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Rationality and post-truth — the threat to democratic society

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Abstract

Two-thirds of Americans get at least some of their news from Facebook and over half get some of their news from Twitter. What has happened to reason? The post-modernists and relativists are in the ascendancy. The great Enlightenment philosopher David Hume said that errors in religion are dangerous but that errors in philosophy are only ridiculous. That is not the case. Rejecting established sources of reason and accepting that belief should have equal sway with fact puts an open, free society in great danger.

This paper examines two issues: what is meant by the words "is true"? And the criteria for truth — how can we establish whether something is true or false? The situation is further complicated by the cognitive processes humans used to consider these issues. To determine whether a judgement, a choice, or a decision is likely to be successful, there are two to things consider. First: is the judgement rational — that is, is it coherent with the prevailing paradigm? and second: is the judgement accurate – does it correspond to established, accepted facts? Both are necessary for a sound judgement to be reached but neither is sufficient. But human cognition is flawed – our rationality is bounded and this can lead to serious errors.

Bringing these two subjects together – philosophy and cognitive psychology – can give some insight into the nature of post-truth and the implicit threat to our open, democratic society.

Introduction

What a mess! Why can't people be sensible! Wherever we turn, there are astrologers, homeopaths, conspiracy theorists, miracle workers and anti-vaxers. Politicians prefer to follow their "gut instinct" rather than evidence-based rationale. The internet has made everyone an expert! Two-thirds of Americans get at least some of their news from Facebook and over half get some from Twitter. How much substance can there be in 140 characters? Is it the case that only twits tweet? Are the post-modernists and relativists in the ascendancy? What has happened to reason?

The great Enlightenment philosopher David Hume said that errors in religion are dangerous but errors in philosophy are only ridiculous. That is not so. Rejecting established sources of reason and accepting that belief should have equal sway with fact puts an open, free society in great danger.

The advances made in human civilisation in the last 600 years have been greater than in the previous 60,000. In 1840, there was no country in the world where the life expectancy at birth was greater than 40 years. Today, just 180 years later, there is no country in the world where life expectancy is less than 40 years — there are several countries where now it is more than double this. The rediscovery of Greek philosophy during the Renaissance, the emergence of the scientific method, mathematics, flourishing art, music

and literature together brought about the agricultural revolution, the scientific revolution, the Industrial Revolution and an extraordinary period of human creativity. Of these the scientific revolution was the most important because it changed the fundamental paradigm of Middle Ages Christianity and the ancient world: belief gradually gave way to evidence and reason.

The gains were greatest and emerged earliest in what are now referred to as developed countries, most particularly those of Western Europe and North America but the phenomenon has now spread world-wide. Today, most prosperous countries share a common feature. Although far from perfect, they have developed or have adopted institutions in areas of law, politics, health, education and social institutions (such as universities and a free press) that place great value on evidence and fact. These institutions are the foundations of today's civil society. In such an environment, enquiry is rigorous and subject to review by one's peers. Key to this is our modern notion of knowledge: as the *Oxford English Dictionary* puts it, "the apprehension of fact or truth with the mind; clear and certain perception of fact or truth; the state or condition of knowing fact or truth". Why is this emphasis on truth so important? Because it led to the settling of disputes with evidence and reason, rather than by force, and this then became the foundation of institutions that people could trust.

The topic of this forum — truth, rationality and post-truth — is important because of the threat to these institutions posed by the emergence of "post-truth". What is meant by the term "post-truth"? Simply that objective facts are less influential in shaping political debate or public opinion than appeals to emotion and personal belief. One might be tempted to say that Twitter trumps fact.

I will discuss truth and then examine rationality. Then I will briefly outline why I believe post-truth is so dangerous.

But, first, I will make three statements upon which my subsequent remarks are based.

