# Homework 9

Daniel Frank

June 27, 2017

The states in my task are numbered as like

$$\mathbb{S} = \left(\begin{array}{c|c|c|c|c|c|c|c|c|c|c|c|c} 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 \\ \hline 13 & 14 & 15 & 16 & 17 & 18 & 19 & 20 & 21 & 22 & 23 & 24 & 25 \\ 26 & 27 & 28 & 29 & 30 & 31 & 32 & 33 & 34 & 35 & 36 & 37 & 38 \\ 39 & 40 & 41 & 42 & 43 & 44 & 45 & 46 & 47 & 48 & 49 & 50 & 51 \\ 52 & 53 & 54 & 55 & 56 & 57 & 58 & 59 & 60 & 61 & 62 & 63 & 64 \\ 65 & 66 & 67 & 68 & 69 & 70 & 71 & 72 & 73 & 74 & 75 & 76 & 77 \\ 78 & 79 & 80 & 81 & 82 & 83 & 84 & 85 & 86 & 87 & 88 & 89 & 90 \\ 91 & 92 & 93 & 94 & 95 & 96 & 97 & 98 & 99 & 100 & 101 & 102 & 103 \\ 104 & 105 & 106 & 107 & 108 & 109 & 110 & 111 & 112 & 113 & 114 & 115 & 116 \\ 117 & 118 & 119 & 120 & 121 & 122 & 123 & 124 & 125 & 126 & 127 & 128 & 129 \\ 130 & 131 & 132 & 133 & 134 & 135 & 136 & 137 & 138 & 139 & 140 & 141 & 142 \\ 143 & 144 & 145 & 146 & 147 & 148 & 149 & 150 & 151 & 152 & 153 & 154 & 155 \\ \hline 156 & 157 & 158 & 159 & 160 & 161 & 162 & 163 & 164 & 165 & 166 & 167 & 168. \end{array}\right) \tag{1}$$

The hallways are in state $h = (45, 80, 100, 136)$.

| different hallways | value function |
|---|---|
| $V_1$ room(1) to state(45) | $\begin{pmatrix} 2.42 & 2.79 & 3.26 & 3.8 & 4.42 \\ 2.66 & 3.11 & 3.71 & 4.42 & 5.26 \\ 2.87 & 3.41 & 4.18 & 5.15 & 6.42 \\ 2.66 & 3.11 & 3.71 & 4.42 & 5.26 \\ 2.42 & 2.79 & 3.26 & 3.8 & 4.42 \end{pmatrix}$ |
| $V_1$ room(1) to state(80) | $\begin{pmatrix} 2.88 & 2.95 & 2.67 & 2.32 & 2.07 \\ 3.35 & 3.5 & 3.13 & 2.68 & 2.37 \\ 3.95 & 4.27 & 3.74 & 3.17 & 2.76 \\ 4.66 & 5.24 & 4.47 & 3.76 & 3.22 \\ 5.46 & 6.51 & 5.32 & 4.37 & 3.68 \end{pmatrix}$ |
| $V_2$ room(2) to state(136) | $\begin{pmatrix} 2.07 & 2.37 & 2.76 & 3.22 & 3.68 \\ 2.32 & 2.68 & 3.17 & 3.76 & 4.37 \\ 2.67 & 3.13 & 3.74 & 4.47 & 5.32 \\ 2.95 & 3.5 & 4.27 & 5.24 & 6.51 \\ 2.88 & 3.35 & 3.95 & 4.66 & 5.46 \end{pmatrix}$ |
| $V_2$ room(2) to state(80) | $\begin{pmatrix} 5.46 & 6.51 & 5.32 & 4.37 & 3.68 \\ 4.66 & 5.24 & 4.47 & 3.76 & 3.22 \\ 3.95 & 4.27 & 3.74 & 3.17 & 2.76 \\ 3.35 & 3.5 & 3.13 & 2.68 & 2.37 \\ 2.88 & 2.95 & 2.67 & 2.32 & 2.07 \end{pmatrix}$ |
| $V_3$ room(3) to state(45) | $\begin{pmatrix} 4.42 & 3.8 & 3.25 & 2.78 & 2.42 \\ 5.25 & 4.42 & 3.7 & 3.1 & 2.66 \\ 6.41 & 5.14 & 4.16 & 3.4 & 2.85 \\ 5.24 & 4.39 & 3.67 & 3.07 & 2.62 \\ 4.31 & 3.7 & 3.12 & 2.64 & 2.28 \\ 3.63 & 3.17 & 2.72 & 2.33 & 2.03 \end{pmatrix}$ |
| $V_3$ room(3) to state(100) | $\begin{pmatrix} 2.06 & 2.23 & 2.36 & 2.23 & 2.06 \\ 2.37 & 2.6 & 2.8 & 2.6 & 2.37 \\ 2.78 & 3.1 & 3.41 & 3.1 & 2.78 \\ 3.26 & 3.71 & 4.17 & 3.71 & 3.26 \\ 3.8 & 4.42 & 5.15 & 4.42 & 3.8 \\ 4.42 & 5.26 & 6.42 & 5.26 & 4.42 \end{pmatrix}$ |
| $V_4$ room(4) to state(136) | $\begin{pmatrix} 4.49 & 3.86 & 3.31 & 2.83 & 2.46 \\ 5.34 & 4.5 & 3.77 & 3.17 & 2.72 \\ 6.52 & 5.26 & 4.28 & 3.52 & 2.97 \\ 5.47 & 4.67 & 3.96 & 3.35 & 2.89 \end{pmatrix}$ |
| $V_4$ room(4) to state(100) | $\begin{pmatrix} 4.42 & 5.26 & 6.42 & 5.26 & 4.42 \\ 3.81 & 4.43 & 5.16 & 4.43 & 3.81 \\ 3.27 & 3.72 & 4.19 & 3.72 & 3.27 \\ 2.85 & 3.19 & 3.5 & 3.19 & 2.85 \end{pmatrix}$ |