MICHAEL POLANYI, TACIT COGNITIVE RELATIVIST

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Michael Polanyi had a profound effect on the prominent theorists of science, Feyerabend and Kuhn¹ and, given the common apprehension of these two thinkers as cognitive relativists, it may be wondered whether Polanyi was himself a relativist. The topic is perhaps no less significant for theology and the philosophy of religion than it is for philosophy of science, Polanyi having exerted influence in each of these areas. In theology, for example, Dulles, has observed that Polanyi’s doctrine of the fiduciary component in human knowledge has immense significance … According to Polanyi, all acts of comprehensive knowledge either are or depend upon faith, in the sense of a free commitment to that which could conceivably be false … If this thesis is true, theology, as the work of faith seeking understanding, is not an anomaly among the cognitive disciplines. Religious ideas are acquired, developed, tested, and reformed by methods at least analogous to those pursued in the natural and social sciences.²

Turning to cognitive relativism, we find that Tillich has written of its vogue ‘in all forms of thought and life today’. He observes relativism rising to prominence ‘in the most sacred and perhaps most problematic of all realms, that of religion. It is visible today in the encounter of religions all over the world and in the secularist criticism of religion’.³ Poirier,⁴ Sanders⁵ and Echeverria⁶ have examined whether Polanyi was a cognitive relativist, but I disagree with the conclusions reached by the first two of these commentators, while my material and approach differ appreciably from Echevarria’s. It is argued below that Polanyi was an unwitting relativist. His express rejection of relativism is contradicted by the implications of his analysis of conceptual frameworks, and of the ‘gap’ between, and controversies concerning, frameworks.

POIRIER’S VIEW

Poirier believes there are fundamental differences between the theories of knowledge and reality of Polanyi and Kuhn, contrasting
Polanyi’s realism with Kuhn’s relativism. In Polanyi’s view, Poirier explains,

A theory is the product of insight … into the real. To the extent that this insight is truly about what is real, it is a wager that the insight … will uncover more of that order than is presently known. And, if more of the order is uncovered, then it is held that the original contact with reality was true, … since it eventually brought more of the true order, existing independently of man, into the ken of men.

We cannot avoid drawing attention to the fact that, for Polanyi, man the scientist does not experience himself as being in charge of the constituents of his insight. He is not inventor of his vision, as … is the case for Thomas Kuhn. Rather, he comes upon it, so that it might be said that he is responding to the beckoning of the real …

Given all of this, how can anyone claim that Polanyi is ontologically a relativist?

Poirier’s Polanyi rejects ontological relativism or the view that groups of people inhabit different realities. Poirier finds Polanyi affirming the oneness or singularity of physical reality, with truth understood as bearing on that reality. Polanyian truth is an objective condition of correspondence between frameworks and the one reality. The truth of propositions in Poirier’s interpretation of Polanyi is not relative to, and variable between, social groups or their cultures.

On at least one occasion in Personal Knowledge Polanyi explicitly denies cognitive relativism. It is this strand of Polanyi’s thinking that Poirier highlights. There is indirect evidence of Polanyi’s non-relativism in his depiction of the controversy between Hegel and astronomers over Bode’s Law, Polanyi denying that Hegel’s Naturphilosophie and the astronomers’ frameworks of belief were equally valid in their own terms. Even if Bode’s Law is duly shown to be a ‘mere coincidence’ without any rational foundation’, Polanyi argues that ‘the astronomers were right and Hegel was wrong’ for the reason that ‘the astronomers’ guess lay within a conceivable scientific system, and … was a competent guess …; while Hegel’s inference was altogether unscientific, incompetent’. In another expression of non-relativism, Polanyi notes that Aristotelians and Copernicans ‘agreed on what they meant by “true”; namely, that truth lies in the achievement of a contact with reality … I believe accordingly [writes Polanyi] – in view of the subsequent history of astronomy – that the Copernicans were right in affirming the truth of the new system, and the Aristotelians and theologians wrong in conceding to it merely a formal advantage.’

CHARACTERIZATION OF COGNITIVE RELATIVISM

The characterization of cognitive relativism offered here largely follows Hollis and Lukes’s influential formulation. As ‘a major first step’ toward such relativism, Hollis and Lukes identify two related propositions.
Perception is not determined by its objects.
Perception is conditioned by language.

As a result:

Facts ‘have to be perceived and identified before they can settle disputes and by then they are already impregnated’.

‘The crucial further step’ to cognitive relativism Hollis and Lukes take to be the relativizing of truth as follows.

What people accept as true descriptions of the world is relative to their respective semantic structures (conceptual schemes).
There is no ‘common stock of non-relative observational truths which serve to anchor communication’, so ‘conceptual schemes’ are incommensurable.
Each conceptual scheme contributes to the constitution of its own world.

Following these theses, which tie true descriptions to conceptual schemes and affirm multiple realities and incommensurable frameworks, the ‘final step’ to full fledged cognitive relativism involves standards of rationality.

