Sally Clark Case

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- After her second baby died of SIDS in 1998, she was arrested for murder.

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- Clark was convicted of murder.
- Is this reasoning valid?

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- Need to consider the probability of two children dying from SIDS given that two children died.
  - How does this probability compare to the probability that both children were murdered?

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- Meadows then went on to compare this probability to all newborns.
- The double SIDS ratio to the double homicide ratio was estimated as 9 : 1.
- The conviction was overturned after the second appeal.

Expected Value - Revisited

- Recall that if an experiment has numerical outcomes $A_1, A_2, \dots A_n$, the expected value is

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- Game 2: I pick a number between 1 and 1000.
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  - What is the expected value?
- Game 2 has more *variation* than game 1.

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- The **standard deviation** is

$$\sqrt{\sigma^2} = \sigma.$$

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- What is the variance and standard deviation of game 2?

Flipping a Coin

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# of heads	0	1	2	3	4	5	6
probability	$\frac{1}{64}$	$\frac{6}{64}$	$\frac{15}{64}$	$\frac{20}{64}$	$\frac{15}{64}$	$\frac{6}{64}$	$\frac{1}{64}$