.

## 7.2 Analytic knowledge of principles vs. empirical knowledge of the fact that certain sentences *express* those principles

It is an empirical fact that the *sentence* “squares have four sides” means what it does. Those sounds could mean anything. They could mean that squares don’t have four sides or that everybody owns a Rolls Royce. A brilliant extraterrestrial could reasonably wonder what that sentence means. But such a being could *not* reasonably wonder whether squares have four sides. Thus, it’s an *empirical* truth that the *sentence* “squares have four sides” is to the effect that squares have four sides. But it’s an analytic, non-empirical fact that squares have four sides.

### 7.3 Analyticity vs. triviality

The concept of analytic truth is typically *illustrated* in connection with trivial statements (e.g., “any given thing is identical with itself”). But there are **non-trivial** analytic truths. Here are some examples:

*\*Given only that an institution is flourishing, it cannot be inferred that the individuals composing it are flourishing; and given that the individuals composing an institution are flourishing, it cannot be inferred that the institution itself is flourishing.*

*\*No finite set can be put into a one-one correspondence with a proper subset of itself.*

*\*Any infinite set can be put into a one-one correspondence with a proper subset of itself.*

*\*Anything sentient is, at any given point, unaware of at least some of its mental states.*

*\*There are cases of justified true belief that are not knowledge.*

*\*There are continuous functions that cannot be differentiated at any point.*

*\*Two objects that cannot enter into causal relations with each other cannot have spatial or temporal positions relative to each other.*

Also, it is an analytic truth, and also a non-trivial one, that there are non-trivial analytic truths. This is established in my books *What is Analytic Philosophy?* and *Frege, Logic, and Logicism*.

## 7.4 No synthetic non-empirical truths: an outline of an argument

In the *Critique of Pure Reason* Kant claimed that there are non-analytic (or, as he called them, *synthetic*) truths that can be learned in a *non-observational manner*.<sup>[8]</sup> He was wrong. To say why, we must first define some terms.

The **negation** of a statement P is not-P. (The negation of *snow is white* is *snow is not white*.) A statement is **coherent** if what it says isn't ruled out solely by considerations of how things *must* be. An analytic statement is one whose negation is incoherent. (It's analytic that triangles have three sides, since a triangle's having four sides can be ruled out entirely on the basis of consideration of how things must be.)

Now for the argument. A statement may be non-analytic either because its negation is analytically true (*triangles don't have four sides* is non-analytic for this reason) or because both it and its negation are coherent (*JMK is in Richmond* is non-analytic for this reason). A statement that satisfies the second condition cannot be known to be false (or true) merely on the basis of how things must be, and can be known to be false (or true) only on the basis of how things are. How things are can be known only through observation. Anything so known is *ipso facto* empirical. So any non-analytic truth is empirical.

## 7.5 Formal truth

The concept of *formal truth* has an important place in philosophical inquiry. It is sometimes propositions that are described as “formally true.” But this is quite rare, and it’s almost always expressions that are so described. To the extent that formal truth is a property of expressions, it must be a property of sentence-*tokens*, not of sentence-*types*, since the latter, for reasons that are given in my book *Semantics*, are never true or false. (Long story short: Sentence-*types* are functions from contexts to propositions, it being sentence-*tokens*, not sentence-*types*, that bear propositions *per se*. The sentence-*type* “I am tired” is neither true nor false, as it does not bear either a truth or a falsehood, it being particular instances of that sentence-*type* that, depending on who is uttering them and when, are either true or false. Other sentences, e.g. “there are infinitely many primes” are, unlike “I am tired”, context-insensitive; but this is a matter of metaphysics, not of semantics: it is not a matter of linguistic convention that there are infinitely many primes, but of extra-linguistic, mathematical fact. And the semantic rule for the sentence-*type* “there are infinitely many primes” is a function from contexts of utterance to propositions, with the qualification that, because of the aforementioned mathematico-metaphysical fact, that function is a constant-function, a consequence being that is not practically necessary to distinguish between type- and token-meaning where that particular sentence is concerned.) And, in what follows, we must bear in mind that, so far as any expressions are formally true, it is sentence-*tokens*, not sentence-*types*.

