WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

1: Information Philosophie - Whitehead, Alfred North (Fo - V)

The relevance of Whitehead; philosophical essays in commemoration of the centenary of the birth of Alfred North Whitehead. by Ivor Leclerc (Editor) starting at $

The theory of tabula rasa was developed by Avicenna and demonstrated as a thought experiment by his Avicennian successor Ibn Tufail. What the mind thinks must be in it in the same sense as letters are on a tablet grammateion which bears no actual writing grammenon ; this is just what happens in the case of the mind. Aristotle, On the Soul , 3. Besides some arguments by the Stoics and Peripatetics , the Aristotelian notion of the mind as a blank slate went much unnoticed for more than years. In the 11th century, the theory of tabula rasa was developed more clearly by the Persian philosopher and physician , Ibn Sina known as "Avicenna" in the Western world. He argued that the "human intellect at birth is rather like a tabula rasa, a pure potentiality that is actualized through education and comes to know" and that knowledge is attained through "empirical familiarity with objects in this world from which one abstracts universal concepts" which is developed through a " syllogistic method of reasoning ; observations lead to propositional statements, which when compounded lead to further abstract concepts. Thomas Aquinas brought the Aristotelian and Avicennian notions to the forefront of Christian thought. There are two sources of our ideas: In both cases, a distinction is made between simple and complex ideas. The former are unanalysable, and are broken down into primary and secondary qualities. Complex ideas are those which combine simple ones and are divided into substances, modes and relations. According to Locke, our knowledge of things is a perception of ideas that are in accordance or discordance with each other, which is very different from the quest for certainty of Descartes. In response to Locke, he put forth in his Treatise Concerning the Principles of Human Knowledge a different, very extreme form of empiricism in which things only exist either as a result of their being perceived, or by virtue of the fact that they are an entity doing the perceiving. For Berkeley, God fills in for humans by doing the perceiving whenever humans are not around to do it. In his text Alciphron, Berkeley maintained that any order humans may see in nature is the language or handwriting of God. Hume argued in keeping with the empiricist view that all knowledge derives from sense experience. In particular, he divided all of human knowledge into two categories: Mathematical and logical propositions e. For Hume, an "impression" corresponds roughly with what we call a sensation. To remember or to imagine such impressions is to have an "idea". Ideas are therefore the faint copies of sensations. Rather, he maintained, our beliefs are more a result of accumulated habits, developed in response to accumulated sense experiences. Among his many arguments Hume also added another important slant to the debate about scientific method â€” that of the problem of induction. Hume argued that it requires inductive reasoning to arrive at the premises for the principle of inductive reasoning, and therefore the justification for inductive reasoning is a circular argument. Thus, as a simple instance posed by Hume, we cannot know with certainty by inductive reasoning that the sun will continue to rise in the East, but instead come to expect it to do so because it has repeatedly done so in the past. According to Hume these beliefs were to be accepted nonetheless because of their profound basis in instinct and custom. Ultimately, only mental objects, properties, events, exist â€” hence the closely related term subjective idealism. By the phenomenalistic line of thinking, to have a visual experience of a real physical thing is to have an experience which belongs to a certain kind of group of experiences. This type of set of experiences possesses a constancy and coherence that is lacking in the set of experiences of which hallucinations, for example, are a part. As John Stuart Mill put it in the midth century, matter is the "permanent possibility of sensation". As summarized by D. In his view logical and mathematical necessity is psychological; we are merely unable to conceive any other possibilities than those which logical and mathematical propositions assert. This is perhaps the most extreme version of empiricism known, but it has not found many defenders. This misses some key discussion concerning conditions under which such "groups of permanent possibilities of sensation" might exist in the first place. Berkeley put God in that gap; the phenomenalists, including Mill, essentially left the question unanswered. In the end, lacking an acknowledgement of an aspect of "reality" that goes beyond mere "possibilities of sensation", such a position leads to a version of subjective idealism. Questions of how floor

beams continue to support a floor while unobserved, how trees continue to grow while unobserved and untouched by human hands, etc, remain unanswered, and perhaps unanswerable in these terms. It fails to fully consider the structure and method of mathematical science , the products of which are arrived at through an internally consistent deductive set of procedures which do not, either today or at the time Mill wrote, fall under the agreed meaning of induction. But it came to be realized that there is no finite set of statements about actual and possible sense-data from which we can deduce even a single physical-object statement. Remember that the translating or paraphrasing statement must be couched in terms of normal observers in normal conditions of observation. There is, however, no finite set of statements that are couched in purely sensory terms and which can express the satisfaction of the condition of the presence of a normal observer. According to phenomenalism, to say that a normal observer is present is to make the hypothetical statement that were a doctor to inspect the observer, the observer would appear to the doctor to be normal. But, of course, the doctor himself must be a normal observer. And if we are to specify in sensory terms that the second doctor is a normal observer, we must refer to a third doctor, and so on also see the third man. Logical positivism Logical empiricism aka logical positivism or neopositivism was an early 20th century attempt to synthesize the essential ideas of British empiricism e. Ayer , Rudolf Carnap and Hans Reichenbach. The neopositivists subscribed to a notion of philosophy as the conceptual clarification of the methods, insights and discoveries of the sciences. They saw in the logical symbolism elaborated by Frege d. This gave rise to what they saw as metaphysical pseudoproblems and other conceptual confusions. Any sentence which is not purely logical or for which there is no method of verification was to be considered devoid of meaning. As a result, most metaphysical, ethical, aesthetic and other traditional philosophical problems came to be considered pseudoproblems. In later years, Carnap and Neurath abandoned this sort of phenomenalism in favor of a rational reconstruction of knowledge into the language of an objective spatio-temporal physics. That is, instead of translating sentences about physical objects into sense-data, such sentences were to be translated into so-called protocol sentences, for example, "X at location Y and at time T observes such and such. By the late s, it had become evident to most philosophers that the movement had pretty much run its course, though its influence is still significant among contemporary analytic philosophers such as Michael Dummett and other anti-realists. The ideas of pragmatism, in its various forms, developed mainly from discussions that took place while Charles Sanders Peirce and William James were both at Harvard in the s. James popularized the term "pragmatism", giving Peirce full credit for its patrimony, but Peirce later demurred from the tangents that the movement was taking, and redubbed what he regarded as the original idea with the name of "pragmaticism". Along with its pragmatic theory of truth , this perspective integrates the basic insights of empirical experience-based and rational concept-based thinking. Indeed, he concurred with the main ideas of rationalism, most importantly the idea that rational concepts can be meaningful and the idea that rational concepts necessarily go beyond the data given by empirical observation. In later years he even emphasized the concept-driven side of the then ongoing debate between strict empiricism and strict rationalism, in part to counterbalance the excesses to which some of his cohorts had taken pragmatism under the "data-driven" strict-empiricist view. To this, Peirce added the concept of abductive reasoning. The combined three forms of reasoning serve as a primary conceptual foundation for the empirically based scientific method today. The rationality of the scientific method does not depend on the certainty of its conclusions, but on its self-corrective character: First among these he listed the peripatetic-thomist observation mentioned above, but he further observed that this link between sensory perception and intellectual conception is a two-way street. That is, it can be taken to say that whatever we find in the intellect is also incipiently in the senses. Hence, if theories are theory-laden then so are the senses, and perception itself can be seen as a species of abductive inference , its difference being that it is beyond control and hence beyond critique â€” in a word, incorrigible. This in no way conflicts with the fallibility and revisability of scientific concepts, since it is only the immediate percept in its unique individuality or "thisness" â€” what the Scholastics called its haecceity â€” that stands beyond control and correction. Scientific concepts, on the other hand, are general in nature, and transient sensations do in another sense find correction within them. This notion of perception as abduction has received periodic revivals in artificial intelligence and cognitive science research, most recently for

instance with the work of Irvin Rock on indirect perception. James maintained that the empirically observed "directly apprehended universe, requires no extraneous trans-empirical connective support", [28] by which he meant to rule out the perception that there can be any value added by seeking supernatural explanations for natural phenomena. His method of argument in arriving at this view, however, still readily encounters debate within philosophy even today. Therefore, humans adapt their past experiences of things to perform experiments upon and test the pragmatic values of such experience. The value of such experience is measured by scientific instruments, and the results of such measurements generate ideas which serve as instruments for future experimentation.

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

2: Anil Gupta (philosopher) - Wikipedia

Note: Citations are based on reference standards. However, formatting rules can vary widely between applications and fields of interest or study. The specific requirements or preferences of your reviewing publisher, classroom teacher, institution or organization should be applied.