Standards for good reasons ‘for holding beliefs’ cannot themselves be ranked as they also are relative to conceptual schemes. By way of illustration,

Galileo consulted observation and experiment, Bellarmine the scriptures; Evans-Pritchard the available evidence of causal connections, Azande the poison oracle. Each is equally enmeshed in a web of reasons, properly woven by its own standards from within but finally incapable of support from without.

Two further formulations of relativism, simpler than, but consonant with, that of Hollis and Lukes, may be noted. For Popkin, relativism affirms that cultural, religious and other views have to be assessed relative to the cultures that give rise to them, there being no ‘overall criterion’ for judging views true or false. Cunningham suggests that cognitive relativism is the denial of a ‘governing principle’ such as could ground a comparative evaluation of frameworks as approximations to truth. I submit that Polanyi’s thought is a species of cognitive relativism by any of these standards.

CONCEPTUAL FRAMEWORKS


Setting the scene, Polanyi summarizes for his readers the epistemology he had presented in Science, Faith and Society (1946) and ‘Scientific Beliefs’ (1951). He explains that ‘discovery, verification and falsification’ of propositions in science do not obey ‘any definite rule’ but proceed with the aid of ‘maxims’ which elude both precise formulation and
rigorous evaluation. The maxims are ‘premisses or beliefs … embodied in … the tradition of science’. Sustained by this tradition, science is governed by the coherent opinion of its practitioners who converse through the ‘idiom of science in which its interpretative framework is expressed’. Scientists accept the truth of their tradition as a matter of personal conviction, beyond empirical proof.

There are innumerable understandings of the world, Polanyi citing Azande witchcraft, Marxism and psychoanalysis, besides science. These conceptual frameworks are, for Polanyi, expressed in the use of, and upheld by, their corresponding languages which form ‘idioms of belief’. Polanyi attributes this view to Lévy-Bruhl and he finds it confirmed in Evans-Pritchard’s investigation of Azande witchcraft. Azande belief is ‘embedded in an idiom which interprets all relevant facts in terms of witchcraft and oracular powers’. Evans-Pritchard had been struck by how effectively the Azande reason ‘in the idiom of their beliefs’ and he pointed out that ‘they cannot reason outside, or against, their beliefs because they have no other idiom in which to express their thoughts’.

Polanyi went on to develop a general account of the linguistic embodiment of belief systems, contending that each language has a worldview implicit in its ‘vocabulary and structure’. A vocabulary is likened by Polanyi to the theory of chemical compounds in as much as a vocabulary is ‘a definite theory of all subjects that can be talked about’ and a vocabulary ascribes these subjects with ‘recurrent features’ to which the words refer. Each such worldtheory includes certain conceptions while ruling out many others. A language permits only certain questions to be formulated, and Polanyi writes that answers to them inevitably confirm the theory that is implicit in the vocabulary and structure of the language.

The thesis of worldviews as embodied in languages – foreshadowing the content of Whorf’s fascinating essay-collection (1956) – is repeated by Polanyi in *Personal Knowledge*. With reference to Evans-Pritchard and Lévy-Bruhl, Polanyi explains in *Personal Knowledge* that each ‘descriptive term’ of ordinary language ‘implies a generalization affirming the stable or otherwise recurrent nature of some feature to which it refers’, and together these ‘recurrent features constitute … a theory of the universe which is amplified by the grammatical rules according to which the terms can be combined to form meaningful sentences’.

Polanyi says that frameworks of belief cannot be evaluated from within. Using a given language to challenge its embodied theory produces self-contradictions. His point is that you affirm particular subjects with specific properties in the very act of using a language; so you contradict yourself if you use the language to deny its subjects or their properties. A worldview can be questioned only when its language has been surrendered for another language. A new idiom has to be taken up for the expression of ideas before one can criticize the previous
framework. Polanyi quotes from Koestler and Horney who at one time had regarded the ‘interpretative powers’ of their respective Marxian and Freudian language-frameworks ‘as evidence of … [their] truth’. When their faith collapsed, the two thinkers came to view the ‘powers’ of the systems as ‘excessive and specious’. The crux of Polanyi’s argument in 1952 was that worldviews are immanent or indwelling in languages which are shapers as well as instruments of thought.

THE SIGNIFICANCE OF SCIENTIFIC CONTROVERSIES

An analysis of scientific controversy in Polanyi’s most important work, *Personal Knowledge*, will be revealing for us. Polanyi sees controversy as shaping the content, values and methods of science; and, at the meta level, his analysis of scientific controversy informs his extensive argument against ‘objectivism’. A bloodless caricature of science, ‘objectivism’, for Polanyi, affirms that the content of scientific statements is ‘entirely determined by observation’ and logic, exclusive of personal factors. Were objectivism true, Polanyi argues, scientists would settle their differences by way of facts, reasoned argument and external criteria, by ‘systematic and dispassionate empirical investigations’. In fact, says Polanyi, scientific controversies arouse intense emotions and defy rational negotiated settlements. Objectivism is at a loss to account for scientific controversies.

