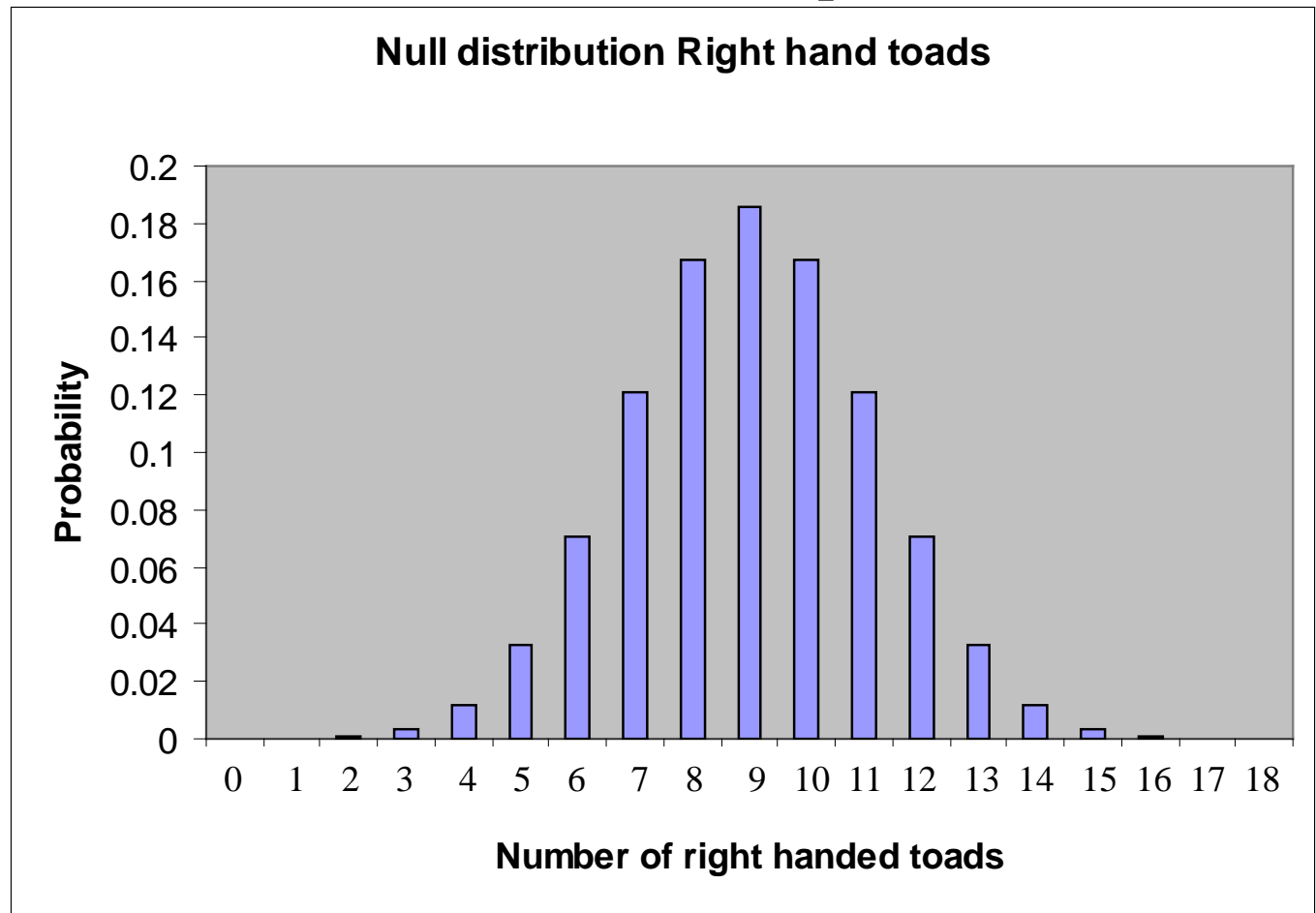


Distribution of right-handed toads under the null hypothesis that the true proportion of right-handed toads in the population is 0.5 or 50%. The distribution shows probability of all possible numbers of right-handed toads in a random sample of $n = 18$ toads.