Here are some examples of sentence-*types* whose tokens would universally be agreed to be “formally true”:

(1) *If Bill is tall, then it is not the case that Bill is not tall.*

*(2) If everything has a given property, then any given thing has that property.*

*(3) If all F's are G's, and no G's are H's, then no F's are H's.*

*(4) Either Helsinki is in Finland or Helsinki is not in Finland.*

For reasons given in my book *Semantics*, sentence-tokens are the only expressions that are true or false—that sentence-types are neither, since their meanings are rules that assign truths and falsehoods to their tokens, and aren't truths or falsehoods *per se*. But to avoid verbosity, we'll often speak as though sentence-types *per se* can be formally true. So we'll say, for example, “(1) is formally true,” and we'll discuss the conditions that “sentences” must satisfy to be formally true. But it's crucial to bear in mind that this is *only* an expedient way of talking about sentence-tokens—of saying that *tokens* of (1) are formally true, etc.

What is “formal truth”? What does it mean to describe (1), for example, as “formally true”? Here's the canonical answer (“FT” stands for “formal truth,” of course):

*(FT) Formal truth is syntactic truth. A sentence is “syntactically true” if, given only its syntactic structure, it cannot fail to be true. Thus, a sentence is formally true if no sentence having the same syntactic structure is false.*

FT cannot be accepted. A linguist would say that (1) “grass is green or grass is not green” has the same syntax as (2) “grass is green and grass is not

green.” As linguists use the word “syntax,” two expressions have the same syntax if the way in which the one is built out of its parts is identical with the way in which the other is built out of *its* parts. For example, “Bill hates Ted” and “Laura loves Sally,” though having very different meanings, have the same *syntax*, the reason being that they’re structurally identical. The one is built out of its simple constituents in the very way that the other is built out of *its* constituents. Thus, it isn’t because of any structural differences between them that they have different meanings.

The relevant difference is *substructural*. It lies in the fact that the *meaning* of “and” is different from that of “or.” So the difference between (1) and (2) is like the difference between “John is tall” and “Mary is short”: it lies entirely in the fact that the primitive, semantically unstructured constituents of the one have different meanings from their counterparts in the other. Thus, relative to what *linguists* mean by “syntax” (and “syntactic,” etc.), it’s a non-starter to say that “formal truth” is syntactic truth. Logicians and philosophers obviously have in mind some very different understanding of the word “syntax” when they identify “formal” truth with “syntactic” truth. They *don’t* have in mind sentential (or phrasal) structure. What *do* they have in mind? What do philosophers mean when they say that a formally true sentence is one that holds entirely in virtue of its “syntax”? What do they mean when they describe some statement as a “formal truth”?

### 7.5.1 Quine on formal truth

W.V.O. Quine (1908–2000) gave a characteristically intelligent and straightforward answer to this important question: a sentence *S* is formally true if, given any expression in *S* that isn't a *logical constant*, it isn't possible to produce a false sentence by replacing that expression with another expression of the appropriate grammatical category. A "logical constant" is an expression on the following list: "if . . . then . . .," "either . . . or . . .," "not," "for all," "for some," "="—and any obvious derivatives of any of these expressions (e.g., "is identical with," "given any," "it is not the case that," etc.)<sup>[9]</sup>

Consider the sentence "grass is green or grass is not green." Replacing "grass" with "fire" or "Bob" results in a truth, as does replacing "green" with "cool" or "voluminous." (It's assumed that the replacements are uniformly made: if a single occurrence of "grass" is replaced with "fire," so is every other such occurrence.) Given any expression in (1) *other* than the logical constants in it (viz. "either . . . or . . ." and "not"), replacing that expression with another belonging to the same grammatical category results in truth.

There are two problems with Quine's analysis. First, it doesn't say what is so special about those items; it doesn't say what these so-called "logical constants" have in common with one another that other expressions *not* on the list *don't* have in common with them. And until that information is provided, there's nothing to prevent one from extending that list in arbitrary ways. Unless that list was generated by some rule, anything can be added to it without diminishing its integrity, since it has no integrity to begin with. But if it was generated by some rule, then Quine's answer fails to identify it and

thus fails to say what formal truth is.

