

Zeno's paradox of achilles and the tortoise



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A paradox is an apparent contradictory conclusion that is derived from what seem to be valid premises and paradoxes. These brilliant series of arguments on time and space have remained complex intellectual puzzles to this day, however upon closer inspection of a paradox one can prove that a paradox is logically and deductively built on incomplete systems or false premises or arguments. Zeno's paradox of the tortoise and the rabbit does the same.

The paradoxical or absurd proposition posited by Zeno is his claim that Achilles will never win in a footrace with a tortoise. By our perception of motion, we know that Achilles is faster than the tortoise and thus he can easily overcome the tortoise in any race. We can physically prove our initial hypothesis that Achilles can beat the tortoise in a race and see that Achilles will at some point outrun the tortoise by the distance he has covered in leaps and bounds. Space or distance has always been measured by our senses; our eyes can visibly see that the distance traveled by Achilles is indeed greater than that of the tortoise. But this is what Zeno intends to postulate in the first place: our senses should be discredited as they are illusory and motion is logically impossible.

Zeno's paradox about the footrace of the tortoise and Achilles is built on one basic assumption: that the race between these two has no goal or each runner cannot reach their goal. In that case, the tortoise and Achilles' course of movement extends to infinity and this is where the absurdity lies; there is no race that extends to infinity else the tortoise and Achilles would forever be moving forward and there would be no race at all.

This dialectic reasoning of Zeno implies that Achilles will never catch the tortoise in a footrace, but the deeper implication of this paradox lies in the

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conclusion that no thing, for example a tortoise, or no one, in general, has a limit. As grandiose as this profound and philosophical conclusion is, Zeno's paradox suggests that man's abilities are limitless, very great in amount and degree, or boundless, having no apparent end. This paradox about man then puts forward a notion that his actions extend through an infinite amount of time and space. Our actions cover far greater than our senses can perceive; they extend to the end of time and the end of the universe. This claim becomes practically absurd because we know that time and the universe has no end to begin with while man has through his own death.

Going back to Zeno's paradox, his conclusion is built on premises that appear sound and coherent: The tortoise at the start of the race has a significant advantage compared to Achilles in a foot race. Both Achilles and the tortoise cannot reach a goal because they must both traverse a distance. Achilles cannot traverse a distance without first catching up to the advantaged distance of the tortoise, to which the tortoise at the same time has already moved forward in a slight advantage to Achilles. Achilles then runs to catch up with the tortoise and the tortoise moves forward as before and this cycle continues on ad infinitum. Because the tortoise can cover an infinite distance, then Achilles always catching up to the tortoise first will never win in a footrace with the tortoise.

Zeno's argument falls when one considers the repercussions of having an infinite race in which the goal is practically non-existent and one can travel an infinite number of small distances. Space and time are subject to infinity but man in body and form is not. In conclusion the essence of infinity and infinitesimal, though it is represented by a symbol in math and offers

invaluable solutions, greatly eludes man's understanding precisely because man is not infinite himself.