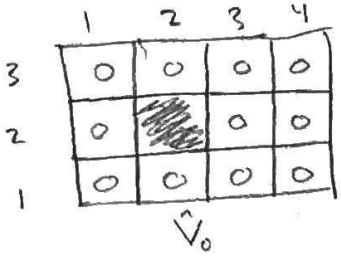
CCIS 4100

$$V^*(s) = \max_a \left\{ \sum_{s'} T(s, a, s') \cdot [R(s, a, s') + \gamma V^*(s')] \right\}$$

Replace with current estimate $\hat{V}_t$



$\hat{V}_0$

$\forall s \quad \hat{V}_0(s) = 0$

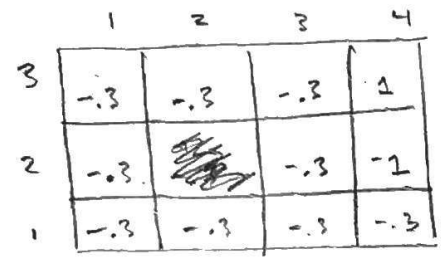
$R = -.3$

(1) $\hat{V}_1(S_{3,3}) = ?$

$$= \max_a \left\{ \sum_{s'} T(S_{3,3}, a, s') \cdot [R(S_{3,3}, a, s') + \gamma \hat{V}_0(s')] \right\}$$

($\hat{V}_0(s') = 1$)

say a = right $\longrightarrow$ $.8 \cdot ((-.3) + 1 \cdot \phi) + .2 \cdot ((-.3) + 1 \cdot \phi) = -.3$



(2) $\hat{V}_2(S_{3,3}) = \max_a \ldots$ so say a = right $\longrightarrow$ $.8 \cdot ((-.3) + 1) + .2 \cdot ((-.3) + \hat{V}_1(S_{3,3})) + .1((-.3) + \hat{V}_1(S_{2,3}))$

($\hat{V}_1(S_{3,3}) = -.3$, $\hat{V}_1(S_{2,3}) = -.3$)

$= .44$

(3) $\hat{V}_3(S_{2,3}) = \max_a \ldots$ ↑

a = up $\longrightarrow$ $.8 \cdot ((-.3) + .44) + .1((-.3) + 1) + .1((-.3) + .3)$

$\hat{V}_2(S_{3,3})$ $\hat{V}_2(S_{2,4})$ $\hat{V}_2(S_{2,3})$

$= .078$