

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)
)
```

POMDP solvers

Package	State Spaces	Actions Spaces	Observation Spaces
QMDP.jl	Discrete	Discrete	Discrete
FIB.jl	Discrete	Discrete	Discrete
BeliefGridValueIteration.jl	Discrete	Discrete	Discrete
SARSOP.jl	Discrete	Discrete	Discrete
BasicPOMCP.jl	Continuous	Discrete	Discrete
ARDESPOT.jl	Continuous	Discrete	Discrete
MCVI.jl	Continuous	Discrete	Continuous
POMDPSolve.jl	Discrete	Discrete	Discrete
IncrementalPruning.jl	Discrete	Discrete	Discrete
POMCPOW.jl	Continuous	Continuous	Continuous
AEMS.jl	Discrete	Discrete	Discrete
PointBasedValueIteration.jl	Discrete	Discrete	Discrete