


Four different views of scientific knowledge and the birth of modern relativism: The very important challenge facing reformed churches in a Western world

**Author:**Nicolaas J. Gronum¹**Affiliation:**

¹Department of Science of Religion and Missiology, Faculty of Theology and Religion, University of Pretoria, South Africa

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Corresponding author:

Nicolaas Gronum,
gronumnh@hotmail.com

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Theologians are used to pointing the finger at European continental postmodernism when dealing with modern relativism. This article addresses a problem that is seldom highlighted within theology: modern relativism is the result of a series of epistemological discussions that took place during the early Enlightenment between scholars such as Rene Descartes, John Locke and Immanuel Kant. They were reacting, in part, to Aristotle's metaphysics and logic. When the whole picture unravels, one immediately sees that modern relativism is deeply ingrained in Western thought. In other words, modern relativism will not gather dust after the demise of postmodernism. To the contrary, this article would argue that modern relativism will continue to pose serious challenges to reformed churches in future. Pastors who want to engage with Western audiences will benefit from being made aware of this. Hopefully this will encourage theologians to re-evaluate the relevancy of reformed theological constructs in societies that are deeply steeped in relativist thought.

Introduction

Modern relativism¹

Relativism, roughly put, is the view that truth and falsity, right and wrong, standards of reasoning, and procedures of justification are products of differing conventions and frameworks of assessment and that their authority is confined to the context giving rise to them. (Baghrmian & Carter 2017)

At the dawn of a new millennium, post-conservative evangelical Stanley Grenz (2000) gave the evangelical world *Renewing the Center: Evangelical Theology in a Post-Theological Era*. Shortly thereafter conservative evangelicals fired back with *Reclaiming the Center: Confronting Evangelical Accommodation in Post-modern Times* by Millard Erickson, Helseth and Taylor (2004).

Grenz (2000) argued that evangelical theology was a modernist theology. With the advent of postmodern thought it was high time for evangelicals to adapt to a new way of thinking and doing. Erickson et al. (2004), for their part, argued that evangelical theology was definitely not a modernist theology, that it was utterly foolish to adapt to postmodern thought in the way that Grenz suggested and that postmodernism was on its way out anyway.

One of the contributors to the book by Erickson et al. (2004), *Reclaiming the Center*, James Parker (2004), wrote a chapter entitled 'A Requiem for Postmodernism'. When discussing postmodernism, Parker states:

When one has given up the idea of normative, universal and absolute truth, there is no reason whatsoever to take what they say as true (particularly since they have conceded up front that 'truth' does not even exist). (p. 309)

This gives Parker reason to state that: 'postmodernism is overrated and predict that it will come to a certain and perhaps soon demise, or at least will be relegated to the realm of "curious but passé"'.¹

1. Not to be confused with nihilism. Pratt (2017) describes 'nihilism' as: 'The belief that all values are baseless and that nothing can be known or communicated. It is often associated with extreme pessimism and a radical skepticism that condemns existence. A true nihilist would believe in nothing, have no loyalties, and no purpose other than, perhaps, an impulse to destroy.' A relativist, on the other hand, will accept certain rules as authoritative. For example, the rules of different cultures will be seen as authoritative within the cultures that gave rise to them. It is when rule makers depict themselves as beings with an objective vantage point, able to transcend the bonds of our shared humanity, that relativists will start to protest.

Readers of *Reclaiming the Center*, especially Parker's essay, may be forgiven for believing that modern relativism would be dealt a death blow with the demise of postmodernism.

The central argument

If one looks at the circumstances leading up to the birth of modern relativism it quickly becomes clear that modern relativism itself is not a child of European continental postmodernism. To the contrary, this article will argue that modern relativism is the product of the long and winding road science took from Aristotle to Immanuel Kant. As such, it is ingrained in Western thought. Not only that, it is currently dominant in most Western countries. Davaney (2000) attests to this when she states that:

It has become axiomatic in the late twentieth century to acknowledge that human beings are neither residents of everywhere nor nowhere but are situated within particular locales demarcated by distinctive languages, worldviews, political and economic structures, and social, religious, and ethical configurations. Moreover, this acknowledgement of the localized character of experience and knowledge has contained the recognition that our current context is the product of the vagaries of complex and varied historical processes that have proceeded our era and of our own contemporary responses to and transformations of these processes. Human historicity, thus, entails both being constituted by our past and context and being agential contributors to new historical realities. (p. 1)

Reformed churches need to take notice of this, for modern relativism poses difficult challenges to reformed theology, especially in communities that take seriously the idea of human historicity:

- For example, the exegete now has to grapple with the idea of the biblical writer as someone not only recounting what the Holy Spirit told him but also as a person deeply influenced and shaped by his own context and humanity.
- For example, the preacher who makes use of the prophetic formula, 'thus says the Lord of Hosts', now has to take into account that at least some of the members in the congregation will most likely see the preacher as a person influenced and shaped by a particular environment. In other words, many of the congregants will not view the preacher as a 'uncontaminated conduit' relaying the Word of God.