An analogy may help. When asked to define the expression “number,” I simply *list* the various different kinds of numbers (“real,” “whole,” “rational,” “imaginary,” etc.). Have I answered the question? No. Even though I’ve listed the various different kinds of numbers, I haven’t said what numbers are, and I thus haven’t provided any *reason* why fractions are on that list but birds are not. Accordingly, my answer doesn’t give anyone a reason not to extend that list as he or she pleases—not to decide that birds and rocks are numbers. Of course, nobody *would* extend the list in such an absurd way. But that’s only because our intuitions strongly suggest that there is *some* characteristic had in common by reals, rationals, etc., that birds and rocks don’t have.

Second, there are truths not covered by Quine’s analysis that don’t appear to differ in any relevant respect from those covered by that analysis. Many modal statements are in this category—for example, “if it’s necessarily the case that Smith is a mammal if Smith is a dog, then if it’s necessarily the case that Smith is a mammal if it’s necessarily the case that Smith is a dog.” There doesn’t seem to be any relevant difference between *that* statement and one that conforms to Quine’s analysis—for example, “if Smith is a mammal if Smith is a dog, and Smith is an animal if Smith is mammal, then Smith is an animal if Smith is a dog.” So there doesn’t seem to be any good reason why “necessarily,” unlike “if . . . then . . . ,” doesn’t make it onto Quine’s list.

Of course, one could deal with this by adding “necessarily” to that list. But then we’d have to ask: “what makes *that* extension of the list legitimate?,” bringing us back to the criticism made a moment ago.

### 7.5.2 Why formal truth $\neq$ topic-neutral truth

Some have argued that formal truth is maximally generic, or “topic-neutral,” truth. The idea is that “ $x = x$ ” is logically true because it’s completely general: it doesn’t belong to any one discipline and is presupposed by all of them.<sup>[10]</sup>

But this doesn’t work. There are maximally generic truths that aren’t formal—for example, “nothing can wholly pre-exist itself,” “nothing spatiotemporal can lack causal properties,” “nothing non-spatiotemporal can have causal properties,” “inductive inference isn’t an appropriate method of reasoning for non-empirical disciplines.” Given any one of these sentences, it’s easy to show that there are false sentences having the same syntactic form. For example, the first of those sentences has the same form as “nothing spatiotemporal can have causal properties,” which is obviously false.

One could argue that these truths *aren’t* sufficiently generic. But then it would be very unclear what exactly “sufficiently generic” meant in this context, and the suspicion would arise that, so far as it had any coherent meaning, “sufficiently generic” meant “not a counterexample to this particular theory of formal truth.”

Also, whether a sentence expresses a generic truth has nothing to do with its form. The truth expressed by “if everything has a given property, then any given thing has that property” is surely a maximally generic one. But that truth could obviously be expressed by a primitive, syntactically unstructured symbol. In fact, there is *no* form that sentences must have if they are to express that truth or any other. So, if “formal truth” is taken to be a characteristic of *expressions* of some kind, then it’s simply false to identify

“formal truth” with “maximally generic” truth. And if “formal truth” isn’t meant in this way, then it’s simply irrelevant to our current inquiry.

### 7.5.3 An alternative analysis of formal truth

A sentence is formally true if it is an instance of an open-sentence that is true for all values of its free variables. (An “open-sentence” is an expression that contains a free variable, and is therefore neither true nor false, but is otherwise just like a sentence. So “x is tall” is an open-sentence.<sup>[11]</sup>) For example:

(5) *“If Smith is at home, then it’s not the case that Smith is not at home”*

is a formal truth because it’s an instance of the open-sentence “if x is phi, then it’s not the case that x is not phi,” which is true for all values of x. (We’ll see that (5) is an instance of many such open-sentences. But its being an instance of just one is enough for its being formally true.) Given any formal truth, the same holds.

If an open-sentence is true for all values of its variables, we’ll say that it’s “universally true.” So “x = x” is universally true (that being why “Smith = Smith” is “formally” true). It must be kept in mind that this is just an abbreviation. “x = x” is neither true nor false. No open sentence is true or false.

In light of these points, consider the following expressions:

(1) *Bill Gates is wealthy.*

(2) *x is wealthy.*

(3) *Bill Gates is phi.*

(4) *x is phi.*

(1) is a true sentence. (2)–(4) are neither true nor false. Given (1), (2) is what results when “Bill Gates” is replaced with a variable, (3) is what results when “wealthy” is replaced with a variable, and (4) is what results when both are replaced with variables. (See *Frege, Logic, and Logicism*.) Of course, actual sentences are formed out of these open-sentences by replacing the variables in (6)–(9) with constants. In each case, this procedure may yield either a true sentence or a false one. For example, replacing the variable in (2) with “Bill Gates” yields a truth and replacing it with “Mike Smith,” the name of an impecunious friend of mine, yields a falsehood.

