**Two Child Simulation**

In homework 2 you were told that a man had two children, one of whom was a boy. You were asked to determine the probability that the remaining child was also a boy. The answer I gave in class argued that prior to being given the information that one child was a boy, there were 4 equally likely possibilities: BB, BG, GB, GG and that, since the new information eliminated only one possibility (GG), the correct answer was 1/3. Sometimes students will argue that since there was no information given regarding the ORDER of births, the correct model should have been that there were only two remaining possibilities (two boys or one of each gender) and hence the desired probability was ½. What this comes down to is a question of what probability model best fits the situation, and this really becomes an issue of statistics that is best answered empirically by collecting a large sample of adults with two children and looking at the actual frequencies. Getting such data might prove difficult, so we will use simulation to generate a set of simulated two-child families.

Each student will simulate 20 two child families. You will determine the genders of the two children in each of your 20 simulated families by tossing coins. For each simulated family, you will flip the coin twice:

Heads = Female

Tails = Male

Record your results below. Each time you generate a family with two boys, put a “tick mark” in the box labeled “two boys”, and so on. Note that the order of births are NOT recorded.

Two Boys Two Girls One of Each

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Next, count up the number of simulated families in each box.

**# two boys = \_\_\_\_\_\_\_\_ # two girls \_\_\_\_\_\_\_\_\_\_# of one each\_\_\_\_\_\_\_\_\_\_**

When everyone is done, we will collect the data on ALL of the simulated families.