

# Abraham Kuyper's Christian science and empirical science – different yet similar: An investigation into epistemological structures

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Abraham Kuyper wanted his fellow countrymen to accept biblically informed academic output as scientific and therefore authoritative. If Kuyper's plans were to come to fruition, he would have to state the case for a Christian science in a way that made sense to an audience enamoured with empirical science. Kuyper did this when he adopted foundationalism as epistemological thought structure, just like empirical scientists did. He did also differ from empirical science in the sense that he took faith as the foundation for his epistemological thought structure. Although Kuyper's choice for faith as foundation gave him the opportunity to introduce the Bible to scientific endeavour, his acceptance of foundationalism resulted in him dehumanising knowledge the same way empiricist scientist's did.

**Abraham Kuyper se Christelike en empiriese wetenskappe - verskillend, dog dieselfde: 'n Ondersoek na epistemologiese denkstrukture.** Abraham Kuyper wou dat sy tydgenote bybels-gefundeerde akademiese arbeid as wetenskaplike arbeid aanvaar. Ten einde dit te bewerkstellig moes Kuyper sy saak vir 'n Christen-wetenskap so stel dat dit sin kon maak vir sy tydgenote wat sterk onder die invloed van die waarde van empiriese wetenskapsbeoefening was. Kuyper het dit gedoen deur, soos die empiriese wetenskapsbeoefening, ook van 'n foundationalist epistemologiese denkstruktuur gebruik te maak. Hy het wel van die empiriese wetenskapsbeoefening verskil deur geloof as fondasie vir sy epistemologiese denkstruktuur te neem. Hoewel Kuyper se aandrang op geloof as fondasie hom die geleentheid gegee het om die Bybel by wetenskapsbeoefening te betrek, het sy aanvaarding van foundationalism tot gevolg gehad dat hy kennis op dieselfde wyse as die empiriese wetenskapsbeoefening dehumaniseer.

## Introduction

In this article a very basic claim will be made:<sup>1</sup> Kuyper wanted his fellow countrymen to accept biblically informed academic output as scientific and therefore authoritative. If Kuyper's plans were to come to fruition, he would have to state the case for Christian science in a way it would be sensible to an audience enamoured with empirical science. He did this through collaborating with, but also differing from, the empirical science of his day.

With regards to collaboration, this can best be seen when we look at the type of epistemological structure employed by both empirical science and Kuyper's Christian science, that is foundationalism as epistemological structure.

With regards to the differences, Kuyper and proponents of empirical science like John Locke, differed about what type of foundational propositions were to function as the foundation for their respective foundationalist epistemological structures. This difference leads to empirical science utilising classic foundationalism as epistemological structure, whilst Kuyper utilised, what could be labelled as Kuyperian foundationalism, as epistemological structure.

The fact that Kuyper's brand of Christian science is different yet similar to empirical science practiced in his day, leads to certain positive and negative results:

- The positives: because Kuyper differs with regards to the foundational propositions that were to function as the foundation for a foundationalist epistemological structure, he not only avoided ontological arguments (proving God's existence using logical arguments), but

1. This article is not written from a neutral vantage point. Unfortunately space does not permit a full exposition of my own presuppositions. It must be noted, however, that I do not share all Kuyper's convictions. Rather, my own point of view is heavily influenced by the theologian Paul J Achtemeier and the Schema theory.

also managed to raise criticism of empirical science that remains relevant to this day.

- The negatives: because Kuyper also utilised the doctrines of foundationalism for his epistemological structure, similar to proponents of empirical science such as John Locke, his brand of Christian science is vulnerable to the charge of dehumanising knowledge, that is not acknowledging or undervaluing the influence human scientists have on science.

Those who wish to utilise Kuyper's brand of Christian science would be wise to deal with both the positive and negatives aspects of Kuyper's thought.

## Structure of the article

To maintain this point of view and support the conclusions drawn at the end of the article, firstly an explanation will be given in the first section of crucial terms utilised in the argument – terms like *epistemology*, *foundationalism* and *classic foundationalism*. Secondly, two examples of scholars, Aristotle and Rene Descartes, who utilised classic foundationalism, will be provided.

In the second section the way proponents of empirical science such as John Locke, utilised classic foundationalism and help to formulate what empirical science should look like, will be discussed. Locke's conception was very influential in both Britain (and her colonies at the time such as the USA) and the European continent. A quote from Rogers (2001) adequately describes why Locke is been chosen to focus on:

In the eighteenth century, Locke's empiricism and the science of Newton were, with reason, combined in people's eyes to provide a paradigm of rational inquiry, that arguably, has never been entirely displaced. (p. 232)

In the third section the way Kuyper pioneered his own brand of Christian science, using different foundational propositions whilst utilising the same epistemological structure of empirical science, will be discussed. Lastly, in the fourth section some conclusions regarding the use of Kuyper's brand of Christian science will be made.