In analysing scientific controversy, Polanyi applies ideas expressed in his 1952 paper on ‘global’ frameworks to developments in science itself. (Polanyi’s remarks about divergences between scientific frameworks apply a fortiori to the even more pronounced divergences between global frameworks such as modern science, Azande witchcraft, Marxism, and Christianity.)

In a Polanyian scientific controversy, supporters of a heterodox conceptual framework endeavour to wrest ‘scientific value’ (legitimacy) away from orthodoxy and its upholders. Among conceptual frameworks cited by Polanyi in this context are Freud’s psychology, Eddington’s a priori system of physics, Rhine’s ‘Reach of the Mind’, Lysenko’s biology, the astronomical theories of Ptolemy and Copernicus, Pasteur’s account of alcoholic fermentation as a living function of yeast, the view of Wöhler, Liebig and Berzelius that yeast in fermentation is a chemical precipitate, extra-sensory perception, epiphenomenalism and volitional neurology.

Polanyi says a good deal about scientists’ passionate commitment to established conceptual frameworks and he attributes great malleability to those frameworks. It is remarkable in this light that new conceptual frameworks arise, much less that some of them eventually ousted established ones from science. Orthodoxy can explain ‘most of the evidence’
but never all of it, yet adherents, impressed by their framework’s coherence, set aside ‘for the time being ... facts, or alleged facts, which it cannot interpret’. Polanyi stresses frameworks’ resistance to, and the lack of interest of protagonists in subjecting their frameworks to, criticism. He writes of ‘discrepancies’ often being classed as ‘anomalies’, a classic case being ‘the perturbations of the planetary motions that were observed during 60 years preceding the discovery of Neptune’. These recordings were ‘set aside’ for explanation in the future, and the majority of astronomers never viewed them as impairing the Newtonian framework.

A scientific framework undergoes what Polanyi describes as ‘pro- grammatic’ development, its conceptions assimilating, and adapting to, unprecedented instances – the scientist’s ‘tacit art’ of simultaneously applying and reshaping conceptions. A case in point is Urey’s addition of deuterium to the isotopes of hydrogen, against the vain objection of Soddy that this violated the meaning of ‘isotope’ which required isotopes of an element to be chemically inseparable from each other. A Polanyian framework also develops through the unfolding of its theoretical implications, with new facets of reality discovered. In illustration, the ancient atomists, seventeenth-century corpuscularians and John Dalton ‘beheld and described the dim outline of a reality which modern atomic physics has since disclosed in detail’.

Although the theme of commitment to orthodoxy is pronounced in Polanyi’s discussion, he does say that anomalies may lead to frameworks being questioned. He believes that ‘every system of thought has ... some loose ends tucked away ... Yet it is a fact that time and again men have become exasperated with the loose ends of current thought and have changed over to another system, heedless of similar deficiencies within that new system.’ Otherwise Polanyi has little to say concerning the circumstances that arouse scientists’ affirmative and conative intellectual passions, urging scientists to discover frameworks and prompting others to switch their allegiance to the new.

Going to the core of his understanding of scientific controversies, Polanyi writes that

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\text{two conflicting systems of thought are separated [or ‘segregated’] by a logical gap ... Formal operations relying on one framework of interpretation cannot demonstrate a proposition to persons who rely on another framework. Its advocates may not even succeed in getting a hearing from these, since they must first teach them a new language, and no one can learn a new language unless he first trusts that it means something.}
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The idea of the logical gap between frameworks controls Polanyi’s understanding of scientific controversy. He believes that conceptual frameworks in a controversy have this logical gap ‘in the same sense as a problem is separated from the discovery which solves the problem’.
The logical gap between a problem and its undiscovered solution consists for Polanyi in the fact that no rule or logical procedure leads from existing knowledge to the solution which is by its very nature unpredictable. (Maxims, being inherently vague, can only afford limited assistance to a discoverer trying to cross the gap.) As Polanyi explains it, the logical gap between a problem and its solution has to be crossed heuristically, by the enquirer trying to guess right. The first-ever crossing occurs in an intellectual leap of originality. Discontinuous with previous knowledge, the solution combines a Gestalt mental reorganization with emotional upheaval.

Polanyi uses the analogy of a gap between a problem and its solution to elucidate his idea of a logical gap or disconnection between conceptual frameworks in a scientific controversy. The separation between the contents of such frameworks is such that no relation of entailment, contradiction or disjunction exists between them. A new framework is not an inductive generalization, nor a deductive inference, from a traditional one, nor does it enlarge and correct an existing framework. The extent of the logical gap is underscored by Polanyi with the proposition that, compared to followers of an established scientific framework, supporters of a new system ‘think differently, speak a different language, live in a different world’.

