

Solving a POMDP model

```
using POMDPs, POMDPModelTools, QuickPOMDPs
```

```
@enum State hungry full
@enum Action feed ignore
@enum Observation crying quiet
```

```
pomdp = QuickPOMDP(
    states      = [hungry, full], #  $\mathcal{S}$ 
    actions     = [feed, ignore], #  $\mathcal{A}$ 
    observations = [crying, quiet], #  $\mathcal{O}$ 
    initialstate = [full], # Deterministic
    discount    = 0.9, #  $\gamma$ 

    transition = function T(s, a)
        if a == feed
            return SparseCat([hungry, full], [0, 1])
        elseif s == hungry && a == ignore
            return SparseCat([hungry, full], [1, 0])
        elseif s == full && a == ignore
            return SparseCat([hungry, full], [0.1, 0.9])
        end
    end,

    observation = function O(s, a, s')
        if s' == hungry
            return SparseCat([crying, quiet], [0.8, 0.2])
        elseif s' == full
            return SparseCat([crying, quiet], [0.1, 0.9])
        end
    end,

    reward = (s,a)->(s == hungry ? -10 : 0) + (a == feed ? -5 : 0)
)
```

