

what will count (in your worldview) as the entity against which all things are measured (vis-à-vis their verisimilitude).

However, the external and the internal perspectives are different when one chooses (a), (b), (c), or (d) on The Official Question and Answer Test. Those who choose (a) can always claim to offer (at least 'in principle') an externalist perspective that is capable of intersubjective verification.¹¹ Those who choose (b) are bound to an internalist perspective or a naïve empiricist perspective that refuses to assign substance to empirical perceptions or (c) rely upon the subject and her reliable procedures for picking out just what is true for acceptance and what is false for rejection. The 'reliable procedure' may be open for public scrutiny, but the data inputs are not. Thus, the mechanical operation of the process remains intersubjectively inscrutable. In the case of correspondence theory, the truth of the object is given and only our ability to fashion replicas is in question. Such is a quick take on correspondence theory.¹²

Coherence Theory

Coherence theory stipulates that a given body of knowledge is true if and only if there are no internal deductive contradictions. (Sometimes people also add the stipulation that the body of knowledge is also complete – meaning that one cannot pose a problem from the covered universe and not generate an answer.) *Truth* here means that everything works smoothly together so that an artificial whole is produced that has boundaries and symmetry. Proponents of the coherence theory of truth often point to symmetry and elegance as properties attaching to true bodies of knowledge. This sort of language is obviously evocative of Beauty. One views an elegant system as one that *must* be true because it is elegant. The beauty of a coherent system stirs the student's aesthetic sensibilities. This collision of beauty and truth also has ethical ramifications. When we think of coherent accounts of nature by scientists I have observed that there is not only an overlap with beauty but there is an action-guiding response. When I was doing research on my co-authored text *Genetic Engineering: Science and Ethics on the New Frontier*, I observed this very behaviour that I term *The Value-Duty Doctrine*: Whenever agent

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X studies P and discovers various properties about it (seen in light of his personal worldview), then if X decides that P is elegant, then X values P (where P is an artifact, a natural object, an agent, or a human institution). As a result of this process of observing and classifying that leads to the judgement of elegance and its resultant valuing, X takes on a corresponding duty to protect and defend P subject to the constraints of the principle of human survival¹³ and the 'ought implies can' doctrine.¹⁴

What this argument sets out is that when an account of nature (in this case) is seen to cohere, then the meaning that is conferred upon the entire context is normatively assented to. This confirmation implies that the sincere and authentic scientist will strive to protect the natural phenomenon and the context in which it is understood.

This argument completes the triple play: (Truth $\Leftrightarrow$ Beauty) $\Rightarrow$ Good. The scientist working within her coherent system of Evolution/genome expression/PCR to demonstrate the same is often confronted with failure. Conjectures that form the basis of hypotheses and their protocols most often fail. Then the researcher modifies and fiddles around. Then sometimes it happens: the expected results occur. The paradigm is verified (in this small instance). As the researcher reflects on what has happened she is astounded at the beauty of the coherent theoretical construct. The beauty is situated within the coherent system that guides the scientist. When experimental results and expansion of the *explanans* come together, the result is experientially significant to the researcher – and not because of an expected publication or promotion – but because the co-recognition of Truth and Beauty has made an impact. The result is an ethical duty.

What lies behind the coherence theory of truth is an internalist perspective that suggests that the *agent's* judgment about the consistency is definitive. Certainly, the person making the judgement could confront and defend his or her judgement to an objector who thought there was a contradiction, but that is not what makes coherence attractive. One may be able to refute all external challenges to the coherence of the system – or better yet provide a theorem that proves it, but the assessment apparatus suggests that one's judgement

about *truth* is a separate and private exercise. Whenever the driving force behind a theory of truth is *internal*, then it is immune from any telling falsification from the outside. As was the case in correspondence theory, there is an intersubjective scrutable part and a personal inscrutable part. The external part is connected to grounds of coherence and completeness evaluation. One may set out the rules of system evaluation for all to see. One may also propose various proofs for completeness or consistency (or both) for all to evaluate. But in the end, the inclination for one to accept this as being true (in a strong sense) will be internal. This is the case in two senses. In the first case, the origins of any artificial system are random. They come from the subject's own intellectual/imaginative vision. Thus, the genesis of the system comes about from the internal perspective of an individual.¹⁵ Some of these dynamics can be teased out in the following thought experiment.

THOUGHT EXPERIMENT 4.7

Your name is Johannes. You live in Europe at the beginning of the seventeenth century. You have just read a bootleg summary of *De revolutionibus orbium caelestium* by Copernicus. The first book is a general overview trying to lay foundations based in ancient Greek philosophy. What interests you are some of the tables that present a different approach to standard problems. Now the Ptolemaic tables that your teacher, Tycho, taught you are tried and true. These star tables can get you from Marseilles to Naples without a problem. In fact, you detect a number of factual errors in these new Copernican tables that would probably mean that under these new tables you might end up near Lucca instead of Naples. However, something captivates you about Copernicus' account. It is simple, elegant, and employs no ad hoc additions that uses ad hoc additions retrograde motion velocities.

