

Professor Herbert Dingle's problem with Professor Albert Einstein's special (restricted) relativity and the site <http://www.mathpages.com/home/kmath024/kmath024.htm>

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“ ‘Thence [i.e., from the SR theory which takes no account of accelerations or gravitation] we conclude that a balance-clock at the equator must go more slowly, by a very small amount, than a precisely similar clock situated at one of the poles under otherwise identical conditions.’ [This is been quietly accepted as a false prediction of special relativity, see http://www.physicstoday.org/vol-58/iss-9/pdf/vol58no9p12_13.pdf for example. It is not so widely known, however, that this discredits Einstein's derivation of special relativity results.]

– Albert Einstein, *Ann. d. Phys.*, vol. 17 (1905), p. 891.

“Applied to this example, the question is: what entitled Einstein to conclude *from his theory* that the equatorial, and not the polar, clock worked more slowly?”

– Herbert Dingle, *Science at the Crossroads*, Martin Brian & O'Keefe, London, 1972, c2.

Introduction

Walter Babin has added links from the *General Science Journal* to Professor Dingle's books about special (restricted) relativity. Dingle states his question in the *Introduction* to his 1972 book *Science at the Crossroads* (Martin Brian & O'Keefe, London) concerning special (restricted) relativity:

‘... you have two exactly similar clocks ... one is moving ... they must work at different rates ... But the [SR] theory also requires that you cannot distinguish which clock ... moves. The question therefore arises ... which clock works the more slowly?’

My 37-word extracted quotation is a complete and accurate summary of Dingle's argument. Admittedly, I have had to remove irrelevant clutter in six places from this quotation to make it concise.

For contrast, the internet site <http://www.mathpages.com/home/kmath024/kmath024.htm> claims:

‘In a nutshell, Dingle considers two systems of inertial coordinates x, t and x', t' with a relative velocity of v , and then considers the partial derivative of t' with respect to t at constant x , and the partial derivative of t with respect to t' at constant x' . He notes that these partials are equal, and declares this to be logically inconsistent for any v other than 0. Needless to say, Dingle's “reasoning” is incorrect, because partial derivatives cannot be algebraically inverted.’

The failure of the mathematical response

The failure in <http://www.mathpages.com/home/kmath024/kmath024.htm> is obvious: *it ignores Dingle's question*, and makes up a lot of time-wasting irrelevant drivel instead, then attacks its own drivel as if it is attacking Dingle's question. In chapter 1 of his book, Dingle

explains the failure of the mathematicians in 1972, and it is precisely the same failure we see today:

‘Suppose we have a cubical vessel whose volume is 8 cubic feet, and we wish to find the length of one of its edges ... We let x be the required length, and all we have to do is solve the equation $x^3 = 8$. But this equation has three solutions, viz 2, $[(-3)^{1/2} - 1]$, $-[(-3)^{1/2}] + 1$, all having the same mathematical validity. But we know that the only one of these solutions that can possibly correspond to the reading of a measuring rod is 2 ...’

So given a question, all the crackpot needs to do is to translate the question into meaningless maths, point out that it is then all nonsense, and then point out that the translation is gibberish, while trying (badly) to place the blame on the clear original statement.

Historical background of Dingle and Einstein

Professor Herbert Dingle was pro-special (restricted) relativity until he was attacked by Einstein in print. This occurred in the book of essays (in tribute of Einstein) edited by Paul Arthur Schilpp, *Albert Einstein Philosopher-Scientist*, published in 1949. Dingle’s essay in that book is essay number 20, pages 525-554, ‘Scientific and Philosophical Implications of the Special Theory of Relativity.’

Einstein didn’t like Dingle’s essay and ridiculed it in a note published in the book with the essay. When Einstein died in 1955, Dingle was chosen by the BBC to give the polite eulogy on Einstein. When the Einstein hype spiralled out of control, Dingle read in Sir George Thomson's book, *The Foreseeable Future*, that some issues with twins paradox (which twin is in motion, and so which one gets time-dilation?) were unresolved, and he then started to attack the special (restricted) relativity theory as over-hyped.

Dingle is not attacking Einstein, indeed he cites Einstein’s own paper resolving the ‘twins paradox’ in *Naturwissenschaften*, vol. 6 (1918), p 697. Einstein’s resolution to the twins paradox is to replace special (restricted) relativity by general relativity, which – because the universe has gravitational fields – is an absolute motion theory:

‘But ... the general theory of relativity cannot retain this [SR] law. On the contrary, we arrived at the result according to this latter theory, the velocity of light must always depend on the coordinates when a gravitational field is present.’ - Albert Einstein, *Relativity, The Special and General Theory*, Henry Holt and Co., 1920, p111.

