

Example where 4 babies are born in a hospital.

$S$ , the sample space, is  $\{(s_1, s_2, s_3, s_4) \mid s_j = b \text{ or } g\}$

For instance if the sexes are  $(b, g, g, b)$  then this is the outcome.

Can we define, for instance,  $X((s_1, s_2, s_3, s_4)) = s_1$  ??

$X((b, g, g, b)) = b$  ??

No, because random variable should assign real numbers to outcome.

Instead could write  $X((s_1, s_2, s_3, s_4)) = \begin{matrix} 1 & \text{if } s_1 = b \\ \text{or} \\ 2 & \text{if } s_1 = g \end{matrix}$

E.g.  $X((b, g, g, b)) = 1$  since  $s_1 = b$

$X((g, g, g, b)) = 2$  since  $s_1 = g$ .