

The Myth of the Analytic

In this essay we shall be examining the status of that class of statements described as 'analytic truths'. Analytic statements will be contrasted with synthetic statements as we seek to define the former. I will present the view that analytic statements are meaningless, before going on to propose that there is no real distinction between the two classes of statements. We require a revision in our view of truth to see this. However, such revision requires a lot of prior conceptual engineering and so we will begin by simply defining our terms.

1. Defining the Analytic.

It is generally supposed amongst philosophers that statements can be divided into two clear categories. These are dubbed the analytic and the synthetic – terms first introduced by Kant. Kant writes

“In all judgments in which the relation of a subject to the predicate is thought (if I only consider affirmative judgments, since the application to negative ones is easy) this relation is possible in two different ways. Either the predicate *B* belongs to the subject *A* as something that is (covertly) contained in this concept *A*; or *B* lies entirely outside the concept *A*, though to be sure it stands in connection with it. In the first case, I call the judgment analytic, in the second synthetic.”¹

Intuitive examples of synthetic statements include 'Smoking is bad for you' and 'Some doctors are unmarried'. These statements are such that the predicates of 'bad for you' and 'unmarried' are not contained in their respective subjects of 'smoking' and 'doctor'. The definition of the term 'doctor' does not include the fact that some doctors are unmarried. Hence, one can easily imagine possible worlds

¹ Kant, *Critique of Pure Reason*

in which all doctors are married, or in which smoking is not detrimental to one's health. Because of this possibility, one must engage in empirical study to assign a truth-value to the given statement – and to synthetic statements in general.

By contrast, an example of an analytic statement is 'No unmarried man is married.' This statement is true in virtue of the meanings of the words it contains. One cannot imagine a world in which an unmarried man can be married. Indeed, many argue that possible worlds in which such a state of affairs obtains do not exist. Quine points out that given the meaning of 'no' and 'un' (and, in other examples, further terms such as 'not', 'if', 'then' and 'and') such statements are true given any interpretation of the words 'married' or 'man'.² Quine classes these statements as those which are 'logically true'. That is, they are true not solely in virtue of their meaning but rather through a combination of the truth functions they contain and the form that they take.

Tarski affirms this description of the analytic by describing the defining characteristic of analytic statements to be "that all specimens of its form are in fact true statements"³. A general example of this may be "x or not-x". Any statement that one puts in place of 'x' will result in a true statement being formed. For example, 'It is raining or it is not raining'; 'It is Tuesday or it is not Tuesday'. Such statements do not require any empirical study in order to verify their truth-value. Rather, one may ascertain their truth-values simply by analysing the words that comprise the statement. Whereas the truth of a synthetic statement requires some state of affairs to obtain in the world – for example for some doctors to be unmarried – an analytic statement's truth rests solely upon the meaning of the words that comprise it – no reference to the state of affairs obtaining in the world is necessary.

² Quine, *Two Dogmas of Empiricism*

³ Tarski, *Logic, Semantics, Metamathematics*

Quine points out that another type of analytic statement also exists. These are those statements of the form 'No bachelor is married'. Such a statement can be converted into a logical truth by substituting synonyms for synonyms. We can therefore turn this example into our earlier example of the first kind of analytic truth. This is done by substituting 'unmarried man' for 'bachelor'.

2. Empiricism and the Analytic.

Analytic truths, as we have defined them, seem to pose a problem for the empiricist. Ayer has stated that it is an axiom of empiricism that 'every factual proposition must refer to sense experience'. Hume clearly showed us that any proposition that rests its validity upon the test of experience could never be logically certain. Therefore, if every proposition rests upon such tests of experience, as the empiricist contends it does, no proposition can ever be certain. However, we have seen that analytic statements do not rest upon a state of affairs obtaining in the world. Their truth-value cannot be discerned by studying our sense experience. We do not need to carry out a survey of all unmarried men to affirm the truth of the analytic statement 'no unmarried men are married'.

