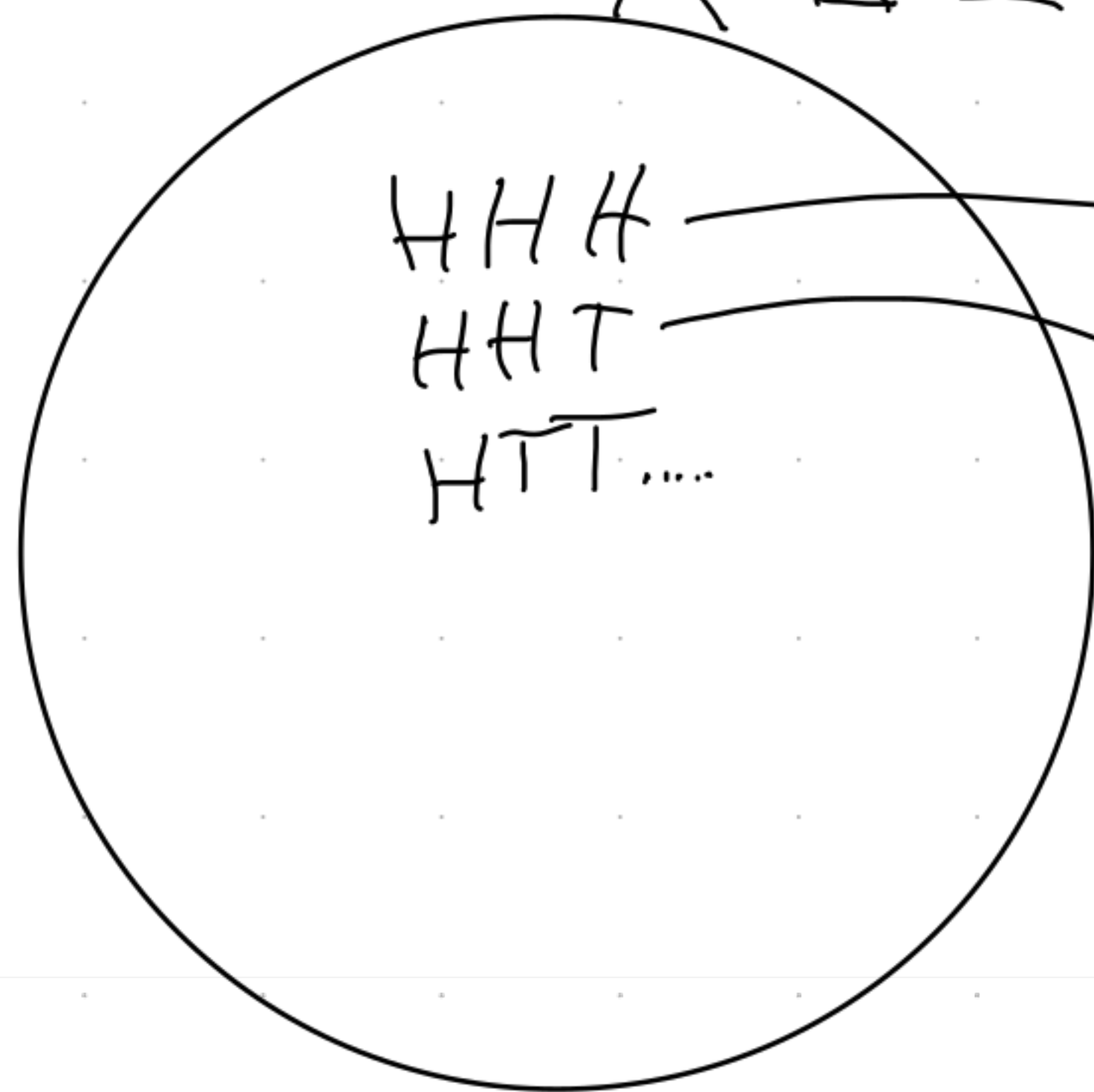


r.v.  $X: \Omega \rightarrow \mathbb{R}$

