

Problem of the Month - April 2024 Solution

Since having an encounter with a dove does not affect your chances of survival, we can assume that the bird population is made up of just you and N hawks. Regardless of your species, you will not survive in this scenario if you have *any* encounter. If N is odd, it is not possible to avoid an encounter since the N hawks cannot eliminate themselves altogether. If N is even, you may survive the scenario if you are the only bird to never have an encounter. Only one such bird can satisfy this requirement, and since there is an equal chance that any bird could be the one to satisfy it, your chances of survival are $\frac{1}{N+1}$. We summarize the result in the table below.

Your Species	H even	H odd
Hawk	0	$\frac{1}{H}$
Dove	$\frac{1}{H+1}$	0

Table 1: Survival probabilities