First, there is a physical world independent of human thought. Second, from birth, every human acquires a body of knowledge that represents the physical world they experience through their senses. This is their subjective knowledge. And, third, there is an independent body of knowledge that has been developed through human thought and communication. This includes the full range of shared ideas, such as stories, writings, art, music, mathematics and so on. As far as I know, the first philosopher to bring this together quite so succinctly was Karl Popper (Popper 1972). It was not original — Popper drew upon philosophical thinking that has emerged over the last two millennia — but he did put it very clearly. He referred to these as the Three Worlds and claimed that they are three distinct ontological states. Some philosophers would dispute this, but it is a good way to think about things in the context of today's discussion.

Truth

In considering truth philosophers generally look at two issues: what is meant by the words "is true" (referred to as the "truth predicate"); and the criteria for truth (for example, if I say the book is blue, how do I determine whether the book really is blue?).

An example might show why this distinction is important. Pontius Pilate was famously reported to have asked the question "what is truth?". He should have asked "is he guilty?". The point is that it is important not to mix

up the question of what truth is with what we mean when we try to establish whether something is true or false.

The concept of truth only has relevance to self-conscious, linguistic beings, capable of understanding and using concepts of truth and falsity. Theoretical approaches to what is meant by "truth" fall into two broad groups. Those that consider truth to be some genuine property of a proposition, assertion or belief — these are substantive approaches — and non-substantive approaches that argue that such a property or relation does not exist. Non-substantive approaches argue that we should not be misled by the similarity of the truth predicate "is true" to other predicates (such as, for example, "is blue") into thinking that similarly it denotes something real. In other words, it is wrong to interpret the truth predicate as representing a genuine property (truth) of a thing, proposition, or belief in the same way as blueness might be considered to be a property. These deflationary approaches (Lowe 1995, Schmitt 2004b) propose that the truth predicate exists to fulfil a purely linguistic function enabling speakers to do certain things, such as express agreement with one another.

Another distinction that can be made regarding theories of truth is between linguistically- and epistemically-oriented approaches. Modern, linguistically-oriented approaches attempt to analyse the meaning of words and grammar to logically identify and describe the nature of truth. In contrast, epistemic approaches argue that the linguistic approaches fail to give an account of truth that allows us to understand how the notion of truth contributes to our efforts to know and thus give an inadequate account of our quest for knowledge.

The linguistic approach became influential with the analytical philosophy of Russell and Wittgenstein in the early 20th century and was at its most influential with the logical positivists' interpretation (in particular, the semantic treatment by Tarski) of the correspondence theory of truth in the 1930s (Davidson 1990). There have been two major epistemic approaches to truth, both of which have their origins in Spinoza, Hegel and other traditional philosophers. These are the pragmatist theory of truth, proposed by C.S. Peirce, James, and Dewey in the late 19th century (Haack 1976) and the coherence theory of truth, heavily influenced by the British idealist Bradley in the early 20th century (Schmitt 2004a). The coherence theory of truth has been the more influential, particularly within the decision sciences.

The correspondence and coherence theories of truth have been particularly influential in the last century or so and these will be contrasted here. Both are substantive approaches in that both hold that truth exists and that it is a property of, or a relation involving a "truth-bearer" (that is, a proposition, sentence, or belief-state) and a theoretical, omniscient "cogniser". Correspondence approaches propose that truth is correspondence with "the way the world is" and is independent from the cogniser, whereas coherence approaches argue that truth is coherence between truth-bearers and include relationships between the truth-bearer and the ideal cogniser (Schmitt 2004c). Thus, truth is not independent from the cogniser and contains elements of subjectivity. Correspondence theories have their origins in Greek philosophy, whereas coherence theories are more modern, emerging in the late 19th and early 20th centuries.

In the discussion below, two theories will be discussed primarily in the context of providing criteria for truth but some passing observations will be made regarding their usefulness in determining the nature of truth.

