THE NUMBER SYSTEM AND MATHEMATICS

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Abstract

This article raises some important points about our number system and mathematics.

Apparently because we human beings have ten fingers and could count with our ten fingers our number system is "tens-based", e.g., 10; 100; 1,000; 10,000; 100,000; 1,000,000; et al.. If we had, e.g., 13 fingers, 20 fingers, or, 35 fingers, imagine what our number system would have become, and, what would our mathematics, mathematical proof and logic then be? Can you imagine a "thirteens-based", "twenties-based", or, "thirty-fives-based" number system? What would then be the odd numbers and the even numbers? Would the concepts of "oddness" and "evenness" then have to be modified? Is the nature of mathematics, mathematical proof and logic pre-determined by the physical form and nature of the human being and the form and nature of his environment? If human beings had been unable to count, if they had no fingers, or, if they had no sight, would there ever be mathematics (which could be regarded as the science of numbers), and, if mathematics were still able to "co-exist" with human beings, what would it be like? Yet, many mathematicians and logicians would view mathematics and logic as a reality which is independent of the existence of the human being. However, on this last point, the author harbors some doubt; the author wonders whether mathematics could have existed at all if all human beings had been born without fingers and eyes and had been unable to count!

On the logic of arithmetic/mathematics: We now have a ten-based number system, giving us even and odd numbers or integers, as well as prime numbers and composite numbers. What happens if our number system is not ten-based, but, e.g., five-based, seven-based, nine-based, 11-based, 127-based or even 1,003-based, et al.? For example, the consecutive numbers or integers for a seven-based number system might be as follows:-

1, 2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17, 21, 22, 23, 24, 25, 26, 27, 31, 32, 33, 34, 35, 36, 37, …

The above consecutive progression of seven-based numbers or integers gives us the equivalent of our one to 28. Which in the above consecutive progression of seven-based numbers or integers could now be considered the even numbers, which the odd numbers, which the prime numbers and which the composite numbers? What does this tell us about mathematics and its logic? Is mathematics real or just an invention of the human mind?

REFERENCES

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