

```
function [the_pos,the_vel,CTG] =  
get_ctg(theta,nActions,pos_bnds,dp,vel_bnds,dv,nTilings,memory_size)  
% GET_CTG - Extracts the the C(ost) T(o) G(o) function defined as  
%  
% CTG = -max_a Q(s,a)  
%  
% Written by:  
% --  
% John L. Weatherwax          2008-02-19  
%  
% email: wax@alum.mit.edu  
%  
% Please send comments and especially bug reports to the  
% above email address.  
%  
%-----  
  
% break each dimension (position and velocity) into this many cells:  
N_DISC = 100;  
the_pos = linspace( pos_bnds(1), pos_bnds(2), N_DISC );  
the_vel = linspace( vel_bnds(1), vel_bnds(2), N_DISC );  
CTG = zeros(N_DISC,N_DISC); Q = zeros(1,nActions);  
for pi=1:N_DISC,  
    for vi=1:N_DISC,  
        % scale the position and velocity:  
        sts = [ the_pos(pi)/dp, the_vel(vi)/dv ];  
        for ai=1:nActions,  
            fl = GetTiles_Mex(nTilings,sts,memory_size,ai);  
            Q(ai) = sum( theta(fl) );  
        end  
        Qmx = max(Q);  
  
        CTG(pi,vi) = -Qmx;  
    end  
end
```