Yuriy Zhivotov Fermats Last Theorem and Mistakes of Andrew Wiles

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Abstract: In September 1955 in Tokyo, an international mathematical symposium took place where Taniyama-Shimura's hypothesis was presented. The hypothesis attracted the attention of a number of mathematicians. Andre Weil, one of the godfathers of the theory of numbers of XX century approved this theory and published it is the West.
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http://www.newrotor.narod.ru/english.html

A Legend about the Link between Taniyama-Shimura's Hypothesis and Great Fermat's Theorem.

In September 1955 in Tokyo, an international mathematical symposium took place where Taniyama-Shimura's hypothesis was presented. The hypothesis attracted the attention of a number of mathematicians. Andre Weil, one of the godfathers of the theory of numbers of XX century approved this theory and published it is the West.

In late 60-s, a small group of mathematicians (about 20persons) were engaged in the verification of Taniyama-Shimura's hypothesis and in the development of a new direction in mathematics based on this hypothesis. Simon Singh notes that only 20 persons understood that new direction in mathematics. A professor of Harvard University Barry Mazur was an advocate of the hypothesis and saw the rosette stone in it that has a certain magic force.

In the 60-s, the capabilities inherent in Taniyama-Shimura's hypothesis amazed Robert Langlends from Prinstone Institute of High Research. Langlends dreamed that great unified mathematics would arise from the hypothesis. By the 70-s, the Langlends program (for a handful of mathematicians) became a kind of long-term plan of development for mathematics, a way to "heaven", about which each mathematician can only dream. As a result, an enormous mathematical "land" arose that based itself only on the truth of Taniyama-Shimura's hypothesis. The creators of the new direction in mathematics assert that the "land" has a very great significance. Though, nobody clarifies in what this significance consists. However, the new direction allowed the well-known scientists to carry on a successful post-graduate work and to create a new scientific school.

The group of mathematicians was building new and new hypotheses stretching to future "heaven". However, all this could go to rack and ruin if Taniyama-Shimura's hypothesis turns out to be erroneous. The mathematicians built a fragile house of cards. They dreamed that one fine day they would manage to reliably underpin this structure. They were persistently tortured by a nightmare that somebody would prove that Taniyama-Shimura's hypothesis was erroneous. This would annihilate the fruits of mathematical research of many years. The somber suspicions, apparently, had grounds. A mathematician Gerhard Frey made an attempt to refute the hypothesis. According to Simon Singh, Gerhard Frey presented interesting information in autumn 1984 at the Symposium on the theory of numbers in Oberwolfach. Frey transformed "by complicated and intricate mathematical transformations" the hypothetical Fermat's theorem into the equation of elliptical curve. In doing so, Frey drew the attention that his curve was a special curve, which existence negated Taniyama-Shimura's hypothesis!

In Simon Singh's opinion, Frey believed that his curve was not modular and was a Phantom. He ostensibly made a conclusion from this: if the mathematicians manage to prove Taniyama-Shimura's hypothesis they would automatically prove the great Fermat's theorem!

However, as Simon Singh writes, right at the symposium the mathematicians detected an elementary flaw in Frey's logic in refuting Taniyama-Shimura's hypothesis and revealed the incompleteness of the proof. Frey did not prove the strangeness of elliptical curve because of which the curve is not modular!

In support of these words Simon Singh refers to the article "Frey, Gerhard. Links between Stable Elliptic Curves and Certain Diophantine Equations. Ann. Univ. Sarav. Ser. Math. 1 (1986), no. 1. iv+40 pp."

As Singh believes, the illogical and incomplete Frey's article was supplemented by Ken Ribet. Ribet with the participation of Barry Mazur prove that the Frey's curve is not modular, and Ribet publishes his article "Ribet, Kenneth A. From the Taniyama-Shimura Conjecture to Ferma's Last Theorem. Ann. Fac. Sci. Toulouse Math. (5)11 (1990), no. 1, 116-139", Finally, Andrew Wiles, having learnt about Ribet's article, considers that the way to Fermat's theorem proof was found and with the participation of Richard Taylor he proves Taniyama-Shimura's hypothesis within 1993-1995. In doing so, he asserts that the great Fermat's theorem is also proved. The proof with difficulty fits in 130 pages. The proof is published in the magazine "Annals of Mathematics" of Prinstone University. The editors and reviewers of the magazine directly and actively participated in the preparation of the manuscript. The general and friendly attention of the editors and opponents was explained by a great achievement - the proof of the Great Fermat's theorem, which the planet's best heads were not able to prove within almost four centuries.