Bearing these points in mind, consider the following expressions:

(5) *If Smith is at home, then it's not the case that Smith is not at home.*

(6) *If x is at home, then it's not the case that x is not at home.*

(7) *If Smith is phi, then it's not the case that Smith is not phi.*

(8) *If x is phi, then it's not the case that x is not phi.*

(9) *If P, then it's not the case that not-P.*

Each of (6)–(9) is formed by replacing one or more expressions in (5) with a variable. And the following sentences result when, in each case, the

variables are bound by universal quantifiers.

*(6UG) For any individual  $x$ , if  $x$  is at home, then it's not the case that  $x$  is not at home.*

*(7UG) For any property  $\phi$ , if Smith is  $\phi$ , then it's not the case that Smith is not  $\phi$ .*

*(8UG) For any individual  $x$  and any property  $\phi$ , if  $x$  is  $\phi$ , then it's not the case that  $x$  is not  $\phi$ .*

*(9UG) For any proposition  $P$ , if  $P$ , then it's not the case that not- $P$ .*

This suggests that a sentence is formally true if it's an instance of a universally true open-sentence.

To take another example:

*(10) If it's necessarily the case that Smith is a mammal if Smith is a dog, then it's necessarily the case that Smith is a mammal if it's necessarily the case that Smith is a dog*

is formally true, because it's an instance of the following universally correct open-sentences:

*(11) If it's necessarily the case that  $x$  is a mammal if  $x$  is a dog, then it's necessarily the case that  $x$  is a mammal if it's necessarily the case*

*that x is a dog.*

*(12) If it's necessarily the case that Smith is a mammal if P, then it's necessarily the case that Smith is a mammal if it's necessarily the case that P.*

*(13) If it's necessarily the case that Q if P, then it's necessarily the case that Q if it's necessarily the case that P.*

#### 7.5.4 What is a logical constant?

Quine's analysis, we noted, is vitiated by his failing to say what conditions an expression must satisfy to be a "logical constant." We are in position to provide this information. The expressions "not" and "if . . . then . . ." are on Quine's list of logical constants, and those expressions occur in:

(5) *"If Smith is at home, then it's not the case that Smith is not at home."*

Before we proceed, we have to make a couple of points about the word "not." That word *what* is known as a "sentence-level operator": it is an expression that forms sentences out of sentences—it forms "snow is not white" out of "snow is white." It isn't often that sentence-level operators are replaced with variables. But not only *can* such replacements be made; they must be made. Otherwise, it would be impossible to express any generalization about sentence-level connectives. (Logicians and linguists often make statements about whole classes of sentence-level connectives, and such statements involve replacements of this kind, since they have the form: "given *any* sentence level connective X . . .") In fact, we're about to state just such a principle right now.

Given (5), if we replace "not" with a variable, the result is:

(5X) *"If Smith is at home, then it's X the case that Smith is X at home."*

If we bind the free variable with a universal quantifier of the appropriate

kind, the result is:

*(5XUG) “Given any sentence-level operator X, if Smith is at home, then it’s X the case that Smith is X at home,*

which is false, the reason being that some sentence-level operators lack the relevant property. An example of such an operator is the word “necessarily.” When this word replaces the variable in (5X), the result is:

*(5XN) “If Smith is at home, then it’s necessarily the case that Smith is necessarily at home,”*

which is false.

Another expression on Quine’s list that occurs in (5) is “if . . . then . . .” This expression, like “not,” is a sentence-level operator. But whereas “not” is a *one*-placed sentence-connective, “if . . . then . . .” is a *two-place* sentence connective. So, whereas “not” assigns sentences to single sentences, “if . . . then . . .” assigns sentences to ordered pairs of sentences. Given the ordered pair <Toby is a dog, Toby is a mammal>, “if . . . then . . .” yields the sentence: “if Toby is a dog, then Toby is a mammal.”