## A definition of terms

### Introduction

In this section, clarifications and explanations will be given for terms used in the argument. The terms are *epistemology*, *foundationalism*, *classic foundationalism*, *foundational propositions*, *justified propositions*, *induction* and *deduction*. Afterwards, the article will focus on Aristotle and Rene Descartes.

### A definition of terms

Matthias Steup's definition (2014) will be used to explain the term *epistemology*:

Defined narrowly, epistemology is the study of knowledge and justified belief. As the study of knowledge, epistemology is concerned with the following questions: What are the necessary

and sufficient conditions of knowledge? What are its sources? What is its structure, and what are its limits? As the study of justified belief, epistemology aims to answer questions such as: How we are to understand the concept of justification? What makes justified propositions justified? Is justification internal or external to one's own mind?

In short, epistemology deals with questions such as What can we know?; How can we know what we know?; What do we know to be true or false?; and What is the limits of our knowledge? As such, epistemology has to do with the most basic questions regarding philosophy. Epistemology therefore remains, along with metaphysics, ethics and political philosophy, one of the key areas of investigation in the field of philosophy.

Foundationalism as epistemological structure wants to answer some of the questions posed by epistemology. Before we look at foundationalism it might be helpful to note that when it comes to epistemological structures, foundationalism and coherentism dominate the field.

Firstly, a brief look at coherentism: coherentism views knowledge as a spider's web. Olsson (2014) describes coherentism as:

According to the coherence theory of justification, also known as Coherentism, a belief or set of beliefs is justified, or justifiably held, just in case the belief coheres with a set of beliefs, the set forms a coherent system or some variation on these themes.

In other words, when does one know that a proposition (a sentence stating a fact) is justified (when you can reasonably believe it is true)? The answer: when it fits in the spider's web. That is when the proposition fits in with all the other propositions (a set of beliefs) in the spider's web.

Foundationalism as epistemological structure, in turn, can be described with the metaphor of a house built on strong and stable foundations. In this instance proposition is justified when it is either part of the foundation or the house built on the foundation.

A more formal definition would be (broadly speaking foundationalists typically accept two doctrines):

- Although it is common practice to base one proposition on the other (it is wrong to commit murder *because* life is holy), foundationalists do not accept an infinite regression (that one proposition rests upon another that rests upon another and so on, *ad infinitum*). There has to be some kind of proposition that does not rest on other propositions for its justification. These kinds of propositions are called foundational propositions.
- Additional propositions, called justified propositions, are derived from or built upon these foundational propositions (Depaul 2001:viii).

The first important question is: What makes a foundational proposition, foundational? The answer given to this will most likely determine what kind of foundationalism you

are talking about.<sup>2</sup> As already noted, the criteria Abraham Kuyper had for foundational propositions differed from those of John Locke. Locke's idea of what constituted a foundational proposition belonged to what is called classic foundationalism.

DeWeese and Moreland (2005:68) says that, with classic foundationalism in particular, foundational propositions had to be either self-evident, incorrigible or evident to the senses.

- Self-evident propositions: propositions that carry the truth regarding themselves in themselves, for example bachelors are unmarried men or the law of non-contradiction (the belief that contradictory statements cannot both be true in the same sense at the same time). We can immediately see that the statement is justified, because they are self-evident.
- Incorrigible propositions: propositions that cannot be corrected, for example I am in pain, nobody can correct me on that, only I know if I am in pain or not.
- Propositions evident to the senses: the belief that I am experiencing something black, round and soft. There is always the chance that my senses may deceive me (the thing I am experiencing may in reality be white, square and hard). Although that may be the case, it is indubitable that at the moment I am experiencing something black, soft and round, true or not. That is what I am experiencing; in that I cannot doubt.

The second question that needs to be answered is how justified propositions are built upon foundational propositions. With regards to classic foundationalism two methods are generally best known:

- Deduction: Aristotle's use of syllogism would be one way using deductive logic to deduce justified propositions from foundational propositions. For example: if  $a = b$  and  $b = c$  are foundational propositions, a justified proposition deduced from them would be  $a = c$ . The method, deducing a justified proposition when comparing two foundational propositions, is an example of deductive logic, or more in particular, a syllogism. If utilised in this manner, foundationalism (or the axiomatic method) may not produce new knowledge, but if the foundational truths are indubitable, the statements derived from them will also be indubitable (Skirbekk & Gilje 2001:153).
- Induction: With induction we make general statements based on the observation of the particular. I go to a number of lakes on every continent and observe only white swans and, because of this, I come to the conclusion that, all over the world, only white swans exist. Inductive knowledge is not indubitable. If, in future, I see one black swan, my conclusion is proved false (Skirbekk & Gilje 2001:153).