The press widely covers Wiles's success. Singh writes a splendid book. A movie completes the success of modern mathematics. A number of mathematicians popularly explain the essence of the proof. The public approves the success.

The Prinstone and Institute of Special Research install a memorial silver tablet to Wiles in honor of the proof of Great Fermat's theorem.

However, according to the press, the Paul Wolfskehl Prize competition is not cancelled. The Goettingen Mathematical Society did not announce in accordance with the will that the Great Fermat's theorem had been proved. This incident is connected with the fact that Wiles's proof required the creation of new mathematical theories and is indirect. The epic was concluded as mass media assert. However, quite recently, the Goettingen Mathematical Society announced that they expect to see the incontrovertible proof of Great Fermat's Theorem.

The Historical Inaccuracies and Blanks in Simon Singh's Information.

1. Let us pay attention to some strangeness in the presentation of the events that took place at the Symposium. Remember that the mathematicians feared that someone would refute Taniyama-Shimura's hypothesis. Now let us come back to Frey's report. Frey made an attempt to demonstrate the unsoundness of Taniyama-Shimura's hypothesis (see the plan of hypothesis refutation).

Singh tries to turn the Frey's speech into an "interesting" information presentation. For the sake of information Frey by means of complicated and intricate mathematical operations transformed the hypothetical Fermat's equation (Phantom-equation) into the equation of elliptical curve. For the sake of information Frey states that existence of the curve is a refutation of Taniayama-Shimura's hypothesis (Singh forcedly presents the plan of hypothesis refutation which he made based on the results of Frey's speech).

People never do such work for the sake of interest. Without any doubt, Frey made a conflict deliberately. Thus, Frey's speech was scandalous. People usually prepare for such a speech very thoroughly. Frey declared war.

2.Right at the symposium the mathematicians detected an elementary flaw in Frey's logic in refuting Taniyama-Shimura's hypothesis and revealed the incompleteness of the proof.

In Singh's opinion, Frey did not prove the strangeness of elliptical curve because of which the curve is not modular!?

The error in logic consisted in the fact that his refutation of Taniyama-Shimura's hypothesis actually served as a confirmation of the Great Fermat's theorem and Taniyama-Shimura's hypothesis simultaneously!?

3. As Singh asserts, only Frey did not see his errors! Later, Ribet excuses Frey's "errors" by the fact that Frey counted on help from the audience!?

Among the participants of symposium were the well-known advocates of Taniyama-Shimura's hypothesis: Barry Mazur-Professor of Harvard University, Robert Lenglends from Prinstone Institute of High Research, Professor John Coates from Emmanuel Colleage, Ken Ribet - Professor of Californian University in Berkley, and Andrew Wiles from Prinstone University.

It is highly improbable that these scientists helped Frey to refute Taniyama-Shimura's hypothesis.

Most likely, they accused Frey of incompetence and pointed out his "errors".

Let me disbelieve Singh that obstinate Frey did not perceive the sensible comments of the opponents. Let me disbelieve Ribet that Frey was an incompetent mathematician and needed help from the participants of symposium. Therefore, let me have doubts about authenticity of the facts and reasoning presented in Singh's book.

4. Pay attention that Singh painstakingly emphasizes the "obviousness" of Frey's errors in logic and the "incompleteness" of the report.

Let me disbelieve in this assertion of Singh, as two years after the symposium in 1986 Frey publishes his article in a specialized and reviewed magazine. Most likely, Frey did not change his opinion

Possibly that is why Frey's article remains inaccessible. (Links to the journal or article are not yet available) and the American Mathematical Society informs on this (http://www.ams.org/mathscinet-getitem?mr=853387). Some mathematicians even assume that this article does not exist. These mathematicians note: Frey noticed the link between the Fermat's theorem and theory of elliptical curves but he was afraid of being considered a Fermatist and did not publish his result! (http://www.referatfrom.ru/watch/24422/1.html). Thus, Singh's legend about the defects of Frey's report is questionable.

5. Let us consider the issue of "incompleteness" of Frey's report. Frey transformed the hypothetic Fermat's equation into the equation of curve.

