HW 2 - PADI

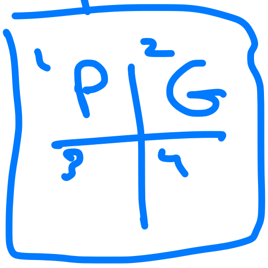
s – without passenger

① a) $\mathcal{X} = \{1, 2s, 2c, 3s, 3c, 4s, 4c\}$ c – with passenger

the seven possible squares where it can be.

$\mathcal{A} = \{up, down, left, right\}$

Map



b) $$P_{down} = \begin{array}{c} \\ 1 \\ 2s \\ 2c \\ 3s \\ 3c \\ 4s \\ 4c \end{array} \begin{array}{c} \begin{array}{ccccccc} 1 & 2s & 2c & 3s & 3c & 4s & 4c \end{array} \\ \begin{bmatrix} 0.2 & 0 & 0 & 0 & 0.8 & 0 & 0 \\ 0 & 0.2 & 0 & 0 & 0 & 0.8 & 0 \\ 0 & 0 & 0.2 & 0 & 0 & 0 & 0.8 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix} \end{array}$$

$$c(x,a) = \begin{array}{c} \\ 1 \\ 2s \\ 2c \\ 3s \\ 3c \\ 4s \\ 4c \end{array} \begin{array}{c} \begin{array}{cccc} up & down & left & right \end{array} \\ \begin{bmatrix} 0.5 & 0 & 0.5 & 0.5 \\ 0.5 & 0 & 0.5 & 0.5 \\ 0 & 1 & 0 & 0 \\ 0 & 0.5 & 0.5 & 1 \\ 1 & 0.5 & 0.5 & 0 \\ 1 & 0.5 & 0 & 0.5 \\ 0 & 0.5 & 1 & 0.5 \end{bmatrix} \end{array}$$

c) $J^{\pi} = (I - \underset{\substack{\shortparallel \\ 0.9}}{\gamma} P_{\pi})^{-1} c_{\pi} =$

$$= (I - 0{,}9 \cdot P_{down})^{-1} \cdot [0 \quad 0 \quad 1 \quad .5 \quad .5 \quad .5 \quad .5]^T =$$

$$= [4{,}39 \quad 4{,}39 \quad 5{,}61 \quad 5 \quad 5 \quad 5 \quad 5]^T$$