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the coherence theory of truth there is no ontological commitment necessarily are. This means that

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there is no affirmation of separate and independent existence. The reason for this is that the truth claim is dependent upon an observer making a judgement about the claim. The observer judges the claim to be coherent or not (thin or thick). That's as far as it goes. If the observer is confident in her judgement, she may declare that her judgement (if made by reliable means) may be sufficient to assert truth as separate and independent. But that is only a conjecture. There is no attaching necessity to some ontological claim. Whereas, in the case of correspondence theory, the truth of the object was given necessarily and only *our* ability to fashion replicas was in question. In the case of coherence theory, the ability to fashion sound, error-free accounts is given and only the account's ultimate mode of existence is in question – just the opposite!

Pragmatic Theory

The pragmatic theory of truth asserts that a theory is confirmed to be true relative to the work it can perform. There are two distinct ways to understand this: 1) relating to mere personal expediency (the internalist perspective), and 2) relating to intersubjective scientific confirmation in the experimental method (the externalist perspective). Let's examine these in order.

The first interpretation of pragmatic theory follows from William James who said, 'The true is only the expedient in the way of our behaving, expedient in almost any fashion, and expedient in the long run and on the whole course.'¹⁹ This means that a success standard arises to justify what is or is not true. When related to personal expediency from the internalist standpoint, this amounts to the criteria for justifying some belief as true. Plato, in the *Theatetus*, floats the claim that if someone believes something, and is justified in that belief, then the belief is knowledge. However, Plato is careful to suggest various pitfalls in what would count as a justification (Plato was a correspondence theory advocate). In the twentieth century the problem of what counts as adequate justification for belief from the internalist perspective has led to arguments concerning adequate conceptual grounds for justification.²⁰ From the internalist perspective it all returns to some belief being good for us. This may be

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understood as holding a belief that it is better for us to hold than some other belief. Richard Rorty has taken this position:

The aim of all such explanations is to make truth more than what Dewey calls 'warranted assertibility': more than what our peers will, *ceteris paribus*, let us get away with saying. Such explanation, when ontological, usually takes the form of a redescription of the object of knowledge so as to bridge the gap between it and the knowing subject. To choose between the approaches is to choose between truth as 'what is good for us to believe' and truth as 'contact with reality'.²¹

Thus, according to Rorty, one would espouse positions based on personal utility. States of affairs or propositions are true *to us*. This position, of course, bumps up against the good. The true equals *the good for us*. For example, at the writing of this book, in the United States the Congress is being asked to make permanent a series of tax breaks that greatly increase the wealth of the richest 2 per cent of the population at the expense of middle and lower middle classes (whose social-welfare support programmes are being cut to support this initiative). If you are one of the 2 per cent, the tax programme is good for you and therefore represents true/correct tax policy. If you are one of the 98 per cent, then you take the opposite opinion. (Unless, perhaps, you are *near* the 2 per cent and think that you might get there soon.) The problem with this (and any other perspective that is largely *pro se* internalist) is that it has a great potential to be very eccentric. Thus, if Baron von Frankenstein believes that eugenics is beneficial to him because of his research programme, and if his programme is successful, then eugenics is true. If Hitler believes that creating a national scapegoat (the Jews) and murdering them along with an ambition of global conquest is beneficial to him and to Germany, and if he is successful (or so long as he *was* successful), then it was true. When he was defeated, it became false. But what of Joseph Stalin, who died on top? Was his murderous regime of empire building *true*? Under these criteria, it would be true *to him*. The point of these three examples is to demonstrate how the true

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The second interpretation performed refers to scientific method. A hypothesis is proposed about under controlled conditions (under the second interpretation three theories. It emphasizes public scrutiny.

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dialectically interacts with the good. I argue that the subjectively based criteria of this first interpretation of pragmatism make it less a theory of truth and more a theory of egoistic hedonism (a con- tender of sorts among ethical claims). I think this is a very dangerous stance because it violates the balance between the subject and society, which is embodied within the personal worldview imperative and the shared community worldview imperative. Donald Davidson has echoed my apprehension to relativism: 'Conceptual relativism is a heady and exotic doctrine, or would be if we could make good sense of it. The trouble is, as so often in philosophy, it is hard to improve intelligibility while retaining the excitement.'²² The excitement is often generated at the expense of the logical argument. In Rorty's case, the two statements of the good (that his argument imply) demand (if we wish to heed to Davidson's admonition) that we never engage solely in either the internal or the external perspective but rather hold each in dialectical tension so that each might inform upon the other. Thus, this first understanding of pragmatism must be constrained by these criteria.

The second interpretation of pragmatic theory states the work performed refers to scientific confirmation in the experimental method. A hypothesis is proved whenever its predicted results come about under controlled conditions. In this way, the pragmatic theory (under the second interpretation) is the most externalist of all of the three theories. It emphasizes a test that is, by definition, open to public scrutiny.

Since we live in an age that worships the scientific method and the technological advances that it has brought to us, pragmatism is the default theory of truth for most people in the developed industrial world. Thus, it is a theory to be reckoned with.

Some of the difficulties associated with the theory track closely to the alleged problems with the scientific method of theory confirmation. The first of these can be illustrated in the following thought experiment concerning what can be understood as confirming evidence.