If we believe Fermat, the hypothetic equation does not exist. It is a Phantom. Hence, the Frey's curve is a Phantom. It turns out that Taniyama-Shimura's hypothesis extends over the real curves and Phantom - curves. This is nonsense. Therefore, Taniyama-Shimura's hypothesis is also nonsense. Pay attention that for such reasoning Frey does not have to prove that his curve is not modular. On the contrary, Frey regards the Phantom - curve as a modular curve. It turns out that Singh made two mistakes in one phrase? This is impossible.

6. Let us consider the issue of Frey's logical error. Frey asserts that Taniyama-Shimura's hypothesis is unsound and fully substantiates his assertion. The basis of his assertion is that the equation of Frey's curve does not have the right to exist according to Fermat's theorem. At the same time, the equation of elliptical curve allows to speak about real existence of numerical series as it is required by Taniyama-Shimura's hypothesis. That is Frey unambiguously asserts that the truth of Fermat's theorem refutes the strength of Taniyama-Shimura's hypothesis. One should not have doubts in this issue, as Ribet, to neutralize Frey's logic, proves that Frey's curve, being real curve, is not modular. The existence of Ribet's proof incontrovertibly proves the fear of Frey's logic.

Therefore let me disbelieve that Frey made the statement "The truth of Taniyama-Shimura's hypothesis is a confirmation of Fermat's theorem truth". It is very interesting to know who said these words. Frey did no say them. Most likely, these words appeared later when the idea of Fermat's theorem proof matured.

7. Singh showed the logic of refuting the Taniyama-Shimura's hypothesis, which follows from Frey's report:

1 - In the case (and only in this case) if the Great's Fermat's theorem is not true, Frey's elliptical curve exists.

2 - Frey's curve is so strange that it can not be modular.

3 - Taniyama-Shimura's hypothesis states that any elliptical curve must be modular.

4 - Hence, Taniyama-Shimura's hypothesis must be untrue!

Singh distorts Frey's logic.

The first statement is true only in the case if the equation of Frey's curve is a modified Fermat's equation and a Phantom. Besides, the statement is true if Frey did not make a mathematical error in his transformations.

The second Singh's statement relates to really existing elliptic curve. Singh forgets that Frey's curve is a Phantom. Let me also remind that Frey considered his elliptical curve as a modular curve. Singh asserts that Frey considered his curve as a non-modular curve. Singh ascribes his opinion to Frey. Thus, Singh omits the main Frey's statement: the curve's property of being a Phantom refutes Taniyama-Shimura's hypothesis.

8. According to Simon Singh, Frey transformed the hypothetical Fermat's equation into the equation of elliptical curve with the proviso that n>2.

Later, Ribet asserts that Fermat's equation allows to write the equation of elliptical curve in the form of Frey's equation.

(http://72.14.221.104/search?q=cache:XSeqZ5lhaxoJ:math.berkeley.edu/~ribet/Articles/notices.pdf+
Frey,+G.+Links+between+stable+elliptic+curves+and+certain+diophantine & hl=ru & ct=clnk & cd=1)

Some mathematicians believe that Frey took the hypothetical solution of Fermat's equation and according to it he built the elliptical curve (http://www.referatfrom.ru/watch/24422/1.html).

Thus, unlike Singh's opinion, the mathematicians assert for some reason that Frey in a mysterious way invented the equation of elliptical curve and in a incomprehensible way linked its integer coefficients with Fermat's numbers!

9. The peculiarity of Frey's transformations, which Singh's did not reflect in the book attracts attention. Frey transformed the hypothetical Fermat's equation into the equation of elliptical curve with the proviso that n>2. At the same time, Frey's equation has discriminant only at n>4. This contradiction indicates an error in Frey's transformations. However, all mathematicians take this as a matter of course, including Wiles. Moreover, Wiles's proof implies existence of Euler's proof at n = 3 and Fermat's proof at n = 4. It looks like the mathematicians did not want to detect all Frey's errors. If it appears that Frey made an error in the transformations, the link between the

Fermat's theorem and elliptical curves would be lost. The link between the Fermat's theorem and Taniyama-Shimura's hypothesis would be lost. May be this is what the mathematicians did not want?

10. Singh notes that Wiles began to prove Taniyama-Shimura's hypothesis after Ribet's article. He did not have such wish after Frey's article in spite of Frey's "assertion" "that the proof of Taniyama-Shimura's hypothesis automatically proves the Great Fermat's theorem!"

It is a very strange behavior if we take into consideration that all mathematicians (including Ribet) admit that the Taniyama-Shimura's hypothesis proof is more complicated than Ribet's proof .