Conceptual frameworks are needed in order to make ‘sense of experience’, each one presenting a unique ‘vision of reality’. Adherents of frameworks in a controversy belong to the same ‘material universe’ but they conceptualize and experience different worlds. Ontologies of frameworks being radically different, frameworks on either side of a logical gap may have no facts in common.

The great gap between frameworks is traced by Polanyi to their ‘premisses’, by which he means their presuppositions. These premisses are tacit in the minds and actions of researchers, and they constitute objects of fiduciary commitment. An explicit statement of a scientists’ premisses, Polanyi writes, serves only to disclose the premisses behind past scientific achievements. The actual premisses of science, at the moment of writing, are present only in the yet unformed discoveries maturing in the minds of scientific investigators intent on their work.

Essential elements of scientific research are embodied in these premisses: substantive claims, principles of procedure, appreciations of cognitive value (derived from past controversies), indications as to ‘questions that it should be reasonable and interesting to explore’ and ‘the kind of conceptions and empirical relations’ that deserve to be upheld as plausible. (Kuhn’s idea of paradigms as disciplinary matrixes is redolent of Polanyi’s depiction of ‘premisses’.) Formal and substantive elements of knowledge, express and tacit, are inextricably bound together in premisses.

The rules of scientific procedure which we adopt, and the scientific beliefs and valuations which we hold, are mutually determined. For we proceed according to
what we expect to be the case and we shape our anticipations in accordance with the success which our methods of procedure have met with. Beliefs and valuations have accordingly functioned as joint premisses in the pursuit of scientific inquiries.\footnote{46}

Polanyi goes on to say that ‘Formal operations relying on one framework of interpretation cannot demonstrate a proposition to persons who rely on another framework’.\footnote{47} Arguments from premisses in support of a proposition appear ‘wholly specious’ from the adversary’s point of view.\footnote{48} In 1874 van’t Hoff explained optical isomerism in terms of asymmetric molecules, their atoms tetrahedrally arranged around a carbon atom. Kolbe, whose conceptual framework ascribed a high valuation to experimentalism, dismissed van’t Hoff’s work as ‘a tissue of fancies’. It was impossible, Kolbe decided, to argue rationally with ‘such wild ideas’.\footnote{49}

Premisses for Polanyi also determine what is to count as credible evidence. Predictive successes and confirmations within a framework have no evidential worth for scientists who are antipathetic to the framework. Polanyi notes how the nineteenth-century controversy over alcoholic fermentation dragged on for almost forty years. From 1835 several scientists on the basis of microscopic observations were suggesting that fermentation is a product of live yeast cells. The dominant conceptual framework indicated that yeast as the initial cause of alcoholic fermentation is a chemical agent. Wöhler, Liebig and Berzelius attacked the experimentation conducted in support of the live yeast theory as unreliable. Supporting the conceptual framework of reductionist explanation to physics and chemistry, Wöhler and his allies disparaged the other framework as vitalist.\footnote{50}

Because premisses differ so profoundly between conceptual frameworks, forming accounts of different worlds, even when scientists are prepared to learn a rival framework’s language, its concepts and terms will not suffice for an independent assessment of the comparative merits of the heterodox and the orthodox systems. There is no neutral vantage point from which scientists can evaluate substantive claims, evidence and arguments, which helps to explain why scientific disagreements, in Polanyi’s view, are often deep, acrimonious and long lasting. Arguments and evidence, being internal to conceptual frameworks, do little to restrain currents of intellectual passion. Choices between frameworks in science are animated by passion, with no absolute, framework-independent resources to guide them.\footnote{51}

Adversaries in scientific controversies justify their ‘comprehensive rejection’ of the other framework by depicting it as ‘altogether unreasonable’. They resort to ad hominem attacks, denigrating the opponent as ‘a fool, a crank or a fraud’.\footnote{52} Controversies in science remind Polanyi of ideological clashes between Marxists, Nazis and their enemies. ‘And once we are out to establish such charges we shall readily go on to expose our opponent as a “metaphysician”, a “Jesuit”, a “Jew”, or a “Bolshevik”, as the case may be’.\footnote{53}
Notwithstanding the hostility they provoke, new conceptual frameworks may attract support. For this to occur, however, ‘proponents of a new system’ must first win others’ ‘intellectual sympathy for a doctrine they have not yet grasped’. To understand an alien framework, scientists have to develop an empathic respect for it, for only then can the terms of the ‘foreign’ language be learned on the trusting assumption that they have meaning. (Kolbe made no such concession to van’t Hoff and his allies, referring to them as ‘weeds of a ... trivial and empty Philosophy of Nature’.) Protagonists of a conceptual framework use rhetorical devices to persuade doubters of its merits. When a previously incredulous or hostile scientist becomes convinced of a new framework’s truth, she undergoes a ‘conversion’ that leads her into the ranks of the ‘disciples’ who form ‘a school’. In time, a new framework may entirely replace an old orthodoxy in science.