‘... the [SR] principle ... must be modified, since we easily recognise that the path of a ray of light ... must in general be curvilinear...’ - Albert Einstein, *The Principle of Relativity*, Dover, 1923, p114.

‘The special theory of relativity ... does not extend to non-uniform motion ... *The laws of physics must be of such a nature that they apply to systems of reference in any kind of motion.* Along this road we arrive at an extension of the postulate of relativity... *The general laws of nature are to be expressed by equations which hold good for all systems of co-ordinates, that is, are co-variant with respect to any substitutions whatever (generally co-variant).*’ – Albert Einstein, ‘The Foundation of the General Theory of Relativity’, *Annalen der Physik*, v49, 1916 (italics are Einstein’s own).

‘According to the general theory of relativity space without ether [alternatively known as: spacetime fabric, gravitational field, spacetime continuum] is unthinkable.’ – Albert Einstein, *Sidelights on Relativity*, Dover, New York, 1952, p23.

‘The Michelson-Morley experiment has thus failed to detect our motion through the aether

[alternatively known as: spacetime fabric, gravitational field, spacetime continuum], because the effect looked for – the delay of one of the light waves – is exactly compensated by an automatic contraction [due to motion through the aether or gravity-causing gauge boson radiation field, rather like pressure induces stresses due to the forward motion of a ship in the sea causing a small contraction of the ship in the direction of the motion] of the matter forming the apparatus.... The great stumbling-block for a philosophy which denies absolute space is the experimental detection of absolute rotation.’ – Professor A.S. Eddington (who confirmed Einstein’s general theory of relativity in 1919), *Space Time and Gravitation: An Outline of the General Relativity Theory*, Cambridge University Press, Cambridge, 1921, pp. 20, 152.

‘U-2 observations have revealed anisotropy in the 3 K blackbody radiation which bathes the universe. The radiation is a few millidegrees hotter in the direction of Leo, and cooler in the direction of Aquarius. The spread around the mean describes a cosine curve. Such observations have far reaching implications for both the history of the early universe and in predictions of its future development. Based on the measurements of anisotropy, the entire Milky Way is calculated to move through the intergalactic medium at approximately 600 kms.’ – R. A. Muller, University of California, ‘The cosmic background radiation and the new aether drift’, *Scientific American*, vol. 238, May 1978, p. 64-74.

Hence the Lorentzian metric of special relativity which made absolute motion invisible in 1905 needs replacement by general relativity in which the metric is a result of the dynamics of the theory, not Lorentzian by prejudice. This is the new idea of ‘background independence’ that replaces blind faith in the Lorentzian metric of special relativity.

The indoctrinated students

In chapter 1 of Dingle’s *Science at the Crossroads*, Dingle quotes Sir Henry Dale, a President of the Royal Society, on the lack of religious groupthink in science:

‘... science, we should insist, better than any other discipline, can hold up to its students and followers an ideal of patient devotion to the search for objective truth, with vision unclouded by personal or political motive, not tolerating any lapse from precision or neglect of any anomaly, fearing only prejudice and preconception, accepting nature’s answers humbly and with courage, and giving them to the world with an unflinching fidelity. The world cannot afford to lose such a contribution to the moral framework of its civilisation.’ (H. H. Dale, *An Autumn Gleaning* (Pergamon Press, 1954, p. 81).

Dingle then explains that in his 1931 book, *Science and Human Experience* (Williams & Norgate, 1931, p. 44), he showed how there was a corruption of this since Newton’s day:

‘I will give three quotations from representative scientists, covering the period from Newton to the present time and separated by roughly equal intervals.

‘The first is from Newton himself (1687): “I frame no hypotheses. For whatever is not deduc’d from the phaenomena, is to be called an hypothesis; and hypotheses, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy.”

‘The second is from Laplace, referring to his famous “nebular hypothesis” (1796): “I will suggest an hypothesis which appears to me to result with a great degree of probability, from the preceding phenomena, which, however, I present with that diffidence, which ought always to attach to whatever is not the result of observation and computation.”

‘The third is from Eddington (1926): “Care is taken to provide ‘macroscopic’ equations for the human scale of appreciation of phenomena as well as ‘microscopic’ equations for the microbe. But there is a difference in the attitude of the physicist towards these results; for him the macroscopic equations — the large-scale results — are just useful tools for scientific and practical progress; the microscopic view contains the real truth as to what is actually occurring.”

‘The course of development is from a categorical rejection of hypotheses of any kind whatever, through a diffident presentation of one which results “with a great degree of probability” from phenomena, to the confident assertion that a hypothesis contains “real truth” and phenomena are just “useful tools.” The question of the validity of this process is the most vital question, both for the philosophy of Science and for the application of scientific ideas to other departments of thought, at the present time.’