This impacts the authority of reformed churches in a direct manner.

The structure of the article

In order to illustrate that modern relativism became viable with the development of modern science, this article will focus on four different views of the nature of scientific knowledge as espoused by Aristotle (384–322BC), Rene Descartes (1596–1650), John Locke (1632–1704) and Immanuel Kant (1724–1804).

The article will start with Aristotle's view of scientific knowledge. Aristotle is important if one wants to fully grasp the debates that took place during the Enlightenment, because at first they mostly reacted against his metaphysics while utilising his scientific method. Next the article will discuss the philosophical debates during the early Enlightenment, especially as it pertains to Descartes, Locke and Kant. The discussion will hopefully show that Descartes and Locke's view of science showed a belief in transcending the subjective side of the scientific enterprise while Kant took an altogether different approach. Kant's thought, it will be argued, made us think differently about thinking, thereby opening the door to modern relativism.

This article takes, as its focus, historical material arguably better known to philosophers than theologians. It does so because the Copernican revolution in philosophy ought to become better known to a wider array of theologians and because it is necessary, from time to time, to discuss our shared intellectual heritage in order to carve out new avenues of approach in theology. Hopefully this article will aid in fresh expressions of the Christian faith.

The four sciences and modern relativism

Introduction

Aristotle (384–322 BC), who had a huge influence on both the classical and medieval periods, defined knowledge one could hold with certainty as 'episteme'. One would ordinarily translate Aristotle's 'episteme' as 'science' or 'scientific knowledge', but then immediately would have to add that it is science of the ancient kind. Aristotle's scientific method (his logic) differed from what came to be known as science and the scientific method in the modern era (Cohen 2016; Groarke 2014).

Rene Descartes (1596–1650) would build upon Aristotle's logic while at the same time undermining his metaphysics. In this way Descartes, the rationalist, would lay the groundwork for the modern era (Hatfield 2016).

John Locke (1632–1704), the empiricist, differed from Descartes on important points. He would build upon Aristotle's logic but also propose a new kind of scientific method that began with uncertainty. Locke, among others, would become one of the best-known and most influential proponents of what can be described as modern science (Uzgalis 2017).

Immanuel Kant (1724–1804), for his part, would take elements of both rationalist and empiricist thought in order to fashion his own brand known as 'transcendental idealism', thereby encouraging the Western world to think differently about thinking. This is also known as Kant's Copernican revolution in philosophy. Kant described the mind, previously thought to be mostly inactive, as something that shaped sense impressions. In other words, human beings did not perceive the world as it is, but the world as the mind shapes it for them (Rohlf 2016).

Aristotle's science

Aristotle's scientific method is best understood in conjunction with his views of objects in reality.

Hylomorphism is the belief that objects in reality consist of matter (the clay) and form (the cookie cutter). Think of it as a pin cushion with metal pins stuck in the cushion. The pin cushion is a combination of matter and form (necessary properties) while the pins represent the accidental properties. A dog might lose its accidental properties, its hair, its teeth and its bite, but still remain a dog. If you destroy the pin cushion itself, if you take away its necessary properties, the form of 'four legged canine mammal', then the dog would cease to exist. In short, the pins or accidental properties of an object can and will change. This, however, does not change the object itself. Only once the object loses its form, that is its essential or necessary properties, would the object cease to exist.

Aristotle was interested in knowing the necessary properties of objects in reality. He wanted to know an object's:

- formal cause, that is, the form of the object
- material cause, that is, the matter the object consists of
- the efficient cause, that is, the blueprint or the maker of the object
- the final cause, that is, the final goal of the object or the reason it exists for.

It is only after knowing the four causes that one could claim to know the object (Cohen 2016; Spade 1999).

Aristotle believed that after repeated exposure to nature people would start to intuitively know what the necessary properties of objects in nature were. You knew the particular object so well that its necessary properties became self-evident (at least that is what Aristotle believed). You then took self-evident beliefs regarding the essences of object in nature and used that in your deductions: cows are viviparous (Proposition 1) and mammals are viviparous (Proposition 2); therefore cows are mammals (deduction) (Groarke 2014; Shields 2007).

The deductive process described above forms part of Aristotle's scientific method, better known as 'Aristotle's logic'.

Aristotle's logic held that scientists must begin with some statement of belief or a proposition. Groarke (2014) describes it as follows:

A proposition is ideally composed of at least three words: a *subject* (a word naming a substance), a *predicate* (a word naming a property), and a connecting verb, what logicians call a *copula* (Latin, for 'bond' or 'connection').

