A somewhat open letter to Cathleen Synge Morawetz

"I would like to say a word or two about the subject applied mathematics. [...]

I wish I could avoid the expression "applied" altogether, but it's there and the meaning that I attach to it is:

(1) It is mathematics.

(2) It is connected to some other science including engineering science.

I then proceed to strip it down and I exclude statistics. If I did not want to talk about v. Neumann I would also exclude computer science. And I think computer scientists would most definitely agree."

from C.S.Morawetz, Giants, Amer. Math. Monthly, 99 (1992) 819 - 828.

Dear Professor Morawetz,

please allow me to point out that there exists at least one computing scientist that most definitely disagrees, viz. yours truly.

Digital systems, whether circuitry or programs, are not born, they have to be designed, and in particular designed in such a way that they demonstrably meet their specifications. We know of only one genuine way of giving that demonstration: a mathematical proof. To which I can add, firstly, that only very formal, calculational mathematics is up to this challenge, and, secondly, that it is the designer's responsibility to choose such interfaces between the modules that the proofs remain physically feasible. It is the combination of these two aspects that makes digital system design an area par excellence for the mathematical engineer, and in those countries where "mathematical engineer" is a well-established academic title, its bearer is obviously and most definitely considered an applied mathematician, and rightly so.

Consequently, I find the last sentence quoted rather baffling; moreover, when I take into account that you are a recent director of the Courant Institute at N.Y.U., the sentence becomes so disturbing that I almost regret having read it.

With my greetings and best wishes,

yours truly,

Edsger W. Dijkstra

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