342 (two children) I have two children. At least one of them is a girl. What is the probability that the other one is also a girl?

After trying the question, scroll down to the solution.

§ Let the genders of my two children be binary variables c and d, and let girl be 1 and boy be 0. We say that at least one of them is a girl this way: $c \vee d$. But a binary expression may not be a distribution, so we divide by the sum to make a distribution.

$(c \vee d) \,/\, (\Sigma c, d \cdot\ c \vee d)$ do the sum
$= \quad (a \vee b) \,/\, 3$

Now we want to ask if both my children are girls; that's $c \wedge d$. So we put primes on the given information and compose it with the question.

$(c' \vee d') \,/\, 3.\ \ c \wedge d$ replace .
$= \quad \Sigma c'', d'' \cdot\ (c'' \vee d'') \,/\, 3 \times (c'' \wedge d'')$ do the sum
$= \quad 1/3$

The probability that my other child is also a girl is $1/3$.