How can I make sense of this incredibly dense tissue of imaginative systematizing, spread over decades of work in disciplines so different and specialized as algebra, geometry, logic, relativistic physics and philosophy of science? Accordingly, this monograph has two main complementary objectives. The first one is to propose a set of efficient hermeneutical tools to get the reader started. The second objective is to illustrate how the several parts of Process and Reality are interconnected, something that all commentators have either failed to recognise or only incompletely acknowledged. To Celeste, ad deam qui laetificat juventum meam. The Intertwining of Science, Philosophy and Religion Creative Advance and Categoreal Scheme Epochal Actuality and Types of Potentiality The Aims of Education, Free Press, Adventures of Ideas, Free Press, The Concept of Nature, Cambridge U. Dialogues, as Recorded by L. Price, Mentor Book, Essays in Science and Philosophy, Philosophical Library, The Function of Reason, Beacon Press, An Introduction to Mathematics, Oxford U. Modes of Thought, Free Press, The Organisation of Thought, Williams and Norgate, Principia Mathematica, ; sec. Process and Reality, Free Press Corrected edition, The Principle of Relativity, Cambridge U. Religion in the Making, Macmillan, Symbolism, Its Meaning and Effect, Macmillan, Science and the Modern World, Free Press, The full references are given in the Bibliography. Drawing on many sources of inspiration he devised one of the very few substantial systems of original philosophical thought to which that century gave rise. So on the one hand, Whitehead lacked the expository facility of an author like Bergson who was able to render abstract ideas accessible in vivid and readily graspable nontechnical prose. But now at long last, a half-century after his death, the winds have shifted and the clouds have begun to dissipate. Philosophers no longer see a need to restrict themselves to matters of detail and are rediscovering the value and allure of big-picture thinking. Moreover the patient labours of x A. In consequence, a Whitehead renaissance is in progress which is gradually spreading around the globe and which promises to assure his reputation not only as one of the greats of his day but also as a major influence upon subsequent philosophizing. And in this aspiration the book succeeds wonderfully well. As soon as he arrived in Harvard, Whitehead furthermore proposed, to his no doubt amazed audience, reflections on a new foundational philosophy that is both historically and speculatively impressive and touches on the necessary interplay between science, philosophy and religion. In a few months, the horizon of his speculations embraced metaphysics and natural theology, exactly in an epoch when they were highly suspect for the intelligentsia. It is the purpose of this monograph to propose a set of highly efficient hermeneutical tools to get the reader started. It is not by mistake after all that Whitehead has not been recognized so far as one of the most potent historical figures of Western science and philosophy. The British scholar will speak to the reader only if she attempts to welcome his entire legacy. To do so necessitates of course a peculiar state of mind that is, or is not, given. To rephrase our bold claim: And that material has to be of course purely and adventurously conceptual: The book consists of five strictly interdependent parts: All the more so since the law of excluded middle has so far applied to Whiteheadian theological scholarship: It is well known indeed that the hurried reader or the average Whiteheadian is satisfied or at least pretends to be to read only the first and last Parts of Process and Reality, that can, as a matter of fact, be made understandable from an alien or exoteric perspective i. This does not constitute, strictly speaking, a philosophical handicap: The ones with an historical propensity prefer to haunt Part II, while the most speculatively daring scholars invest in Part III, which requires a total conceptual immersion. Momentous technical progress has been made with the help of such a reductionistic compartmentalization, but it is not sufficient to understand Whitehead secundum Whitehead. The rule of such interpretations is murder to dissect; the motive and weapon used differ according to the temperament of the reader. There is, as a result, not only room but need for a new global attempt to interpret PR and accordingly to reassess the entire Whiteheadian legacy. Before PR, he is still looking for his ontological categories; after PR, he adopts usually for the better,

but sometimes for the worst a popularization stance. On the one hand, as the Greeks understood very clearly, one needs to dare to have a holistic interpretation; on the other, one ought not to obliterate the creative advance of the debated author. The second point is to understand PR as a whole and hence to devise appropriate heuristic hermeneutical tools. Mine is not a final and complete system. Moreover, logical contradictions are not really problematic for the late Whitehead: Sherburne and especially Jorge Luis Nobo, nobody has really considered this barycentre close enough. However, the aim of the present monograph is not to give rise to new modes of old or unprecedented quarrels. Besides, it will be appropriate to adopt the Whiteheadian style itself, which is basically a matter of circumambulation, as Whitehead himself makes plain in his philosophy of education works. Before clarifying this essential stylistic matter, a quick overview of our argument and a few prolegomena are in order. Introduction xv A first quick anticipative synthesis is advisable in order to specify an essential point that, as Whitehead would say, should be fully understandable only at the end of our argument. For its part, the concept of actual occasion has two fundamental valencies. The actuality-subject is the actuality per se; the actuality-object constitutes the primordial form of potentiality which does not mean that it is only vicariously actual. In order to manifest the intrinsic power of the actuality-object, PR also speaks of superject. The ultimate ontological scansion or rhythm is thus the following: This means that the past Many do not simply coalesce, merging into a new actuality: It is the flying dart, of which Lucretius speaks, hurled beyond the bounds of the world. Hence two immediate corollaries that account for the fact that we speak of the edges of the World: It belongs instead to the durational temporality that has been eminently explored by Bergson and James. In the second place, in the case of what Whitehead names high-grade actualities, the normal state of consciousness xvi A. To make this picture vivid, our monograph proposes the following circumambulative seven steps. It argues that there is contiguity in his works. On the one hand, they display a significant double continuity of matter and form: On the other, Whitehead gradually shifted his focus during his spiritual journey: By the same token, he has gently shifted from the concept of extension, to the concept of extensive abstraction and finally to the creative relation of extensive connection. By contiguism we thus signify the necessity to envision both the continuity and the discontinuity in his works. Besides, the same important claim will be made with regard to his ontology, which promotes both continuity potentiality and extension and discontinuity actuality and intension, i. Thereby we secure the independence and the interdependence of each field in an evolutive context. The aimed product being cleared up, the input remains to be defined: Last but not least, we examine the stylistic issue with the help of the concepts of circumambulation, constructive discrimination, polysemiality and interanimation. The unfoldment of the Creative Advance is consequently proposed with the help of three main threads: Within the unison of their immediacies, God and the World sustain each other in the quest for higher intensities. The concept of percolation will be instrumental in sharpening these bipolars without diving into a genetic or coordinate analysis. A first application of this train of thought is proposed by raising the question of the abolition of the category of conceptual reversion. On the one hand, Whitehead does not shift from a continuist ontology to a discontinuist ontology since he has very explicitly refused to venture himself in the ontological territory before his adoption of ontological atomism. He drifted from a continuist phenomenology making no ontological hypothesis hypotheses non fingo to a contiguist ontology articulating epochs in a continuum and thereby giving ontological depth to his continuist phenomenology. First of all, mother- creativity is dipneumonous: God and the World constitute the two specular loci of the creative rhythm. Second, mother-creativity is bifunctional: Eventually, we conclude with some reflections on philosophy as the mastering of rationality. Further exemplifications of the heuristic trend embodied here will take place in the sequel to this volume: Jamesean Applications, to appear in the near future. As a matter of fact, there is a mysterium conjunctionis between the British and the American thinkers that has been so far only dimly unveiled in scholarship with the notable exception of Eisendrath, Capek, Lowe and Wahl9: Their respective radical empiricisms a pluralism of interconnected events and formalist propensities developed according to complementary trajectories that require so to speak an inquiry into the separation and the synthesis of psychic opposites. And the only way to reconstruct the unicity of the incident light after its prismatic decomposition is to use another prism. It is such a tool that is provided here in an explicitly youthful Whiteheadian spirit: AE 11

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

Introduction xix Notes The author would like to express his deep gratitude to Nicholas Rescher for his kind Preface, to Ronny Desmet and especially to Pierfrancesco Basile for their valuable suggestions to improve the draft manuscript, and to Natalie McGuinness for her painsteaking proofreading. In Praise of Philosophy. Edie, Northwestern University Press, Other memories of Whitehead include the following important sources besides the Dialogues of A. This is the doctrine that the creative advance of the world is the becoming, the perishing, and the objective immortalities of those things which jointly constitute stubborn fact. For complementary references on Whiteheadian scholarship, see Barry A.

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

3: Whitehead, Alfred North | Internet Encyclopedia of Philosophy

28 I have attempted, however, to show Whitehead's radical empiricism and to associate it with James's radical empiricism in my "Radical Empiricism and Religious Art," The Journal of Religion, Vol. 61, No. 1 (April,).