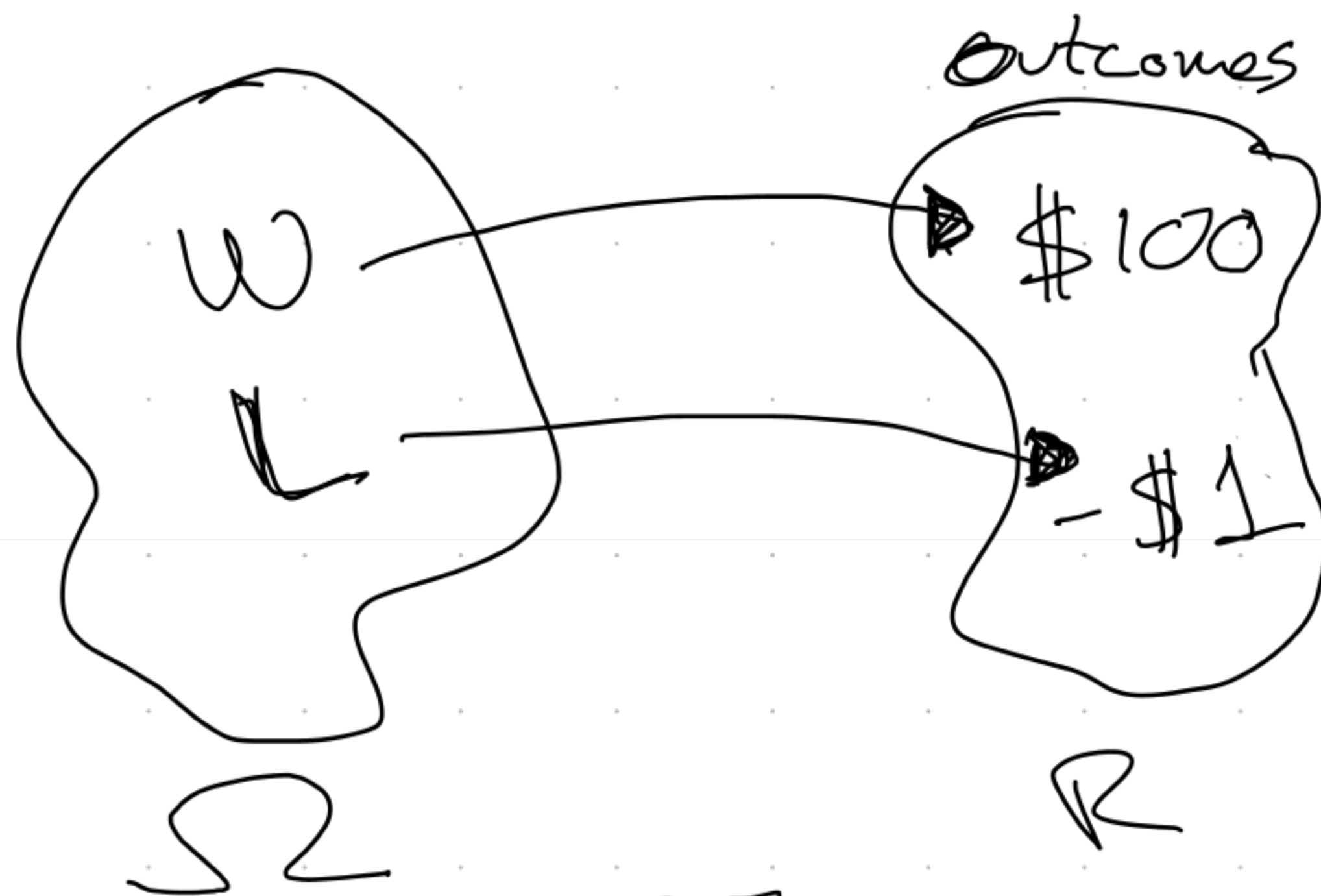


HHT  $\in \Omega$   
yes

~~4~~  $\in \mathbb{R}$ ? No!