When do I know that a proposition is a justified belief? In the case of classic foundationalism it has to be a proposition that is self-evident, incorrigible or evident to my senses, or

<sup>2</sup>There are of course different types of foundationalist (e.g. classic foundationalism) and coherentist epistemological structures available. There are also combinations of the two, referring to Susan Haack's (2009) proposal of foundherentism.

it has to be derived from foundational propositions. Classic foundationalism, as epistemological structure, is therefore best understood as a method to do science (in this case to determine what we know with certainty).

## Two examples

Aristotle and Rene Descartes are examples of scholars who utilised classic foundationalism.

### Aristotle

When classic foundationalism is mentioned, the focus tends to be on Euclid and his geometry.<sup>3</sup> Before him, however, there was Aristotle. Aristotle may not have been ancient Greece's first logician, but he made ground-breaking discoveries in the use of logic in ancient science. Consequently, it was Aristotle who, with his logic, laid the groundwork for classic foundationalism as epistemological framework. Classic foundationalism, in turn, proved to be very influential through the Middle Ages until today.<sup>4</sup>

Aristotle's scientific method is, at times, very obscure and, as such, has been thoroughly discussed and debated over the past two millennia (refer to Hylarie Kochiras' discussion (2013) in this respect). A simplified explanation will be in short that Aristotle rejected an infinite regress. The buck had to stop somewhere. This 'somewhere' was self-evident foundational propositions. Where do we find these propositions? For a more accurate understanding, Christopher Shields' interpretation (2007) of the old master will be examined:

[...] he [*Aristotle*] suggests, repeated perception gives way to entrenched memory, which in turn results in a condition he calls 'experience' (empeiria), where the word, as it is used in this context, seems to have a quasi-technical force (cf. *Meta.* 981a5– 9). In order for something to qualify as what is here called experience, a single universal must settle in our soul on the basis of repeated episodes of sense perception. Aristotle, unfortunately, does little to explain the mechanics of the actual process involved ... Aristotle asserts, rather boldly, that we on this basis move into a state of understanding (nous), a kind of intellectual grasping of the necessary features of reality from which we may proceed to offer demonstrative arguments.

In this quote above, Shields describes Aristotle's scientific method, or rather his method of determining foundational propositions. According to Shields' interpretation, Aristotle identified self-evident foundational propositions through experience – when after repeated perception we just grasp some proposition to be true (for the sake of brevity Aristotle's views on knowledge, essential features and causes will not be discussed).

<sup>3</sup>When explaining Descartes' foundationalism Newman (2010) writes: 'Exemplary of a foundationalist system is Euclid's geometry. Euclid begins with a foundation of first principles – definitions, postulates, and axioms or common notions – on which he then bases a superstructure of further propositions.'

<sup>4</sup>Back in the 1960s Anderson and Johnstone (1962:5) wrote that: 'Indeed, modern intellectual history is even more influenced by the idea of an axiom system than was the Greek age of Euclid and Aristotle. Today axiomatisation is a method used in all parts of mathematics, in the natural sciences and, more astonishingly, in biology, economics, and sociology as well.'

Taking these self-evident foundational propositions, Aristotle went ahead and deduced justified propositions via his own type of syllogism (deduction), for example consider the following propositions: proposition one = if A is predicated (said) of all B and proposition two = if B is predicated (said) of all C then proposition three = A is predicated of all C. As is usual with syllogism: if we are certain of the foundational propositions we start with, we can be certain of the justified propositions we deduce – that A is predicated of all C<sup>5</sup> (Smith 2012).

### Rene Descartes

We generally take the Middle Ages to be followed by the Renaissance in the south of Europe and the Reformation in the north. Thereafter, it was the Age of Reason also known as the Age of Enlightenment that brought about the birth of the Modern Era. Rene Descartes (1596–1650) is generally taken to be the father of this new era.<sup>6</sup>

Descartes, ever the Rationalist, did not trust the senses. Instead of foundational propositions evident to the senses, he wanted to unearth innate self-evident foundational propositions.<sup>7</sup> With ‘innate’ Descartes meant propositions given by God, not the senses. The only way to get at them was through rational reflection, or methodical doubt in Descartes case (Hatfield 2011; Newman 2010).

