

# Introduction

Determinants are most of the time *not* very useful:

- The system  $0.1x_1 = 0.3, 0.1x_2 = 0.3, \dots, 0.1x_n = 0.3$  is perfectly well solvable, but  $|A|$  will underflow on typical computers for values of  $n$  as low as 40.
- Direct evaluation of a determinant of an  $n \times n$  matrix takes  $n!$  multiplications. The big bang was about  $5 \cdot 10^{17}$  seconds ago; evaluating a  $70 \times 70$  determinant takes  $10^{100}$  multiplications. (And allows an interesting possible accumulation of numerical errors.)

Small determinants may be convenient.