It turns out that Wiles was ready to prove the hypothesis but could not prove the simpler problem. Most likely, Wiles had been proving the Taniyama-Shimura's hypothesis for a long time to underpin "The land of elliptical curves". And Ribet was commissioned to refute Frey.

11. One should pay attention that Ribet considered Frey's elliptical curve as real curve and was proving that this curve was not modular. Unlike Ribet, Frey considered his curve as Phantom and simultaneously as elliptical curve, which was modular. An obvious contrast of opinions. It remains only to be amazed how one could assert that Frey voiced the conjecture (the one, who will prove Taniyama-Shimura's hypothesis, will prove the Great Fermat's theorem) and Ribet proved this conjecture. Frey did not voice such conjecture. Ribet was not proving Frey's logic. He could not prove this as he was not proving that Frey's curve was a Phantom.

If Ribet had proved that Frey's curve did not exist, the dispute about modularity of the curve would have been unnecessary. On the other hand, if Frey's curve exists, (because of Taniyama-Shimura's hypothesis) it cannot be an elliptical curve and has nothing to do with Taniyama-Shimura's hypothesis.

12. Frey's speech at the symposium is a main turning-point, which led to the "proof" of the Great Fermat's theorem. As this small analysis of events connected with the turning-point shows, a huge number of contradictions connected with Frey's report exist. One may assume that Singh, as a writer, had the right to Phantasy and Errors. But let us recall that Singh expressed his acknowledgement to many mathematicians for useful advices and consultations and therefore, it is very difficult to believe that the "salt" of the book was not discussed with those mathematicians. It is scarcely credible that the mathematicians did not see the gross "slips" of Singh and did not draw the writer's attention to these mistakes.

13. After the proof of Fermat's theorem, the mass media took an interview with the main "heroes" of Fermat's theorem proof and with the "sympathizers" of the victory. But it is impossible to find in the Internet an interview with Frey from whose report the phase of indirect proof of Fermat's theorem began with the help of equations of elliptical curves. An obvious injustice.

14. Pay attention. Ribet proved that Frey's curve was not modular. Wiles, on the contrary, proved that the elliptical curves were modular. This is an obvious unconcealed contradiction in the theory of elliptical curves.

The contradiction is excluded if Frey's curve is a Phantom. But neither Ribet, nor Wiles were proving that Frey's curve did not exist or was not an elliptical curve. If it turns out that Frey's curve exists, Ribet refuted Taniyama-Shimura's hypothesis. It turns out that Wiles proved the hypothesis but forgot to refute Ribet. This a scandal in the theory of elliptical curves and modular forms. Without closing this problem, one cannot state any proof of Fermat's theorem.

15. Pay attention that Frey established a link between the Great Fermat's theorem and Taniyama-Shimura's hypothesis having transformed the Fermat's equation into a cubic equation. This operation was called by Singh a missing link in the proof of Great Fermat's theorem. However Frey was included in the history of proving the great Fermat's theorem as a scientist who only assumed the existence of a link between the Fermat's theorem and Taniyama-Shimura's hypothesis. Besides, this assumption was proven by Ribet. An obvious historical injustice.

The Birth of the Idea of Great Fermat's Theorem Proving.

1. A supposed version of refuting Taniyama-Shimura's hypothesis. Let us come back to Singh assertion that Frey tried to refute the Taniyama-Shimura's hypothesis. For this purpose, Frey obtained from Fermat's equation the curve, which should be classified among elliptical curves by the form of equation. In Frey's opinion, this curve is a Phantom if its coefficients are integers. This is explained by the fact that numbers a and b have no right to be integers A and B on the strength of Fermat's theorem. On the other hand, Frey's equation is the equation of elliptical curve with integer coefficients.

Further one may suppose the following train of Frey's considerations. Frey's elliptical curve must be modular. If it is so, a real modular series must correspond to the Phantom - curve. As a Phantom - curve cannot have a real modular series, the Taniyama-Shimura's hypothesis is untrue.

2. A supposed way to save Taniyama-Shimura's hypothesis. Frey's report frightened the advocates of the hypothesis very much. No errors were detected in his mathematical computations. The land of cards required saving.

Pay attention. Frey assumed that his elliptical curve had to be modular. But Frey was not proving that his curve was modular. So, Frey may be refuted if it is proved that his curve is not modular.