In chapter 2 of Dingle’s *Science at the Crossroads*, he writes: ‘... the readiness to respond to my criticism decreases steadily with increasing distinction of those who read it. The leaders of the subject reply, if at all, only when pressed, and as briefly as possible. Those of intermediate status cite experiments of greater or less irrelevance or present calculations of greater or less complication and with no relevance at all. Students and young PhDs are vociferous. “After your argument in *Nature* with Professor Max Born,” wrote the former editor of *Nature* to me in 1963, “I had a large number of communications and quite a number of individual unannounced visitors at *Nature* office. As you implied in your letter, they each one felt that he could prove you were wrong in your view and each one got about it in a different way ... all the people who submitted communications or wished to discuss this problem with me, could scarcely be considered first class men of science as compared to Max Born.’

Professor Abraham Pais and Professor Max Born

According to Professor Abraham Pais’ biography of Einstein, *Subtle is the Lord* (Oxford University Press, 1982), he (Pais, then at the Institute of Advanced Study with Einstein) gave Einstein a copy of Poincare’s 1904 paper on special relativity shortly before he died. Einstein was surprised enough, writes Pais, that he entrusted Professor Max Born to write an acknowledgement of Poincare’s work on special relativity prior to Einstein’s involvement in 1905. Pais writes that Born, despite having authored a major textbook on special relativity, did not understand the differences between Poincare’s and Einstein’s theory, and instead thought Poincare had come up with the same thing as Einstein, but earlier.

Pais makes it clear that Poincare used 3 postulates in his 1904 paper and Einstein used only 2 in his 1905 paper. However, Poincare’s paper was much longer and dealt with the subject in more detail, and it was only much later (after Poincare had died in 1912) that Einstein wrote:

‘The special theory of relativity ... does not extend to non-uniform motion ... *The laws of physics must be of such a nature that they apply to systems of reference in any kind of motion.* Along this road we arrive at an extension of the postulate of relativity... *The general laws of nature are to be expressed by equations which hold good for all systems of co-ordinates, that is, are co-variant with respect to any substitutions whatever (generally co-variant).*’ – Albert Einstein, ‘The Foundation of the General Theory of Relativity’, *Annalen der Physik*, v49, 1916 (italics are Einstein’s own).

The dispute between Born and Dingle occurred in *Nature* on 30 March 1963. Dingle sent Born a reprint of a letter of his published on page 985 of the 8 September 1962 issue of *Nature* where he (Dingle) quoted Einstein’s statement that a ‘moving’ clock runs more slowly than a ‘stationary’ clock, so that (according to Einstein) each runs more slowly than the other, and then asked how you use the theory to decide which is the ‘moving’ clock and which is the

‘stationary’ clock. Dingle wrote on the reprint sent to Born: ‘With kindest regards. Test case for the integrity of scientists.’

Born’s response, published in *Nature* on 30 March 1963 ignored Dingle’s argument, claimed that ‘Dingle’s objections are just a matter of superficial formulation and confusion’, invented other irrelevant questions and wrote about those instead. Dingle pointed out in a letter of response to Born which *Nature* published under Born’s letter. In the book, Dingle writes:

‘I need not record my reply, which can be seen in *Nature* immediately under Born’s letter, because I think it is obvious at once that it is no answer to a criticism to say that the critic should have asked questions which he did not ask, and charge him with “superficial formulation” because of his omission. The question which Born calls my “mistake” is not mine ...’

Dingle sent Born an offprint of his reply, but Born went into an angry rage, writing to Dingle:

‘I am completely fed up with the matter, I don’t know what you have answered to my note. As I think my argument irrefutable, I am convinced that you have made again some elementary mistake ... I am sorry that I have to say such words to a man so kind and friendly as you are. But as I am over 80, the time left to me is too short to waste it on such futile discussions.’

Dingle writes in his book:

‘On reflection several years later on the course which this controversy has taken, I realise that, in my ignorance in the earlier stages of the degree to which conviction of the final truth of special relativity had displaced, in the minds of physicists, the openness indicated in Dale’s description of Science, I took the less effective of two possible courses.

‘I could have put my criticism of the theory in the form of a statement and invited critics to find a flaw in it; or I could have pointed out that the theory left open a question and asked for an answer to that question. Put more specifically, I could have pointed out that the theory contained a contradiction – that it required each of two clocks to work faster than the other – or asked the question: how does one tell *from the theory* which clock works the faster?’
[Emphasis added.]

Dingle in error took the first course, which: ‘opened a way for all sorts of spurious “faults” to be found in my statement ... Professor McCrea smothers the simple passage given in my article, to which I asked for exclusive attention to be given, by entirely superfluous comments including a space-time diagram, to dispose of a consideration that had not been raised except by himself.