POLANYIAN FRAMEWORKS AND THE CRITERIA OF COGNITIVE RELATIVISM

Polanyi’s analysis of conceptual frameworks and of the logical gap between such frameworks satisfies Hollis and Lukes’ criteria of cognitive relativism. According to propositions (a1) and (a2) in the characterization of relativism, perception is undetermined by its objects and ‘conditioned by language’. Polanyi specifically says that frameworks are necessary for making ‘sense of experience’, each being embodied in its own language which conditions perceptions and beliefs about the ‘material universe’ to such an extent that followers of different frameworks live in different worlds. (a3) as a part of relativism asserts that facts are biased in conflicts over frameworks. Polanyi understands conceptual frameworks to be ‘embedded in’ their own languages which interpret ‘all relevant facts’. Each language-with-framework marks out its own realm of ‘subjects that can be talked about’. For Polanyi, there is no neutral ground from which, and no unprejudiced facts with which, to assess frameworks in scientific controversies.

According to the relativist proposition (b1), empirical descriptions are accepted as true only in the context of a conceptual scheme. (b2) denies the possibility of ‘non-relative observational truths’ and infers to the incommensurability of conceptual structures and to communication failure. The vivid impression gained from reading Polanyi is that observations and observational truths are framework-based, and that demonstrations and evidence are relative to frameworks.

Proposition (c3) in cognitive relativism describes standards for assessing reasons for beliefs as varying between conceptual frameworks. Polanyi maintains that mutually conditioning standards, rules and valuations inhere in premisses, which are peculiar to each framework.
Polanyi’s thought accords with Hollis and Lukes’ criteria of cognitive relativism. In the case of global frameworks (modern science, Marxism, Azande magic, astrology), and in scientific controversies, classifications of objects, facts, evidence and observations are relative to frameworks. Characteristically in scientific controversies, ‘a whole class of alleged facts’ affirmed by a new framework ‘is at issue’. Scientists reject any ‘proof’ that is given in the framework to which they are opposed; they are incredulous about the objects being argued for and, a fortiori, about the ‘evidential support’ for those objects.

It was the presumption of Wöhler and Liebig against the idea that fermentation was due to living cells which made them disregard the evidence in its favour. The kind of evidence produced by van’t Hoff for the asymmetrical carbon atom was condemned by Kolbe as worthless by the very nature of its argumentation. Pasteur’s evidence for the absence of spontaneous generation was rejected by his opponents by interpreting it in their own way, and Pasteur admitted that this possibility could not be excluded.

Facts in one framework are dismissed as spurious by scientists supporting another framework. Polanyi does not indicate that there is a possibility of translation and comparison between what he in effect suggests are incommensurable frameworks. There is no ‘systematic and dispassionate empirical’ procedure to assist with framework-choice. In his ‘Stability of Beliefs’ paper Polanyi says that to use an idiom is to reaffirm and confirm its theory, and that the only alternative to this is to learn a new theory-in-idiom. ‘This does in fact happen when primitive people who believe in witchcraft, etc., are gradually converted to the European conception of universal causation.’ Likewise, proponents of a new framework for science will not be listened to unless the orthodox are prepared to learn ‘a new language, and no one can learn a new language unless he first trusts that it means something’.

SANDERS’S ATTEMPT TO SHOW THAT POLANYI IS NOT A COGNITIVE RELATIVIST

Poirier makes no mention of Polanyi’s ‘Stability of Beliefs’ and he has little to say regarding the doctrines of Polanyi that we have been discussing. Sanders on the other hand closely examines Polanyi on scientific controversy and on the logical gap between frameworks, but his Polanyi is not a cognitive relativist.

In an unpromising start to his argument, Sanders notes that Polanyi foreshadows elements of the strong (relativist) programme in the sociology of knowledge developed by the Barnes–Bloor circle at Edinburgh University. Sanders refers to Polanyi’s ‘anthropologically flavoured approach to science and culture’ as when Polanyi puts Zande magical beliefs and the beliefs of Western scientists on a par ‘in respect
to their stability, scope, coherence and credibility’.

Nevertheless, Polanyi’s explicit presentation of truth ‘as a transcendent, obligatory ideal, which is impossible to achieve’, and his explicit insistence that ‘though every person may believe something different to be true, there is only one truth’ convinces Sanders that Polanyi is no cognitive relativist.

I agree with Sanders that Polanyian truth is unitary and absolute, not plural, so that Polanyi is not a relativist as regards the ideal of truth. But what Sanders needs to show if he is to clinch his case that Polanyi is not a cognitive relativist is that Polanyi provides good reasons for cognitive choices. Does Sanders show that Polanyi has non-arbitrary grounds for believing that frameworks are not on a par and are able to be graded as approximations to the ideal of truth? Or perhaps Polanyi has a good reason to say that there are some true propositions over and above those that are true only for participants in their frameworks; some, in other words, that are true between frameworks. If Sanders finds no convincing arguments to these effects in Polanyi, that will secure my case that Polanyi is a cognitive relativist according to the Hollis–Lukes’s criteria.