Henry and Robert J. He is the author of Forms of Concrescence: He is the author of Linear Algebra: The following article appeared in Process Studies, pp. SUMMARY These authors, both mathematicians, are amazed that Whitehead saw a complete system of relationships in process thought but could not see this fuctionality in mathematics. After Principia Mathematica, Whitehead let major new mathematical developments pass him by, and he never returned seriously to a philosophy that considered those new directions in mathematics. Whitehead was not a formalist. Whitehead did not ground mathematics in set theory. For his original enthusiasm for the theory of types, given in the statement "All the contradictions can be avoided," MAT gave way to mild revulsion when he realized that "our only way of understanding the rule is nonsense" MG Whitehead did not remain a logicist. Formalism, set theory, logicism, and intuitionism are the four major recognized contemporary schools in the philosophy of mathematics. We believe that Whitehead viewed mathematics as consisting primarily of ideal objects radically abstracted from human experience. In the simplest of terms, Whitehead was an empiricist -- an empiricist with a romantic streak of Platonism. He was not, however, a pure Platonist. Plato accepted his forms as ontologically primary. Whitehead always accepted experience as more fundamental than ideal objects abstracted from it. They obscure many important and subtle distinctions in mathematics and its philosophy. We have an obligation to speak carefully about mathematics and philosophy in order to present our position for consideration and criticism. But where should we start? With what work or works of Whitehead should we begin? Not Universal Algebra or Principia Mathematica, or for that matter, any of his professional mathematical or philosophical works. We think that Whitehead spoke more fundamentally in this work about mathematics than he did to professionals in philosophy or mathematics. In addition, the mathematics covered is what an undergraduate today would have in her first courses in calculus. These feelings belong to us individually. Yet we can objectify the tooth from the toothache and so can a dentist who "extracts not the toothache but the tooth," IM 4 which is the same tooth for both dentist and patient. Whitehead would give later in Process and Reality a metaphysical explanation of how we may objectify precisely an individual thing from vague feelings by his description of indicative feelings PR Abstraction is objectification; that is, the activity of abstraction from our experiences produces ideal objects. In the process we "put aside our immediate sensations" and recognize that "what is left is composed of our general ideas of the abstract formal properties of things;. Mathematics applies to the physical world because of its abstraction. By abstraction we get to mere things. The configuration of abstract things in abstract space at different abstract times is the mathematical science of mechanics, "the great basal idea of modern science" IM Mechanics is the foundation of science. How strange to hear these words from the philosophical anti-mechanist of Process and Reality. Because we can objectify things as things individually and communally we have a common world of things, which is not only the abstract domain of mechanics but becomes, as extended, the subject matter of arithmetic. Arithmetic, therefore, "applies to everything, to tastes and to sounds, to apples and to angels, to the ideas of the mind and to the bones of the body. The nature of the things is perfectly indifferent, of all things it is true that two and two make four" IM 2. Whitehead then identifies the leading characteristic of mathematics, not just of arithmetic, as that subject which "deals with properties and ideas which are applicable to things just because they are things, and apart from any particular feelings, or emotions, or sensations, in any way connected with them" IM An abstract or ideal thing that has no reference to "particular feelings, or emotions, or sensations" is what Whitehead later would define as an eternal object see PR Eternal objects form a realm -- a Platonic realm? Whitehead remains an empiricist, but shows early this romantic streak of Platonism that is given expression in his doctrine of the realm of eternal objects. In the second chapter Whitehead introduces the idea of a variable, which is a letter that can refer to general things of the world. It can also stand for ideal things like numbers and even for other variables, which, of course, may refer to things ideal or physical of any sort. Later in chapter five, statements about variables

and numbers, such as algebraic equations, are called algebraic forms, which Whitehead does not define because "the conception of form is so general that it is difficult to characterize it in abstract terms" TM Finally, in Chapter 6 after discussing generalizations of number, Whitehead introduces the notion of generality, which with the ideas of variable and form "compose a sort of mathematical trinity which preside over the whole subject" IM It is curious that Whitehead does not mention explicitly in this context the formalism that he and Russell had been developing for a decade to unify mathematics, namely the symbolic logic of Principia Mathematica, the first volume of which was published in , a year before the publication of An Introduction to Mathematics. However, he does give a most prominent place to logic by tying it to the importance of variables "The ideas of any and of some are introduced into algebra by the use of letters" [IM 7] and proceeds to discuss the quantifiers any and some in a way that clearly indicates a reference to the logic of Principia Mathematica. Whitehead is more forthright about the relationship of logic to the idea of a variable in his review published also in For the future mathematics is logic. The mathematical content of An Introduction to Mathematics begins with standard generalizations of number: Complex numbers -- Whitehead calls them imaginary numbers -- are presented in a "new" guise as ordered pairs of real numbers. Their addition and subtraction as ordered pairs illustrates the parallelogram law, which Whitehead had shown to be of great practical merit, "It is no paradox to say that in our most theoretical moods we may be nearest to our most practical applications" IM Coordinate geometry is also made practical. The origin of a vector. Analytic geometry and conic sections are discussed as illustrations of the principle of generality. After a neighborhood definition of continuity, Whitehead states "If we understand the preceding ideas, we understand the foundations of modem mathematics" IM Trigonometry is shown in terms of periodic functions. An introduction to series and then differential calculus is given. Finally some brief geometry is portrayed in which Whitehead states that "the fundamental ideas of geometry are exactly the same as those of algebra; except that algebra deals with numbers and geometry with lines, angles, areas, and other geometrical entities" IM An Introduction to Mathematics, surprisingly, seems completely uninformed by Universal Algebra or Principia Mathematica, at least in the sense of what might be new or creative in these two major works. It gives no hint of any of the new algebra examined in Universal Algebra, and does not mention formal logic at all. The entry logic is not even in the index. Whitehead seems to be describing the comfortable orthodox analysis of the late nineteenth century as mathematics, with a few nods to the creative work of Cantor and Weierstrass. Furthermore, he sees this mathematical analysis to be an abstraction from the objective physical world and as such constitutes the mathematical basis for science. He is backing off from the adventuresome spirit in mathematics, never again to be really creative there. The variables can then become ideal objects as parts of forms, which themselves may become objects in more general systems. Whitehead asserts that mathematicians seek to extend their systems so that operations and relations are defined most generally, e. These general systems and their perceived interrelationships are examined for consistency and completeness by means of logic, which Whitehead believed was a universal language for the presentation of all mathematics. At least for him, at the time immediately prior to the publication of An Introduction to Mathematics, formal logic was an example of the passion of mathematicians to establish connections within mathematics and to attempt to unify the whole of mathematics. In Universal Algebra Whitehead sought to achieve what he calls generality by trying to unify by a common interpretation apparently disparate algebraic systems that to many did not appear to be mathematics at all. In Principia Mathematica he sought to unify mathematics by logic. The supposed common interpretation of generalized spaces in Universal Algebra was not satisfactory. When his system of logic with its assumption of the theory of types was objectified and compared with other mathematical systems, it was shown to be paradoxical. We believe that his mature philosophical position, an extension and modification of his earlier empiricism, is an adequate and satisfactory foundation for a contemporary philosophy of mathematics. This is new and fertile ground. Universal Algebra In the next to last decade of the nineteenth century, Whitehead was in his twenties and was working on the applied problem of the motion of viscous incompressible fluids QJPAM His mathematics was at most a sophisticated extension of that outlined above in An Introduction to Mathematics; his philosophy of mathematics was probably also a version only implicitly contained therein. He did, however, recognize that the subject matter in these works was quite

different from conventional mathematics. He also had the conviction that it was good mathematics. At the age of thirty he began A Treatise on Universal Algebra, which was published seven years later in What were some of the characteristics of the new algebras that challenged the old mathematical analysis? In a review of Universal Algebra, G. Mathews gives an admittedly tongue in cheek caricature of this challenge. We present it here not because it is mathematically precise, but because it addresses in simple terms the mathematics of An Introduction to Mathematics, which as we have said is that kind of mathematics contained in contemporary college calculus courses. Even in its misleading clarity, we think that it was this kind of provocation that also motivated Whitehead. Our readers who did not take mathematics beyond calculus may find it especially engaging. One can also see the challenge to typically secondary school algebra and geometry. In the good old times two and two were four, and two straight lines in a plane would meet if produced, or, if not, they were parallel. Here is a large treatise [Universal Algebra]. How did Whitehead attempt to rectify these apparently paradoxical assertions? By insisting that there are no inconsistencies within an individual algebra. This means there is no longer just one algebra or one geometry. There are many self-consistent structures that can lay claim to being algebras or geometries, which may, however, differ from each other. Whitehead called each of these algebraic structures an algebraic manifold, which in his definition is a set with a commutative and associative operation. We mention this fact to point out that at this stage in his development Whitehead did not accept, or apparently understand, that a group or semi-group structure could be a means of relating his different algebras, which were themselves semi-groups. In "Sets of Operations in Relation to Groups of Finite Order," he chose explicitly to "abandon the idea of a group of. He affirms that the operations must be considered as objects. Whitehead was in a severely objectifying mood, not in a relational one, even though his primary task was to relate disparate algebras. That he did not lay claim to the work of Cayley on the abstract and relational nature of groups published in and was a crucial failure of oversight on his part that essentially separated him from the future direction of mathematics. To show the relationship between algebras, each must be objectified clearly.