These propositions either had to be irrefutable ('I have a headache') or grounded in themselves (being self-evidently true), for example:

I am an existing thing. My existence is therefore something I hold to be self-evidently true. In other words, I just know I exist. I do not base the fact of my existence on any other reason than that it is self-evident; I cannot rationally doubt it.

Next we use deduction (syllogism) to build upon our propositions. Deduction is when we deduce a proposition from two related propositions placed side by side. For example, if $a = b$ (first proposition) and if $b = c$ (second proposition related to the first through b), then it holds that $a = c$ (the deduced proposition). The whole approach starts with certainty (self-evident propositions) and ends with certainty (deduced proposition), following the maxim that the house is only as strong as its foundations. It is more commonly known as a 'foundationalist epistemological framework' (or 'Euclid's geometrical method'). This article refers to it as the 'ancient way of doing science' (Aristotle's logic) (Groarke 2014; Shields 2007).

How did Aristotle employ the method? As already noted, Aristotle was interested in the necessary properties of objects in reality. Added to this, he was not so much interested in individual objects as groups of objects (species and genera). After repeated exposure to objects in reality one could say, if dogs give birth to live puppies and if mammals give birth to live young, then dogs are mammals. The proposition may not be new knowledge, but if the starting propositions were necessary then the proposition deduced from it will be guaranteed to also be necessary (Groarke 2014; Shields 2007).

The Renaissance and the birth of the Enlightenment

Aristotle's scientific method and metaphysics would continue to be influential right up until the Middle Ages. This would change with the Renaissance (1300–1650). The Renaissance can be characterised as a movement that attempted to reform medieval society. This movement was energised by ancient manuscripts from a golden Roman age.²

Experiments during the Renaissance (e.g. gravity, motion and the invention of telescopes) cast a shadow on Aristotle's metaphysics, especially his ideas on hylomorphism. The experiments and inventions during the Renaissance spurred on a new scientific revolution with illustrious names such as Tyco Brahe (1546–1601), Galileo Galilei (1564–1642), Johannes Kepler (1571–1630), Christiaan Huygens (1629–1695) and Isaac Newton (1642–1727) (Principe 2011).

Galileo Galilei (1957) describes the new science in *The Assayer*:

Philosophy is written in this grand book, the universe, which stands continually open to our gaze. But the book cannot be understood unless one first learns to comprehend the language and read the letters in which it is composed. It is written in the language of mathematics, and its characters are triangles, circles, and other geometric figures without which it is humanly impossible to understand a single word of it; without these, one wanders about in a dark labyrinth.

2. Legaspi (2010) writes: 'Renaissance humanism is better described as a broad, religiously flexible, and civic-minded educational program encompassing the humanities (studia humanitatis) and a movement, furthermore, rooted in medieval appropriation of classical sources. One of its distinctive features was the study of classical texts in their original languages – preeminently Latin but also Greek and, later, Hebrew. This gave rise to the Renaissance ideal of the vir trilinguus and the close association of political and religious renewal with fresh appropriations of ancient learning. Humanism was a reformatory enterprise energized at all points by philology' (p. 11).

Those scholars at the front of the scientific revolution, such as Galileo Galilei, looked upon nature as if it were a machine, functioning according to set laws that could be described with mathematical equations. It could be said that it was an engineer's way of looking at the world. Underlying this new mechanistic philosophy that broke with Aristotelian metaphysics was the corpuscular theory. The 'corpuscular theory' was more or less another name for Democritus' metaphysics, called 'atomism'. Democritus was a Greek philosopher who predated Aristotle. The corpuscular hypothesis stated that:

- Matter is composed of very small material particles (corpuscles or atoms).
- Impact is the sole means of communicating motion.
- Qualities such as colour, taste and smell can be reduced to the primary, inherent properties of the corpuscles of which the body is composed of (Kochiras 2017; Newman 2016).

Three points are of importance:

1. Objects consisted of small particles that obeyed certain laws. These particles, in turn, would have an effect on the behaviour of objects in the world.
2. Objects in the world, as well as the particles they were made up of, consisted of primary qualities (size, shape and motion). These primary qualities could be described with mathematical equations.
3. Objects in the world also had secondary qualities (taste, smell, sound, colour, etc.). The secondary qualities were not part of the object. They were somehow caused in us through the interaction between an object in nature and our senses. Take a mountainside as an example. The colour of the mountainside changes throughout the day. It all depends on the way the sun shines on the mountainside as well as our perspective towards it. The same goes for taste; it differs from person to person, depending on a variety of factors when people interact with (taste) something in reality. Secondary qualities were therefore not viewed as something permanent that existed on their own. (Kochiras 2017; Principe 2011)