Everything just said about “not” is true of it. If it’s replaced with a variable, which is then bound by a universal quantifier of the appropriate kind, the result is:

*(5IT) For any two-place sentence-connective X <Smith is at home, it’s not the case that Smith is not at home>*

But (5IT) is simply false. Let  $C$  be a two-place sentence-level operator defined as follows: Given two propositions (or sentences)  $P$  and  $Q$ ,  $C(P,Q)$  is true exactly if  $P$  is incompatible with  $Q$ . In that case:

(5C)  $C\langle \textit{Smith is at home, it's not the case that Smith is not at home} \rangle$

is false.

What we just said about “not” and “if . . . then . . .” is true of all the other items on Quine’s list of “logical constants.” And it’s true of many other expressions that Quine did not personally include on that list but that, according to many, nonetheless belong on it. (For example, some hold that “necessarily” and “possibly” belong on that list.) This suggests that, when Quine judged an expression to be a “logical constant,” he did so on the (cogent) grounds that replacing occurrences of it with variables systematically failed to yield universally true open-sentences.

This suggests that the following definition of “logical constant” might be the right one (we’ll soon see that it’s only approximately right):

(LC<sup>[12]</sup>) *an expression  $E$  to be a “logical constant” is for there to be some universally-true open sentence that contains  $E$ .*

LC is close to the truth, but it falls just short. Consider the open-sentence:

(#) $\langle$ If  $P$  and  $Q$  and grass is green, then grass is green. $\rangle$ <sup>[13]</sup>

(#) is universally true. But, since “grass is green” isn’t a logical constant (\*) is false. But, apart from “P,” “Q,” and “R,” all the expressions occurring in:

(##)  $\langle \text{If } P \text{ and } Q \text{ and } R, \text{ then } R \rangle$

are logical constants. (##) is universally true, and it contains no expressions that, when replaced with free-variables, result in some *other* open sentence that is universally true. If a universally true open sentence contains no such variables, let us say that it is “pure.” This shows that a “logical constant” is any expression other than a variable that occurs in a pure, universally true open-sentence.

## 7.6 analytic truth $\neq$ formal truth

The two main contentions of Wittgenstein's *Tractatus Logico-philosophicus* (TLP) are

(i) *That all non-empirical truths are tautologous (definitional truths; e.g., "a fortnight is a period of two weeks") and*

(ii) *That all non-tautologous truths are observation-reports.*

In my book *What is analytic philosophy?*, it is proved that each contention is false. Given the points just made, we are in a position to put forth another reason to reject (i) and, therewith, to reject a third contention of the TLP, viz. that all formal truth is analytic truth and, therefore, that all entailment is formal entailment. Both claims are false.

The open sentence

$\langle \text{If } P \text{ and } Q \text{ and } R, \text{ then } R \rangle$

is true for all values of its variables. This means that:

(A) *For any propositions  $P$ ,  $Q$ , and  $R$ , if  $P$  and  $Q$  and  $R$ , then  $R$ .*

But (A) is not itself a formal truth. (A) is true, of course. But it is not in virtue of its being an instance of a universally true open-sentence that it's true. For it isn't an instance of such a sentence. Any open-sentence of which (A) is an instance is one of which:

*(B) For no propositions P, Q, and R, if P and Q and R, then R,*

which is obviously false. Since (B) is an instance of any open-sentence of which (+) is an instance, the latter is not formally true.

It is in virtue not only of its form, but also of what is meant by “for any propositions P, Q, and Q” that (A) is true. (A) and (B) have the same form. What distinguishes them is that, in the place where (B) contains an occurrence of one expression (“for *no* propositions P, Q, and R”), (A) contains an expression with a different meaning (“for *any* propositions P, Q, and R”).

So the fact that A is, whereas B is not, analytic cannot possibly be chalked up to the fact that one is, whereas the other is not, formally true. Thus, *not all analytic truth is formal truth*.

In the TLP, Wittgenstein<sup>[14]</sup> says that all analytic truth is formal truth. Wittgenstein is wrong, for the reasons just given. Also, even if there were some formally true sentence S such that S was equivalent with (A), the statement:

*(C) <S is equivalent with A.>*

would not *itself* be a formal truth. To be a formal truth is to be a consequence of an informally true universal generalization. The statement that:

*(%) If grass is green and snow is white and roses are red, then roses are red*

is a formal truth because it is a consequence of (A). Thus, Wittgenstein's thesis that all analytic truth is formal truth is not only wrong but incoherent.

