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On the possibilities for quantum gravity

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Abstract: Quantum gravity is one of the burning problems in physics. Both quantum physics and Einstein's general relativity are successful and consistent theories. But physicists miserably not succeeded in unifying these two fields. It is well known that it is impossible to deduce Euclid V only by assuming Euclid I t o IV. But Kalimuthu has five consistent publications in this topic. These five publications may offer a clue for quantum gravity.
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Let us recall what the experts say on Gödel's incompleteness theorems:

1. In any formal system adequate for number theory, there are formulas that are neither provable nor disprovable. [1]

2. There exist mathematical statements for which no systematic procedure could determine whether they are either true or false. There exist undecidable propositions in mathematics.[2]

3. There is either a statement "X" and a statement "not X" that can both be proved (inconsistent) or there is a meaningful statement X that can neither be proved not disproved (incomplete) within that system. [3]

4. In any consistent axiomatic system (formal system of mathematics) sufficiently strong to allow one to do basic arithmetic, one can construct a statement about natural numbers that can be neither proved nor disproved within that system.[4] 5.In any consistent formalization of mathematics that is sufficiently strong to define the concept of natural numbers, one can construct a statement that can be neither proved nor disproved within that system. [5]

6. In any consistent formal system S within which it is possible to perform a minimum amount of elementary arithmetic, there are statements that can neither be proved nor disproved. [6]

7. In any logical system one can construct statements that are neither true nor false (mathematical variations of the liar's paradox). [7]

8. it will be possible to construct an arithmetic proposition G, such that neither G, not its negation, is provable from the axioms. [8]

9. If all the theorems of an axiomatic system can be proven then the system is inconsistent, and thus has theorems which can be proven both true and false.[9]

10. Within any given branch of mathematics, there would always be some propositions that couldn't be proven either true or false using the rules and axioms… of that mathematical branch itself.[13]

11. There exist certain clear-cut statements that can either be proved or disproved.[13]

12. His fundamental results showed that in any consistent axiomatic mathematical system there are propositions that cannot be proved or disproved within the system. [14]

"[My] own work no longer means much; I came to the Institute merely…to have the privilege of walking home with Gödel."Albert Einstein

So, beyond all the mathematical fetter and doubt, we can conclude that Gödel's incompleteness theorems simply state that, in a formal axiomatic mathematical system, we can construct a statement and its denial.

Discussion

The studies and probes devoted to the fifth Euclidean problem gave birth to a number equivalent proposition to the fifth postulate and created two fields of non Euclidean mathematics namely hyperbolic and elliptic geometries. These two branches have wider physical and cosmological applications. Also, Beltrami, Cayley, Klein, Poincare and others proved that it is impossible to deduce Euclid V from Euclid I to IV. But Kalimuthu has proved the fifth Euclidean postulate from the first four postulates of Euclid.[14-18] These findings may give a clue for further studies in quantum gravity.

To repeat in another sentences, Euclidean fifth postulate cannot be deduced from the first four axioms of Euclid (Theorem proved by Beltrami, Cayley, Klein, Poincare and others).

Euclidean fifth postulate can be deduced from the first four axioms of Euclid (Theorems proved by Kalimuthu [[14-18]).

A brief analysis of the above two theorems confirms Gödel's incompleteness theorems.

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