The fact that Polanyi in discussing scientific controversies writes that adherents of a conceptual framework ‘think differently, speak a different language, [and] live in a different world’ from supporters of another framework does not, as Sanders recognizes, prevent Polanyi from affirming in Personal Knowledge that science is true whereas systems such as astrology (or Azande witchcraft) are not.

This twofold claim about astrology and science suggests to me that Polanyi (and Sanders) believes that on his own premisses astrology and science are incompatible and cannot both be true, so that, believing science to be true, Polanyi feels entitled to infer that astrology is false. This means that Polanyi (and Sanders) fails to appreciate the force of his doctrine of the logical gap and of his analysis of scientific controversies. The logical gap between frameworks in scientific controversies, and a fortiori between global systems of belief such as modern science and astrology, effectively means that they are incommensurable or, as Polanyi describes it, ‘segregated’. Being mutually indifferent, Polanyian frameworks are not alternative accounts of the same subject matter; they are not mutually incompatible descriptions of the same objects. I reiterate that while Polanyi understands all people to live in the same reality, supporters of various frameworks are regarded by him as occupying different theoretically organized and populated worlds. There is no relation of contradiction/exclusion between Polanyian frameworks separated by a logical gap. Polanyi’s argument from his belief in the truth of science to astrology as being false is illicit. If Polanyi is to show that non-scientific frameworks such as astrology and Azande witchcraft are false, his idea of the logical gap effectively requires that he do so by way of an argument that privileges no framework, that is framework-independent.
The very terms in which Polanyi conducts his discussion of intellectual controversies and framework-switches suggest that reasons for preferring one conceptual framework are formulated within it and, as a result, are question-begging to supporters of the other framework. This, according to Polanyi, is why shifts from one framework or world picture to another – ‘conversions’ – are moved by non-rational forces of polemics, browbeating, and passion; non-rational in that arguments and facts can never justify the choice. A new framework involves ‘a new way of reasoning’ and it lacks suasive power for the opposition. Conversely, if the heterodox formulate their critical argument ‘within their [opponents’] framework’, that will carry no conviction either. ‘Demonstration must be supplemented, therefore, by forms of persuasion which can induce a conversion.’

Realizing that criteria of cognitive value in science are internal to it (and, one might add, variable within it), Polanyi appreciates that he cannot use them to argue for the superiority of science over other systems; to use these criteria in argument is to accept the conclusion in advance. Sanders’s Polanyi principally grounds his belief in the truth of science in convictional faith: faith in the tradition of science. Sanders considers that Polanyi is correct in believing that faith in the tradition of science serves to establish science as cognitively superior to non-scientific systems. But I would point out that science is not peculiar in respect of its resting on faith; believers in Azande witchcraft or in astrology have faith in their respective traditions. Faith, for Polanyi, is involved in every framework: Augustine ‘taught that all knowledge was a gift of grace, for which we must strive under the guidance of antecedent belief … No intelligence, however critical or original, can operate outside a fiduciary framework’.

Moreover, Polanyi’s fallacy, noted above, in arguing from the (alleged) truth of science to the (alleged) falsity of astrology is repeated in his invocation of faith. Even were Polanyi’s fiduciary belief accepted as establishing the truth of science, given his understanding of logical gaps, that truth is indifferent with respect to astrology. Astrology and other frameworks may be true in their own terms, generating their own knowledge claims, standards, arguments and evidence. A separate argument is needed to show that the framework of astrology is false, and Sanders’s Polanyi fails to provide it.

Having argued (unsuccessfully) against classifying Polanyi as a cognitive relativist, Sanders proposes that Polanyi’s position be designated as ‘reliabilism’, to reflect what Sanders says is Polanyi’s belief that science is ‘the most reliable guide to new knowledge and truth about nature’. For Polanyi, Sanders argues,

Science is reliable and trustworthy in a twofold sense. First, in accordance with the doctrine of tacit knowing, science functions at a subsidiary level in modern man’s search for new and, it is hoped, ever better [how can this hold for Polanyian
Contrary to Sanders, neither consideration in this passage is an argument for science as providing the most reliable guide to nature. What Sanders gives are pragmatic considerations as to why science is typically relied on in modernity. He notes that at times Polanyi appears to be ‘saying that science is simply a form of life and that any justification of it has to be put in terms of that life’, so that Polanyi may seem to be suggesting on a more general level that believers in any given framework are entitled to say that it ‘is reliable and truthful’. All such systems would, on this interpretation of Polanyi, ‘be in the same boat where truth/falsity … are concerned’. Were this indeed Polanyi’s view, Sanders agrees, one would have ‘to conclude that he is a radical relativist’.

