

Analyticity

George Bealer

1. In *Critique of Pure Reason* Kant introduced the term ‘analytic’ for judgments whose truth is guaranteed by a certain relation of ‘containment’ between the constituent concepts, and ‘synthetic’ for judgments which are not like this. Closely related terms were found in earlier writings of Locke, Hume and Leibniz. In Kant’s definition, an analytic judgment is one in which ‘the predicate B belongs to the subject A, as something which is (covertly) contained in this concept A’ ([1781/1787] 1965: 48). Kant called such judgments ‘explicative’, contrasting them with synthetic judgments which are ‘ampliative’. A paradigmatic analyticity would be: bachelors are unmarried. Kant assumed that knowledge of analytic necessities has a uniquely transparent sort of explanation. In the succeeding two centuries the terms ‘analytic’ and ‘synthetic’ have been used in a variety of closely related but not strictly equivalent ways. In the early 1950s Morton White (1950) and W.V. Quine (1951) argued that the terms were fundamentally unclear and should be eschewed. Although a number of prominent philosophers have rejected their arguments, there prevails a scepticism about ‘analytic’ and the idea that there is an associated category of necessary truths having privileged epistemic status.

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1 The attack on ‘analytic’

1. ‘Analytic’ has been used in a wide variety of ways: truth by conceptual containment and truth whose denial is contradictory (Kant 1781/1787); logical truth (Bolzano 1837; Feigl 1949); truth by definition and logical derivation (Frege 1884; Pap 1958); truth in virtue of form (Schlick 1930–1); truth by definition and logical truth (Carnap 1937, 1947); truth by definition (Ayer 1936); truth based on meaning (Ayer 1936; C.I. Lewis 1944); truth by semantical rule (Carnap 1947); truth in all possible worlds (C.I. Lewis 1944; D.K. Lewis 1969); convertibility into logical truth by substitution of synonyms (Quine 1951); truth by implicit convention (Putnam 1962); and so on. Although related, not all of these uses are equivalent. For example, logical truths are not true by definition (in the sense of explicit definition), but they are trivially true by definition *plus* logic. Furthermore, Gödel’s incompleteness result shows that logical derivability and logical truth are not equivalent (see Gödel’s theorems §3). Likewise various principles (for example, supervenience principles; see Supervenience) which are true in all possible worlds seem not to be true by definition plus logic (if ‘definition’ does not include ‘implicit definitions’; see Definition). Similarly, it may be doubted that correct definitions provide exact synonyms (see §4). Little care has been taken to distinguish these disparate uses and needless confusions have resulted. But, as Strawson and Grice (1956) note, observations of this sort ‘would scarcely amount to a rejection of the distinction [as Quine urges]. They would, rather, be a prelude to clarification’.

In ‘Two Dogmas of Empiricism’ (1951), Quine went far beyond the call for clarification; he argued that there simply was no distinction between analytic and synthetic truths. Quine’s argument is an enthymeme with roughly the following form: there is no non-circular, purely *empiricist* clarification of the distinction, and therefore there is no distinction at all: ‘That there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith’ (see Quine, W.V. §8).

2 Extending the attack to ‘necessary’ and ‘a priori’

1. Quine’s attack did not stop with ‘analytic’. Following the lead of logical positivists, he (wrongly) held that, if there were any such distinctions, the analytic/synthetic distinction would be the same as the necessary/contingent distinction, which in turn would be the same as the a priori/a posteriori distinction. So, on his view, since there is no analytic/synthetic distinction, there is no necessary/contingent distinction and no a priori/a posteriori distinction either. It is an error, however, to equate these distinctions, so these further conclusions do not follow.

Quine’s attack on the necessary/contingent distinction has not convinced many. Most philosophers accept the distinction and invoke it in their work; modal logic and modal metaphysics are thriving subjects (see Modal logic; Modal logic, philosophical issues in). Do modal notions have non-circular definitions? Although definitions have been suggested, such as Church (1951) and Bealer (1982), there would be nothing unreasonable in holding them to be primitive (Prior and Fine 1977). After all, everyone must take *some* notions to be primitive.