If you subscribe to the view that a physical world (Popper's World One) does exist, independent of the human mind, then it follows that there must be truth-bearers that can be independently and objectively evaluated. That is, observations about the physical world must be viewed from a correspondence perspective. Hence, science is predominantly about correspondence: making propositions and evaluating them, independent of the observer. Now there are all sorts of philosophical objections to this. There is a strong argument that much scientific enquiry is socially determined — even down to questions that scientists decide to investigate — but it is difficult to avoid the conclusion that there should be able to be truth-bearers formulated that can be objectively evaluated, even if we can never really achieve observer independence.

On the other hand, Popper's World Two and many World Three phenomena cannot be dissociated from the cogniser, because they are entirely products of human thought. Thus, they can only be evaluated using a coherence approach.

It is important to note that this conclusion is not based on the claim that acceptance of realism requires the correspondence theory of truth. It is simply that if a real world independent of human thought exists, human thought needs a way to form accurate representations that in some way correspond to these independent real-world phenomena. Nor is this to argue that the correspondence theory of truth as commonly formulated is satisfactory. Indeed, in a notable exchange between Austin and Strawson in 1950, (Austin 1950, Strawson 1950), the generally accepted view is that Strawson largely dismissed the commonly articulated correspondence theory of truth as a means for understanding the meaning of truth, demonstrating that the argument was circular (Hamlyn 1962, Sainsbury 1998, Searle 1995). However, Strawson did not deal with the usefulness of the correspondence theory as a criterion for determining truth.

Surprisingly, in the philosophical literature of the last century or so, the correspondence and coherence approaches have generally been placed in opposition to one another. But even if you accept the dubious claim that the two are opposed, this is only the case when they are used as definitional theories of truth (that is, the meaning of the truth-predicate). When considered just in the context of being criteria for truth, the two approaches can be complementary and provide valuable insights into issues. The theoretical limitation is only that they cannot provide sufficient justification to determine truth with absolute certainty.

Perhaps this might be clearer with an example. I can make a statement, "the book is blue," and assert that this statement contains the truth. The coherence theorist might then ask: how do I sense and perceive blue light? Is my perception of blueness the same as someone else's? The correspondence theorist argues that the statement does not require someone to think about it: it is either true or it is false. I can use a spectrophotometer to see whether the wavelength of the light being reflected by the book is about 475 nanometres: if it is, the statement is true. The most complete answer lies in a

combination of both the coherence and correspondence approaches: if the light is at 475 nm, it is blue light, so the book is blue. But the perception of blueness may be different from person to person. I am colour-blind and I am fairly confident that my perception of blueness is different to about 93% of the men and about 99.5% of the women in this room. We cannot be certain how another person perceives blueness but science provides us with the means to finding an objective answer to the question.

This distinction, I think, is at the heart of the point that C.P. Snow tried to make in his controversial essay, "The two cultures" (1959). The scientific method is largely based on the correspondence approach (but recognising that some questions are socially influenced), whereas the social sciences and the humanities refer more to the coherence approach because of the subjectivity in most of the issues they consider. The problem is that scientists and technologists are reluctant to recognise the social determinants that influence their investigations and outcomes, while those in the humanities and social sciences can be dismissive of expert opinion, even when it is based on overwhelming scientific evidence. If we really want to see knowledge advance, we should recognise the importance of both approaches to truth and use them together.

In summary, the important point is this. The coherence approach (in its criteriological sense) is useful as a criterion of truth for beliefs, statements, or theories about things that are subjectively determined, that is, about norms, values, morals, ethics, aesthetics and so on. But there are some beliefs, statements, and theories about things where the aim of inquiry is for them to be objectively determined (for example, mathematics, quantum mechanics, astrophysics, chemistry, and biology) and should be considered correspondence-theoretically. And, as noted above, the correspondence approach provides the means for determining whether our understanding of real-world phenomena is true. Hence, in structuring the highly complex problems of the 21st century, it is important to establish as much of the problem content as possible within an objective domain so that it can be tested using correspondence criteria, without compromising the need to utilise coherence criteria in relation to those things that are subjectively determined.

