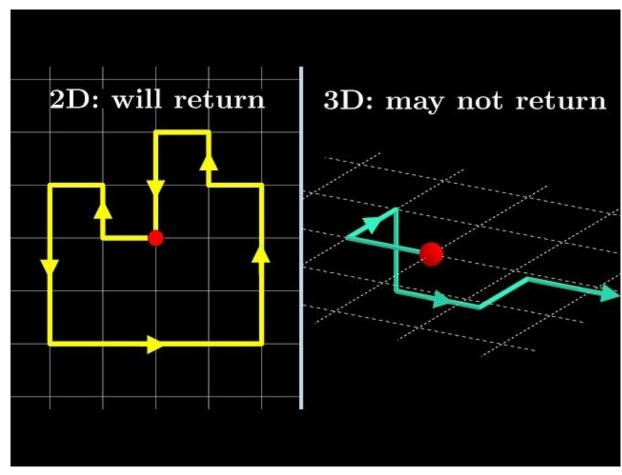


# 

A drunk man will find his way home, but a drunk bird may get lost forever.

## Man vs Bird

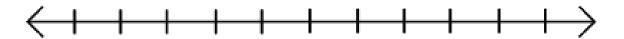




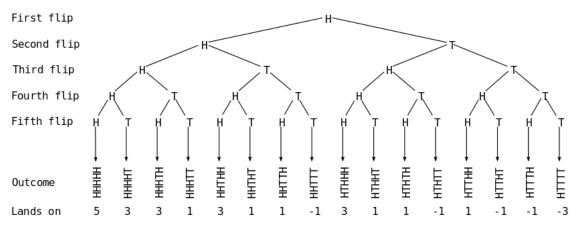


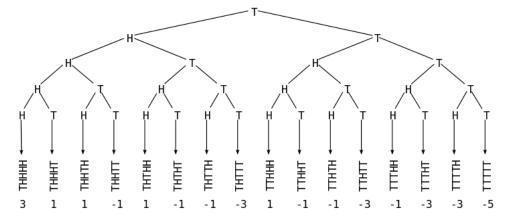
## Drunk worm





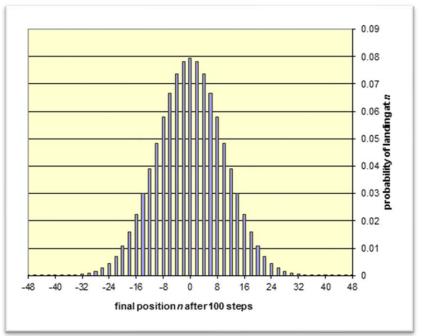
#### Drunk worm continued





$$Z_1, Z_2, \dots$$

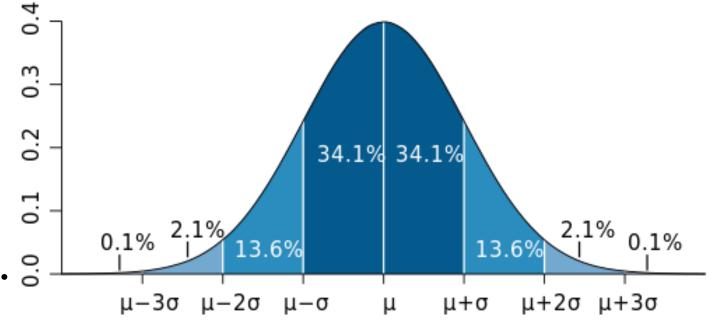
$$S_n = \sum_{j=1}^n Z_j$$
.



#### more worm

$$S_n = \sum_{j=1}^n Z_j$$
.

$$E(S_n) = \sum_{j=1}^n E(Z_j) = 0.$$
 3





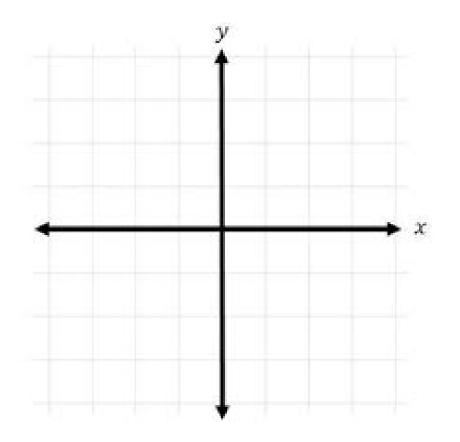
$$E(Z_n^2) = 1$$

$$\sum_{n=1}^{n} \frac{1}{\sqrt{2}}$$

$$E(S_n^2) = \sum_{j=1}^n E(Z_j^2) = 1$$

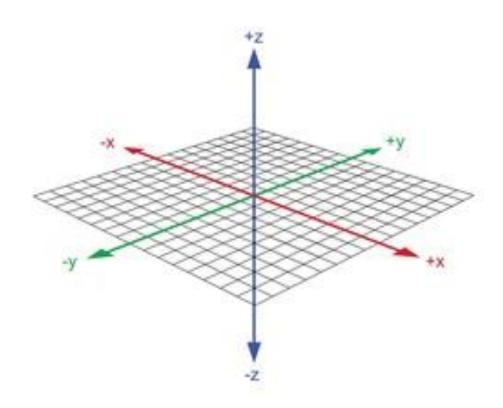
## Drunk man





$$\sum_{1}^{n} \frac{1}{\sqrt{n}} \cdot \frac{1}{\sqrt{n}}$$

### Drunk bird





$$\sum_{1}^{n} \frac{1}{\sqrt{n}} \cdot \frac{1}{\sqrt{n}} \cdot \frac{1}{\sqrt{n}}$$

Unprobable VS. Infinitly Improbable