using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

namespace LearningMachine

{

[Serializable]

public class QuantumLearningKrinskyAtamata : QuantumAtamata

{

int r = 0, k = 0, m = 0;

double Alpha = 0;

public QuantumLearningKrinskyAtamata(int r0, int m0, int k0,double Alpha0)

: base(r0, m0, k0)

{

Object o = new Object();

lock (o)

{

r = new int();

k = new int();

m = new int();

Alpha = new double();

r = r0;

k = k0;

m = m0;

Alpha = Alpha0;

Reward = Alpha \* (1.0 / (1 + System.Convert.ToDouble(BitState[0].Bits[0])) + 1.0 / ((1 + System.Convert.ToDouble(BitState[0].Bits[1])) \* 2.0) + 1.0 / ((1 + System.Convert.ToDouble(BitState[1].Bits[0])) \* 4.0) + 1.0 / ((1 + System.Convert.ToDouble(BitState[1].Bits[1])) \* 8.0) + 1.0 / ((1 + System.Convert.ToDouble(BitState[2].Bits[0])) \* 16.0) + 1.0 / ((1 + System.Convert.ToDouble(BitState[2].Bits[1])) \* 32.0));

Penalty = Alpha \* (1.0 / (1 + System.Convert.ToDouble(!BitState[0].Bits[0])) + 1.0 / ((1 + System.Convert.ToDouble(!BitState[0].Bits[1])) \* 2.0) + 1.0 / ((1 + System.Convert.ToDouble(!BitState[1].Bits[0])) \* 4.0) + 1.0 / ((1 + System.Convert.ToDouble(!BitState[1].Bits[1])) \* 8.0) + 1.0 / ((1 + System.Convert.ToDouble(!BitState[2].Bits[0])) \* 16.0) + 1.0 / ((1 + System.Convert.ToDouble(!BitState[2].Bits[1])) \* 32.0));

int A1 = FirstAtamataState();

int A2 = SecondAtamataState();

int A3 = ThirdAtamataState();

if (A1 == 2)

{

Reward += Alpha \* (1.0 / (1 + System.Convert.ToDouble(true)) + 1.0 / (1 + System.Convert.ToDouble(true) \* 2.0));

}

if (A2 == 2)

{

Reward += Alpha \* (1.0 / (1 + System.Convert.ToDouble(true)) + 1.0 / (1 + System.Convert.ToDouble(true) \* 2.0));

}

if (A3 == 2)

{

Reward += Alpha \* (1.0 / (1 + System.Convert.ToDouble(true)) + 1.0 / (1 + System.Convert.ToDouble(true) \* 2.0));

}

if (A1 == 2)

{

Penalty += Alpha \* (1.0 / (1 + System.Convert.ToDouble(false)) + 1.0 / (1 + System.Convert.ToDouble(true) \* 2.0));

}

if (A2 == 2)

{

Penalty += Alpha \* (1.0 / (1 + System.Convert.ToDouble(false)) + 1.0 / (1 + System.Convert.ToDouble(true) \* 2.0));

}

if (A3 == 2)

{

Penalty += Alpha \* (1.0 / (1 + System.Convert.ToDouble(false)) + 1.0 / (1 + System.Convert.ToDouble(true) \* 2.0));

}

}

}

}

}