Thus began Descartes methodical doubt.<sup>8</sup> He doubted in his being awake, in his senses, in mathematics, but one thing he could not doubt, was that he was doubting or thinking. Hence, his clear and distinct innate idea ‘I think, I exist!’ This is the one thing Descartes could be indubitably certain of: ‘I think, I exist’, his first innate self-evident foundational proposition (Hatfield 2011; Newman 2010).<sup>9</sup>

Descartes declared ‘I think, I exist’ to be a clear and distinct idea. Together with other equally clear and distinct ideas, he deduced the essence of God, humanity and the rest of

5. In very simplified terms: Socrates is a man (first proposition) and all men are mortal (second proposition) then Socrates is mortal (third proposition).

6. Dating is always a bit problematic. In this article the dating of events follows the lead of two important scholars: Stephen Toulmin (1990) who believes the Modern Era had two distinct starting points, namely the one with the Renaissance and the other the Age of Reason or Age of Enlightenment, whilst Nancey Murphy (1996) acknowledges only Descartes as father of the Modern Era.

7. In his *Meditations on First Philosophy*, Descartes (2012) wrote: ‘I will continue always in this track until I shall find something that is certain, or at least, if I can do nothing more, until I shall know with certainty that there is nothing certain. Archimedes, that he might transport the entire globe from the place it occupied to another, demanded only a point that was firm and immovable; so, also, I shall be entitled to entertain the highest expectations, if I am fortunate enough to discover only one thing that is certain and indubitable’ [translation – Start Publishing].

8. Descartes 2012 writes: ‘I will suppose, then, not that Deity, who is sovereignly good and the fountain of truth, but that some malignant demon, who is at once exceedingly potent and deceitful, has employed all his artifice to deceive me; I will suppose that the sky, the air, the earth, colors, figures, sounds, and all external things, are nothing better than the illusions of dreams, by means of which this being has laid snares for my credulity; I will consider myself as without hands, eyes, flesh, blood, or any of the senses, and as falsely believing that I am possessed of these; I will continue resolutely fixed in this belief, and if indeed by this means it be not in my power to arrive at the knowledge of truth, I shall at least do what is in my power, viz. (suspend my judgment), and guard with settled purpose against giving my assent to what is false, and being imposed upon by this deceiver, whatever be his power and artifice.’

9. Descartes (2012) tells us: ‘Doubtless, then, I exist, since I am deceived; and, let him deceive me as he may, he can never bring it about that I am nothing, so long as I shall be conscious that I am something. So that it must, in fine, be maintained, all things being maturely and carefully considered, that this proposition (pronunciatum) I am, I exist, is necessarily true each time it is expressed by me, or conceived in my mind.’

reality. He then uses this rationalist picture of all reality as hypothesis that informed his scientific practice (Hatfield 2011; Newman 2010).

Descartes knows that the practice of moving from self-evident foundational truths to justified truths through deduction is an ancient way of doing science, utilised in various ways during the Middle Ages and still trusted in his own era. With this he wanted to show that he could use reason, and by following this strict method, he could come up with a picture of reality. With theology and tradition having failed to put an end to the debilitating religious wars between Protestants and Roman Catholics, Descartes believed that reason could step in and give Europe a new foundation upon which to build, showing them not only that God exists, but also helping them unearth the very essence of God, humanity<sup>10</sup> and the rest of reality. Not everybody was a Roman Catholic or a Protestant, but everybody had access to reason and so could bask in the unity and insight it provided (Toulmin 1990).

### Summary

Foundationalists do not accept an infinite regress. There have to be a starting point or, rather, foundational propositions. These foundational propositions can then be used to gain further knowledge called justified propositions. In this instance a proposition that is neither foundational nor can be shown to be justified, cannot be considered proper knowledge.

Aristotle and Descartes both preferred self-evident propositions, that is, they carry the truth regarding themselves in themselves and can be held with certainty. After all, a self-evident statement such as ‘all bachelors are unmarried men’ can hardly be questioned. Aristotle sourced his self-evident propositions from experience, whilst Descartes pointed to the innateness of his self-evident propositions. Whichever way you choose – Aristotle or Descartes – when used in conjunction with deduction one could start with knowledge that is certain (two self-evident propositions) and be guaranteed (if the deduction is applied correctly) of an equally certain justified proposition. With the Age of Enlightenment, scholars and philosophers continued to adopt foundationalism for their own use.

