

## Example

- Flip  $n$  coins, count heads.  $\mu = 1/2$ .
- Pick  $\epsilon = 0.1$ . Then

$$\mathbb{P}(A_n \in [0.4, 0.6]) \rightarrow 1,$$

so that  $40\% < A_n < 60\%$  eventually.

- But we can also pick  $\epsilon = 0.01$ . Then

$$\mathbb{P}(A_n \in [0.49, 0.51]) \rightarrow 1,$$

so that  $49\% < A_n < 51\%$  eventually.

- (But the “eventually” happens later in the second case)