Echeverria proposes an interpretation of Polanyi according to which ‘the beliefs of a frame of reference defined entirely in its own native terms are uncriticizable ab externo’. Sanders admits ‘that there are some prima facie grounds for … [this] interpretation’, including ‘Polanyi’s … emphasis on … persuasion’ in deciding scientific controversies, his contention that different interpretative frameworks ‘divide men into groups which cannot understand each other’s way of seeing things and acting upon them … and, finally, his idea that a real dialogue’ can only occur between ‘participants [belonging] … to a community accepting on the whole the same teaching and traditions for judging their own affirmations’. But, argues Sanders, ‘In my view it is a mistake to understand these Polanyian ideas as deep and normative epistemological insights. Rather, they should be interpreted in a descriptive sense; they point out practical, though relevant, difficulties in the actual practice of understanding, criticising and the like.’

Sanders is correct in regarding Polanyi’s points as descriptive, but Sanders cites no text (and the present author has failed to find primary material) to support his (false) suggestion that inter-framework misunderstandings and disagreements are, for Polanyi, tractable by fact and argument, not insurmountable. Sanders’s suggestion flies in the face of all that Polanyi writes on scientific controversies.

The criticism of another framework must, according to Sanders’s Polanyi, proceed in ‘light of our own local standards and ideals which are, in fact, the only standards and ideals available to us’. Sanders further remarks that ‘it is mainly on account of modern science and its concomitant naturalistic outlook, qualified by ideals like truth, justice and charity, that Polanyi takes our local culture as superior’. Neither of these claims shows that Polanyi is not a cognitive relativist, and the second claim (superiority) is question-begging. Neither claim serves to
clear Polanyi of the charge of cognitive relativism since neither claim amounts to a *framework-independent argument* that science, or any of its constituent frameworks, more closely approximates the ideal end of truth than do other global frameworks, and neither provides a *framework-independent criterion or argument* for judging propositions as true or false. Polanyi’s premisses – the nature of frameworks, logical gaps, and controversies involving frameworks – prevent him from providing these things. We are, Polanyi believes, fated to operate in some framework or other and there is a circularity, he says, in making use of any framework, as for example when he self-consciously distinguishes ‘competent’ from ‘incompetent’ thought in light of his ‘own interpretative framework’. Sanders concludes that Polanyi was certainly ‘no advocate of radical relativism, nor does his position entail the theoretical or practical impossibility of criticism’. A more penetrating question that Sanders should have asked (but failed to) is not whether Polanyi expressly advocates or denies relativism, nor whether criticism is possible (Polanyi’s highlighting of the logical gap indicates that inter-framework critical argument will always be beside the point), but whether Polanyi’s account of frameworks of belief, of the logical gap and scientific controversy implies cognitive relativism. The argument of this article is that his account does indeed carry this implication.

**EPILOGUE**

Polanyi admits of no general framework-independent criterion nor any neutral argument for regarding one conceptual framework with its standards, propositions, evidence and arguments as true in a non-relative sense. Further, the possibility of comparatively grading frameworks according to their approximation to the ideal of truth is excluded by Polanyi’s logical gap idea. Polanyian frameworks separated by a logical gap are not competing approximations to the truth. One acquires a framework, in Polanyi’s account, either by learning or by passionate adoption, rather than by a reasoned argument showing it is the best available approximation to the truth.

An upshot of my argument in this article is that Christian theologians and philosophers who accept that Christianity is a repository of absolute truth need to exercise caution when it comes to making constructive use of Polanyi’s ideas. They must properly appreciate what his doctrines affirm and imply. By analogical extension from his view of scientific frameworks, separated by a logical gap, it would follow that the framework of, say, Roman Catholicism has its own mutually determining beliefs, language, methods, rules and valuations; and that truth, facts and evidence are *relative to* to this framework which is open to no independent appraisal. Arguments within the framework would be circular,
while comparison of this framework to others with regard to the truth would be out of the question.\textsuperscript{85}

Notes

1 I document this claim in my ‘Polanyi’s Presagement of the Incommensurability Concept’, forthcoming in \textit{Studies in History and Philosophy of Science}.


5 Andy Sanders, \textit{Michael Polanyi’s Post-Critical Epistemology} (Amsterdam: Rodopi, 1988).

6 Eduardo Echeverria, ‘Polanyi on Truth and Justification’ in R. Gelwick (ed.), \textit{From Polanyi to the 21st Century}, pp. 830–40; and Eduardo Echeverria, \textit{Criticism and Commitment} (Amsterdam: Rodopi, 1981), pp. 59ff. Echeverria concentrates on the Azande worldview or ‘global’ framework and its relation (or lack thereof) to science, whereas I also find striking evidence of Polanyi’s implied cognitive relativism within the global system to which Polanyi devotes most attention, science itself.