## John Locke (1632–1704)

### Introduction

Classic foundationalism did not die with Descartes. Epistemology, in particular with regards to the source of foundational propositions, continued to be a burning issue with Rationalists such as Baruch Spinoza and Gottfried Leibniz; Empiricists such as John Locke, George Berkeley and David Hume; and Transcendental Idealists such as Immanuel Kant.

10. Descartes (2012) wrote the following about himself and the essence of humanity, as he has unearthed it through rational reflection: ‘But what, then, am I? A thinking thing, it has been said. But what is a thinking thing? It is a thing that doubts, understands, (conceives), affirms, denies, wills, refuses; that imagines also, and perceives.’ In short Descartes sees himself and all of humanity as ‘thinking things’.

John Locke was the first of three highly influential British Empiricists – the other two were George Berkeley (1685–1753) and David Hume (1711–1776). The British Empiricists, as the name suggests, did not believe in innate ideas.<sup>11</sup> Locke famously stated that the mind was *tabula rasa* at birth. It was empty and had no recourse to special or divine innate ideas that gave us insight into reality (Kochiras 2013; Uzgalis 2014).

To us this may sound strange, but in Locke's time innate ideas were more than important. Indeed Locke (2012) had to immediately defend his decision to do away with innate ideas right in the beginning of his book:

I have been told that a short Epitome of this Treatise, which was printed in 1688, was by some condemned without reading, because INNATE IDEAS were denied in it; they too hastily concluding, that if innate ideas were not supposed, there would be little left either of the notion or proof of spirits. If any one take the like offence at the entrance of this Treatise, I shall desire him to read it through; and then I hope he will be convinced, that the taking away false foundations is not to the prejudice but advantage of truth, which is never injured or endangered so much as when mixed with, or built on, falsehood.

## Sense experience as fountain of knowledge

Instead of innate ideas as self-evident foundational propositions, Locke worked with simple ideas as the building blocks of propositions evident to the senses. In other words, Locke's house is built on the foundation of sense experience (Kochiras 2013; Uzgalis 2014).

Locke believed that all our knowledge originally stems from sense experience. In Locke's case, sense experience consisted of two parts: sensation and reflection.<sup>12</sup> Sensation (the five senses) provides the mind with simple ideas when coming into contact with reality. The mind then goes to work on these simple ideas (e.g. round, red, fruity smell, glossy, hard, small, sweet) to construct a complex idea (in this case, an apple). The mind also acquires additional simple ideas through the process of reflection, that is, the mind perceiving itself going to work on simple ideas and, in so doing, gaining additional simple ideas (e.g. thinking, existing, etc.). These two, sensation and reflection, together form sense experience that, according to Locke, is the primary source of all our knowledge (Kochiras 2013; Uzgalis 2014).

According to Locke the foundation of all our knowledge is constituted by simple ideas gained from sense experience.

11. In fact Locke felt so strongly about this, he devoted his whole book (Locke 2012) to refute the whole concept of innate ideas.

12. 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. The dominion of man, in this little world of his own understanding being much what the same as it is in the great world of visible things; wherein his power, however managed by art and skill, reaches no farther than to compound and divide the materials that are made to his hand; but can do nothing towards the making the least particle of new matter, or destroying one atom of what is already in being.'

It is these simple ideas which are the building blocks of foundational propositions evident to the senses. It is important to note that some of the simple ideas also formed the building blocks of self-evident propositions. Locke takes propositions such as 'I exist' (reflection) as self-evident. Thus, it could be said that Locke had two buildings, the one based on foundational propositions evident to the senses, and the other one based on self-evident foundational propositions. Both, however, can be traced back to sense experience (nothing is innate).

From the Pope in the Middle Ages to Descartes to Locke we see a transitioning from church authority and the Bible as ultimate source of knowledge to reason alone to sense experience as the ultimate source of all our knowledge, including matters of faith and morals (Kochiras 2013; Rogers 2001:232; Uzgalis 2014).<sup>13</sup>

## Summary

The big difference between Descartes and Locke is that Descartes tries to unravel the deepest secrets of known reality with the faculties of reason only. It is reason, with its innate ideas, and not tradition, the Bible or empirical experiment that tells him what reality consists of. Locke would agree that reason is supremely important (he also proves the existence of God via rational argument), but he would say that every one of the simple and complex ideas, employed by reason, ultimately derives from sense experience. It is therefore important not to withdraw into a process of rational reflection trying to tease out innate ideas, but to go out and experiment.