What *epistemic justification* do we have for the necessary/contingent distinction? No doubt Quine was right that it cannot be justified on purely empirical grounds (that is, using only phenomenal experience and/or observation). But justification is not always purely empirical: logicians,

mathematicians, linguists and philosophers rely heavily on *intuitions* in the justification of their theories. (Quine himself relies on intuition in defending his formulations of set theory over others.) And there are no convincing arguments that such use of intuitions is illegitimate. Once one acknowledges intuitive evidence, the necessary/contingent distinction has a straightforward justification: we have a very wide range of robust modal intuitions (for example, the intuition that it is contingent that the number of planets is greater than seven – there could have been fewer), and when such intuitions are taken as evidence, the best theory is one which accepts the distinction at face value.

The necessary/contingent distinction is a metaphysical distinction. The a priori/a posteriori distinction, by contrast, is epistemological. Indeed, Kripke and Putnam have convincingly argued that there are necessary truths (Hesperus is Phosphorus, water is H₂O, and so on) which are impossible to justify a priori (see Kripke, S.A. §3; Putnam, H. §3). While the former distinction might well lack a non-circular analysis, the latter certainly has one: *p* is a piece of a posteriori evidence if and only if *p* is the content of an experience (a phenomenal experience, observation, memory or testimony); *p* is a piece of a priori evidence if and only if *p* is a piece of evidence which is not the content of an experience in the relevant sense. (On the assumption that one's intuitions are evidence, the contents of those intuitions would constitute one's a priori evidence.) A theory has an a posteriori justification if and only if the evidence on which that justification is based is a posteriori; a theory has an a priori justification if and only if the evidence on which that justification is based is a priori. Note that this sort of analysis does not presuppose that any theory has an a priori justification; one could deny that there is any a priori evidence. The point is that, contrary to Quine's allegation, the *notion* of a priori justification has a straightforward analysis (see A posteriori; A priori).

Quine seems to assume that a priori judgments would need to be infallible and unrevisable. But this is mistaken, as is evident from our ongoing a priori theorizing about the logical paradoxes. One of the main traditional lines of thought on the a priori – from Plato to Gödel – recognizes that a priori justification is fallible and holistic, relying on dialectic and/or a priori theory construction.

3 Defending 'analytic' against Quine

1. Unlike 'necessary', 'analytic' is a technical term. Accordingly, it is legitimate to demand, as Quine (1951) does, that its use be explained. This could be done with examples, but none of the (nonequivalent) notions listed above fits the standard examples perfectly, nor does any stand out as *the* most salient. This leaves the alternative of giving a definition. Quine's view is that *not one* of the historically prominent uses of 'analytic' (except the 'logical truth' use) has a satisfactory definition. But this radical scepticism is unwarranted.

Consider the following definition: a necessarily true sentence is analytic if and only if it may be converted into a logically true sentence by replacing its syntactically simple predicates with predicates which mean exactly the same thing. This seems to respect the idea that analytic truths are a priori and moreover are justifiable in a specially simple way. Quine (1960) would object to this definition by appeal to his thesis of the indeterminacy of translation – the thesis that 'there is

no fact of the matter' concerning claims about identity of meaning (see Radical translation and radical interpretation §§1–3). His arguments for this thesis have not convinced many philosophers, however, for they depend on quasi-verificationist or behaviourist premises. Most philosophers reject Quine's scepticism about meaning, realism having become the dominant view. One reason for this is the advent of the broadly Gricean picture (Grice 1989) according to which meaning is analysable in terms of the propositional attitudes. Accordingly, if there is a fact of the matter about the latter, there is about the former (see Communication and intention). And, since the cognitivist revolution in psychology and philosophy of mind, nearly everyone is a realist about propositional attitudes. Thus, at least one use of 'analytic sentence' ought to be acceptable to these realist philosophers.