R.V.  $X: \Omega \rightarrow \mathbb{R}$

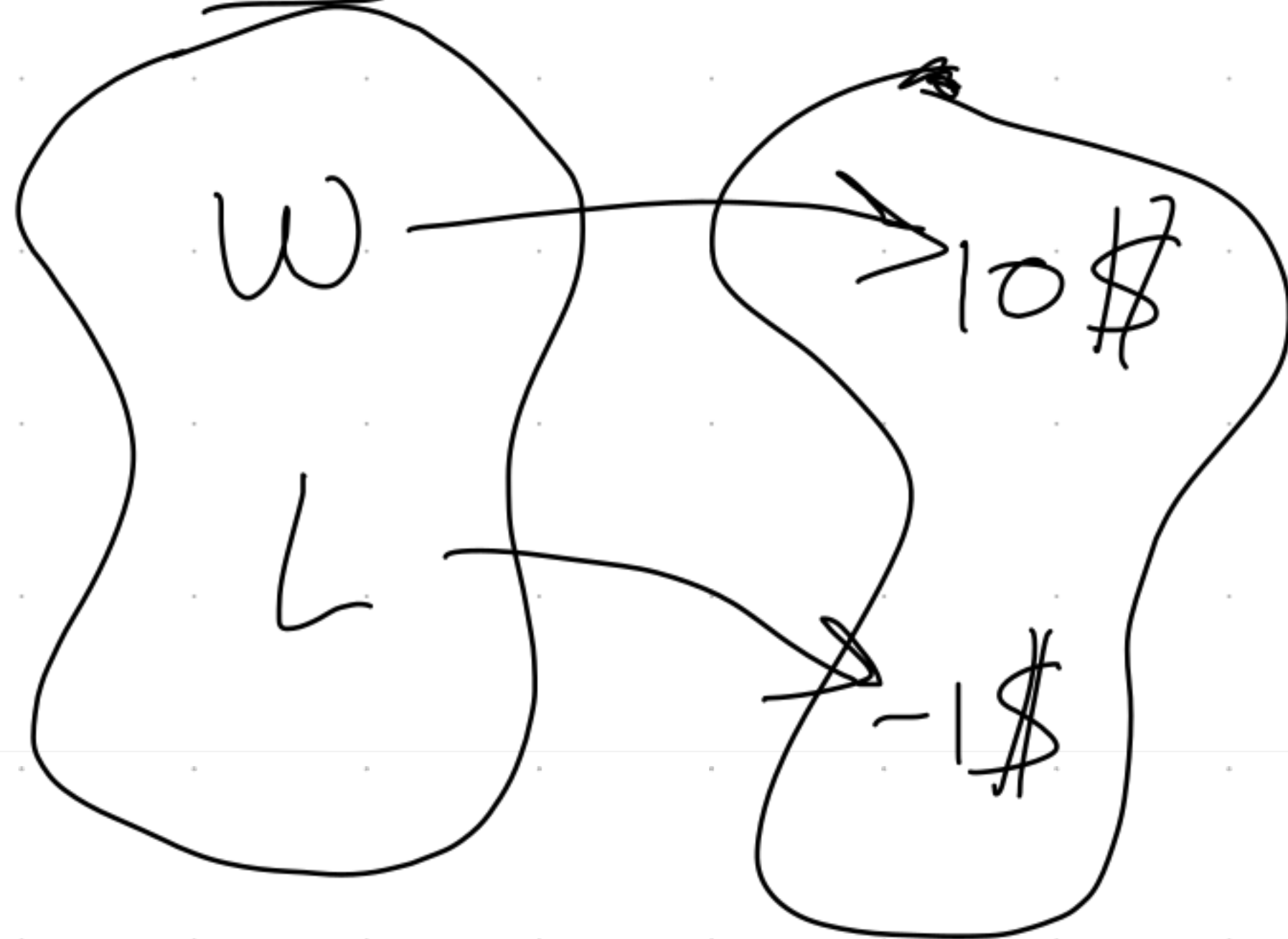
$$E[X] = \sum p(x_i) X_i$$



$P(w) = \frac{1}{30}$  b/c  
assume a uniform  
distribution  
 $P(L) = \frac{29}{30}$