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

4: History of Science - Bibliography - Social & Cultural - 16thth Centuries - Dr Robert A. Hatch

Alfred North Whitehead was born on February 15 th, at Ramsgate in Kent, England, to Alfred and Maria Whitehead. Thought by his parents to be too delicate for the rough and tumble world of the English public school system, young Alfred was initially tutored at home.

The following article appeared in Process Studies, pp. His rejoinder is that the beautiful speaks in ways not entirely susceptible to rational analysis. Whitehead scholars, with damaging effects, have overemphasized one and underemphasized the other. They have so emphasized the rationalistic way, which concentrates on the intellectual organization of the past, that the meaning of aesthetic experience has been exaggerated. They have so underemphasized the empirical way, which concentrates on the physical response to the past, that the power of aesthetic experience has been neglected. The underemphasis on the empirical way is particularly important because it has not only discouraged the aesthetic appreciation of the power of art and of the world of ordinary experience, it has also discouraged the moral action which such appreciation might engender. To state my point with greater intensity: To say that aesthetic value can be comprehended rationally leaves out about as much as to say that Auschwitz can be comprehended as the misuse of freedom -- in neither instance is the account incorrect; in both instances, when the account is the only account, the picture is distorted, and so are the actions which it might engender. Sherburne is the justly recognized foremost proponent of a rationalistic Whiteheadian aesthetic. His A Whiteheadian Aesthetic has subtly influenced numerous process philosophers and theologians. A proposition proposes that certain select matters of fact, called "logical subjects," be interpreted, or theorized about, in terms of a particular "predicate. The recreation of this proposal in the conscious, definite, and intellectual awareness of the beholder is called a "propositional feeling," and it is this feeling which is aesthetic experience. This theory is rationalistic in that it identifies aesthetic experience with a clear, distinct, and ordered estimation of the external artistic reality. Both Whitehead and Charles Hartshorne have repeatedly argued that art and aesthetic experience arise within a structure of contrast within identity, or unity in variety. This aesthetic rationality is, in turn, a remnant of the classical, Platonizing, and Cartesian effort of mentality to fasten onto the physical, to refuse to let the physical go until the physical has yielded some cognizable promise. So, while those interpretations which stress contrast within identity and propositional meanings are by no means wrong, they are derivative and secondary, and should be treated accordingly. It is only with regard to emphasis, then, that I respond to Sherburne and his Whiteheadian colleagues. Sherburne does include the empirical in his aesthetic analysis. He rejects the idealism of Benedetto Croce, and insists on the importance of the physical art object;5 he rejects the "overintellectualism" of Vernon Lee, and insists on the importance of emotion;6 Sherburne acknowledges that some art propositions cannot be rendered linguistically; and he acknowledges that art propositions are first felt physically and that the function of aesthetic experience is to bring clarity to the "vague and inarticulate feelings from a dim, prenumbral region. For Sherburne, then, the art object, as a proposition, is about meaning, or theory; it is something that may or may not be said about events that may or may not belong together. From two sides it abstracts from brute actuality; it is an imaginative predication about an imaginary selection of circumstances. The proposition lures the subject to simply recreate the proposition in subjective experience. While the true art object is real as an hypothesis is real, the physical artifact itself, whether a thing like a painting or a performance, is only the medium between the hypothesis and the experience of the hypothesis. Now Sherburne is certainly not wrong, whether in his interpretation of Whitehead or of art. Any aesthetic which eliminated entirely the propositional nature of art, reduced art to something physical and aesthetic experience to a physical encounter, would be silly. A piece of literature would be ink scrawls on paper, and a great literary critic would be someone with an ocular affinity for black on white. Even if such preposterousness could be overcome, there would remain all of the questions of why perspective would not totally determine interpretation, as would happen if interactions were sheerly physical, and of how good art and good criticism would be distinguished from bad. Nevertheless, Sherburne, his colleagues, and even the particular Whitehead of Process and Reality, in their devotion to rationalizing the meaning of the world, including the world of art objects, fail to appreciate the aesthetic power

of the experienced world. This is a criticism very difficult to sustain, for it refers to something beyond rationalization and, thus, beyond what can be expressed in a rationalistic argument. I could appeal to memory, and question whether the love of art is finally a love of propositions, whether it is that much an affair of cognition. While such an appeal would be definitive in that, in a typically Whiteheadian fashion, it would appeal "to the self-evidence of experience," it would be an appeal more suitable to an entire life than to the short exposition which will follow hereafter. Or, to state it more dramatically, there are two aesthetics, each mutually dependent on the other. While the rationalizing aesthetic emphasizes the intellectual organization of the world through propositions and propositional feelings, the empirical aesthetic emphasizes the immediate, physical, emotional, and nonconscious response to the world. An empirical aesthetic attempts to honor, rather than tame, those "vague and inarticulate feelings from a dim, penumbral region. The clear, fully conscious, and definite awareness of this world is a highly selective, abstract, and organized reduction of causal efficacy, giving a sense of an organized world there, in front of us, a sense Whitehead names presentational immediacy. The thousand physical influences of a green, warm, stale, almost-silent, lamp-lit, desk-furnished, late-at-night room are unconsciously eliminated in favor of a line read on the page on the desk before my eyes. We properly interpret that internal and mental impression of the line to refer to parts of the external and physical world of the room through a process Whitehead names symbolic reference. And quite commonsensically and pragmatically we regard the distinct, mental impression of the line as derivative from the physical impact of the world on our eyeballs. But for all their vagueness, for all their lack of definition, these controlling presences, these sources of power, these things with an inner life, with their own richness of content, these beings, with the destiny of the world hidden in their natures; are what we want to know about. To sense the world through causal efficacy is in essence, Whitehead says, to sense the aesthetic value of the world. It is to sense power at its deepest, and "the essence of power is the drive towards aesthetic worth for its own sake. Consequently, the "sense of external reality -- that is to say, the sense of being one actuality in a world of actualities -- is the gift of aesthetic significance. Because, for Whitehead, those experienced values are essentially aesthetic values, this radical empiricism is aesthetic in orientation, and it can lead, in turn, to a developed, empirical aesthetic. Such experiences themselves are evidence for the further claim that there are more subjective aesthetic reponses than those which can be called propositional feelings. Finally, an empirical aesthetic would claim, over against a rationalistic aesthetic, to be primary rather than secondary, necessary rather than accidental. Illustration It is just this empirical sense of the aesthetic which William Carlos Williams had, particularly in his most conscious moments of rebellion from the cognitive and academic orientation of art. In his autobiography, in the midst of an explanation of how his work as a medical doctor facilitated his work as a poet, Williams said, I was permitted by my medical badge to follow the poor, defeated body into gulfs and grottos. And the astonishing thing is that at such times and in such places -- foul as they may be with the stinking ischiorectal abscesses of our comings and goings -- just there, the thing, in all its greatest beauty, may for a moment be freed to fly for a moment guiltily about the room. In illness, in the permission las a physician have had to be present at deaths and births, at the tormented battles between daughter and diabolic mother, shattered by a gone brain -- just there -- for a split second -- from one side or the other, it has fluttered before me for a moment, a phrase which I quickly write down on anything at hand, any piece of paper I can grab.

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

5: Whiteheadâ€™s Other Aesthetic â€“ Religion Online

In philosophy, empiricism is a theory that states that knowledge comes only or primarily from sensory experience. It is one of several views of epistemology, the study of human knowledge, along with rationalism and skepticism.