The same moral holds for at least certain uses of 'analytic' as it applies to propositions. Despite Quine's scepticism, most philosophers have become convinced that in logic, psychology and semantics there is need for structured propositions, that is, propositions which have a logical form (or sense structure). This makes possible a definition of 'analytic' in another one of its standard uses (Katz 1986; Bealer 1982): p is analytic iff_{def} every proposition having the same form (structure) as p is necessary.

4 More damaging problems with 'analytic'

1. Although the above definition of 'analytic' is cogent, the term so-defined fails to apply to a number of examples which traditionally would have been deemed 'analytic'; the definition is too narrow. For example, the defined use does not cover Kant's paradigm example of an analyticity, namely, that bodies are extended. To accommodate this and a wide array of other examples (that circles are curves and so forth; see below), one must turn to a wider definition of 'analytic' – one relying on some philosophically robust notion such as definition, conceptual analysis, or the kind of meaning relations which hold between a definiendum and a definiens or between an analysandum and an analysans. For example, it is at least credible that there is a definition of 'body' in one of its senses according to which 'Bodies are extended' would be true by definition. Unfortunately, these wider accounts of 'analytic' give rise to a complementary problem: they let in too much.

The following familiar definitions illustrate the problem: x is a circle if and only if x is a closed plane figure every point on which is equidistant from a common point; x is a circle if and only if x is a closed plane figure every arc of which has equal curvature. There seems to be nothing to recommend one over the other; if either is a correct definition, both are. In that case it seems that the following would be true by definition plus logic: x is a closed plane figure every point on which is equidistant from a common point if and only if every arc of x has equal curvature. But Kant would deem this biconditional 'ampliative': in any standard axiomatic formulation of geometry, the proof of it would require axioms and axioms – as opposed to definitions – are supposed to be synthetic. Evidently, this argument can be adapted to many other a priori necessities traditionally thought to be paradigmatically synthetic.

A related kind of problem arises in connection with conceptual analysis. One of the most celebrated conceptual analyses in mathematical philosophy is the classical analysis of effective calculability, or computability. On Church's version, a function is effectively calculable if and only

if it is lambda-calculable. On Turing's version, a function is effectively calculable if and only if it is Turing computable (see Church's thesis). Most philosophers deem each version to be a successful conceptual analysis. But when the two analyses are combined, it follows immediately that a function is recursive if and only if it is Turing computable. But this biconditional – which is an important 'ampliative' theorem of formal number theory – would then turn out to be analytic (in the sense of being true by conceptual analysis plus logic) even in the event that logicism is false.

These problems suggest that there is no coherent way to draw an analytic/synthetic distinction along the lines Kant thought. One response is to settle for a severely restricted use of 'analytic' which concerns only concepts with unique structures (that is, unique 'decompositions'). The price of this move, however, is high: the vast majority of our concepts – including nearly all of the concepts philosophers have sought to define or analyse (good, true, valid, number, meaning, knowledge, and so on) – are in this sense unstructured and so would not give rise to new analyticities. At best, rather uninteresting concepts (such as bachelor) are of this sort. In consequence, even if knowledge of analyticities (in the narrow sense) had a transparent epistemic explanation as Kant assumed, the sort of knowledge one seeks in typical philosophical definitions or analyses would need quite another sort of explanation.