# Right	# Left	Probability
0	18	3.8147E-06
1	17	6.8665E-05
2	16	0.00058365
3	15	0.00311279
4	14	0.01167297
5	13	0.03268433
6	12	0.07081604
7	11	0.12139893
8	10	0.16692352
9	9	0.18547058
10	8	0.16692352
11	7	0.12139893
12	6	0.07081604
13	5	0.03268433
14	4	0.01167297
15	3	0.00311279
16	2	0.00058365
17	1	6.8665E-05
18	0	3.8147E-06

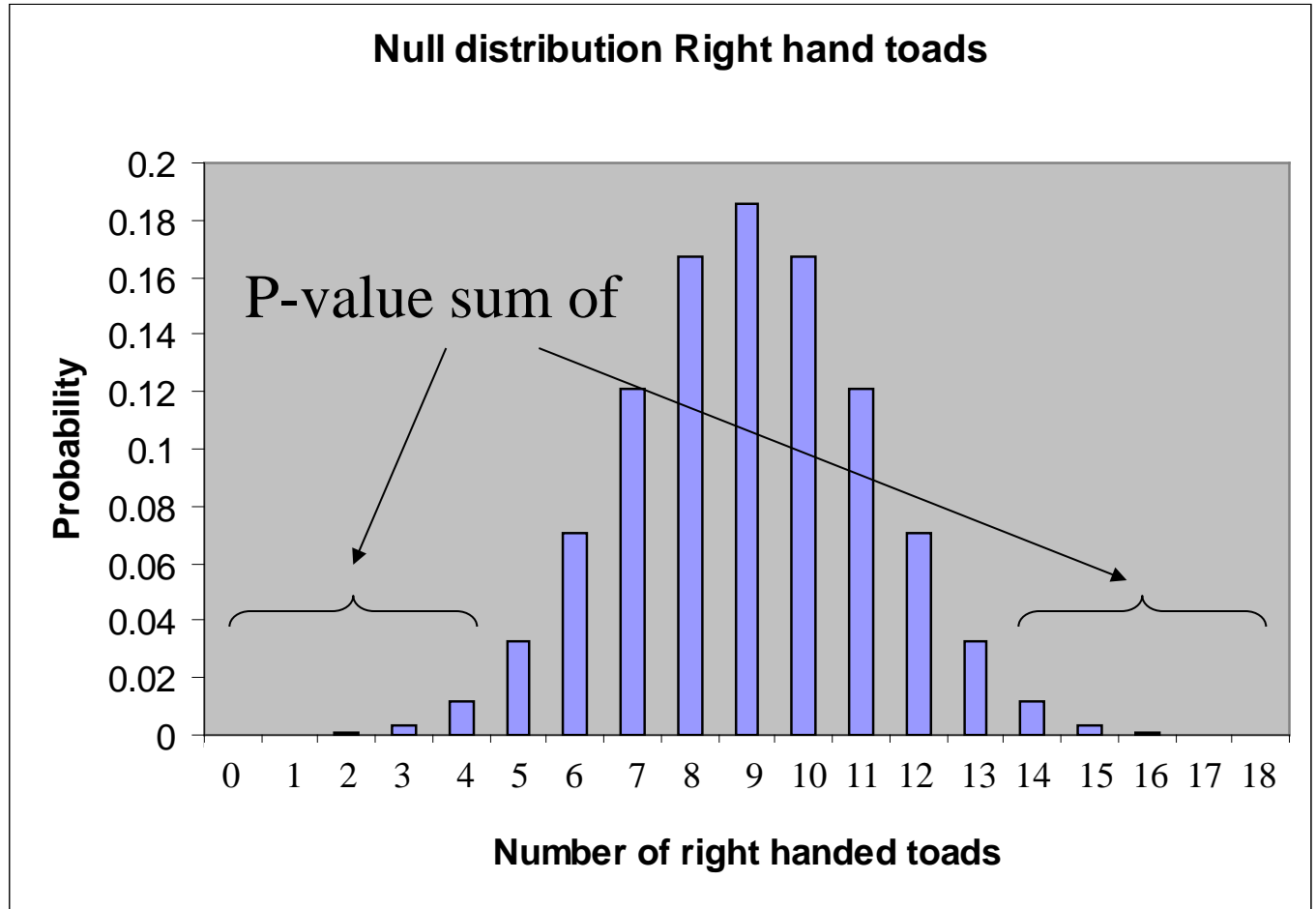


Ho: Proportion Right hand toads = Proportion left hand toads in the population

Ha: Proportion Right hand toads \neq Proportion left hand toads in the population