Unfortunately the end of the Renaissance would be marked by the utter destruction that was the 30 Years' War (1618–1648). It was Catholic against Protestant. The fighting endured for 30 bloody years. We might, in an effort to exonerate Christianity, point to the fact that this was not only a war between Protestants and Catholics but also a war driven by political and economic factors. That may be true but it still was a war fought between Christians. And it was Christians who did the killing.³

3. Gillespie's (2008) summation remains a favourite: 'The Wars of Religion were conducted with a fervor and brutality that were not seen again until our own times ... The slaughter at Magdeburg, for all its horror, was not the first nor the last such event. During the Peasants' Rebellion in the 1520s, over one hundred thousand German peasants and impoverished townspeople were slaughtered, many of them when they rushed headlong into battle against heavily armed troops, convinced by their leader Thomas Mintzer that true believers were immune to musket balls. In 1572, seventy thousand French Huguenots were slaughtered in the St. Bartholomew's Day Massacre. The Franciscan monks who had preached that killing heretics was the surest way to salvation were pleased, but apparently not as pleased as Pope Gregory XIII, who was so delighted to receive the head of the slain Huguenot leader Coligny in a box that he had a special medal struck commemorating

Rene Descartes' science

Rene Descartes, generally regarded as the father of the modern era, fought in the 30 Years' War. If we read Toulmin's (1990) *Cosmopolis*, we are entertained with the vision of a tired Descartes who realised that a divided church would not be able to bring Europe back together again. Something else had to do. By that time a new breed of scholars along with a new type of science had made their presence felt.

Descartes, a philosopher and a mathematician, would commit himself fully to this new type of science, believing it to be a new guiding light (replacing the Roman Catholic Church) that would bring Europe together and lead the continent out of the endless cycle of conflict. His chief task would be to furnish the new way of looking at reality (corpuscular theory) with an indubitable foundation, ironically, utilising Aristotle's logic.

Descartes' use of Aristotelian logic was done in a typical rationalist manner. Rationalists mostly believed that all human knowledge begins with innate concepts that were already in the mind independent of sensory experience (e.g. people were born with them or God gave them directly to people). Whereas Aristotle looked to repeated exposure to nature when trying to ascertain the essence or necessary properties of objects in reality, Descartes looked to the mind. He would use rational thought to determine the necessary properties of all of reality (Newman 2016).⁴

Descartes started with doubting literally everything, even his senses. He then had a clear and distinct idea, 'I think, I am' [*cogito ergo sum*]. The *cogito* was not the result of deduction, even if it looks that way (consider 'I doubt therefore I think therefore I exist'). *Cogito ergo sum* was a clear and distinct idea (a self-evident belief) provided by the mind. He then proceeds to build upon these clear and distinct ideas through the use of deduction (Hatfield 2016).

At this stage, the only thing Descartes was certain of was that he was thinking and existing. He could not even be certain that he had a body. Descartes then proceeded to prove both

the event. And finally, lest anyone imagine that the barbarity was one-sided, Cromwell's model army sacked the Irish town of Drogheda in 1649, killing virtually everyone. They burned alive all those who had taken refuge in the St. Mary's Cathedral, butchered the women hiding in the vaults beneath it, used Irish children as human shields, hunted down and killed every priest, and sold the thirty surviving defenders into slavery. Cromwell, without the least sense of irony, thanked God for giving him the opportunity to destroy such barbarous heretics. While these accounts are shocking, they only give us an inkling of the horror of these wars that raged over Europe for more than five generations. By conservative estimates, the wars claimed the lives of 10 percent of the population in England, 15 percent in France, 30 percent in Germany, and more than 50 percent in Bohemia. By comparison, European dead in World War II exceeded 10 percent of the population only in Germany and the USSR. Within our experience only the Holocaust and the killing fields of Cambodia can begin to rival the levels of destruction that characterized the Wars of Religion'.

4. Descartes the rationalist, while elevating reason, is sceptical about the value of sense perception. Descartes (2012) writes: 'But, afterward, a wide experience by degrees sapped the faith I had reposed in my senses; for I frequently observed that towers, which at a distance seemed round, appeared square, when more closely viewed, and that colossal figures, raised on the summits of these towers, looked like small statues, when viewed from the bottom of them; and, in other instances without number, I also discovered error in judgments founded on the external senses; and not only in those founded on the external, but even in those that rested on the internal senses; for is there aught more internal than pain? And yet I have sometimes been informed by parties whose arm or leg had been amputated, that they still occasionally seemed to feel pain in that part of the body which they had lost, – a circumstance that led me to think that I could not be quite certain even that any one of my members was affected when I felt pain in it'.

the existence of God and reality from other clear and distinct innate ideas he arrived at through reflection.