Empirical method A central concept in science and the scientific method is that it must be empirically based on the evidence of the senses. Both natural and social sciences use working hypotheses that are testable by observation and experiment. The term semi-empirical is sometimes used to describe theoretical methods that make use of basic axioms , established scientific laws, and previous experimental results in order to engage in reasoned model building and theoretical inquiry. For example, John Locke held that some knowledge e. Similarly Robert Boyle , a prominent advocate of the experimental method, held that we have innate ideas. The earliest Western proto-empiricists were the Empiric school of ancient Greek medical practitioners, who rejected the three doctrines of the Dogmatic school , preferring to rely on the observation of "phenomena". This denies that humans have innate ideas. The image dates back to Aristotle: What the mind nous thinks must be in it in the same sense as letters are on a tablet grammateion which bears no actual writing grammenon ; this is just what happens in the case of the mind. Aristotle, On the Soul , 3. Aristotle was considered to give a more important position to sense perception than Plato , and commentators in the Middle Ages summarized one of his positions as "nihil in intellectu nisi prius fuerit in sensu" Latin for "nothing in the intellect without first being in the senses". This idea was later developed in ancient philosophy by the Stoic school. Stoic epistemology generally emphasized that the mind starts blank, but acquires knowledge as the outside world is impressed upon it. In the 12th century CE the Andalusian Muslim philosopher and novelist Abu Bakr Ibn Tufail known as "Abubacer" or "Ebn Tophail" in the West included the theory of tabula rasa as a thought experiment in his Arabic philosophical novel , Hayy ibn Yaqdhan in which he depicted the development of the mind of a feral child "from a tabula rasa to that of an adult, in complete isolation from society" on a desert island , through experience alone. Renaissance Italy[edit] In the late renaissance various writers began to question the medieval and classical understanding of knowledge acquisition in a more fundamental way. Machiavelli in particular was scornful of writers on politics who judged everything in comparison to mental ideals and demanded that people should study the "effectual truth" instead. Their contemporary, Leonardo da Vinci â€” said, "If you find from your own experience that something is a fact and it contradicts what some authority has written down, then you must abandon the authority and base your reasoning on your own findings. The Italian word he used for "experiment" was esperienza. It is known that he was the essential pedagogical influence upon the young Galileo, his eldest son cf. Music and Science in the Age of Galileo Galilei , arguably one of the most influential empiricists in history. British empiricism[edit] British empiricism, though it was not a term used at the time, derives from the 17th century period of early modern philosophy and modern science. Thomas Hobbes and Baruch Spinoza , in the next generation, are often also described as an empiricist and a rationalist respectively. John Locke , George Berkeley , and David Hume were the primary exponents of empiricism in the 18th century Enlightenment , with Locke being the person who is normally known as the founder of empiricism as such. In response to the early-to-midth century " continental rationalism " John Locke â€” proposed in An Essay Concerning Human Understanding a very influential view wherein the only knowledge humans can have is a posteriori , i. There are two sources of our ideas: In both cases, a distinction is made between simple and complex ideas. The former are unanalysable, and are broken down into primary and secondary qualities. Primary qualities are essential for the object in question to be what it is. Without specific primary qualities, an object would not be what it is. For example, an apple is an apple because of the arrangement of its atomic structure. If an apple was structured differently, it would cease to be an apple. Secondary qualities are the sensory information we can perceive from its primary qualities. For example, an apple can be perceived in various colours, sizes, and textures but it is still identified as an apple. Therefore, its primary qualities dictate what the object essentially is, while its secondary qualities define its attributes. Complex ideas combine simple ones, and divide into substances, modes, and relations. According to Locke, our knowledge of things is a perception of ideas that are in accordance or discordance

with each other, which is very different from the quest for certainty of Descartes. In response to Locke, he put forth in his Treatise Concerning the Principles of Human Knowledge an important challenge to empiricism in which things only exist either as a result of their being perceived, or by virtue of the fact that they are an entity doing the perceiving. For Berkeley, God fills in for humans by doing the perceiving whenever humans are not around to do it. In his text Alciphron, Berkeley maintained that any order humans may see in nature is the language or handwriting of God. Hume argued in keeping with the empiricist view that all knowledge derives from sense experience, but he accepted that this has implications not normally acceptable to philosophers. He wrote for example, "Locke divides all arguments into demonstrative and probable. On this view, we must say that it is only probable that all men must die or that the sun will rise to-morrow, because neither of these can be demonstrated. Locke, chapter of power. But to be convinced that this explication is more popular than philosophical, we need but reflect on two very obvious principles. First, That reason alone can never give rise to any original idea, and secondly, that reason, as distinguished from experience, can never make us conclude, that a cause or productive quality is absolutely requisite to every beginning of existence. Both these considerations have been sufficiently explained: Mathematical and logical propositions e. For Hume, an "impression" corresponds roughly with what we call a sensation. To remember or to imagine such impressions is to have an "idea". Ideas are therefore the faint copies of sensations. Hume maintained that no knowledge, even the most basic beliefs about the natural world, can be conclusively established by reason. Rather, he maintained, our beliefs are more a result of accumulated habits, developed in response to accumulated sense experiences. Among his many arguments Hume also added another important slant to the debate about scientific method â€”that of the problem of induction. Hume argued that it requires inductive reasoning to arrive at the premises for the principle of inductive reasoning, and therefore the justification for inductive reasoning is a circular argument. Thus, as a simple instance posed by Hume, we cannot know with certainty by inductive reasoning that the sun will continue to rise in the East, but instead come to expect it to do so because it has repeatedly done so in the past. According to Hume these beliefs were to be accepted nonetheless because of their profound basis in instinct and custom. Ultimately, only mental objects, properties, events, existâ€”hence the closely related term subjective idealism. By the phenomenalistic line of thinking, to have a visual experience of a real physical thing is to have an experience of a certain kind of group of experiences. This type of set of experiences possesses a constancy and coherence that is lacking in the set of experiences of which hallucinations, for example, are a part. As John Stuart Mill put it in the midth century, matter is the "permanent possibility of sensation". As summarized by D. In his view logical and mathematical necessity is psychological; we are merely unable to conceive any other possibilities than those that logical and mathematical propositions assert. This is perhaps the most extreme version of empiricism known, but it has not found many defenders. This misses some key discussion concerning conditions under which such "groups of permanent possibilities of sensation" might exist in the first place. Berkeley put God in that gap; the phenomenalists, including Mill, essentially left the question unanswered. In the end, lacking an acknowledgement of an aspect of "reality" that goes beyond mere "possibilities of sensation", such a position leads to a version of subjective idealism. Questions of how floor beams continue to support a floor while unobserved, how trees continue to grow while unobserved and untouched by human hands, etc. It fails to fully consider the structure and method of mathematical science , the products of which are arrived at through an internally consistent deductive set of procedures which do not, either today or at the time Mill wrote, fall under the agreed meaning of induction. But it came to be realized that there is no finite set of statements about actual and possible sense-data from which we can deduce even a single physical-object statement. The translating or paraphrasing statement must be couched in terms of normal observers in normal conditions of observation. There is, however, no finite set of statements that are couched in purely sensory terms and can express the satisfaction of the condition of the presence of a normal observer. According to phenomenalism, to say that a normal observer is present is to make the hypothetical statement that were a doctor to inspect the observer, the observer would appear to the doctor to be normal. But, of course, the doctor himself must be a normal observer. And if we are to specify in sensory terms that the second doctor is a normal observer, we must refer to a third doctor, and so on also see the third man. Logical positivism Logical empiricism also

logical positivism or neopositivism was an early 20th-century attempt to synthesize the essential ideas of British empiricism e. Ayer , Rudolf Carnap and Hans Reichenbach. The neopositivists subscribed to a notion of philosophy as the conceptual clarification of the methods, insights and discoveries of the sciences. They saw in the logical symbolism elaborated by Frege â€" and Bertrand Russell â€" a powerful instrument that could rationally reconstruct all scientific discourse into an ideal, logically perfect, language that would be free of the ambiguities and deformations of natural language. This gave rise to what they saw as metaphysical pseudoproblems and other conceptual confusions. Any sentence that is not purely logical, or is unverifiable is devoid of meaning. As a result, most metaphysical, ethical, aesthetic and other traditional philosophical problems came to be considered pseudoproblems. In later years, Carnap and Neurath abandoned this sort of phenomenalism in favor of a rational reconstruction of knowledge into the language of an objective spatio-temporal physics. That is, instead of translating sentences about physical objects into sense-data, such sentences were to be translated into so-called protocol sentences, for example, "X at location Y and at time T observes such and such. By the late s, it had become evident to most philosophers that the movement had pretty much run its course, though its influence is still significant among contemporary analytic philosophers such as Michael Dummett and other anti-realists. Pragmatism[edit] In the late 19th and early 20th century several forms of pragmatic philosophy arose. The ideas of pragmatism, in its various forms, developed mainly from discussions between Charles Sanders Peirce and William James when both men were at Harvard in the s. James popularized the term "pragmatism", giving Peirce full credit for its patrimony, but Peirce later demurred from the tangents that the movement was taking, and redubbed what he regarded as the original idea with the name of "pragmaticism". Along with its pragmatic theory of truth , this perspective integrates the basic insights of empirical experience-based and rational concept-based thinking. Indeed, he concurred with the main ideas of rationalism, most importantly the idea that rational concepts can be meaningful and the idea that rational concepts necessarily go beyond the data given by empirical observation. In later years he even emphasized the concept-driven side of the then ongoing debate between strict empiricism and strict rationalism, in part to counterbalance the excesses to which some of his cohorts had taken pragmatism under the "data-driven" strict-empiricist view. To this, Peirce added the concept of abductive reasoning. The combined three forms of reasoning serve as a primary conceptual foundation for the empirically based scientific method today. The rationality of the scientific method does not depend on the certainty of its conclusions, but on its self-corrective character: First among these he listed the peripatetic-thomist observation mentioned above, but he further observed that this link between sensory perception and intellectual conception is a two-way street. That is, it can be taken to say that whatever we find in the intellect is also incipiently in the senses. Hence, if theories are theory-laden then so are the senses, and perception itself can be seen as a species of abductive inference , its difference being that it is beyond control and hence beyond critiqueâ€"in a word, incorrigible. This in no way conflicts with the fallibility and revisability of scientific concepts, since it is only the immediate percept in its unique individuality or "thisness"â€"what the Scholastics called its haecceity â€"that stands beyond control and correction. Scientific concepts, on the other hand, are general in nature, and transient sensations do in another sense find correction within them. This notion of perception as abduction has received periodic revivals in artificial intelligence and cognitive science research, most recently for instance with the work of Irvin Rock on indirect perception.