Let us now turn to the subject of rationality.

Rationality

All conscious animals need to make sense of the uncertainty they encounter in the world, and must either adapt to it or control it. To do this they form mental representations of the world, based on the information they receive through their senses. They then react and behave accordingly (Polanyi 1957). As Epstein (1994) puts it, they form a theory of reality — a world theory — by which they relate their own existence to the real-world phenomena they encounter. This form of cognition is intuitive. In humans, intuitive thought is experiential: it relies heavily on visual insight and the recognition of patterns that emerge from complex systems. It is oriented toward immediate action and it leads to the formation of images that are persistent and slow to change. Intuition is experienced both passively and subconsciously and is affected by emotion. Judgements arising from intuition are compelling and bring with them a feeling of certainty and infallibility: they appear to be self-evident. Indeed, we often see as irrational people who disagree

with our intuitively-determined judgements. Intuitive cognition is often thought of as being imaginative, creative and even mysterious. (Hammond 1996).

But humans have also developed a second form of thought that is rational and analytical in nature.

This form of cognition is logical and derives from conscious understanding and appraisal of real-world phenomena in the context of the individual's own thoughts. Analytical thinking is slower to process but can change rapidly: eureka moments. It exists in the abstract and is denoted through language and other symbols, such as numbers. Unlike intuition, analytical cognition is active and conscious: the individual controls its own thoughts and has the capacity for self-awareness and to be self-reflective. It is based on evidence and logic (even if the logic might be flawed). Importantly, the argument is retraceable. Epstein (1994) refers to this as the "self theory". Thus, the complete theory of reality for a human is a cognitive system consisting of a world-theory that emerges from intuitive thought and a complementary self-theory that comes from analysis and reason.

Such a concept of a bimodal system of cognition is by no means new. The ancient Greek philosophers distinguished between scientific knowledge and intuition (Aristotle 350BCE), as did early philosophers of the modern era, for example, Pascal (1660) in noting the difference between the mathematical and the intuitive mind. More recently various versions of a bimodal system of cognition have been developed, for example, Polanyi (1957) (problem-solving/heuristic), Simon (1983) (bounded rationality/intuitive rationality), Tversky and Kahneman (1983), (extensional/intuitive), Bruner (1991) (narrative/propositional), Hammond (1996) (analytical/intuitive) and Stanovich and West (2000) (system 1/system 2), to name but a few.

These have generally been taken to be dichotomous, rather than a complementary "cognitive continuum", that recognises the importance of both forms of cognition. But if we do consider the two as a continuum, they give a much greater insight into the "commonsense" nature of human thought. Humans seem to be the only species to have developed such a sophisticated analytical reasoning capacity and this has made our species very successful. It is the combination of these two aspects of human thought upon which our view of rationality is constructed. Our belief systems are largely a product of intuitive thinking and it takes a great deal of effort to undertake the rigorous analytical thinking needed for us to be truly rational.

Ultimately, the purpose of all this is to determine whether a judgement, a choice, or a decision is likely to be successful. There are two essential aspects to this. First, is the judgement coherent with the prevailing paradigm? And, second, is the judgement accurate? Does it correspond to established, accepted facts? Both are necessary but neither is sufficient. For example, a rationally-determined judgement may not be accurate because it is based on a wrong paradigm. And a judgement made through erroneous thinking (or is based on a wrong paradigm) may be accurate purely by chance. In other words, for a judgement to be ultimately successful, it needs to correspond with observed facts and phenomena and it must be coherent with our best objective understanding of the way the world works.