## Abraham Kuyper (1837–1920)

### Introduction

David Naugle (2002) tries to give a clearer picture as to who Abraham Kuyper was:

Described by his enemies as 'an opponent of ten heads and a hundred hands' and by his friends as 'a gift of God to our age' Abraham Kuyper (1837–1920) was truly a renaissance man, a veritable genius in both intellectual and practical affairs. A noted journalist, politician, educator, and theologian with Mosaic vigor, he is especially remembered as the founder of the Free University of Amsterdam in 1880 and as the prime minister of the Netherlands from 1901 to 1905. The source of this man's remarkable contributions is found in a powerful spiritual vision derived from the theology of the Protestant reformers (primarily Calvin) which centered upon the sovereignty of the biblical God over all aspects of reality, life, thought, and culture.

In the previous sections it was indicated that classic foundationalism, as epistemological structure, was alive and well prior to and during the lifetime of Abraham Kuyper. Locke, along with Isaac Newton and other empiricist

13. Locke (2012) was a firm believer that we have can only know what the sense tell us. He writes: '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.'

philosophers, contributed greatly to knowledge being grounded in empirical observation. Reason and logical reasoning remained of primary importance, but even that was to be traced back to sense experience. What we could know was what the world wanted to tell us, nothing more and nothing less. In such circumstances societies would demand of theologians to present proof that God exist and that the Bible is indeed the Word of God. This could be accomplished through rational argument and proofs that, for example, the Bible is divine, because the prophecies foretold therein all came true. In such a way theology can become a science, or so it was believed. Kuyper would have no part in constructing proofs. He went about vesting biblically informed academic labours with scientific authority in quite a different way.

### Foundational propositions as faith

Kuyper (1898)<sup>14</sup> starts off with a striking foundationalist metaphor of the picture of knowledge as a building with strong foundations:

That this is not generally so understood can only be explained from the fact that, in the search after the means at our command by which to obtain knowledge, the investigation is abandoned before it is finished. The building is examined, and its foundation, and sometimes even the piles that are underneath, but the ground on which the lowest points of these piles rest is not explored.

The point Kuyper is trying to make is that before we have self-evident innate foundational propositions (in the case of Descartes), we believe that the world can be understood rationally and that we are rational beings that can identify genuine self-evident propositions. The same holds true for Locke's ideas – before we could entertain either propositions evident to the senses or inductive arguments, we had to believe that our sense are dependable and that tomorrow, things will be the same as today and yesterday. If one looks at it this way, you can say that our knowledge buildings rest on faith and not on innate self-evident foundational propositions or those evident to the senses (Heslam 1998; Naugle 2002; Van Woudenberg 1999).<sup>15</sup>

In this sense Kuyper differs radically from Aristotle, Descartes and Locke. Science does not start with knowing, it starts with believing. Our certainties are not grounded in universal truths or observed facts, but faith in the world and our own abilities to comprehend it and make sense of it. These beliefs were not open to demonstration. Besides, how do we prove that the whole world is a rational place? In other words, scientists everywhere had to accept certain principles based on pure faith that nobody could prove to be true. Acknowledgement of this opens the door to Kuyper's

14. In their exposition of Kuyper's thought Heslam (1998) and Naugle (2002) focus on the Stone Lectures as delivered by Kuyper at Princeton in the USA. This article will focus on Kuyper's *magnum opus* (1898).

15. Kuyper (1898) writes: 'From this it also follows, that without faith you miss the starting-point of all knowledge. The expression, "you must believe in yourself," has certainly been abused in humanistic circles to weaken both the denial of ourselves and our faith in God, but it is actually the case that he who does not begin by believing in himself cannot progress a single step ... faith here is taken merely as the means or instrument by which to possess certainty, and as such it not only needs no demonstration, but allows none.'

Calvinism. Born-again Christians also believe in certain things (the existence of God and the Bible as the Word of God), not because of proof, but because of the regenerative work of the Holy Spirit (*palingenesis*). Therefore, both scientists and Christians believe in things they cannot prove (Heslam 1998; Naugle 2002; Van Woudenberg 1999).

This also means that Kuyper did not really view ontological arguments as a positive. As already stated, Kuyper believed that our faith in the Trinity and the Bible as the divinely inspired Word of God did not result from rational argument or empirical evidence, but from the regenerative work of the Holy Spirit. This makes 'God proofs' superfluous. If people are not born again, it will not help if you try to convince them with so-called evidence.

Kuyper's argument is simple. There exists no conflict between science (those who supposedly know) and religion (those who supposedly only believe). Rather the real conflict is between scientists who only believe in their faculties, et cetera and born-again Christian scientists who also believe in God and the Bible as the Word of God. Both start from faith, from beliefs that do not lend themselves to demonstration.