As known, Ken Ribet implemented the found way of saving. Ken Ribet with the participation of Barry Mazur prove that Frey's curve is not modular, and Ken Ribet publishes his article "Ribet, Kenneth A. From the Taniyama-Shimura conjecture to Fermat's last theorem. Ann. Fac. Sci: Toulouse Math. (5)11(1990), No. 1 116-139."There is an impression that Taniyama-Shimura's hypothesis is saved. The works of the mathematicians would be also saved if Taniyama-Shimura's hypothesis is proved.

Nobody suspected that Frey's report could be a trap. Everybody forget that Frey considered his curve as a Phantom. Unlike Frey, Ribet acknowledged Frey's curve real and was not proving that this curve did not exist. The mathematicians did not understand in what cases Frey's curve had to be considered as a Phantom and in what cases-as a real elliptical curve. They did not understand the contradiction between the Phantom and existence of the curve.

3. The idea of indirect proof of Fermat's theorem.

Let me assume that the idea of indirect proof of great Fermat's theorem arose after Ribet's article. If Frey refutes Taniyama-Shimura's hypothesis with the help of Fermat's theorem, having refuted Frey's arguments one may assert that the truth of Taniyama-Shimura's hypothesis proves the great Fermat's theorem.

An unsuccessful attempt of indirect proving the Great Fermat's theorem made by Miyaoki in 1988 was conductive to the birth of such an idea. Singh constructs the following Scheme of proving:

- assume that Frey asserts that a person who proved Taniyama-Shimura's hypothesis automatically proves the Great Fermat's theorem. Besides, the link between the hypothesis and theorem was revealed by Frey.
- assume that Frey's assertion is not proved because of the absence of proof of modularity or non-modularity of the curve.
- let us consider that for proving Frey's assertion it is enough to prove that Frey's curve is not modular.
- after that it is enough to prove Taniyama-Shimura's hypothesis, and Fermat's theorem will be proved.

The first item of the proof contradicts to Frey's actual statement. He just considers the hypothesis incompatible with Fermat's theorem.

The second item of the proof also contradicts to Frey's actual statement. He just considers that the curve is a Phantom, i. e. his curve does not exist. Though by its form his curve is elliptical and therefore must be modular.

The third item of the proof is incomplete, as except the proof that the curve is not modular, one should prove that such a curve is a Phantom.

The forth item of the proof contradicts to the third if it is not proved that Frey's curve is a Phantom. There is one more peculiarity, if Frey's curve exists. If it is proved that Frey's curve is not elliptical, it would turn out that Fermat's theorem has nothing to do with Taniyama-Shimura's hypothesis. The scheme of proof is counted on the absence of experts in this field of mathematics. In the worst case, if the experts detect these logical errors in such a proof, the fault could be ascribed to Frey.

Singh also sets out the logic of Great Fermat's theorem proof.

1. If Taniyama-Shimura's hypothesis turns out to be true, each elliptical curve must be modular.
2. If any elliptical curve must be modular, Frey's elliptical curve cannot exist.
3. If Frey's elliptical curve does not exist, solutions of Fermat's equation cannot exist.
4. Hence, the Great Fermat's theorem is true!

There are flaws in Singh's logic. With item 1 one can agree. Let us consider item 2. "If any elliptical curve must be modular, Frey's elliptical curve cannot exist."

Ribet proved that Frey's curve was not modular. This means that Frey's curve does not exist. Hence, Ribet was proving that the curve that does not exist is not modular. May be, it was simpler for him to prove that Frey's curve does not exist. But he did not attempt to prove that Frey's curve did not exist. Ribet is a strange mathematician. Perhaps, Ribet understood that it was impossible to refute existence of the curve.

Let us recall that Frey's equation has the form y^2 =x(x-A^n)(x+B^n). If A^n and B^n are integers, Frey's equation assumes the form y^2=x(x-K)(x+D). Let us forget that Frey's equation is a modified Fermat's equation. In this case Frey's equation is a usual equation of elliptical curve with integer coefficients. Nobody would dare to assert without proof that this equation does not exist. Let us assume that Frey's curve exists. But in this case Frey's curve has no right to be an elliptical curve. If Frey's curve is not an elliptical curve, Fermat's theorem has nothing to do with Taniyama-Shimura's hypothesis. Wiles's proof crumbles. However, it is impossible to refute that Frey's curve is an elliptical curve.

Therefore, Ribet forcedly considers Frey's curve as an existing elliptical curve. This means that Ribet refutes Taniyama-Shimura's hypothesis.