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

6: Philosophical Connections: Whitehead

Abstract. This paper comes at subjectivity from a Whiteheadian perspective. It argues that Whitehead provides us with a "deep" form of empiricism grounded in the notion of the "actual occasion" of experience and in the temporal and spatial co-assembly of multiplicities of such occasions.

Introduction Heinrich Scholz â€” , German Protestant theologian, philosopher, and logician, began his academic career as a Protestant systematic theologian at the University of Breslau. His Religionsphilosophie Scholz became particularly influential in Protestant Theology. Scholz combined research on logical calculi with an epistemological Platonism and openness for metaphysical approaches. Nevertheless, he felt close to the scientific world view of Logical Empiricism. Furthermore, with his Geschichte der Logik Scholz a Heinrich Scholz was a pioneer in the historiography of logic. He studied Protestant Theology and Philosophy in Berlin. Among his teachers were the Prussian Protestant theologian Adolf von Harnack â€” , the neo-Kantian philosopher Alois Riehl â€” and the neo-idealist philosopher Friedrich Paulsen â€” He obtained an additional doctoral degree in Philosophy at the University of Erlangen in He also received an honorary doctorate from the Theological Faculty of the University of Berlin. There he first served as professor of Philosophy. Scholz changed his main research area to Mathematical Logic and Foundations, and officially taught the subject from on. In the denomination of his chair was changed to Mathematical Logic and Foundations. The institute of this name was founded in Scholz retired in Its task was a deepening and clarifying of foundations by combining structural investigations and the analysis of the context of application. Couturat ; Scholz a, Scholz was also politically effective in promoting his field. They obtained important results in the theory of the predicate calculus, the theory of axiomatic systems, metamathematics, semantics and abstraction theory. Among them were Friedrich Bachmann â€” , Albrecht Becker â€”? For the publication of the results of his school and related investigations Scholz founded the series Forschungen zur Logik und zur Grundlegung der exakten Wissenschaften eight issues â€”, n. Peckhaus ; Wehmeier and Schmidt am Busch Most of the typewritten copies Scholz had made of the original material were saved on the Frege papers cf. Scholz and Bachmann Nevertheless, Scholz tried to establish a world center for research on logic and foundations. The Munich mathematician Max Steck â€” was particularly hostile. He was able to support his Polish friends, helping, e. He supported Alfred Tarski â€” who had emigrated to the U. They feared for their lives in case the Red Army would conquer Poland cf. But contrary to this movement, he applied the scientific world view even to metaphysics. This was observed with reservations. The relation between Neurath and Scholz remained ambivalent. The initiative had come from Scholz and his school. Molendijk , Ratschow , Stock , Wimmer Religion becomes, thus, a philosophical problem. Scholz defines philosophy of religion in the widest sense as the application of philosophical means and presupposition of reasoning to the fact of religion pp. Religion is understood as part of culture being the epitome of creations of the human mind, the existence of which is preferred to their non-existence p. The object of analysis is empirical religion, i. With this he deviates from constructive types of the philosophy of religion as they can be found, e. In conclusion he determines that philosophy of religion has an integrating function in a philosophy of cultural values. It consists in philosophical reflection on tangible erlebbare religion as it is practiced and, in particular, in reflection on expressions of religious consciousness whose truth is subject to reason. So religion never ceased to be a philosophical problem. Peckhaus in the library of the University of Kiel. This work convinced Scholz of the significance of mathematics, although he had at that time no deeper knowledge of this subject. As a full professor of Philosophy he decided to begin formal university studies of Mathematics and Theoretical Physics. He worked particularly on the borderline between Mathematics and Philosophy, motivated by the problem of distinguishing logical calculi from general calculi. Language is necessary to present logical systems. He suggests a formalized language with a degree of exactness even exceeding the exactness of mathematical languages. Leibniz languages are symbolic languages with exactly defined means of expression. Each expression is a finite string of characters using a given symbolism according to well-determined rules. A universally valid fundamental expression is called a Leibniz Theorem. A logic calculus is defined as a set of

truths presentable by a Leibniz theorem over L. In this book metaphysics is dealt with as an ontology in the sense of a theory comprising the entirety of truths. It can be linguistically expressed and it deals with things which can be understood as individuals. These truths are not restricted to particular domains, but are valid for all non-empty domains in all possible worlds pp. In this book Scholz uses the language of first order predicate calculus with identity. This notion is applied to an axiomatized theory of identity and difference. Scholz analyzed classical metaphysical doctrines with his logical tool of a predicate calculus with identity. They argued for the priority of semantical over syntactical considerations. He stressed the value of the contributions of Gottfried Wilhelm Leibniz â€" and Bernard Bolzano â€" for the emergence of modern logic. He applied the method of logical analysis to classical philosophical texts, reconsidering, e. With his Geschichte der Logik a , Heinrich Scholz was a pioneer in the historiography of modern logic. Scholz restricted his presentation to formal logic or logistics. For Scholz, the modern shape of logic starts with Leibniz: According to Scholz, he did more than any other logician for the interpretation of fundamental mathematical concepts with the help of fundamental concepts of logic operating on the basis of exactly defined principles. Conclusions Heinrich Scholz was important as an integrating figure in the development of logic in the first half of the 20th century. He kept Mathematical Logic in touch with Philosophy. With his focus on semantics he set the agenda for the development after World War II. Important academics of German postwar logic, including Gisbert Hasenjaeger and Hans Hermes, were his students. Bibliography Primary Literature Hermes, H. Abhandlungen zur Philosophie als strenger Wissenschaft, ed. Ritter, Basel and Stuttgart: Histoire de la logique et de la philosophie scientifique, Paris: Springer Grundlehren der mathematischen Wissenschaftend,; Secondary Literature Behman, H. Wissenschaft und Theologie im Denken von Heinrich Scholz. Rodopi Amsterdam Studies in Theology; 8. Schmidt am Busch, H. Logiker, Philosoph, Theologe, Paderborn: Cambridge University Press; 2nd edition, â€"

7: Empiricism - Wikipedia, the free encyclopedia

Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide.