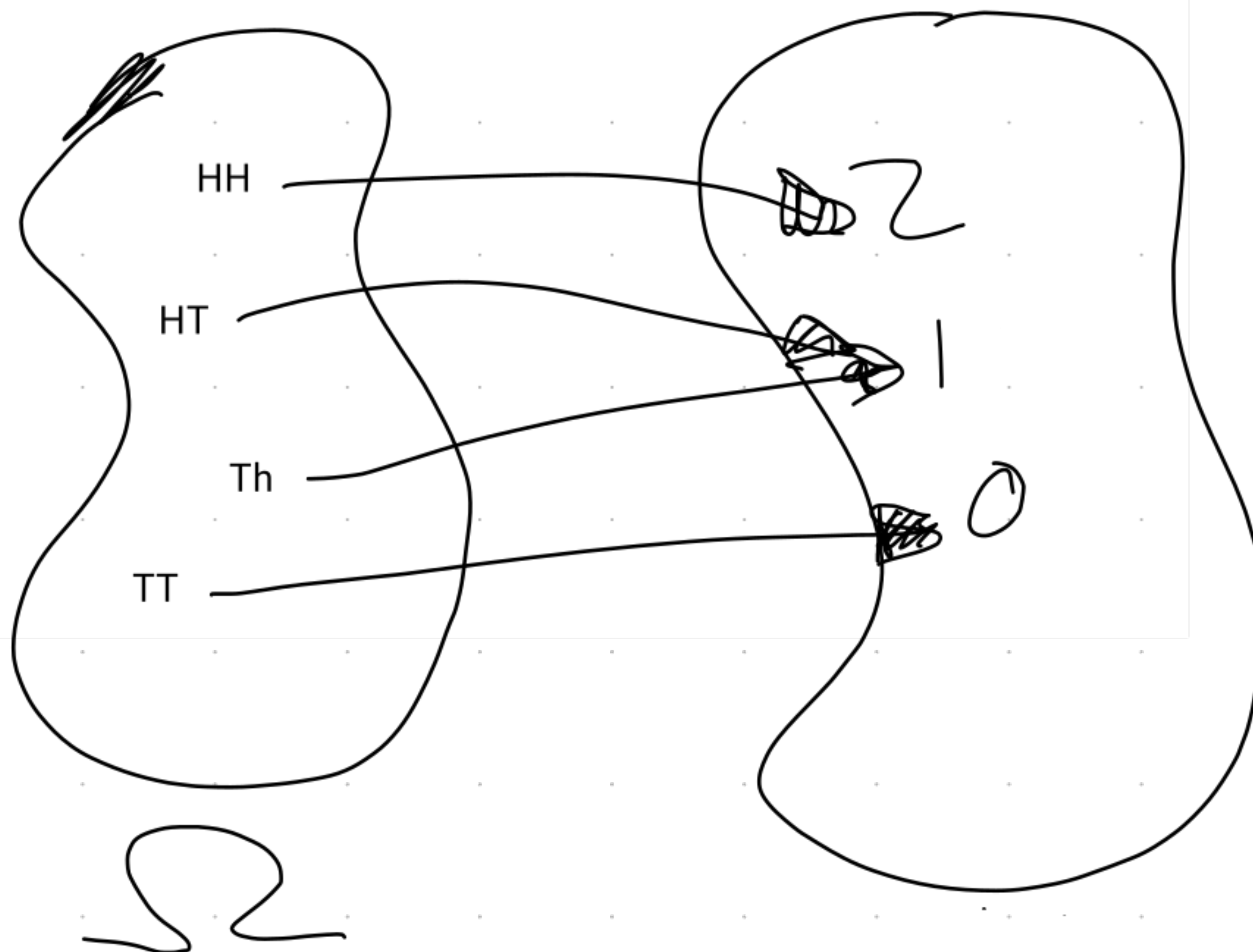
$$E[X] = \frac{1}{30} \$100 + \frac{29}{30} \$-1 = \frac{100}{30} - \frac{29}{30} = \frac{71}{30}$$