Thus, Singh set out an erroneous logic Fermat's theorem proving. In doing so, Singh confused everybody with his reasoning about Frey's curve as a Phantom - curve.

Where is the Logic of Great Fermat's Theorem Proof?

The analysis made shows that one should not believe Singh's book. This is a literary work. So, there should be a General proof of the Great Fermat's theorem. There is not any. Some people say that Frey established a link between the Fermat's theorem and Taniyama-Shimura's hypothesis. The others assert that Frey assumed that the proof of Taniyama-Shimura's hypothesis would automatically prove the Great Fermat's theorem. But Frey's article is inaccessible for a reader. The third assert that Ribet proved Frey's assumption. The forth consider that Ribet proved that Frey's curve was not modular. The fifth consider that Taniyama-Shimura's hypothesis was proved by Wiles, and so on. Moreover, the assertions of some people contradict to the assertions of the others. Everybody admires the proof of Great Fermat's theorem but nobody saw it in full scope. And taking into account the proofs of Fermat's theorem for the cases n=3, n=4. The riddle of a proof. The search in the Internet did not help to solve the riddle. The result is very unexpected and pitiful.

However there are three personages in this riddle: Gerhard Frey, Ken Ribet, Andrew Wiles. Evidently, one should look into the works of these mathematicians. Perhaps then it will be possible to understand how the Great Fermat's theorem was proved. Let us believe that none of the mathematicians, except Frey, made errors (Singh informs on his errors). If any suspicions arise that additional errors exist, we will substantiate them.

Mathematical Errors of Gerhard Frey.

The version that Frey invented the equation of elliptical curve which coefficients bear a relationship to Fermat's theorem must be rejected as erroneous one. Frey is a mathematician but not a science fiction writer. If he is such a Visionary he could write any other equation with hypothetical Fermat's numbers and assert that such an equation cannot exist. One cannot believe that he without having grounds selected the equation of elliptical curve to make trouble for Taniyama-Shimura's hypothesis.

Therefore, let us dwell upon the version that Frey transformed the hypothetical Fermat's equation into the equation of elliptical curve. Let us consider the peculiarities of the transformation.

Fermat's equation has the form: a^n+b^n=c^n. (1).

The hypothetical equation has the form: A^n+B^n=C^n. (2).

Frey's equation of elliptical curve has the form: y^2=x(x-A^n)(x+B^n). (3).

1. Pay attention that Fermat's number C^n is absent in Frey's equation of curve. It is possible to obtain equation (3) by excluding number C^n if number C^n is contained in two equations that form a system of equations. But for this purpose, one must show that Fermat's equation (2) forms a system of equations together with equation… . As known, there is no such second independent equation. Otherwise, somebody would have published this second equation without fail.

It follows from this that Frey made an error in his transformations and put the sign of equality between one and the same equation but of different form. How this could happen is quite popularly expounded by mathematician V.B. Babayev, Azerbaijan Republic, Baku, 2005 (http://evrikaaz,narod.ru/mr.htm).

2. The error made by Frey in the mathematical transformations led to the other errors. The mathematicians note that Frey's equation should be considered with the proviso that "n>4". This is connected with the discriminant of Frey's equation. Correct transformations would have led to the equation that is true at any values of "n". At the values of exponent "n>3" the bases of number A and B would have been integers, at "n>2" - irrational numbers.

Logical Errors of Gerhard Frey Errors.

1. Frey considered that the equation y^2=x(x-A^n) (x+B^n). (3) is a Phantom. Frey believes that equation (2) has no solutions as the bases of numbers A^n and B^n cannot be integers in accordance with Fermat's theorem. Frey makes a logical error. The point is that equation (3) does not know that it is a Phantom. Equation (3) does not know what Frey thinks of it. The equation exists independently of the fantasy of mathematicians. Any person can construct a curve on the plane based on the equation:

y^2=x(x-3^5)(x+5^)…(4).

y^2=x(x-243)(x+3125)… (5).

2. Equation (3) cannot be a Phantom even in the case if numbers A^n and B^n are the numbers included in Fermat's equation. The point is that Fermat's equation A^n+B^n=C^n admits that the bases A and B can be integers. Fermat's equation does not allow all three bases to be integers simultaneously.

3. Equation (3) cannot be a Phantom even in the case if the integer C^n is introduced into it.

y^2=x(x-3^5)(x+5^5)…+C^n… (5).

y^2=x(x-243)(x+3125)…+3368… (6).