This sounds quite straightforward but cognitive psychologists have found we are

prone to major errors in both our intuitive and analytical thinking. I will discuss briefly two of the more influential areas of research into this. An early pioneer in the area was Kenneth Hammond, who, in the 1950s, developed a theory by Egon Brunswik on perception. He observed that people respond to various cues that they perceive and interpret. Each individual receives different cues and interprets them differently. This gave rise to what Brunswick called the "lens model". Just as an optical lens presents a different image to observers, depending on their relative position, in much the same way, people form different perceptions of situations because the cues they receive are different and so their interpretations also differ. Hence, it is to be expected that people reach different conclusions about the nature of the problem from apparently identical observations.[1]

The second stream of research that has become particularly influential in the last couple of decades relates to bias and error, particularly in intuitive thinking. The work of Tversky and Kahneman was particularly influential. (For example, Tversky and Kahneman (1974), Tversky and Kahneman (1986), and Kahneman and Tversky (1984) found that both laymen and experienced practitioners were subject to these biases.) They investigated why people make apparently simple mistakes in estimating probabilities. Further investigation in several areas of professional practice confirmed the existence of bias (for example, in finance, the judicial system, medical diagnosis and choice of treatment, and public policy formulation).

In the first of these papers, Tversky and Kahneman found that both layman and experienced practitioners were subject to these biases "when they think intuitively". Furthermore, they noted that "the inherently subjective nature of probability has led many students to believe that coherence, or internal consistency, is the only valid criterion by which judged probability should be evaluated". They go on to say, "for judged probabilities to be considered adequate, or rational, internal consistency is not enough. The judgements must be compatible with the entire web of beliefs held by the individual ... the rational judge ... will attempt to make his probability judgements compatible with his knowledge about the subject matter, the laws of probability, and his own judgemental heuristics and biases" (Tversky and Kahneman 1974: 1130).

What Tversky and Kahneman referred to as "heuristics" are biases introduced through the application of intuitive rather than analytical judgement. Further work was done in a number of areas of professional practice, confirming the existence of bias in intuitive thinking (for example, in finance (Slovic 1972), the judicial system (Carroll 1978), medical diagnosis and choice of treatment (McNeil et al. 1982), clinical diagnosis (Arkes 1981, Kleinmuntz 1984), and public policy decision-making (Thaler 1983). This has led to a particularly pessimistic view regarding human judgement: that it is irrational and untrustworthy. But many of these researchers appear to have overlooked the caveat noted above, that Tversky and Kahneman (and others, for example, Arkes (1981)) identified: bias is primarily a problem with intuitive judgement, not with rational judgement.

Indeed, a comprehensive review of decision-making errors presented by Fraser et al. (1992) suggests that, by understanding the

[1] See also Enfield (2018) - Ed.

source of bias, often it can be removed from the problem situation. For example, bias due to the practitioner not understanding the problem adequately, erroneous assumptions regarding problem data (such as probability data), differences in assumptions between the practitioner and the observer, can give the appearance of bias where, upon closer examination, none exists. More specifically, Nisbett et al. (1987) demonstrated that training in inference enhances rational thinking; Gigerenzer et al. (1991) showed that when carefully analysed, some biases actually did not contravene probability theory and Lopes (1991) showed that with more rigorous application of methodology, some biases are reduced or disappear.

But there is another important issue that emerges from this work on the rationality of human decision-making. Examples from law, medicine, science, and engineering show that where intuition encroaches upon the domain where analysis is required, the application of intuition can lead to blindly over-confident judgements and decisions (Hammond (1996) p106). But to set aside the value of intuitive thought based on this would be to overlook the great benefit that derives from the creativity and insight of intuition across all aspects of human creativity, from mathematics and science, to the arts and humanities. A more optimistic interpretation of the relationship between intuition and analysis is that in specific instances, people may appear irrational but are less so in the context of the entire problem situation; and that bias can be reduced if appropriate steps are taken, such as training the individual and appropriate selection of analytical methodologies.

Very successful people seem to meld the insight and creativity that derives from intuitive thought with the power of analysis to recognise the differences in perception and the bias introduced due to our intuitive thinking. This process of creativity, combined with rigorous criticism, enables them to develop deep and rich subjective and objective knowledge and thereby form a more comprehensive understanding of the world.