Eventually he demonstrated by way of deductive logic that God existed, that reality existed and that human beings consisted of immaterial mind or soul whose necessary property was to think and body or matter whose necessary property was extension (tiny corpuscles filling everything).⁵ Only God and a human mind could think.⁶ The rest, including animals, was extension (three-dimensional matter) guided by the laws of nature. This provided scholars who wished to study nature as a machine, depicting it in the way of universal mathematical laws, with a solid metaphysical foundation that validated their view of the world (Newman 2016).

Science now had the task to proceed from innate concepts regarding the essence of reality to empirical observations of it. In this sense Descartes did believe sense perception was important. Hatfield (2016) describes it best:

In considering Descartes' answer to how we know, we can distinguish classes of knowledge. Metaphysical first principles are known by the intellect acting alone. Such knowledge should attain absolute certainty ... Objects of natural science are known by a combination of pure intellect and sensory observation: the pure intellect tells us what properties bodies can have, and we use the senses to determine which particular instances of those properties bodies do have.

Descartes is rightly called the father of the modern era because he provided the new science (corpuscular theory) with a supposedly rock solid metaphysical foundation that complied with the rules of Aristotelian logic that was still authoritative during Descartes' lifetime. In doing so, he broke decisively with Aristotle's metaphysics, which so dominated the latter stages of the Middle Ages.

John Locke's science

While Descartes can be considered the father of the Enlightenment, John Locke can be considered as one of its most stellar proponents. As a proponent of Enlightenment thought, Locke believed in the supremacy of rational thought. He admired the new science of Galilei and Newton. The only difference was, he did not support rationalism (Sheridan 2016; Uzgalis 2017).

5. Some of the mechanical philosophers believed in the existence of vacuum and indivisible atoms (corpuscles). Descartes did not. He believed that everything consisted of corpuscles, tiny particles. There was no empty space, no vacuums. Matter was extended; it had three-dimensional properties that covered every little space (Slowik 2014).

6. Descartes (2012) would say that he had a concept of a perfect being. Because he was not perfect the concept could not originate with him. It must have been an innate concept placed in him by a perfect being, in whom the concept of perfection originated in the first place. God therefore exists. Descartes (2012) puts it this way: 'There only remains, therefore, the idea of God, in which I must consider whether there is anything that cannot be supposed to originate with myself. By the name God, I understand a substance infinite, (eternal, immutable), independent, all-knowing, all-powerful, and by which I myself, and every other thing that exists, if any such there be, were created. But these properties are so great and excellent, that the more attentively I consider them the less I feel persuaded that the idea I have of them owes its origin to myself alone. And thus it is absolutely necessary to conclude, from all that I have before said, that God exists. For though the idea of substance be in my mind owing to this, that I myself am a substance, I should not, however, have the idea of an infinite substance, seeing I am a finite being, unless it were given me by some substance in reality infinite'.

Locke was an empiricist. He did not believe in the existence of innate ideas. All our knowledge stems from the five senses. Locke famously stated that the mind was *tabula rasa* at birth, an empty slate. It therefore had no recourse to special or divine innate ideas that gave us insight into reality and its true essence.⁷

Unlike Descartes who wanted to fashion a metaphysical bedrock for the new science, Locke wanted to understand the inner workings of the human mind.

Locke argued that knowledge began with experience. Experience imprints the primary and secondary qualities of objects in the world on our minds in the form of simple ideas. So after looking, touching, smelling and tasting an apple we are left with simple ideas of the weight, height, motion, smell, taste and look of an object (e.g. red, fruity, sweet, round, not in motion, juicy). The mind then takes simple ideas and puts them together in complex ideas (red, fruity, sweet = apple). While the mind is busy doing this it cannot help but become aware of its own operations. When the mind reflects upon its own operations, it gains additional simple ideas of mental operations such as existence, thinking, knowing, understanding (Sheridan 2016; Uzgalis 2017).⁸

When it came to complex ideas, Locke differentiated between complex ideas of substances, modes and relations.

Complex ideas of relations originate when we take two ideas or concepts side by side and view them as one. An example of a complex idea of relations is the concept of cause and effect. Cause and effect is, of course, of central importance to empirical science. In other words, when we know that *a* produces *b* or that if *a* happens, *b* happens, we can get to know things and start to predict the future. For example, we can say that near the equator, when warm water evaporates, hurricanes will form (Sheridan 2016; Uzgalis 2017).

Substances were complex ideas about things that existed (e.g. lion, mountain, sun, etc.). When the mind creates a complex idea of substance (e.g. the concept or idea of 'lion') the archetype for this substance exists in the world (e.g. real lions on a game farm). When it comes to complex ideas of modes Uzgalis (2017) explains:

When we make ideas of modes, the mind is again active, but the archetype is in our mind. The question becomes whether things in the world fit our ideas, and not whether our ideas correspond to the nature of things in the world. Our ideas are adequate. Thus

7. Locke (2012) states: 'The same inability will every one find in himself, who shall go about to fashion in his understanding one simple idea, not received in by his senses from external objects, or by reflection from the operations of his own mind about them. I would have any one try to fancy any taste which had never affected his palate; or frame the idea of a scent he had never smelt: and when he can do this, I will also conclude that a blind man hath ideas of colours, and a deaf man true distinct notions of sounds'.