Here is another illustration of that fact. The sentence:

*(JTB) any case of knowledge is a case of justified true belief*

is an analytic, not an empirical, truth. But it isn't a formal truth, since it has the same form as

*(NTB) any case of knowledge is a case of unjustified false belief,*

which is false.

Wittgenstein grants that there *seem* to be analytically true sentences that aren't formally true. But he denies that there are really are such sentences. Here is what he says:

*(AFT) Though it seems not to be formally true, the sentence*

*(JTB) "Any case of knowledge is a case of justified true belief"*

*is in fact formally true, the reason being that it is an abbreviation of*

*(JTBF) “any case of non-accidentally true, justified belief is a case of justified true belief,”*

*or, at any rate, of some other formally true sentence.*

AFT is false. JTB is not JTBF in disguise. They express different propositions. JTB is informative. JTBF is not. One can accept the proposition meant by the one without accepting the proposition meant by the other. JTB and JTBF express *equivalent* propositions (assuming, as we are, that JTBF is correct). But if JTB is to be a mere abbreviation of JTBF, both must express the very same proposition. They don't; so AFT is wrong.

According to AFT, any given informal analytic truth can be turned into a formal truth by replacing expressions with analytic definitions of themselves—by replacing “circle” with “closed planar figure of uniform curvature,” etc. But such a formalization would *presuppose* the correctness of all the analyses involved. And none of those analyses would be expressed by formal truths. JTBF is indeed formal. But it doesn't express an analysis. What *does* express an analysis (or so we will suppose for argument's sake) is:

*(JTBA) “Any case of knowledge is a case of non-accidentally true, justified belief.”*

But JTBA isn't *formally* true, the reason being there are formally identical false statements (for example, “any case of knowledge is a case of accidentally true, unjustified belief”).

## 7.7 Conceptual analyses never expressed by formal truths

A **conceptual analysis** is a non-empirical, non-trivial sentence of the form  $\langle C_1 \text{ is fulfilled if and only if } C_2 \rangle$ , where  $C_1$  and  $C_2$  are conditions. (The sentence “condition C is fulfilled” is synonymous with “property P isn’t instantiated.”) Thus:

*(CK) x is a circle if and only if x is a closed planar figure of uniform curvature*

is a conceptual analysis, and so is

*(CK\*) x is a closed planar figure of uniform curvature iff , for some plane P and some point D on P, x is the area bounded by every point on P that is a fixed distance from D.*

Neither CK nor CK\* is a formal truth.

No conceptual analysis is formally true. Conceptual analyses are expressed by analytic statements, and analytic statements either: (i) coincide with informal, analytic universal generalizations or (ii) are instances of such generalizations. If (i), they’re obviously not formally true. But any statement that is an instance of some informal, analytic universal generalization is trivial, and is therefore not analytic. For example, % is a consequence of (A), and % is clearly trivial.

- 
- [1]. “DN” is short for “degrees of necessity.”
- [2]. Obviously the *sentences* used to express it aren’t necessarily true. It’s the content of those sentences that cannot fail to be true. The linguistic vehicles can easily fail to be true; even in our universe, they’re only regionally true.
- [3]. “HIP” is short for “Hesperus identical with Phosphorous.”
- [4]. This is only approximately correct. See Appendix 1, Section 4.5.
- [5]. The argument about to be given is found in Bonjour (1998) and also in Dummett (1973).
- [6]. This is a shame. Quine was a brilliant man. He had a lot to say, and he would have had a lot more to say if he had been a bit more willing to reconsider some of his views. Sadly, it’s a rare scholar who is willing to admit that he’s wrong.
- [7]. See Jerry Fodor’s superb paper, “The present status of innateness controversy,” in Fodor (1981b).
- [8]. Kant (1787).
- [9]. Quine (1970).
- [10]. Frege (1956).
- [11]. In this book, there are many places where, technically, I should have used quasi-quotation marks but where I instead used ordinary quotation marks or didn’t use any quotation marks at all. I didn’t want an excess of obscure symbolism to obscure matters of substance.
- [12]. “LC” stands for “logical constant.”
- [13]. NOTE: The funny, square-shaped things flanking that expression are ***quasi-quotation marks***. At the end of this book, it will be explained what quasi-quotation marks are. For now, you may treat them as quotation marks—which, give or take some niceties, is what they are.
- [14]. Wittgenstein (1922).