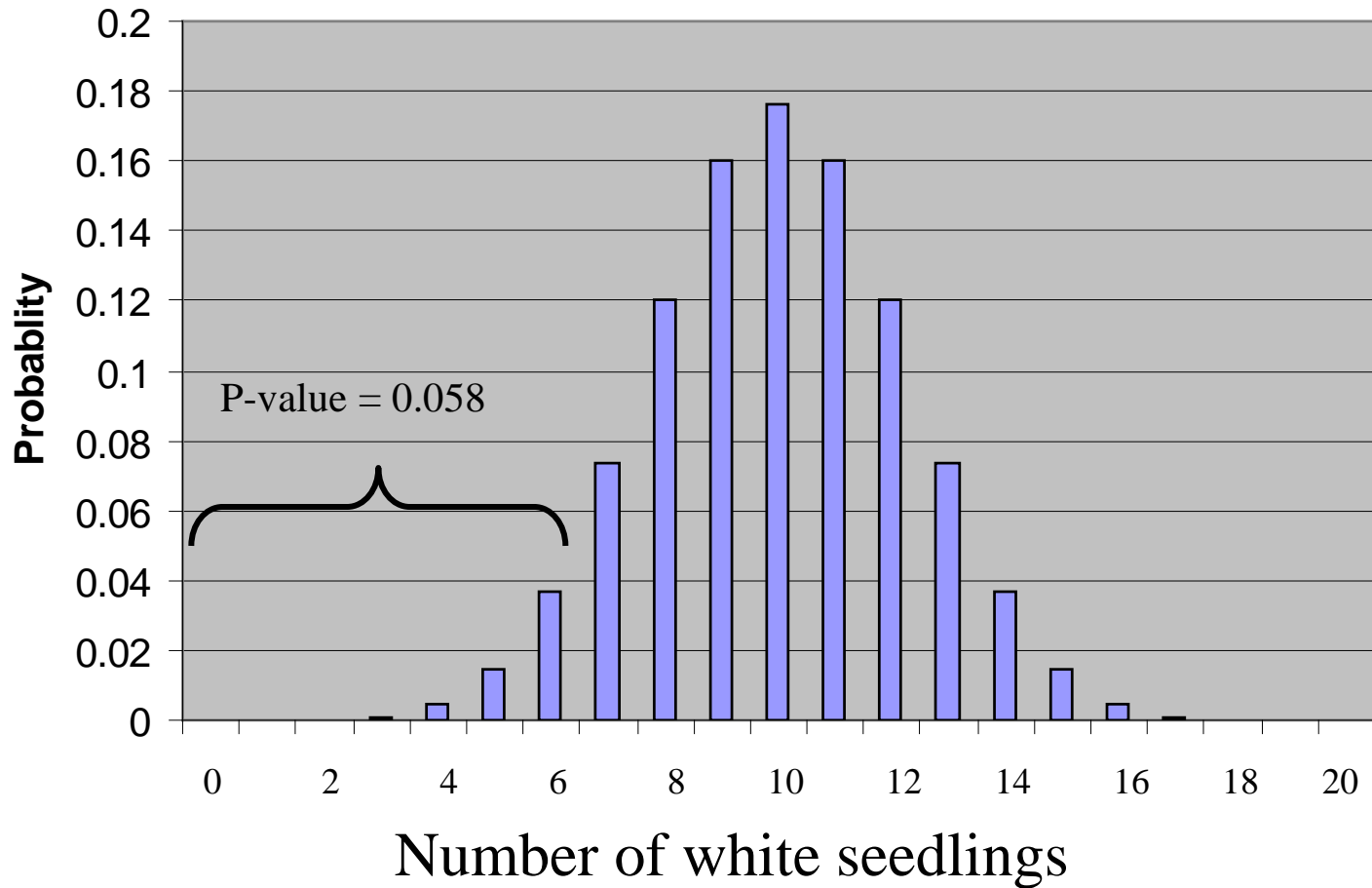
$\alpha = 0.05$

# Right	# Left	Probability
0	18	3.8147E-06
1	17	6.8665E-05
2	16	0.00058365
3	15	0.00311279
4	14	0.01167297
5	13	0.03268433
6	12	0.07081604
7	11	0.12139893
8	10	0.16692352
9	9	0.18547058
10	8	0.16692352
11	7	0.12139893
12	6	0.07081604
13	5	0.03268433
14	4	0.01167297
15	3	0.00311279
16	2	0.00058365
17	1	6.8665E-05
18	0	3.8147E-06



P-value = 0.031

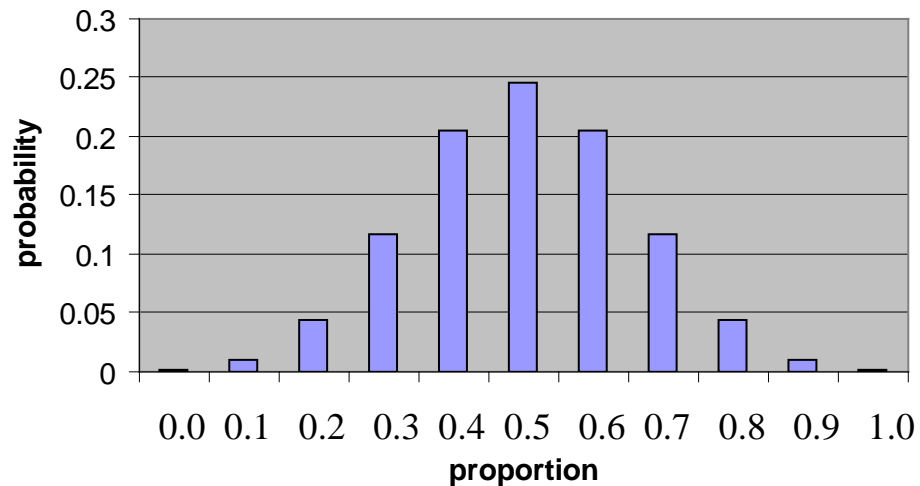