This observation has caused much trouble for empiricists and has led to several arguments to the end of maintaining an empiricist doctrine in the face of such analytic statements. Mill proposed that empiricism could be defended by denying that analytic truths exist at all. He proposed that all such truths, including those of logic and mathematics are simply inductive generalisations that rest upon a very large body of examples where statements have turned out to be true. Mill states that the extremely large number of instances which support these supposed analytic truths (whether truths of mathematics are analytic is debatable but is not now important for our discussion so we shall leave this issue aside) has lead us to believe that it is impossible for a contrary instance ever to arise. However, Mill

maintains that it is possible for such counter-instances to occur, the difference between those statements dubbed analytic and those we call synthetic being simply a difference of degree – not a difference of type.

I do not believe this argument to be at all compelling. It seems clear that simply building up a large body of instances where certain statements have held does not mean that they are analytic truths. For example, the truth 'gravity exists' has surely been recognised a great many more times that the truth 'no unmarried men are married' has. Yet we do not assign the statement 'gravity exists' analytic status. This denial of analyticity has nothing to do with the number of times that have witnessed instances of the statement holding – as Mill seems to suggest it is. Rather it is an epistemological issue.

As we have said, it is clear that the truth of the proposal 'No unmarried men are married' is not affirmed to a greater or lesser degree by taking a survey of unmarried men. Indeed no test need be carried out to confirm the truth of the statement if one understands what is meant by the terms involved. However, the truth of the statement 'Some doctors are unmarried' can be confirmed by carrying out a relevant survey of doctors – indeed such empirical testing is the only method of assigning a truth-value to the statement, as it is perfectly possible – though unlikely – that all doctors could be married. This epistemological difference in the method of assigning truth-values to the two statements suggests that they do not differ simply in degree, but differ also in the actual types of statement that they are.

To highlight this point we can imagine a situation whereby a friend told us that they knew an unmarried man who was married. We would assume one of two things here. Either we would presume that the friend was lying, or we would assume that they were speaking figuratively. We may think that they mean that they know a married man who acts as if he were a bachelor, or that they know an unmarried man who acts as if he were married to his partner. We simply cannot

make sense of the concept that there exists a man who is simultaneously married and unmarried. This incomprehension is no failing on our part, the very meaning of the words 'married' and 'unmarried' mean that a statement such as we have been discussing cannot logically obtain.

Ayer takes a different tack in his defence of pure empiricism. He states that analytic statements are simply tautologies. As such they do not tell us anything about the world. This does seem to be a valid conclusion to draw in the face of such example as we have been discussing. Ayer believes

“The power of logic and mathematics to surprise us depends, like their usefulness, on the limitations of our reason. A being whose intellect was infinitely powerful would take no interest in logic... For he would be able to see at a glance everything that his definitions implied, and, accordingly, could never learn anything from logical inference that he was not fully conscious of already.”

We may supplement the focus on systems of logic seen here by adding that such could also be sensibly claimed of more everyday synthetic statements such as those we have been analysing. Those examples that must be converted into logically true statements, such as “No bachelor is married” still do not seem to tell us anything about the world. However, it may be contended that such statements do serve to increase the scope of our knowledge. The above example may help to give the meaning of the word 'bachelor'. Systems of logic, which essentially help to form analytic statements, allow us to further our knowledge by providing a kind of calculus into which we may input certain combinations of sentences and out of which we get truth-values. This possibility for an increase in knowledge seems to refute Ayer's claim.

3. Quine on the Analytic.

We can see here that Ayer makes efforts to defend his empiricist doctrine by claiming that analytic statements do not tell us anything about the world. Quine goes further in his examination of the concept of the analytic. He suggests a number of criticisms of the distinction between the analytic and the synthetic. These criticisms lead him to a radical rejection of the entire distinction. Quine seems to claim that the distinction is totally illusory, stating, "That there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith"⁴. We have already seen that Mill's argument against such a distinction seems to fail, whilst Ayer makes the weaker claim that although analytic statements do exist as a separate class to synthetic statements, they do not actually tell us anything.

