

## Übungsblatt 6

### HA 1

$$(a) \mathbb{P}(G_1) = \frac{5}{12}$$

$$(b) \mathbb{P}(O_1) = \frac{3}{12} = \frac{1}{4}$$

$$(c) \mathbb{P}(G_2|R_1) = \frac{\mathbb{P}(G_2 \cap R_1)}{\mathbb{P}(R_1)} = \frac{\frac{5}{11} \cdot \frac{1}{12}}{\frac{1}{12}} = \frac{5}{132} \cdot \frac{12}{1} = \frac{60}{132} = \frac{5}{11}$$

$$(d) \mathbb{P}(O_2|O_1) = \frac{\mathbb{P}(O_2 \cap O_1)}{\mathbb{P}(O_1)} = \frac{\frac{2}{11} \cdot \frac{3}{12}}{\frac{3}{12}} = \frac{6}{132} \cdot \frac{12}{3} = \frac{72}{396} = \frac{2}{11}$$

$$(e) \mathbb{P}(W_2 \cap O_1) = \frac{3}{11} \cdot \frac{3}{12} = \frac{9}{132}$$

$$(f) \mathbb{P}(W_2) = \frac{5}{12} \cdot \frac{3}{11} + \frac{3}{12} \cdot \frac{3}{11} + \frac{3}{12} \cdot \frac{2}{11} + \frac{1}{12} \cdot \frac{3}{11} = \frac{33}{132}$$

$$(g) \mathbb{P}(O_1|W_2) = \frac{\mathbb{P}(O_1 \cap W_2)}{\mathbb{P}(W_2)}$$