‘As soon as I took the other course, however (the asking of a question), the effect was completely opposite; instead of bringing on myself a flood of discordant “refutations” I was met by complete silence. This is illustrated by ... a reply from Professor Bondi (a well-known mathematical authority on relativity ...) who simply wrote: “It is kind of you to invite me to participate through adding a reply, but I do not feel able to accept your offer. *In my view of my published work (particularly ‘Relativity and Common Sense’, also ‘Assumption and Myth’) amply refutes your views.* I do not think I can usefully add to what I said there; I am only sorry that you do not find it convincing”.’

Comments in the preface of Dingle’s *Science at the Crossroads*

Dingle writes in the April 1972 preface to his book:

‘... the traditional proud claim of Science that it acknowledges the absolute authority of experience (i.e., observation and experiment) and reason over all theories, hypotheses, prejudices, expectations or probabilities, however apparently firmly established, can no longer be upheld. The devotion to truth at all costs has gradually given place – largely unconsciously, I believe, but still undeniably – to the blind pursuit of the superficially plausible; the direction towards the most seductive, in which advance has been easiest, has been taken without regard to preservation of contact with the base, which is the truth of experience and reason; the verdict of those authorities falls on deaf ears ... mathematics has been transformed from the servant of experience into its master ... It is ironical that, in the very field in which Science has claimed superiority to Theology, for example – in the abandoning of dogma and the granting of absolute freedom to criticism – the positions are now reversed. Science will not tolerate criticism of special relativity ...’

[Professor Paul Davies very indirectly and obscurely \(accidentally?\) defends Einstein's 1920 ‘ether and relativity’ lecture ...](#)

In 1995, physicist Professor Paul Davies - who won the Templeton Prize for religion (I think it was \$1,000,000), wrote on pp. 54-57 of his book *About Time*:

‘Whenever I read dissenting views of time, I cannot help thinking of Herbert Dingle... who wrote ... *Relativity for All*, published in 1922. He became Professor ... at University College London... In his later years, Dingle began seriously to doubt Einstein’s concept ... Dingle ... wrote papers for journals pointing out Einstein’s errors and had them rejected ... In October 1971, J.C. Hafele [used atomic clocks to defend Einstein] ... You can't get much closer to Dingle's ‘everyday’ language than that.’

Now, let's check the reference to J.C. Hafele.

J. C. Hafele is *against* crackpot science: Hafele writes in *Science* vol. 177 (1972) pp 166-8 that he uses ‘*G. Builder (1958)*’ for analysis of the atomic clocks.

G. Builder (1958) is an article called ‘Ether and Relativity’ in the *Australian Journal of Physics*, v11 (1958), p279, which states:

‘... we conclude that the relative retardation of clocks... does indeed compel us to recognise the *causal significance of absolute velocities*.’

So Davies has unwittingly supported Dingle by citing the experiments of Hafele which confirm Builder’s rejection of relative velocities in favour of the causal significance of absolute velocities.

Einstein himself slipped up in one paper when he wrote that a clock at the earth’s equator, because of the earth’s spin, runs more slowly than one at the pole. One argument, see http://www.physicstoday.org/vol-58/iss-9/pdf/vol58no9p12_13.pdf, is that the reason why special relativity fails is that gravitational ‘blueshift’ given by general relativity cancels out the time dilation: ‘The gravitational blueshift of a clock on the equator precisely cancels the time dilation associated with its motion.’

It is true that general relativity is involved here, see the proof below of the general relativity gravity effect from the Lorentz transformation using Einstein’s equivalence principle. The problem is that *there are absolute velocities*, and special relativity by itself gives the *wrong answers!* You *need* general relativity, which introduces absolute motion, because it deals with acceleration like rotation, and observers can detect rotation as a net force, if in a sealed box that is rotating. It is not subject to the principle of relativity, which does *not apply* to accelerations.

‘Einstein simply postulates what we have deduced ... I have not availed myself of his substitutions, only because the formulae are rather complicated and look somewhat artificial.’
– Hendrik A. Lorentz ([discoverer of time-dilation in 1893, and re-discoverer of George FitzGerald’s 1889 formula for contraction in the direction of motion due to aether](#)).

Professor Lee Smolin’s comment about special (restricted) relativity theology

Professor Smolin has written an essay published at http://www.logosjournal.com/issue_4.3/smolin.htm called ‘Einstein’s Legacy – Where are the “Einsteinians?”’ where he comments:

‘Special relativity was the result of 10 years of intellectual struggle, yet Einstein had convinced himself it was wrong within two years of publishing it. He rejected his theory, even before most physicists had come to accept it, for reasons that only he cared about. For another 10 years, as the world of physics slowly absorbed special relativity, Einstein pursued a lonely path away from it.’