In this brief review, I have argued that there is a remarkable consistency and convergence in the philosophy and psychology around both the nature of truth and criteria for distinguishing between truth and falsity. Both are important in understanding the way in which humans make complex decisions and try to form rational judgements.

Post-Truth

Let me now turn to post-truth and why I think it poses such a threat to free, open societies. If you look back over history, whenever there has been a major change in the technology of communication, social disruption and change follows. Sometimes this is for the better but often for the worse. The printing-press was used to great effect during the Reformation, with the distribution of drawings and pamphlets. The first English newspapers were started in London in the 1660s at a time of great social upheaval that gave birth to many of our modern institutions.

Large-scale, automated printing-presses were developed in the 1850s and the daily newspaper became possible. Together with photography, which was also invented at about this time, newspapers were major influences in the American Civil War. Not long after the invention of motion pictures, they were seized upon as a propaganda tool and were used to sway public sentiment during World War I. Russia and Germany both embraced motion pictures and estab-

lished government-sponsored film industries. In 1933, Hitler created the Reich Ministry for People's Enlightenment and Propaganda, run by Joseph Goebbels. It was used to great effect in the Holocaust. Wherever you find a totalitarian regime, you will find a state-sponsored ministry of information.

The difference between totalitarian propaganda machines and the free press of open societies is that the free press aims for truth in reporting, however imperfectly. This holds the establishment and its institutions to account and thereby helps to maintain our trust in them. Totalitarian propaganda units create false trust by deliberately producing disinformation and misinformation to conceal aspects of the truth, to support the regime.

The development of the World Wide Web in the 1990s and the 24-hour availability of news has marginalised the established news media. The emergence of social media with the extraordinary penetration of Facebook and Twitter has brought about a fundamental change in the way in which news is delivered to consumers and the political discourse unfolds. News is no longer distributed via universally-accessible media. Rather, algorithms used by Facebook, Twitter and Google deliver news, based on your search preferences. These companies do not uncover news themselves but parasitically harvest information from established companies that invest in the human and financial resources needed to report it and many other sources as well. This so-called news is not about the dissemination of objective information. It is about marketing a commodity called "content", regardless of its truth, to an audience segmented down to the individual, driven solely by data analytics, marketing strategies and search engines. By their very nature, these appeal to and reinforce personal bias and prejudice.

Shrewd communicators, from shock-jocks to politicians can now exploit this to directly target the individual, play to influence and sentiment, and to shape public opinion. In such an environment, truth becomes one of the first casualties as the sheer volume of disinformation and misinformation drowns out rationally-determined knowledge. This has much the same effect as totalitarian propaganda ministries: it erodes people's trust in established institutions, replacing it with a false trust in belief-centric half-truths and falsehoods that are loaded with disinformation and misinformation and carefully avoid critique. For evidence of this, look no further than the misleading innuendo and deliberate lies that were propagated through social media in the Brexit referendum, the 2016 US Presidential election, virtually every election in Australia of the last decade and the endless discussion around climate change.

Conclusion

So, what can we do about it? The challenge is predominantly one of leadership. Leaders should critically evaluate propositions in the light of fact and reason, while at the same time recognising their own fallibility. We should be clear on what we mean by "truth". We should insist that the criteria we use to distinguish truth from falsity are clear. We should recognise the shortcomings of human cognition. We should insist on the same rigour from others. We should be vocal in our criticism when we see truth being compromised. We must not let public policy-making enter the domain of unsubstantiated, untrue dogma and belief. We must protect the institutions of our society by holding those who run them to account and supporting them in adversity. The more

we strengthen these institutions, the more people will be inclined to place their trust in them, rather than the ill-informed and deliberately misleading chatter they find on the internet.

Two centuries ago, Keats wrote, "truth is beauty"; last November, the leader in *The Economist* said, "truth is hard work". Both were right.

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