8. Locke (2012) writes: 'These simple ideas, the materials of all our knowledge, are suggested and furnished to the mind only by those two ways above mentioned, viz. sensation and reflection. When the understanding is once stored with these simple ideas, it has the power to repeat, compare, and unite them, even to an almost infinite variety, and so can make at pleasure new complex ideas. But it is not in the power of the most exalted wit, or enlarged understanding, by any quickness or variety of thought, to INVENT or FRAME one new simple idea in the mind, not taken in by the ways before mentioned: nor can any force of the understanding DESTROY those that are there'.

we define 'bachelor' as an unmarried, adult, male human being. If we find that someone does not fit this definition, this does not reflect badly on our definition, it simply means that that individual does not belong to the class of bachelors. Modes give us the ideas of mathematics, of morality, of religion and politics and indeed of human conventions in general. Since these modal ideas are not only made by us but serve as standards that things in the world either fit or do not fit and thus belong or do not belong to that sort, ideas of modes are clear and distinct, adequate and complete.

There exist no bachelors in nature. We have created the idea or concept of 'bachelor' in our minds for ourselves in order to help us navigate reality. Locke thought that Aristotle's science was possible in instances of modes. Because we have constructed the modes ourselves according to an archetype in our minds, we know exactly what a bachelor is and what it entails. We can therefore be sure about the concept of 'bachelor'; as such it can serve as part of a proposition in a deductive argument (Uzgalis 2017).

With complex ideas of substances we do not have direct access to the object in nature. To make matters more difficult, most of our knowledge (our concepts or ideas) of the objects in nature is often compiled of simple ideas of the secondary qualities of the objects. We can therefore never be sure that our concept of 'lion' exactly matches the lion as it is in nature. In the case of complex ideas of substance, we start with uncertainty and through gradual experimentation learn more about an object in nature. This approach is a precursor towards modern empirical science (Sheridan 2016; Uzgalis 2017).

Interestingly enough, Locke believed we could be more certain of fields dealing with modes (politics) than fields dealing with substances (physics). In the end Locke tried to show that (1) innate ideas are devoid of truth, (2) that Aristotle and Descartes' scientific methods work only in instances regarding complex ideas of modes and (3) that we will have to work hard to gradually improve our knowledge of nature through experimentation and not rational deductive thought (Sheridan 2016; Uzgalis 2017).

After Locke, several other British empiricists took his ideas further, though not always as expected. The empiricist philosopher Bishop George Berkeley (1685–1753), for example, pointed out that if we had direct access only to the ideas in our mind and only indirect access to reality itself, how could we hold the distinction between an object's primary and secondary qualities? How could we know that the ideas we had were in fact real and true representations? If the secondary qualities of an object were not real, what grounds would we have to say that its primary qualities were real? In fact, what evidence would we have to suggest that a material world outside us existed (Downing 2013)?

Another rather radical empiricist philosopher, David Hume (1711–1776), asked what evidence we had of the concept of cause and effect. Hume did not believe that we could use

either reason (Descartes) or experience (Locke) to arrive at a concept such as causation. The only thing we could say, based on experience, was that one thing had happened and after that another thing had happened. What Hume was pointing out was that we had no empirical reason to confidently state that the future would resemble the past. Without such an assurance the predictions of science would be arbitrary (Morris & Brown 2017).

Immanuel Kant's science

Immanuel Kant was famously awoken from his slumber by the questions David Hume posed. Kant was not a sceptic and believed that these questions could be answered. As a child of the Enlightenment Kant believed strongly in the supremacy of the mind. In fact, he believed that the mind gave us reality in a certain way. What followed is known as Kant's Copernican revolution in philosophy because Kant encouraged philosophers to think differently about thinking, thereby solving the problem with causation (Rohlf 2016).⁹

Kant's 'think differently about thinking' is better known as 'transcendental idealism'. Stang (2016) defines it as follows:

In the *Critique of Pure Reason* Kant argues that space and time are merely formal features of how we perceive objects, not things in themselves that exist independently of us, or properties or relations among them. Objects in space and time are said to be 'appearances', and he argues that we know nothing of substance about the things in themselves of which they are appearances. Kant calls this doctrine (or set of doctrines) 'transcendental idealism'.

