Doubting Mathematics (Descartes)

written by Nada Ali on Functor Network
original link: https://functor.network/user/409/entry/137

I believe that mathematics is not a science. By definition, a science is a field through which we discover truths about the universe. However, mathematics at its heart is not to discover how the universe works, but rather invent tools to be used by scientists in the journey of discovering truths about the universe. Thus, science discovers truths of the universe using various rules, most of which are mathematical. Hence, mathematics is just a tool invented by human to help discover how the universe works, but what if there are aliens? We know that there are hundreds of thousands of billions of galaxies in our universe, each of which has hundreds of thousands of billions of stars, around each of which there are planets revolving. Hence, there is a reasonable chance that there are intellectual living organisms other than human. However, the chance that these aliens have the very same intellect that humans have is too small. Thus, we can imagine those aliens inventing other languages and tools to help them understand the mechanism of the universe and probably still reach the very same truth human scientists reach through mathematics. Furthermore, they would also probably believe that Earth and Sun revolve around their common center of mass. However, it could be the case that 2+3 is encoded in the tools they made with 7, for example. Therefore, 2+3=5 is not an absolute or universal truth as mathematics is an invention human made and is not an actual feature of the universe itself.

For Descartes, I think at least at the beginning he could not see how 2+3 may not equal 5 as he says, "For whether I am awake or asleep, two and three added together are five, and a square has no more than four sides. It seems impossible that such transparent truths should incur any suspicion of being false" (AT 7 20). Then, he goes on and illustrates why he would doubt the geocentric model of the universe (for instance) but not that a triangle has three sides (for example) as he says, "So a reasonable conclusion from this might be that physics, astronomy, medicine, and all other disciplines which depend on the study of composite things, are doubtful; while arithmetic, geometry and other subjects of this kind, which deal only with the simplest and most general things, regardless of whether they really exist in nature or not, contain something certain and indubitable" (AT 21 14). Nevertheless, Descartes believes that everything is finite, but God (if he exists). Hence, only what could make him question the beliefs that he asserted were unquestionable is the only infinite thing, God himself (if he exists). He says, "But what about when I was considering something very simple and straightforward in arithmetic or geometry, for example that two and three added together make five, and so on? Did I not see at least these things clearly enough to affirm their truth? Indeed, the only reason for my later judgement that they were open to doubt was that it occurred to me that perhaps some God (if he exists) could have given me a nature such that I was deceived even in matters

which seemed most evident" (AT 36 25). This was within the period during which Descartes was assuming that maybe God (if he exists) deceives Descartes and makes Descartes believes only what God himself wants him to believe in. Clearly, what God (if he exists) wanted Descartes to believe in is not necessarily true. Hence, at this point, nothing could ever stand against the power of God (if he exists) even if it were arithmetic or geometry. Thus, he doubted arithmetic and that 2+3 necessarily does make 5 as they may be delusions made by God (if he exists). Afterwards, however, in his proof of the existence of God, he declared that God is complete, perfect, and infinite. Hence, God would not like to deceive anyone (at least not in a bad way). Hence, God does not deceive Descartes, and so the probability that pushed him to doubt arithmetic has just been proven wrong. Therefore, after Descartes had showed the existence of God, I do not think he kept on doubting arithmetic or that 2+3 makes 5.

Personally, I would accept mathematics as being true as the rules (theorems) of mathematics are not only based on definitions of abstract objects we invented but also proven using credible philosophical logic. Additionally, it is evident how beneficial mathematics is to nearly every single field starting from social sciences to engineering since thousands of years ago. Unless there is more powerful language that can be used to reveal the secrets encoded in the universe and help us in everyday's life, I genuinely do stand for mathematics.