5 Epistemological problems with 'analytic'

1. Kant and his successors simply assumed that knowledge of analyticities has a transparent sort of explanation (often linked to a simplistic 'pictorial' or 'mereological' view of concepts). Just what that explanation is supposed to be has never been satisfactorily stated. It cannot be that analytic propositions are those whose truth is recognized just by virtue of possessing the constituent concepts, for *no* proposition is like this. For example, it is in principle possible that someone who possesses the relevant concepts but who is in sufficiently defective cognitive conditions (deficient intelligence, attentiveness, and so on) might fail to recognize that all and only bachelors are unmarried men. It does no good to relax this account by holding that analytic propositions are those whose truth would be recognized by anyone in sufficiently good cognitive conditions just by virtue of possessing the constituent concepts, for this lets in too much: anyone in sufficiently good cognitive conditions could not fail to recognize, say, that figure *A* is congruent with figure *B* if and only if *B* is congruent with *A*. But such propositions are the very paradigms of what Kant would have deemed synthetic a priori and requiring a different sort of explanation. (For these same reasons, purely epistemic definitions of 'analytic' are problematic.)

Another line of explanation is to liken our knowledge, say, that bachelors are men to our knowledge that unmarried men are men, or more generally, that *ABs* are *Bs* – that is, to liken this knowledge to our knowledge of a certain kind of *logical* truth. But how do we know the logical truth that *ABs* are *Bs*? Is the explanation fundamentally different from the explanation of our knowledge of other kinds of logical truths – for example, that *Bs* are *As* or *Bs*? It is hard to see why it should be. This raises the question of how we know logical truths generally. For instance, is the explanation of our (logical) knowledge that identity is a symmetric relation ($A = B$ iff $B = A$) really different from the explanation of our (nonlogical) knowledge that congruence is a symmetric relation? From a phenomenological point of view, both instances of knowing (logical and nonlogical) arise from a priori intuitions and these intuitions, phenomenologically, are not

relevantly different. On this score, therefore, there is no reason to think that our a priori knowledge divides neatly into two kinds having quite different explanations.

On the contrary, there is a promising unified explanation of a priori knowledge generally, which goes roughly as follows. In every case a priori knowledge is based evidentially on a priori intuition. The evidential force of a priori intuition is to be explained in terms of a general analysis of concept possession: it is constitutive of concept possession that in suitably good cognitive conditions intuitions regarding the behaviour of the concept need to be largely correct. If in suitably good cognitive conditions one did not have such intuitions, one would not be said to possess the concept. If something like this is right, then, although they mark cogent logical and metaphysical distinctions, all the listed uses of ‘analytic’ – even the narrow uses – fail to mark an epistemically significant category of knowledge.

The picture that results is complicated somewhat by Kripke and Putnam’s doctrine that there are essentially a posteriori necessities – for example, water = H₂O. Among these are some which may plausibly be deemed *scientific definitions*. If ‘analytic’ is used in the sense of truth by definition plus logic, where ‘definition’ is understood to include scientific definitions, then there would be necessities which would be both analytic and essentially a posteriori. Evidently the Kripke–Putnam doctrine applies only to ‘semantically unstable’ expressions – that is, expressions (‘water’, ‘gold’, ‘heat’, and so on) whose meaning could be different in some population of speakers whose epistemic situation is qualitatively identical to ours. These are expressions to whose meaning the external environment makes some contribution (see Content: wide and narrow). The above picture, however, holds straightforwardly for semantically stable expressions (‘conscious’, ‘know’, ‘good’, and so on) which loom large in philosophical analysis.

6 Whither ‘analytic’?

1. At this stage, one may reasonably ask whether continued use of ‘analytic’ serves any purpose in philosophy. Although the term evidently lacks the epistemological significance once attributed to it, the wider use of ‘analytic’ in the sense of true by definition plus logic still has utility, namely, in posing an important question: Are there necessary truths (supervenience principles, the incompatibility of colours, and so on) which are not analytic in this sense? The answer appears to be affirmative if ‘definition’ is understood straightforwardly as ordinary explicit definition. But if, as some have proposed, ‘definition’ is understood to include ‘implicit definitions’, the answer is controversial and depends on what information may legitimately be loaded into ‘implicit definitions’. On pain of trivializing significant traditional questions, however, surely not everything is admissible. Plainly there still are unanswered questions here. But they are really about the nature of definitions; ‘analytic’ does no work.

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