P=NP? Proving the Problem

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The question about the problem is pretty clear:

"Can any question whose solution can be quickly verified, also quickly solved?"

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I. Introduction

In the set of odd numbers, every odd number that is not an odd multiple of 3 is necessarily between 2 consecutive odd multiples of 3 distributed according to the function f(z)=6x+3; Therefore, for example, when we group odd numbers by 3 as in the Table below, one of them must be a multiple of 3.

N_A N_B **M**

In order to solve the problem with the above conditions, some assumptions, assumptions and definitions should be made. Two of them are as follows:

I. Assume the other 2 numbers in the set of 3, which can also be prime in the set of odd numbers, *as the odd non-prime number for every consecutive odd number*; let these be N_A and N_B.

II. Assume prime number even though M represents a single multiple of 3. Thus, the function f(z)=6x+3 returns consecutive primes for every consecutive integer x.

II. Solution

Hypothesis *For a selected odd multiple of 3 with any ordinal number in the "set of real odd numbers" that is independent of tables and assumptions, ask if there are a number of prime numbers equal to the number of odd numbers between 3 and this selected odd multiple of 3. If the answer is yes, it is assumed that there is at least 1 prime number in the set of odd numbers between two consecutive odd multiples of 3.*

N_{A1} N_{B1} **M1** N_{A2} N_{B2} **M2** N_{A3} N_{B3} **M3**

Here is a table built on assumption. The table contains the distribution of odd multiples of 3 for a limited range. Here N_A are different non-prime numbers occurring after odd multiples of 3, and N_B are different non-prime numbers preceded by odd multiples of 3 because there are only 2 odd numbers between consecutive odd multiples of 3 in the set. In front of them is the ordinal number in the set of odd numbers for each odd number.

I.

If we discuss the hypothesis, it is impossible since there must always be non-prime twins. For example, even if we can choose infinitely different combinations, we can choose odd multiples of 5 and 7 as non-prime twins. The distribution of 5 in the set of odd numbers is f(x)=10x-5 and the distribution of 7 is over the functions f(y)=14y-7.

II.

For twin odd multiples of 5 and 7, the equation must be f(x)=f(y)+2, since the difference between any two consecutive multiples will be 2. The equality over this equation should be like (1) with the condition $x, y \in \mathbb{N}^+$.

$$5x = 7y \tag{1}$$

For every x and y value satisfying the (1) equation, there are an infinite set of non-prime twin numbers. Examples can be multiplied for any pair of numbers like this equation. This doesn't just apply to 5 and 7.

This means that for a selected odd multiple of 3, there is not exactly 1 prime number between every consecutive odd multiple of 3 up to the selected odd number. That is, the number of non-prime numbers up to a single multiple of 3 is more than prime numbers.

I. In this case, if we assume that there are prime numbers where there are odd multiples of 3 instead of odd multiples of 3, this means that for the selected odd multiple of 3, the non-prime numbers will outnumber the prime numbers because of the table.

II. This increases the probability that a number chosen in the set of odd numbers is hypothetically non-prime and thus increases the prime factorization processes as there are more non-prime numbers for a selected number by assumption.

With this assumption, the number of prime numbers is reduced, and numbers are unusually composed of more non-prime numbers. This is for the worst case. In other words, if we prove that the operation number for the primality test for a number chosen on this assumption is not equal to the operation number to find the prime factors, no further proof is needed as it is the worst case.

III. Result

Theorem *"Take the question of what are the prime factors of an n-digit number."*

The question of what are the prime factors of a given n-digit number is in the NP category. The running time of the best known algorithm for answering this question is not dependent on the number n in terms of a polynomial, but in terms of exponential functions like e^n*, and this is called an algorithm running in exponential time; but for this problem, if we can somehow predict the answer, there is an algorithm that will run in a time dependent on n number of polynomials to test the accuracy of our guess.* [*a*]

[*a*]If we can find the answer to a question with an algorithm that will run in a polynomial time dependent on the size of the data, we can check the accuracy of an estimate produced in response to this question with an algorithm that will run in a polynomial time dependent on the size of the data.

I.

In this case, the function that returns every prime number on the basis of the above information is known as f(x)=6x-3; because the function is the distribution rule of odd multiples of 3, and prime numbers are assumed to exist in their place.

As a result, there is a function that tests primality over f(x)=6x-3 as (2).

$$f^{-1}(x) = \frac{x+3}{6} \tag{2}$$

For an odd number entered over the (2) function, the number is prime if the result is an integer; otherwise it is not prime. If non-prime, the minimum transaction number $\lfloor \frac{x+3}{6} \rfloor$ means a test for primality always with prime factors of a number; because the function returns all numbers that are divisible by 3 by assumption.

II.

It is sufficient to have only 1 proof that P=NP cannot exist, and this study can be considered a proof over primes.

Even if the solution mentioned above won't work for some numbers, especially at the beginning of the odd numbers set, even just 1 number in the odd numbers set can be considered as proof. We should consider the set of odd numbers to be infinite, not an interval. Already in the infinite set, logically non-primes can be considered more than primes, because when a new prime arises, it is combined with earlier ones to form more numbers. This creates many possibilities and thus many combinations.

Result *"Not every question whose solution can be verified quickly can also be solved quickly. At worst, the P=NP situation is purely a dream."*

Inferences

I. Considering the number of numbers up to any odd number selected in the set of odd numbers, the number of odd numbers that are not prime is necessarily more than primes.

II. The question of what are the prime factors of a given n-digit number will "always" remain in the NP category. Primality test and prime multiplier test cannot be done with the same number of operations.

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