Simply put, Kant believed that we had the innate ability to structure sense experience. This means that we do not know the world as it is; we only know it as the mind presents it to us. Put in a different way, Kant believed that the mind had two different powers: sensibility and understanding. Sensibility, Kant said, has two innate forms: space and time. Everything we experience the mind takes and puts into the form of time and space. That means that time and space do not exist out there. The same is true for the understanding. It also has innate forms. One of them is causality. This means that when we experience something, our minds put it in the form of cause and effect (Rohlf 2016).¹⁰

Let us take space as an example. Kant (2012) starts off with saying: (1) 'Space is not a conception which has been derived from outward experiences'. Space is not something out there gained from experience but in here, innate and independent of experience. Kant (2012) further says that (2) 'Space then is

9. Kant (2012) was an empiricist. His own words leave no doubt: 'That all our knowledge begins with experience there can be no doubt. For how is it possible that the faculty of cognition should be awakened into exercise otherwise than by means of objects which affect our senses, and partly of themselves produce representations, partly rouse our powers of understanding into activity, to compare to connect, or to separate these, and so to convert the raw material of our sensuous impressions into a knowledge of objects, which is called experience? In respect of time, therefore, no knowledge of ours is antecedent to experience, but begins with it'.

10. Kant is a titan in the field of philosophy. That being said, he wrote during the 1700s and his thoughts were his own. As such, scholars are still debating the precise meaning of Kant's ideas. Certain interpretations give rise to certain problems. For a detailed discussion refer to the 'two worlds vs. one world' interpretation of Kant (Rohlf 2016).

a necessary representation a priori, which serves for the foundation of all external intuitions. We never can imagine or make a representation to ourselves of the non-existence of space, though we may easily enough think that no objects are found in it’.

Kant tries to show that space is an innate form or category imposed on sense experience. He does this partly by explaining that we can never envision a scenario without space. I can perfectly imagine an empty room but I cannot imagine a room without space because space is innate; my mind automatically ‘stamps’ it on my thoughts and experiences.

Before we discuss the problems with above interpretation of Kant, we first need to look at the method Kant used to prove the existence of innate forms. This method is called the ‘transcendental argument’.¹¹ Transcendental arguments were often used to convince sceptics of the existence of a statement. For example: take something everyone believes to be true, including the sceptic: so we all take x to be true. The next step is to show that for x to be true, y also needs to be true. So you have to deny the truth of x if you do not believe in the truth of y because without y , x could not be true (Rohlf 2016).

I can now demonstrate that a world outside us must exist (y) for us to have the perceptions or facts that we all believe to be true (x). I can use the same argument to prove that one of the innate concepts of the understanding must be cause and effect. Hume may have been right; we do not have any empirical evidence to suggest causality, but in order for me to have certain experiences and in order for me to talk about experience in a causal way, I must already have the concept of causality that is innately present in the understanding (Stern 2017).

Above is one way of interpreting Kant, a view that dominated during his own lifetime. It is, however, not without its problems. Rohlf (2016) describes it as:

Another name for this view is the two-worlds interpretation, since it can also be expressed by saying that transcendental idealism essentially distinguishes between a world of appearances and another world of things in themselves ... The main problems with the two-objects interpretation are philosophical ... First, at best Kant is walking a fine line in claiming on the one hand that we can have no knowledge about things in themselves, but on the other hand that we know that things in themselves exist, that they affect our senses, and that they are non-spatial and non-temporal. Second, even if that problem is surmounted, it has seemed to many that Kant’s theory, interpreted in this way, implies a radical form of skepticism that traps each of us within the contents of our own mind and cuts us off from reality.

11. Stern (2017) explains it in the following way: ‘As standardly conceived, transcendental arguments are taken to be distinctive in involving a certain sort of claim, namely that X is a necessary condition for the possibility of Y – where then, given that Y is the case, it logically follows that X must be the case too. Moreover, because these arguments are generally used to respond to skeptics who take our knowledge claims to be problematic, the Y in question is then normally taken to be some fact about us or our mental life which the skeptic can be expected to accept without question (e.g. that we have experiences, or make certain judgements, or perform certain actions, or have certain capacities, and so on), where X is then something the skeptic doubts or denies (e.g. the existence of the external world, or of the necessary causal relation between events, or of other minds, or the force of moral reasons). In this way, it is hoped, skepticism can be overturned using transcendental arguments that embody such transcendental claims’.

Differences in interpretation of Kant aside, important to note is that Kant believed that the mind had the innate ability to structure sense perception. With previous philosophers the mind was mostly inactive, recognising innate ideas that were supposedly there all along or perceiving simple ideas given by sense experience. Take Locke, for example. Locke thought that the mind merely perceives and then constructs knowledge of that which has been perceived. With Kant the mind structures knowledge in the act of perceiving. The mind is therefore given an active role. This is thinking differently about thinking, a Copernican revolution in philosophy.