8 Polanyi, ibid., pp. 315–16.

9 Ibid., pp. 154–5.

10 Ibid., p. 147, and see also pp. 12, 148–9.

11 Martin Hollis and Steven Lukes, ‘Introduction’ in Hollis and Lukes (eds.), \textit{Rationality and Relativism} (Oxford: Blackwell, 1982), pp. 8–11, emphasis added. Neither of these authors, it should be noted, is a cognitive relativist.

12 Ibid., p. 10.


16 Ibid., pp. 218–19.

17 Ibid., p. 220.

18 Ibid.

19 Ibid., p. 221, emphasis added.

20 Ibid.


22 Ibid., p. 94.


24 Ibid., p. 218.

25 Polanyi, \textit{Personal Knowledge}, pp. 159, 170 and references to ‘objectivism’ in the Index.

26 Ibid., pp. 15–17, 214.

27 Ibid., p. 159.

28 Ibid., pp. 151–8.

29 Ibid., p. 151.
31 Ibid., p. 20, emphasis added.
33 Polanyi, Personal Knowledge, pp. 105–6.
34 Ibid., pp. 5, 104, 147, 160.
36 Ibid., p. 18. At times (e.g., Ibid., p. 147) Polanyi loses sight of this cautionary note, pronouncing on certain frameworks as though they are categorically true.
37 Ibid., p. 151.
38 Ibid.
39 Ibid., pp. 125, 143.
40 Ibid., p. 151 emphasis added.
41 Ibid., pp. 60, 135, 150.
42 Ibid., pp. 47, 151.
43 Ibid., pp. 47, 158, 167. The Ptolemaic and Copernican frameworks could both account for the ‘known facts’ (Ibid., p. 152), but Polanyi appears to regard this case as exceptional. Typically, controversies over factual evidence disclose to Polanyi the power of theory over facts: ‘the two sides do not accept the same “facts” as facts, and still less the same “evidence” as evidence … For within two different conceptual frameworks the same range of experience takes the shape of different facts and different evidence. Indeed, one side may disregard some of the evidence altogether in the confident expectation that it will somehow turn out to be false’ (Ibid., p. 167).
44 Ibid., pp. 59, 165.
46 Ibid., p. 161 emphasis added.
47 Ibid., p. 151.
48 Ibid., p. 158.
49 Ibid.
50 Ibid., pp. 156–7.
51 Ibid., p. 152.
52 Ibid., p. 151 emphasis added.
53 Ibid., pp. 151–2.
54 Ibid., p. 151.
55 Ibid., p. 155.
56 Ibid., p. 151.
57 Ibid., pp. 47, 60, 150–1.
58 Polanyi, ‘Stability of Beliefs’, pp. 220–1; also Personal Knowledge, p. 150.
59 Polanyi, Personal Knowledge, p. 150; also pp. 97 and 296.
60 Ibid., p. 275.
61 Ibid., p. 159 and p. 150. For rule-proving exceptions see p. 157, n. 4.
63 Polanyi, Personal Knowledge, p. 151.
64 Sanders, Post-Critical Epistemology, p. 186.
66 It is not entirely clear what Polanyi intends in describing the (entire) tradition of science as true, when he also indicates that not all frameworks in the history of that tradition are true. My best guess is that he means, at the minimum, that the tradition of science is cognitively superior to, has greater truth content than, other traditions.
67 Polanyi, Personal Knowledge, pp. 157 and 167.
68 Ibid., p. 151; see also p. 159.
69 Ibid., p. 160.
70 Sanders, Post-Critical Epistemology, pp. 198–201, 204–5.
71 Polanyi, Personal Knowledge, p. 266, emphasis added.
73 Ibid., emphasis added.
74 Ibid., p. 203. See Polanyi, Personal Knowledge, p. 171 for text suggesting that Polanyian science is a ‘form of life’. The same, I have argued in effect in this article, is true of frameworks within science.
75 Sanders, Post-Critical Epistemology, p. 203.
76 Sanders, ibid., p. 204, quoting Echeverria, *Criticism and Commitment*, p. 75.
77 Sanders, ibid., p. 204, quoting Polanyi, *Personal Knowledge*, pp. 112 and 378.
78 Ibid., p. 204.
79 Ibid., p. 205.
80 Ibid., pp. 207–8.
82 Sanders, Post-Critical Epistemology, p. 208.
83 Polanyi, *Personal Knowledge*, pp. 157–8, reminding us that controversies in science are seen by Polanyi as animated and settled by passion, which is ‘inevitable’ as the adversaries have ‘no common framework within which a more impersonal procedure could be followed’.
85 As usual, my research owes a great deal to the efficiency with which members of the Deakin University Library, Geelong – particularly Christine Oughtred and the Inter-library-loans staff – have obtained essential works for me. I thank Dr Mike Leahy most sincerely for his detailed and acute comments on this article in draft, and for his having drawn my attention to some instructive secondary sources.