Thought by his parents to be too delicate for the rough and tumble world of the English public school system, young Alfred was initially tutored at home. Whitehead always looked upon his days as a boy as a rather idyllic time. The education he received at home was always congenial to his natural habit of thinking, and he was able to spend long periods of time walking about in English country settings that were rich with history. While Whitehead always enjoyed the classics, his true strength was with mathematics. Because of both its quality, and the unique opportunity to take the entrance examinations early, Alfred tested for Trinity College, Cambridge, in , a year before he would otherwise have been allowed to enter. While the money was certainly important, the scholarship itself qualified Whitehead for further rewards and considerations, and set him on the path to eventually being elected a Fellow of Trinity. This happened in , with the completion of his undergraduate work and his high standing in the finals examinations in mathematics for that year. He traveled to Germany during an off-season at Cambridge probably , in part to learn more of the work of such German mathematicians as Felix Klein. Whitehead was also an ongoing member of various intellectual groups at Cambridge during this period. But he published nothing of note, and while he was universally praised as a teacher, the youthful Alfred displayed little promise as a researcher. In , when he was thirty years of age, Whitehead married Evelyn Wade. Evelyn was in every respect the perfect wife and partner for Alfred. While not conventionally intellectual, Evelyn was still an extremely bright woman, fiercely protective of Alfred and his work, and a true home-maker in the finest sense of the term. Although Evelyn herself was never fully accepted into the social structures of Cambridge society, she always ensured that Alfred lived in a comfortable, tastefully appointed home, and saw to it that he had the space and opportunity to entertain fellow scholars and other Cambrians in a fashion that always reflected well upon the mathematician. It is also in this period that Whitehead began work on his first major publication, his Treatise on Universal Algebra. Perhaps with his new status as a family man, Whitehead felt the need to better establish himself as a Cambridge scholar. The book would ultimately be of minimal influence in the mathematical community. It was after the publication of this work that Whitehead began the lengthy collaboration with his student, and ultimately Trinity Fellow, Bertrand Russell, on that monumental work that would become the Principia Mathematica. However, the final stages of this collaboration would not occur within the precincts of Cambridge. By , Whitehead had been at Trinity College for thirty years, and he felt his creativity was being stifled. It was expected that Forsyth would lose his Cambridge professorship, but the school took the extra step of withdrawing his Trinity Fellowship as well. Publicly in protest of this extravagant action, Whitehead resigned his own professorship though not his Fellowship as well. Privately, it was the excuse he needed to shake up his own life. At the age of 49 and lacking even the promise of a job, Whitehead moved his family to London, where he was unemployed for the academic year of â€” It was Evelyn who borrowed or bullied the money from their acquaintances that kept the family afloat during that time. Alfred finally secured a lectureship at University College, but the position offered no chance of growth or advancement for him. Finally in , the Imperial College of Science and Technology in London appointed him as a professor of applied Mathematics. At the same time, Whitehead maintained his teaching load while also assuming an increasing number of significant administrative duties. He was universally praised for his skill in all three of these general activities. However, by Whitehead was sixty years old and facing mandatory retirement within the English academic system. He would only be permitted to work until his sixty-fifth birthday, and then only with an annual dispensation from Imperial College. So it was that in , Whitehead accepted an appointment as a professor of philosophy at Harvard University. Whitehead continued to teach at Harvard until his retirement in He had been elected to the British Academy in , and awarded the Order of Merit in He died peacefully on December 30th, Per the explicit instructions in his will, Evelyn Whitehead burned all of his unpublished papers. Thought and Writings a. However, these two approaches naturally lend themselves to slightly different emphases, and

there are important historical overlaps of the dominating themes of his thought. So it is worthwhile to view these themes ahistorically prior to showing their temporal development. During the same period, William Clifford in England, and Felix Klein and Wilhelm Killing in Germany were advancing the study of spaces of constant curvature. Whitehead was well aware of their work, as well as that of Hermann Grassmann, whose ideas would later become of central importance in tensor analysis. Nevertheless, it is primarily with his later philosophical work that this topic emerges as a central element and primary focus of his thought. UA offers little in the way of original research by Whitehead. Rather, the work is primarily expository in character, drawing together a number of previously divergent and scattered themes of mathematical investigation into the nature of spatial relations and their underlying logic, and presenting them in a systematic form. In contrast, the approaches of Giuseppe Peano and Gottlob Frege, with their emphasis on proof and semantic relations, soon became the focus of mathematical attention. The emphasis on structural relations in these works is a key component to understanding his arguments. In addition, UA itself was one in a rising chorus of voices that had begun to take the work of Hermann Grassmann seriously. Grassmann algebras would come to play a vital role in tensor analysis and general relativity. Other early works by Whitehead include his two short books, the Axioms of Projective Geometry and the Axioms of Descriptive Geometry However, it remains the case that these two works are not about presenting cutting edge research so much as they are about the clear and systematic development of existing materials. As suggested by their titles, the approach is axiomatic, with the axioms chosen for their illustrative and intuitive value, rather than their strictly logical parsimony. As such, these books continue to serve as clear and concise introductions to their subject matters. Even as he was writing the two Axioms books, Whitehead was well into the collaboration with Bertrand Russell that would lead to the three volumes of the Principia Mathematica. Although most of the Principia was written by Russell, the work itself was a truly collaborative endeavor, as is demonstrated by the extant correspondence between the two. The intention of the Principia was to deduce the whole of arithmetic from absolutely fundamental logical principles. Thus, what Whitehead had originally intended to be the second volume of UA had transformed into the fourth volume of the Principia Mathematica, and like that earlier planned volume, the fourth part of Principia Mathematica never appeared. It was in these London years that Whitehead published a number of essays and addresses on the theory of education. But it would be a mistake to suppose that his concern with education began with the more teaching-oriented as opposed to research-oriented positions he occupied after departing Cambridge. Whitehead had long been noted as an exceptional lecturer by his students at Cambridge. The very opening pages of UA are devoted to a discussion of the reasons and economies of well-chosen symbols as aids to the advancement of thought. Or again, the intention underlying the two Axioms books was not so much the advancement of research as the communication of achieved developments in mathematics. This book was again entirely devoted toward introducing students to the character of mathematical thought, to the methods of abstraction, the nature of variables and functions, and to offer some sense of the power and generality of these formalisms. But they also argue, both explicitly and implicitly, for a balance of liberal education devoted to the opening of the mind, with technical education intended to facilitate the vocational aptitudes of the student. Education for Whitehead was never just the mere memorization of ancient stories and empty abstractions, any more than it was just the technical training of the working class. It always entailed the growth of the student as a fully functioning human being. Whitehead never systematized his educational thought the way Dewey did, so these ideas must be gleaned from his various essays and looked for as an implicit foundation to such larger works as his Adventures of Ideas see below. Einstein himself offers only a generic nod toward the experiments regarding space and light in his paper on special relativity. The problem Einstein specifically cites in that paper is the lack of symmetry then to be found in theories of space and the behavior of electromagnetic phenomena. This expedition was cancelled with the eruption of the First World War. A few papers appeared during the war years, in which a relational theory of space begins to emerge. What is perhaps most notable about these papers is that they are no longer specifically mathematical in nature, but are explicitly philosophical. While PNK is much more formally technical than CN, both books share a common and radical view of nature and science that rejects the identification of nature with the mathematical tools used to characterize its relational structures. Nature for Whitehead is that which is

experienced through the senses. An infinitesimal point is a high abstraction with no experiential reality, while time and space are irreducibly extensional in character. These abstract entities, in their turn, could be shown to be significant of the nature they had been abstractively derived from. Moreover, since these abstract entities were formally easier to use, their significance of nature could be retained through their various deductive relations, thereby giving evidence for further natural significances by this detour through purely abstract relations. It is important to note here that Whitehead is arguing for a kind of empiricism. Whitehead pointed out that this then loses the logical relations necessary to make meaningful cosmological measurements. In order to make meaningful measurements of space, we must know the geometry of that space so that the congruence relations of our measurement instruments can be projected through that space while retaining their significance. But we can only know these distributions if we can first make accurate measurements of space. Thus, as Whitehead argued, we are left in the position of first having to know everything before we can know anything. The Metaphysical Works The problems Whitehead had engaged with his triad of works on the philosophy of nature and science required a complete re-evaluation of the assumptions of modern science. In addition, he continued with the themes of his earlier triad, arguing that objects in general, and matter in particular, are abstractions. What are most real are events and their mutual involvements in relational structures. Physical facts such as electromagnetic phenomena are single, relational wholes, but they are spread out across the cosmos. Relations and connections were, in this dogmatic view, secondary to and parasitic upon such simply located entities. Whitehead saw this as reversing the facts of nature and experience, and devoted considerable space in SMW to criticizing it. Thus, this fallacy resulted in treating abstractions as though they were concretely real. The critical aspects of SMW were ideas that Whitehead had already expressed in different forms in his previous publications, only now with more refined clarity and persuasiveness. On the other hand, the constructive arguments in SMW are astonishing in their scope and subtlety, and are the first presentation of his mature metaphysical thinking. But that knowledge is abstract and only significant of the world; it does not stand in any simple one-to-one relation with the world. In particular, this pre-epistemic grasp of the world is the source of our quasi- a priori knowledge of space which enables us to know of those uniformities that make cosmological measurements, and the general conduct of science, possible. Yet it is still Whitehead the algebraist who is constructing this definition. Solitariness is understood as a multi-layered relational modality of the individual in and toward the world. In addition, this relational mode cannot be understood in separation from its history. On this point, Whitehead compares religion with arithmetic. Thus, an understanding of the latter makes no essential reference to its history, whereas for religion such a reference is vital. The key element for Whitehead is value. God, like arithmetic, is discussed in terms of something which has a purpose.

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

8: Willard Van Orman Quine - Wikipedia

In the first volume of Whitehead's Pancreativism, we have seen that two main features characterize the late Whitehead's style: circumambulation and constructive discrimination. Uphill, we additionally found his radical empiricism and, downhill, his non dogmatism.

