

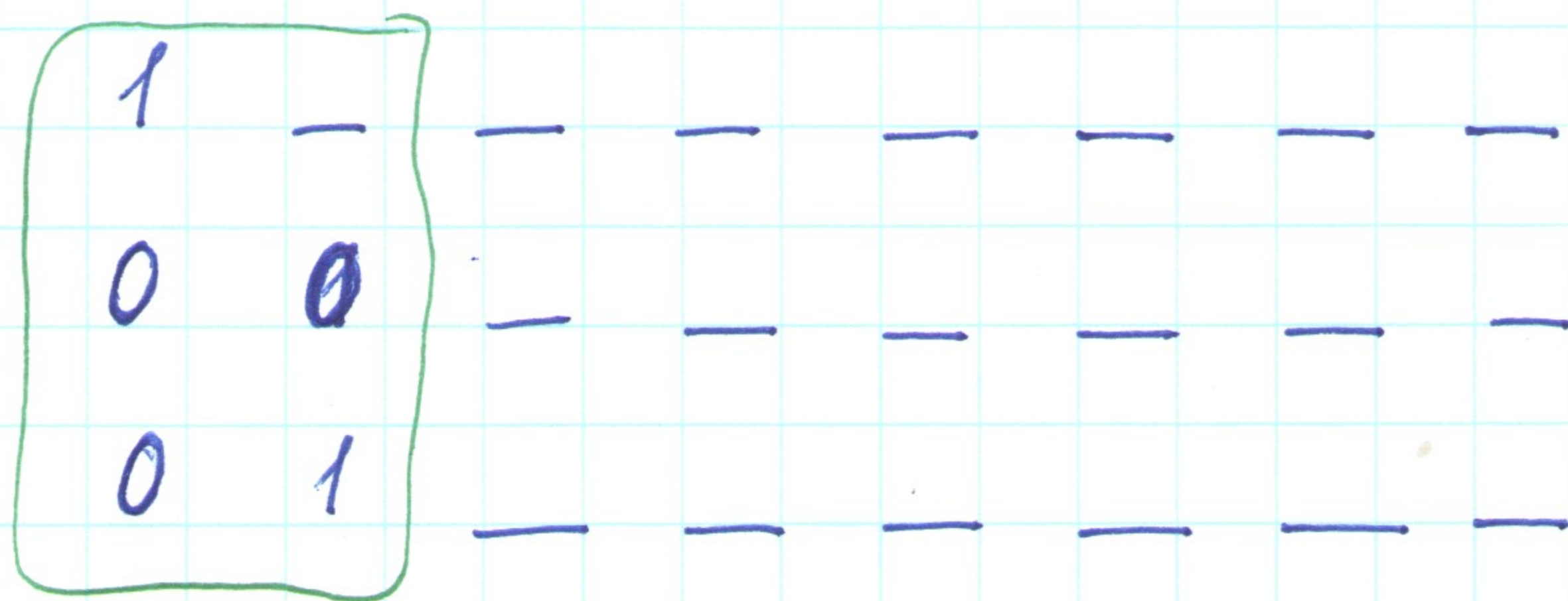
page 616/43  $S = \{ \text{bit strings of length 8} \}$

a)  $S_1 = \{ \text{bit-strings that begin with 1} \}$

$S_2 = \{ \text{bit-strings that begin with 00} \}$

$S_3 = \{ \text{bit-strings that begin with 01} \}$

it is a partition, because  $S_1 \cup S_2 \cup S_3 = S$



↑ cover all different two-digit beginnings

②  $S_1 \cap S_2 = \emptyset$ ,  $S_2 \cap S_3 = \emptyset$ ,  $S_1 \cap S_3 = \emptyset$

↑ starts with 1    ↑ starts with 0    ↑ starts with 00    ↑ starts with 01    ↑ starts with 1

b)  $S_1 = \{ \text{bit strings that contain 00} \}$

$S_2 = \{ \text{bit strings that contain 01} \}$

$S_3 = \{ \text{bit strings that contain 10} \}$

$S_4 = \{ \text{bit strings that contain 11} \}$

string 00 01 10 11 00  $\in S_1, \in S_2, \in S_3, \in S_4$

therefore this is not a partition.