

```
function [Q_st,ai,F] = ret_q_in_st(st,theta,nActions,dp,dv,nTilings,memory_size, epsilon)
% RET_Q_IN_ST - Returns the value of Q as a function of the actions in the state st
%               - also returns an epsilon greedy action selection based on Q(:)
%               - also the feature lists "F" for all possible actions ai
%
% Note that this is specialized somewhat for the mountain car example from Sutton's book
%
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Q_st = zeros(1,nActions);
F     = zeros(nActions,nTilings);
for ai=1:nActions,
    sts(1) = st(1)/dp; sts(2) = st(2)/dv; % scale our state so that it is within unit
intervals:
    F(ai,:) = GetTiles_Mex(nTilings,sts,memory_size,ai);
    Q_st(ai) = sum( theta(F(ai,:)) );
end
% pick an action according to and epsilon greedy policy Q:
[Q_max,ai] = max(Q_st);
if( rand < epsilon )
    tmp=randperm(nActions); ai=tmp(1);
end
```