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## Title: Removing the grid from a grid of numbers

**Abstract:**

Hamilton invented tensors to speak of quaternions, but today tensors are just high-dimensional grids of numbers as found in maths, physics, chemistry, data sciences, and just about anywhere we take measurements. Geometers, Algebraist, Physicists, Computer Scientist,

Statisticians and more, have puzzled about these structures for one and a half centuries. But the main question remains: *When are two grids of numbers the same up to a change of basis?* We survey what is known and what it means for mathematicians in an age of big data.