Conclusion

Descartes believed that the mind is able to transcend its human bonds and grasp at the eternal, seeing deeply into the essences of human beings and all of reality. Locke, on the one hand, also believed that the mind is able to transcend its earthly bonds. Human beings can be absolutely certain about the existence of God, their own existence and the products they create. On the other hand, Locke held that, where experience is concerned, human beings need to work from the ground on up, gradually increasing their knowledge, knowing full well that they do not yet have access to the inner workings of objects in reality. Kant takes another route. Reason no longer transcends its own humanity. Instead it has to make do with the ‘doctored’ picture provided by the mind.

After Kant the consensus starts to grow that reason does not transcend its human bonds but rather is a product of it. Rorty (1982) would later state:

Since Kant, we find it almost impossible not to think of the mind as divided into active and passive faculties, the former using concepts to ‘interpret’ what ‘the world’ imposes on the latter. (p. 3)

Baghramian (2004) remarks that:

Husserl blames Kant, more than any other philosopher, for psychologism and relativism. He argues that there is nothing in Kant’s work to prevent us from thinking that the Kantian table of categories (the mind’s way of shaping sense experience – NJG) could vary in different species or even individuals. (p. 50)

In short, modern relativism is not a new fad but thoroughly ingrained in modern Western thought. It is the product of a long and winding road, from scholars who at first believed that human beings could transcend the local, the specific and the subjective (Descartes and Locke) to scholars who opened the door to new ways of thinking (Kant). Seen in this way it becomes clear that reformed churches will most likely have to deal with modern relativism and the considerable challenges it poses for some time to come. It is as Alasdair MacIntyre (1987) writes:

Relativism, like skepticism, is one of those doctrines that have by now been refuted a number of times too often. Nothing is perhaps a surer sign that a doctrine embodies some not-to-be neglected truth than that in the course of the history of philosophy it should have been refuted again and again. Genuinely refutable doctrines only need to be refuted once. (p. 385)

Discussion

Reformed theological constructs such as biblical inspiration and prophetic preaching predate Kant. They now have to make sense in a post-Kantian world. In a post-Kantian world scholars are increasingly recognising that human beings shape and are shaped by their surroundings. The field of cognitive science, by no means a nihilist enterprise, is increasingly paying more and more attention to humans as beings shaped by a particular environment (e.g. embodied cognition).¹² A good example is found in Augoustinos, Walker and Donaghue's (2014) discussion of the metaphorical 'understandscope' that psychologists supposedly use when studying people:

The solitary figure is separated from the mass below, set apart as though unafflicted by being human and unaffiliated with anything human. In peering through the Understandscope, the figure fails to recognize that he (and the figure does seem to be drawn as 'he', and that only highlights the point we are making here) is inseparable from those below, and indeed that any understanding that comes through the Understandscope is not given to him as if divinely, but rather depends on his interpretation of the information provided.

Reformed congregants are living in a world where many, if not most, psychologists and neurologists accept the fact that we are shaping and shaped by our environment. That idea, so it seems, has become axiomatic in popular culture as well. This may lead to reformed churches struggling with a plausibility crises in the public sphere. Under these circumstances the reverend who wishes to proclaim the 'unvarnished' Word of God may just be ridiculed as naive.

The situation is difficult; fortunately there are theologians who can be of help in this particular situation. A good starting point would be Paul J. Achtemeier (1927–2013), who wrote *Inspiration and Authority: Nature and Function of Christian Scripture* (1999). When dealing with the biblical inspiration, Achtemeier (1999:104) distinguishes between three components:

- the tradition of the community
- the situation facing the community
- the author(s).

With 'tradition', Achtemeier means to say a living tradition that could be brought to bear on a new situation that faces the community. In other words, tradition functions as God's Word that communities then reinterpret in order to speak a new word to new times; for example, the Old Testament is used as a living tradition, interpreted by the writers of the New Testament in order to speak anew to differing circumstances. The work of reinterpreting is done by the author(s). The Holy Spirit, Achtemeier (1999:144) argues, is present in all three components.

12.Thagard (2014) describes cognitive science as follows: 'Cognitive science is the interdisciplinary study of mind and intelligence, embracing philosophy, psychology, artificial intelligence, neuroscience, linguistics, and anthropology. Its intellectual origins are in the mid-1950s when researchers in several fields began to develop theories of mind based on complex representations and computational procedures. Its organizational origins are in the mid-1970s when the Cognitive Science Society was formed and the journal *Cognitive Science* began. Since then, more than ninety universities in North America, Europe, Asia, and Australia have established cognitive science programs, and many others have instituted courses in cognitive science'.

Achtemeier is an excellent example of a theologian trying to wrestle with the idea of human historicity while trying to stay true to his faith in Jesus Christ. As such, his thought holds much promise to theologians who wish to engage an audience that find themselves in a culture that takes human historicity serious.

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