Quine is seeking to deny terms that have "a more or less established philosophical use"⁵. The cases which form these terms do not form a closed list - i.e. people are capable of adding new, non-taught terms to their relevant list. This phenomenon may be viewed as sufficient for distinguishing between the two classes of statements. We may, therefore, perhaps better interpret Quine as holding that those people who employ these two terms fundamentally misunderstand the distinction they seem to suggest. Rather than viewing any distinction between the two terms as totally illusory we may better serve Quine by interpreting him as suggesting that those people who employ this distinction are doing so under an illusion of what constitutes this difference.

Quine begins his attack on the distinction with the notion of synonymy, specifically, what he dubs 'cognitive synonymy'. To refer to our earlier example of an analytic statement, 'No bachelor is married', we said that this was convertible into 'No unmarried man is married'. This is because 'unmarried man' and 'bachelor' are viewed as synonymous. Our other example of analyticity also relies upon notions of synonymy, though in a less clear manner. We must,

⁴ Quine, *Two Dogmas of Empiricism*

⁵ Grice and Strawson, *In Defence of a Dogma*

therefore, explore this notion of synonymy. A reasonable suggestion is that synonymy of two linguistic forms consists in their interchangeability in all contexts without a change in truth-value. However, this does not hold for the terms 'bachelor' and 'unmarried man'. For example, the two terms are not interchangeable in the expression 'Bachelor' has less than ten letters'.

However, Quine grants that such examples may be set aside as he defines cognitive synonymy using the example that 'All and only bachelors are unmarried men'. This statement of cognitive synonymy is also a good example of an analytic statement where we need an account of this synonymy that does not presuppose analyticity. We cannot here appeal to extensionality – saying that two terms display cognitive synonymy when they are both applicable in exactly the same situations. One can see this when looking at the examples of 'creature with a heart' and 'creature with kidneys'. These two terms are applicable in exactly the same situations – i.e. to exactly the same creatures – however they are clearly not synonymous. Rather, this extensional agreement rests on accidental matters of fact instead of meaning. Therefore, shared extensionality cannot be used as a criterion for synonymy as we have seen that shared extensionality of two terms is the not a feature sufficient to render them synonymous.

4. Analytic Statements and The Verification Theory of Meaning

Having reached difficulty with this attempt to clarify the notion of analytic statements as differing from synthetic statements we shall change tack slightly. It seems that the central, perhaps defining, feature of an analytic statement is that it does not require any reference to the world. The statement 'Some doctors are unmarried' is only true if some doctors are unmarried. It could be that all doctors are married and so that feature of the world which the sentence refers to would render the statement false. We have yet to deal with the fact that it appears that

analytic statements rely upon no factual component, no actual feature of the world, in order for their truth-value to be determined.

In order to deal with this issue Quine turns to the verification theory of meaning. This is the theory “that the meaning of a statement is the method of empirically confirming or infirming it”.⁶ This theory is of interest to us because analytic statements are exempt from it. We do not have to, and often cannot, empirically confirm an analytic statement. Indeed they are assigned their status as necessary truths because one cannot empirically confirm or infirm them. As earlier, for the purposes of our discussion we can pass over the issue of the meaning of individual entities and instead move on to what it means for two statements to mean the same – i.e. what it means for two statements to be synonymous – by this definition of meaning. The verification theory of meaning assigns synonymy to two statements when they are confirmed or infirmed by the same method of empirical analysis.

This theory requires a clarification of the relationship between the statement and the sensory experience that must form the basis of any empirical analysis. One view of this relationship is ‘Radical Reductionism’. This is the doctrine that every meaningful statement can be translated into a truth-valued statement about immediate sense experience. Carnap developed this doctrine further, assigning qualities to spatiotemporal coordinates. This was designed as an oversimplified mirror of the scientific process – observing phenomena and deriving statements about these. The view that each synthetic statement can be associated with a unique range of possible sensory phenomena permeates the verification theory of meaning.