Distribution of white seedlings under H_0



Decision: Don't reject H_0 .

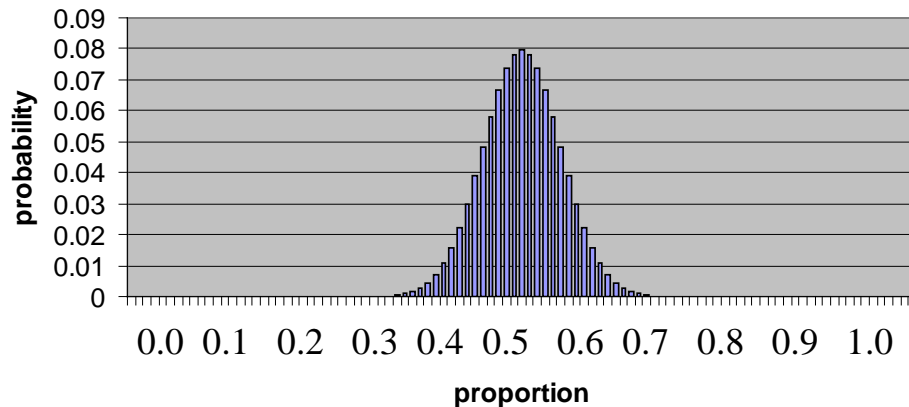
Here our estimate of the proportion is 0.5 in both cases, but in the upper graph there are only $n = 10$ random samples and in the lower there are $n = 100$ samples. Note that the mean of the distribution remains the same but the variance is decreased as n increases

Sampling dist of prop $n = 10$



s.e = 0.167

Sampling dist of prop $n = 100$



s.e = 0.050