Scientists who have experienced rebirth through the Holy Spirit (*palingenesis*) view reality in a different light as those who have not experienced such a rebirth. For example, born-again scientists believe in the Bible as the Word of God.<sup>16</sup> Through divine revelation they come to know that the earth is abnormal. It is fallen and in need of restoration. Scientists that are not born again do not accept divine revelation. Because of this they believe that the earth is in a normal state – it is as it is, ever evolving (Naugle 2002; Van Woudenberg 1999).<sup>17</sup>

Kuyper (1898) again describes the two kinds of sciences with the typical foundationalist metaphor of a house:

But however much they may be doing the same thing formally, their activities run in opposite directions, because they have different starting-points; and because of the difference in their nature they apply themselves differently to this work, and view things in a different way. Because they themselves are differently constituted, they see a corresponding difference in the constitution of all things. They are not at work, therefore, on different parts of the same house, but each builds a house of his own.

The above description is known as Kuyper's antithesis: the difference between scientists who are born again and scientists who are not. On the one hand this is a brilliant solution if the audience are also taken into consideration. Kuyper deals with people who expect to do science in a certain way, basing their laws, theories and conclusions on empirical observation. Those who start with faith, as the Calvinists did, did not have a leg to stand on, because the

16. Heslam (1998:) writes that: 'The miracle of regeneration, or palingenesis, wrought by the Holy Spirit was inseparable from the conviction, produced by the same Holy Spirit, that everything the Bible taught and revealed was divine in character. Because of this, it was unnecessary to defend the authority of scripture.'

17. Kuyper (1898) writes: 'If I omit from my calculations the facts of palingenesis and sin, then no estrangement from God has taken place; then our understanding has not been darkened; and no disturbance has convulsed nature to cloud the transparency of God in the cosmos.'

popular notion was to believe only what you can see. Kuyper turned this around, stating that we see because we believe (a point of view held by many Christians throughout history). Because we believe different, we see different. Such a point of view is also fraught with difficulties, for example: Is the two groups of scientists totally different from one another? Does the one measure two grams, whilst the other measures three? In this regard Kuyper's antithesis needs to be balanced by his views on common grace. Kuyper (1898) writes:

First, because there is a very broad realm of investigation in which the difference between the two groups exerts no influence. For in the present dispensation palingenesis works no change in the senses, nor in the plastic conception of visible things. The entire domain of the more primary observation, which limits itself to weights, measures and numbers, is common to both. The entire empiric investigation of the things that are perceptible to our senses (simple or reinforced) has nothing to do with the radical difference which separates the two groups. By this we do not mean, that the natural sciences as such and in their entirety, fall outside of this difference, but only that in these sciences the difference which separates the two groups exerts no influence on the beginnings of the investigation.

When Kuyper says that palingenesis works no change in the senses, it can be taken that our senses are not corrupted by sin. To a Calvinist holding to the total depravity of human nature, this sounds totally out of step with Calvinistic doctrine. In this regard there are two ways of interpreting Kuyper. On the one hand we may see in Kuyper's doctrine of Common Grace a strand of the Middle Ages scholastic thought dating back to Thomas Aquinas that stated that the natural intellect was not totally corrupted by original sin. On the other hand we may interpret Kuyper's thoughts on common grace as a continuation of the thought of Calvin. The latter proves to be the most popular interpretation of Kuyper (Naugle 2002; Van Woudenberg 1999).<sup>18</sup>

## Summary

Whatever the case may be, Kuyper does not propagate two completely separate sciences. In some instances the results of the labours of Christian and secular scientists will be the same, especially at the basic level. Kuyper's ideas on common grace also illustrate his idea of what Christian science should look like. In this sense Christian science is similar to 'ordinary empirical science' (utilising observation, induction, deduction, etc.) with the difference that it is practiced by born-again scientists. This makes Kuyper's biblically informed Christian science different yet similar to empirical science practiced by proponents such as John Locke. This, of course, also makes Kuyper's brand of Christian science vulnerable to the same type of attacks levelled at empirical science as practiced by the likes of Locke and Newton. This will be dealt with in the next, and last, section.

18. Heslam (1998) supports this conclusion when he writes: 'Although Calvin thus stressed the depravity of human reason, he did not for that reason reject non-Christian thought out of hand. He declared, indeed, that the "admirable light of truth" shining in the works of pagan and secular writers demonstrates that reason, even if apostate, "is nevertheless clothed and ornamented with God's excellent gifts". ... Although Calvin's ideas thus provided Kuyper with a solution to the problem of the value of non-Christian science, they did not do so by means of a fully fledged doctrine of common grace, as Kuyper's appeal to Calvin implies. Calvin's perspective did, however, provide Kuyper with a means to oppose dualism, which appears as a major concern in his fourth Stone Lecture.'