$$E[X] = \sum_{x_i} P(x_i) X_i.$$



$$E[X] = P(\text{win})10\$ + P(\text{loss})-1\$$$

$$E[X] = \sum_{x_i} x_i P(x_i)$$



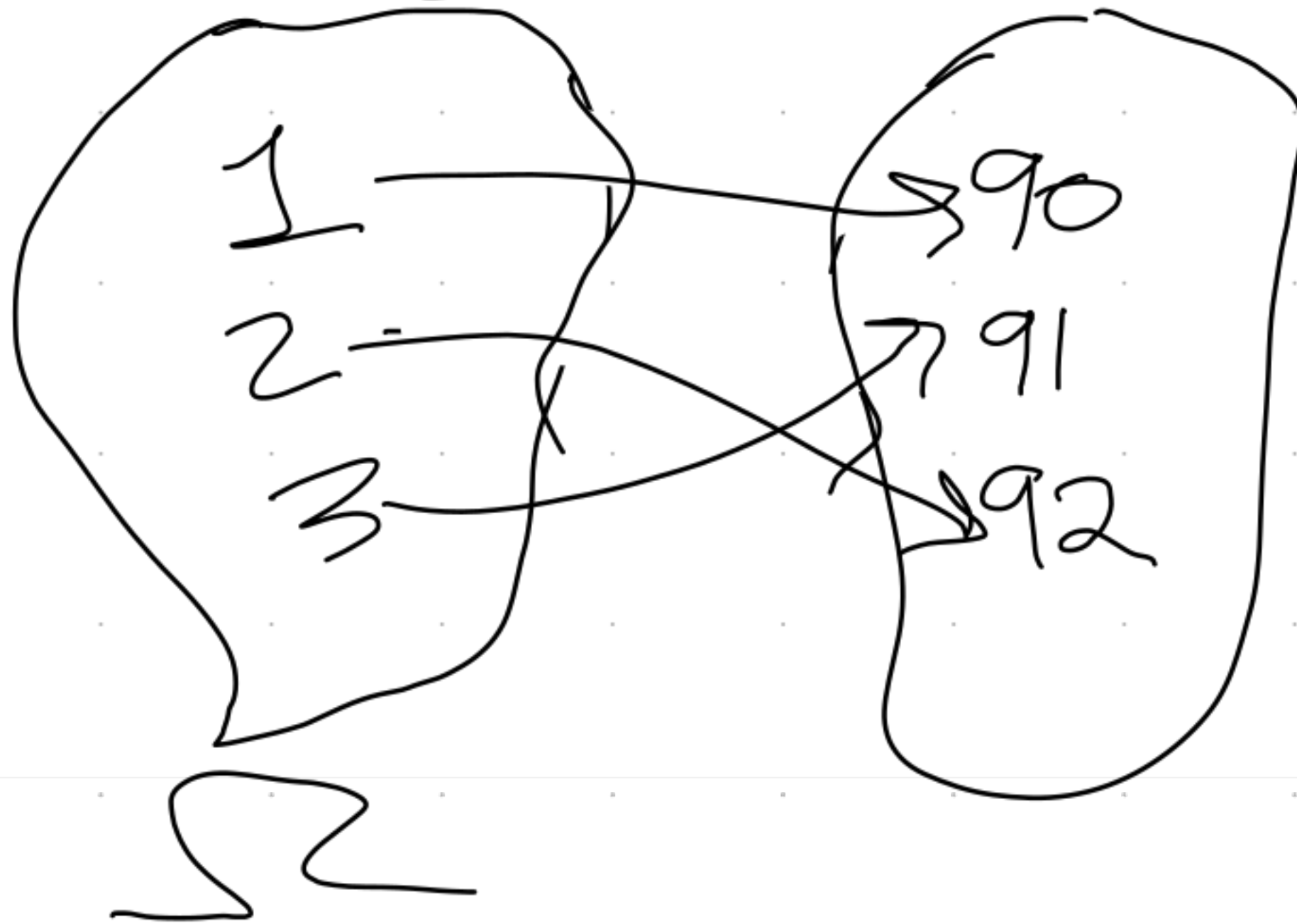
$$E[X] = \overset{.25}{P(X=0)} \cdot 0$$

$$+ \overset{.5}{P(X=1)} \cdot 1$$

$$+ \overset{.25}{P(X=2)} \cdot 2$$

$$E[X] = 0 + .5 + .5 = 1$$

Sad 2301  
Spring 2021



"average"

$$E[x] = \frac{1}{3} \cdot 90 + \frac{1}{3} 92 + \frac{1}{3} 91 = 91$$