The point is that Fermat's equation with concrete bases raised to concrete power can be written in the form: 243+3125=3368.

4. Let us consider the issue of existence of Frey's equation and curve. Let us represent Frey's equation in the form: y^2+x(x-K)(x+D). (7), assuming that K=A^n, D=B^n and K, D are integers.

It is hard to doubt that equation (7) is the equation of elliptical curve. Such elliptical curves exist. Thus Frey's equation and curve are not Phantoms but really existing equation and curve. Only Frey invents that his equation and curve are Phantoms. Pay attention how efficiently and with conviction Frey made his report at the symposium. In a fright all mathematicians tried to obtain the xerocopies of his report. They had been nervous for two years till Ribet proved that Frey's curve was not modular. He tempted Ribet, and Ribet with his own hands made a refutation of Taniyama-Shimura's hypothesis. Ribet proved that the elliptical curves existed which were not modular.

Logical and Mathematical Errors of Ken Ribet.

Some sources assert that the link between the Great Fermat's theorem and Taniyama-Shimura's hypothesis was proved by Ribet. The other sources assert that Ribet proved that Frey's curve was not modular.

1. If one believes the first sources, Ribet, like Frey, transformed the hypothetical Fermat's equation into the equation of elliptical curve. In doing so, Ribet repeated all Frey's errors. One may also assume that Ribet invented the equation of elliptical curve with the integer coefficients that correspond to Fermat's numbers. One may also assume that Ribet considers his equation as a Phantom. Besides Ribet hopes that the equation of curve knows his opinion. Let us disbelieve such sources of information.

2. The other sources assert that Ribet proves that Frey's curve is not modular. This means:

- Ribet agreed with propriety of Frey's transformations or was too lazy to verify the correctness of the transformations.

- Ribet agreed that Frey had obtained the elliptical curve with the integer coefficients that corresponded to the hypothetical Fermat's numbers.

- Ribet agreed that Frey's curve was a Phantom.

Let us believe these sources of information. So Ribet's proof could be only reduced to the fact that the elliptical Phantom-curve corresponding to the equation with integer coefficients y^2=x(x-K)(x+D) is not modular.

3. Let us make an analysis of Ribet's proof.

1. Let us pay attention that Ribet's proof concerns Frey's Phantom - curve. Ribet tries to prove that the curve, which does not exist, is modular. It is hard to explain Ribet's pastime with science fiction.

2. Perhaps, Ribet understood that Frey's equations and curve are real equation and curve. In this case, Ribet unambiguously refuted Taniyama-Shimura's hypothesis.

3. Perhaps, Ribet was proving that Frey's curve was not an elliptical curve. In this case the theory of elliptical curves has nothing to do with the Great Fermat's theorem.

4. Perhaps, Ribet considered that Frey's curve did not exist for the reason, which is not connected with the hypothetical coefficients. In this case one had to show that Frey's curve did not exist at all but not to prove that it was not modular. Thus Ribet made the refutation of Taniyama-Shimura's hypothesis, which Frey could not make. Ribet showed that the future proof, which would be made by Andrew Wiles, would be defective. It follows from this that Ribet's proof should not be included into the logical chain of Great Fermat's theorem proof.

The Mistakes of Andrew Wiles.

It is generally known that Wiles published his proof of Taniyama-Shimura's hypothesis and announced that Fermat's theorem was proved based on the scientific works of Frey, Ribet, Fermat, and Euler.

As the analysis of the works showed, Frey was making only assumptions and Ribet was making a refutation of Taniyama-Shimura's hypothesis. Unlike Ribet, Wiles was proving the truth of Taniyama-Shimura's hypothesis. Fermat proved his theorem for the case n=4. Euler proved Fermat's theorem for the case n=3. Only writer Singh could assume that a set of these works could serve as a proof of the Great Fermat's theorem. But this will be the author's Phantasy.

The first mistake of Andrew Wiles is the fact that he did not set out the scheme of Great Fermat's theorem proof.

The second mistake of Andrew Wiles is the fact that he did not analyze the works of collaborators of the proof.

The third mistake of Andrew Wiles is the fact that he did not refute Ribet's proof.

The forth mistake of Andrew Wiles is the fact that he ascribed Gerhard Frey to the collaborators of Great Fermat's theorem proof.

