Treatises Upon the Current Day Nature of Modern Mathematics

Chang you Yu

It has been noted that the field of mathematics has now reached a high level of development and advancement. Unfortunately, mathematics still remains a highly theoretical field, with little to no real world applications. Advocates of the further study of mathematics purport that the breakthroughs in modern day math help further the bleeding edge of technology and human development. Such arguments as math being "integral" to the functioning and understanding of modern marvels like computing and telecommunications are often used. However, further examinations of said arguments result in said claims being proved false. This paper will serve to elucidate the reader on the futile pursuit of modern day mathematics, and what should be done about it. An important clarification of the arguement at hand should be noted that there are undoubtly important applications of math in general, but concepts like addition/subtraction go from everyday use to practically useless such as partial fraction decomposition.

We will first begin our analysis of the utility of mathematics by studying its effects (or lack thereof). The first arguement of the inapplicability of math can be derived from the pleathora of resources championing the "usefulness" of mathematics. Any search on the internet will yield millions of videos, essays, and articles on the ways that math can be used. Teachers and professors lecture on practicality of their subject and all its applications in "real life". One observation is that mathematics is one of the only majors in college to have an "applied" version. There are no "applied" chemistry, biology, or engineering degrees available. This is becuase they are already applied, unlike math. It is a common argument in theology that if a greater power exists, it would not need to prove it's existence to mere mortals who doubt the aforementioned existence. The analogy of a person who doubts the existence of a king is often used. Someone may claim that unless this king shows himself he does not exist, but the king obviously has better things to do so he does need to show his prescence to a lowly commoner. While examining the validity of said argument in its native context is beyond the scope of this work, it proves a very potent argument against the "math is useful" narrative. If mathematics was so useful and practical, why is it that mathematicians feel compelled to remind the populus of such utility? We come to see that this pattern exists with other pointless endeavors; an example that comes to mind includes the insistence of interdisciplinary study as a way to prop up the liberal arts (which are arguably even more useless than math). It is a sad reflection upon the state of modern day mathematics when even resources that claim to demonstrate "real world applications of math" fail in

doing so. Many cases come to mind, with the more egregious examples coming from school teachers. A select example include: using math to figure out if an airplane flies faster in a round trip with or without wind, using the derivative to calculate a car's speed from displacement, and using a parabola to calculate the trajectory of a ball. The issues with these examples is as follows: it is highly improbable in real life an airplane would have to complete a round trip with airspeed that is constant throughout. Using the derivative does result in the speed being calculated, but so does simply measuring how fast the wheel spins (a much more cost effective way). Parabolas do not account for air resistance or any other real world effects so they only serve as a basic approximation. Once again, it should be reiterated that not all math is useless; in the above example math would be needed to convert the speed of the wheel to speed in useful units of mesurement. However, most math fails to find a real world application or is only useful in idealized theoretical calculations.

Next we will examine the relationship between math and human advancement. Supporters of math often cite technologies like computing and telecommunciations as shining examples for the applicability of math. Once again, these arguments are specious and hold no water upon further examination. Firstly, the intersection of math with telecommunications will be analyized. Fancy math topics such as Fourier transform are often cited as proving critical to telecommunications. Alexander Graham Bell, the inventor of the telephone itself, had few formal training in mathematics and didn't graduate high school. Mathematicians have a habit of inserting math into new technologies only after they are invented. The invention of the telephone proves to be one, and so does computing. The study of discrete math serves to take the beauty of computing and distort it into mathematical field of study. Ideas such as set theory are associated with computing concepts in which the inventors had no idea of. Recursive sets and functions are made out to be just like the recursive functions in programming, except the mathematical kind rarely serve any real world purpose. There is this preconcieved notion that computer science was birthed from the mathematics department, and that the two subjects are intertwined. Most software engineers cannot evaluate $\sin(\pi/2)$. Once again we find the usefulness of mathematics to be grossly overstated, with few to no applications in their supposed counterexamples.