

You suspect that a population of big horn sheep are made up of two classes of males based on their sparring ability: Strong and Weak. The proportion of strong individuals is unknown.

### **Experiment:**

- You randomly select 10 pairs of males from a large population.
- For each pair you randomly assign one of them the ID 0 and the other the ID 1.
- You record the # of winner from 2 contests.

### **Model:**

- If two individuals within the same class fight, you expect either outcome to be equally likely.
- If a Strong is paired against a Weak then you expect that the probability that the stronger one wins with some probability,  $w$ .
- $w$  is assumed to be the same for every pairing of Strong versus Weak and the same for every bout within such a pairing.

Pair #	winner	
	bout 1	bout 2
1	1	1
2	1	0
3	0	1
4	1	1
5	0	0
6	0	1
7	1	1
8	0	0
9	1	0
10	1	1

What can we say about  $w$ ?