

## On Coordinates

Gertrud Walton:

[mail@gertrudwalton.co.uk](mailto:mail@gertrudwalton.co.uk)

What with Minkowski (and every single mathematician in the "critical" movement) mistaking the  $t$  as a "variable" ("fourth dimension"), only now it suddenly occurs to me that, of course, in mathematical physics ("things moving in space") the  $x$ ,  $y$ ,  $z$  are not "variables" either. They are the idealized direction-components of an idealized three-dimensional image in our idealized perfectly ordinary space of perception. (That our space-perception is limited by biological accident is irrelevant. It is humans who are "doing" the physics.)

That as direction-components of the radius  $ct$  of a sphere the  $x$ ,  $y$ ,  $z$  vary from point to point does not turn them into "variables" in the sense of the "variables" elsewhere in mathematics (logic, algebra, function theory, etc.). As far as I can see from the literature available to me, the  $x$ ,  $y$ ,  $z$  of geometry are nowhere referred to as "variables".

One will have to trail the "academic" literature in its historical development across the different branches of mathematics to track down usage of "concepts" such as "variable". The ludicrous re-naming of our  $x$ ,  $y$ ,  $z$  as "variables" has happened because of our inattention to their misuse by the (perennial) "logician" (abstract, ...) breed of mathematicians who had discovered the usefulness of "our" space as a visual aid in the study of algebraic and functional variables in their "theory of graphs". Rather than merely asserting that space is three-dimensional, we urgently need an erudite history of the use (and usefulness) of the dimension-concept in quantitative mathematical analysis, re-establishing as mathematically valid in its own right our classical 3D-geometry and mechanics, in order to start re-building where we had fallen off a cliff.

That there is "work" in physics, is clear. But, as ever, this can't be hastened. (Getting clarity in our "thinking" about "space" might help in construing visualizable models.)

<http://home.btconnect.com/sapere.aude>