The main mistake of Andrew Wiles it the fact that he got involved with the proof of Great Fermat's theorem. All the more, the mathematicians should not have made a mistake collectively.

Let us trace the way from Taniyama-Shimura's hypothesis to Fermat's theorem, of course, if we manage it.

1. Taniyama-Shimura's hypothesis states that any elliptical curve is modular. In particular, the elliptical curve described by the equation y^2=x(x-K)(x+D). (7) with the integer coefficients must be modular.

2. Andrew Wiles proved Taniyama-Shimura's hypothesis. That is he proved that the elliptical curve described by the equation y^2=x(x-K)(x+D). (7) with the integer coefficients was modular. That is the following equations correspond to modular curves:

y^2=x(x-3)(x+5). (8)

y^2=x(x-9)(x+25). (9)

y^2=x(x-27)(x+125). (10)

y^2=x(x-81)(x+625). (11)

y^2=x(x-243)(x+3125). (5)

3. Equation (12) may be written in the form:

y^2=x(x-3^5)(x+5^5). (4) or

y^2=x(x-A^n)(x+B^n). (3)

4. Ken Ribet proved that the elliptical curve described by the equation y^2=x(x-A^n)(x+B^n). (3) was not modular. Ken Ribet contradicts to Andrew Wiles. This is a deadlock. Perhaps, somebody wants to say that the numbers A^n and B^n do not exist? Perhaps, somebody wants to say that the numbers A^n and B^n are included into the hypothetical Fermat's equation A^n+B^n=C^n. (2) and therefore the numbers A^n and B^n do not exist?

5. Everybody has the right to make assumptions but assumptions must be proved. Besides, it should be taken into account that in the equations (8-11) also have an uncertainty. The equations can be put into another form (in an analogous way equation (5) was modified into equation (4)). But the theory of elliptical curves does not know how to determine the discriminant of the equations. It is strange that the discriminant can be found for equation (4).

The Main Blow at Andrew Wiles's Proof

Strange as it may seem, the main blow at Wiles's proof was struck by a Texas millionaire Andrew Beal with active participation of the American Mathematical Society. He formulated Beal's Problem (Beal's conjecture) and succeeded in getting its recognition at the American Mathematical Society: "The conjecture and prize was announced in the December 1997 issue of the Notices of the American Mathematical Society".

Beal's conjecture is a more general theorem than Fermat's theorem. The difference consists in the fact that the exponents at number's bases may be different. Wiles's method was unable to hold its ground against this Beal's task.

The reason is one and the same. It is impossible to replace Beal's equation, as well as Fermat's equation, by the equation of elliptical curve. The equations of elliptical curves cannot be Phantoms. It is also impossible to prove that the elliptical curves do not exist. As to modularity or non-modularity of the elliptical curves, this is a problem that should be solved between Wiles and Ribet or their post-graduate students in another series of theses.

Finally, to prove Beal's conjecture, Euler and Fermat should be reanimated so that they prove the cases when one of the exponents was more than 3, 4 correspondingly.

Conclusions

The indicated peculiarities of Andrew Wiles's proof do not allow to admit that the Great Fermat's theorem is proved.

Note:

Wiles could not prove the Great Fermat's theorem in full scope.

1. Fermat proved the Great theorem for the special case n=4. Euler proved the Great theorem for the special case n=3. It is well known that Wiles "proved" the theorem for the special case n>4.

However some mathematicians assert that Wiles presented a general "proof" of the Great theorem. This is not so. A surrogate made of several independent and disconnected proofs of special cases one of which is erroneous and two contradict to each other cannot be a general proof of the theorem. A correct proof should cover all special cases simultaneously.

2. Euler's proof required creation of the theory of complex number. It is well known that Wiles's "proof" required creation of the new theories of elliptical curves and modular forms in different areas of mathematics.

Thus, the surrogate "proof" of the Great Fermat's theorem is not in keeping with the level of mathematics of Fermat's age and is not the amazing proof, which Fermat mentions in Diophant's book "Arithmetics".

3. It is well known that Wiles's "proof" is indirect. The studies of the mathematicians do not have a direct relationship to the Great Fermat's theorem proof. It can be admitted that the result of these studies allows to "assume" that the Great Fermat's theorem is true.

The assumption is not a proof.

The assumption may collapse if one understands that Ribet's proof refutes Taniyama-Shimura's hypothesis. Frey's elliptical curve is not a Phantom and therefore it must be modular, if Taniyama-Shimura's hypothesis is true.

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