However, Quine disputes this idea in an earlier paper, pointing out that scientific theories are under-determined by the data that supports them. That is, any given theory, or connected bundle of theories – be it string theory, or quantum

⁶ Quine, *Two Dogmas of Empiricism*

mechanics in general – is widely accepted to simply be what is currently considered to be the best of several explanations for observed phenomena. Indeed, one may legitimately go so far as to state that there could be an infinite number of theories that would fit – to a greater or lesser extent – our observations of the universe.

There may, therefore, be two rival statements of hypotheses, H and H'. These theories are incompatible with each other. It may be that we eventually substitute H for H' in our overall scientific theory, T. The resulting overall theory T' fits all of our observations, and all possible future observations just as well as T did. Because H and H' have been arrived at from identical observations and their corresponding overall theories T and T' fit all possible observations identically well, the statements containing the two theories must be the same. This is clearly the conclusion that those who seek to use the verification theory of meaning must accept. However, the two hypothesis H and H' are incompatible and therefore cannot both be true at once. This clearly presents a problem for the exponent of the verification theory of meaning. Clearly meaning cannot be reduced to sense experience as incompatible statements may be verified through the experience of the same sense data.

Regardless of these problems, we cannot ignore that the verification theory of meaning is strongly connected with the doctrine of a cleavage between the analytic and the synthetic. This connection stems from the belief that the truth of an individual statement is analysable in terms of the connection between a linguistic component and a factual component – the sensory experience we have been discussing. Those statements rely solely upon a linguistic component are analytic. Quine, having recognised the root of this connection proceeds to attack it. He proposes the view that “it is nonsense... to speak of a linguistic component and a factual component in the truth of any individual statement.”⁷ Rather, Quine believes that science as a whole has a dependence upon both language and

⁷ Quine, *Two Dogmas of Empiricism*

experience. However, this dependence does not break down into a statement-by-statement reliance.

Quine views our body of knowledge as one 'man-made fabric'. Every item of belief is connected with every other, from beliefs about geography to beliefs about quantum mechanics or even beliefs about logic and pure mathematics. If there is a conflict between our experience and our beliefs we need to carry out some readjustment in our beliefs. The re-evaluation of some of our beliefs entails the re-evaluation of some others. Such entailments are due to logical connections between beliefs. However, such connections, in place because of logical laws, are only further statements of the system – each logical law can also be re-evaluated. As we have said, our beliefs are entirely underdetermined by our experience. This means that given a clash of experience and belief it is up to us which beliefs to re-evaluate. In general we choose those beliefs which have the least effect on other beliefs, thus keeping our web of belief as continuous as possible. With this view in mind we can see that no individual belief or statement is specially effected or threatened by any particular experience. We simply choose where to adjust our beliefs. We are even left with the option of assigning any experiences giving rise to conflict to the realm of illusion or hallucination.

This doctrine leads us to reject the boundary between synthetic and analytic statements. An analytic statement is defined as that which holds in all possible worlds. We cannot assess this in terms of our imaginary powers – i.e. that which cannot hold in any possible world is that which we cannot imagine ever occurring. Rather we must assess this in terms of what must obtain 'come what may'. However, given the above doctrine anything can be said to obtain 'come what may' – it simply requires more or less drastic adjustments to our web of beliefs. An example of such revision is found in quantum mechanics where it has been proposed that the logical law of the excluded middle has been proposed. Such radical revisions of our beliefs are what Kuhn describes as 'paradigm shifts'

in science – such as the massive revision of belief seen between Newtonian and Einsteinian doctrines.

I believe such a view to be an excellent description of our knowledge. Truth is a human created concept. When we assign some statements to the realm of the untouchable – i.e. the analytic – we are simply building these statements into our framework of ideas as axioms rather than revisable ideas. Every so often a revision occurs that is so drastic that the axioms of a system can be reset or readjusted – for example in the already cited shift between the ideas of Newton and those of Einstein. The axioms of a system are formed from analytic statements, and as soon as we admit that these two are in principle revisable we dispel the myth of any real distinction between the analytic and the synthetic.