Reason, Experiment, and Mysticism in the Scientific Revolution. The Origins of Modern Science: Medieval and Early Modern Science. A History of Science and Technology. From Galileo to Newton: The Scientific Revolution Documents of the Scientific Revolution. Origins of the Scientific Revolution. From the Closed World to the Infinite Universe. Essays in Scientific Revolution. The Structure of Scientific Revolutions. Humanism and the Rise of Science in Tudor England. Men of Science in the Renaissance. Science and Society in the 16th and 17th Centuries. A History of Magic and Experimentsl Science. Science, Medicine, and Reform, The Construction of Modern Science: Science in A Renaissance Society. Science and the Renaissance. A History of Science, Technilogy, and Philosophy in the 16th and 17th centuries. The Development of Technical Education in France, The History of the Royal Society. Scientific Organizations in 17th-century France, Cope, Jackson I and H. History of the Royal Society. Science and education in the Seventeenth Century. The Anatomy of a Scientific Institution: The Paris Academy of Sciences, Rupert and Marie Boas. Precursor of the Royal Society. A Study of the Accademia del Cimento. The Role of Scientific Societies in the 17th Century. Science, Politics, and Religion. Latitudinarianism and Science in 17th-Century England. A History of the Royal Society. Science and Religion in 17th Century England. Routledge and Kegal Paul, The Conditions of its Establishment in Europe. The Metaphysical Foundations of Modern Science. Science and Social Welfare in the Age of Newton. Sociological Modelling Gone Awry. U Wisconsin P, Intellectual Origins of the English Revolution. Experimental Traditions in the Development of Physical Science. Science, Technology and Society in 17th-century England. U Chicago P, Reprinted in The Conquest of the Materiaal World. A Reconsideration of the Theories and Interpretations. Science and the Modern World: The Anatomy of a Controversy. Religion and the Rise of Modern Science. The State of the Argument. Science and Religion in Elizabethan England. The Rise of the Concept of the Laws of Nature. The Impact of an Idea. Daniel OConnor et al. General Ackerman, James S. The Art of the Renaissance in Northern Europe. Artistic Theory in Italy, Rpt Origins of the Scientific Revolution. Society of Architectural Historians 33 Humanism, Natural Science and Art. John Donne and the New Philosophy. Refractions of Science in 17th-Century Literature. The Breaking of the Circle. Mountain Gloom and Mountain Glory: The Development of the aesthetics of the infinite. Prolegomena and Preliminary Check List. The 17th Century Background. Prose form from Bacon to Collier. Astronomy, Architecture, and the Mathematical Sciences. Journal for the History of Astronomy 6 The Natural Causes of Beauty. The Renaissance Discovery of Linear Perspective. The Architecture of Sir Christopher Wren. Magic and Architecture in the Italian Renaissance. Mathematics in Western Culture. Theories of Vision from Al-Kindi to Kepler. A Study in Their Sources. The Four Books of Architecture. Renaissance and Renascences in Western Art. The Theory of Proportion in Architecture. The Ten Books on Architecture. The Birth and Rebirth of Pictorial Space. Architectural Principles in the Age of Humanism. Theatre of the World. The Human Body as Image of the World. Der Musiktheoretiker Johannes Kepler. Physics and Music in the 17th Century. Arthur and Peter Beer. Touches of Sweet Harmony: Pythagorean Cosmology and Renaissance Poetics. The Untuning of the Sky: Ideas of Music in English Poetry, Classical and Christian Ideas of World Harmony. The Case for a Jewish Christianity. Guerlac, Henry and M. Revelation, Politics, and the Millenium. The Newtonians and the English Revolution,

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

9: Search results for `Aaron G. Wightman` - PhilPapers

One could very well read into Whitehead's conception of metaphysics a la speculative philosophy as a pragmatic metaphysics in the tradition of James's radical empiricism. Let me show you why. On this blog (and in my own writing on James), I have embraced that a certain type of metaphysics cannot be done.

He was educated at Sherborne School and Trinity College, Cambridge, where he studied mathematics and was elected Fellow and lecturer in He collaborated with his pupil Bertrand Russell on their monumental Principia Mathematica From then on he taught at University College, London, and in he was appointed professor of applied mathematics at Imperial College. He moved to America in to take up a chair in philosophy at Harvard. He was elected Fellow of the British Academy in , and in the Order of Merit was conferred on him. In his earliest period he sought with Russell to deduce the whole of mathematics from formal logical premisses [a]. Later he came to define points and lines relationally as total sequences of volumes of particular shapes for points , or directions of routes of shapes for lines which overlap or extend over each other. He called this "the method of extensive abstraction" [see Organization of Thought, ch. Objects and events were also to be defined from this joint logical or theoretical and empirical basis. These are unperceived and inferred but are held to account for the properties and relations of the events in which physical objects through perceptual objects and sense objects are ultimately situated. The physical and perceptual objects on the other hand are uniform in that the events in which they are grounded exist over space and time. Whitehead called this an example of "the bifurcation of nature". This account is developed in later writings in the following way. He calls this perception "in the mode of causal efficacy". Both primary and secondary qualities are thus referred back to a common actual occasion as prehending entity [a]. And such sensations may of course not be veridical, because there is a time lag between the two modal stages. Everything is positively somewhere in actuality, and in potency everywhere [c]. And every proposition presupposes a general nexus with an indicative relational system. But for Whitehead relations are both internal and external [f]. Whitehead stresses further that his concept of organism includes not only living things possessed of mental life but also inert entitites such as stones which may be said to have sentient experience. At the highest levels, especially in the case of man, the totality of the experience gives rise also to consciousness as an aspect of feeling. He supposes himself also to have overcome the Cartesian mind-body dualism, in that he argues for both unified behaviour and consciousness of a unified experience. Although mentality is non-spatial, its is a reaction from and integration with spatial physical experience []. Causation [see also sec. This is, however, a later stage of the perceptual process. If we actually look at experience we find that the causal nexus should not therefore be derived from the presupposed sequence of immediate presentations but rather that this perceptive mode gives us information about percepta in the more aboriginal mode of causal efficacy [j]. God is conceived of as the fundamental "principle of concretion" underlying and at the same time subject to this creative process. God is thus the foundation of the overlapping of events "extensive connections" , their actualization, and their objectification in others. This is perhaps surprising with respect to the latter, given that Whitehead was the co-author with Russell of Principia Mathematica. However, his metaphysics of process is grounded in scientific concepts and is influenced by his work in logic and mathematics. Indeed in this respect we may regard him as the Heidegger of Anglo-American philosophy! It has been objected also that he is too prone to make assertions rather than to engage in sustained argument. But such a view fails to take account of the primary aim of his speculative philosophy. His emphasis on objects as events also constitutes a new way of looking in modern philosophy, which some later thinkers have found stimulating and useful. An Anthology, edited by F. Lowe, Victor Alfred North Whitehead. Mays, The Philosophy of Whitehead. Collection of essays P.

WHITEHEADS EMPIRICISM, BY W. P. D. WIGHTMAN. pdf

Edward Jessup of West Farms, Westchester Co. New York, and his descendants Meeting National Math Standards With Active Learning Strategies Laser-Tissue Interactions History of Political Ideas (Volume 3): The Later Middle Ages (Collected Works of Eric Voegelin, Volume 21 American Story, Combined Volume (Penguin Academics Series), The An introduction to optimization fourth edition Pt. 1. ACOA Executive Committee minutes and National Office memoranda, 1952-1975 (6 reels) In the future perfect Trend four : the new demography Coming home from home Wakefield, H. R. He cometh and He passeth by. The Tunguska event Elementary teachers new complete ideas handbook More Lefton China High Museum of Art Recipe Collection Tumors of Accessory Urethral Glands The identity politics of language : Italian language maintenance in New York City, 1920-40 Predators and prey Getting Started with Peachtree 2005 Literacy for the 21st century 7th edition Argyll, Bute and Stirling (Pevsner Architectural Guides) Lord, lift me up and let me stand Merriwether Lewis and William Clark Outwit Your Weight Journal No. 28. Lenwood, Frank. Chariots of fire. Book of Thunder (Diadem: A Fantasy Mystery, No. 4) The maze of modernism: reflections on MacNeice, Graves, Hope, Lowell, and others. The Penguin great novels of D.H. Lawrence My ducks are really swans London England temple Exhibit a-2 mortgage and security agreement Interpretation of a dynamical approximation for isotropic turbulence. Monthly statistics of foreign trade. The Best American Sports Writing 1999 (The Best American Series) The way of simplicity 1945-46. History of the Manor of Tyrley Infecciones de piel y partes blandas The Examen Prayer From victim of the feminine mystique to heroine of feminist deconstruction Andy Kaufman Revealed Best (Peanut Press Friend Tells All