## Conclusion

A very basic claim was made in the introduction: Kuyper wanted his fellow countrymen to accept biblically informed academic output as scientific and therefore authoritative. If Kuyper's plans were to come to fruition, he would have to state the case for Christian science in a way that made sense to an audience enamoured with empirical science. He did this through collaborating with, but also differing from, the empirical science of his day.

In an effort to support the claim that was made, the terms used, were explained. Secondly, a brief explanation of how John Locke conceived of an empirical science was given; and thirdly, the specific manner Kuyper both collaborated with the empirical sciences of his day and differed from it was explained.<sup>19</sup> The claim that classic foundationalism has been dominant up until the time of Immanuel Kant is a rather unproblematic claim, accepted by mainstream scholarly opinion. In a similar vein, and although it has been explained in the article, Kuyper's use of foundationalism is similarly unproblematic and clear for all to see. Not only does Van Woudenberg (1999) call Kuyper a foundationalist of sorts ('of sorts' because he differed regarding foundational propositions), Heslam (1998) also writes:

In fact, however, this program (Kuyper's) borrowed liberally from the systems it purported to oppose – from pantheism the idea of coherence and unity; from evolutionism the idea of human and religious progress. Despite his emphasis on the antithesis between Calvinism and modernism, Kuyper's ideas are a testimony to the all-pervasiveness of nineteenth-century modernism, of which he himself was all too keenly aware. His aim of using the modernistic worldview as a model for his own in order to bring Calvinism up-to-date appears to have included some pitfalls he proved unable entirely to avoid.

What conclusions can be drawn? To address this the remarks that were made in the beginning of this article regarding the positive and negative aspects that resulted from the fact that Kuyper both differed from and collaborated with the empirical science of his day, will be returned to.

The positives: one theologian, whose name is mentioned with increasing regularity amongst conservative Protestants, is Lesslie Newbigin (his thought is very prominent within missional theology). Newbigin (1995:39) links up with famed philosopher of science, Michael Polanyi, when he writes: 'all knowing of reality involves the personal commitment of the knower as the whole person'. With the acknowledgement of one's beliefs, religious and otherwise, Kuyper is seen as an early forerunner of 'knowing that involves the personal commitment of the knower as the whole person'. In this sense Kuyper precedes those who believe that science entails tacit knowledge and that scientists will always know more than they can say.

19. Important to note that those who influenced Kuyper, be it Thomas Reid or Groen van Prinsterer, were not investigated. What he did and why he did it were the matters under discussion. Who put him up to it, remains the prerogative of other articles.

The negatives: above, Kuyper is described as 'an early forerunner of knowing that involves the personal commitment of the knower as the whole person'. The words 'early forerunner' were used, because, in essence, Kuyper remains a Christian empirical scientist and the Christian science he promotes, is essentially a Christian empirical science.

Kuyper's scientist and the empirical scientist both carefully weigh the empirical evidence (as is exemplified in the discussion regarding common grace), the main difference between the two being that the one holds to certain beliefs the other rejects. The scientific method, however, stays the same. In this regard, Kuyper agrees that science starts with certain propositions. He just adds his own faith in the Triune God as additional propositions.

This can make it difficult to understand Kuyper. What is true is that he did not believe in objective science. According to Kuyper, the two sciences proceeded from different beliefs. But then also, other than faith foundations, Kuyper pays no further attention to human historicity.<sup>20</sup> In fact he himself dehumanises knowledge when he states that you have your faith foundation and I have mine, and from there we both proceed as empirical scientists, weighing the evidence and discussing different hypothesis.

This disqualifies Kuyper as a mentor. However, one can definitely learn from him. To base one's own theological labours on his thought is not recommended. The reason is that following his train of thought will not help a person come to grips with his or her own historicity. Neither will it help to adequately reckon with the human historicity of the Bible.<sup>21</sup>

Kuyper remains a valuable resource and trail blazer of Calvinism in Europe and here in South Africa, but he also remains a child of the 19th century.

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20. Sheila Greeve Davaney (2000:1) describes the term human historicity as: '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.'

21. This remains a burning issue for Christians, as the example refers to Richard Hess (2007).

## Authors' contributions

N.J.G. (University of Pretoria) and F.J.v.R. both contributed to the research and writing of this article.

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