Problem is: robot does not know if it is in E1 or E2.

**Assuming**: some historical data available at the time = 0. E1 & E2.

Verify if making good analogy, how fast convergence to the right experience (validation of theory).

 (If analogies are wrong, it should take more time to converge.)

**Big question:** what is the best way to get best analogy at the beginning?

Initial data:

E1= Believe in Exp1 initial analogy P[E1(0)]

Under E1, the success rate of the Action A is = 95%

E2= Believe in Exp2 initial analogy P[E2(0))

Under E2, the success rate of the Action A is = 65%

A=Observed action success rate, to be collected during the iterations

Smoothing of the observed success rate using NLP: <https://en.wikipedia.org/wiki/Additive_smoothing>

1st iteration

Given observed action success rate as

The believe of the Exp1 is updated as

New believes

The believe of the Exp2 is updated as

New believes

2nd iteration

Given observed action success rate as

The believe of the Exp1 is updated as

New believes

The believe of the Exp2 is updated as

New believes

Ith iteration

Given observed action success rate as

The believe of the Exp1 is updated as

New believes

The believe of the Exp2 is updated as

New believes

Scenarios:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| R | 10 | -100 | -100 | 5 | D100 |
| 10 | 15 | -100 | -100 | 5 | 80 |
| 10 | 15 | 15 | 15 | 15 | 60 |
| 0 | 18 | 20 | 30 | 50 | 55 |
| -10 | -10 | 10 | 10 | 34 | 45 |

Experience1 90%  (Action success 95%)     Localisation (100%)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| R | 10 | -100 | -100 | 0 | D100 |
| 10 | 15 | -100 | -100 | 0 | 80 |
| 10 | 10 | 0 | 0 | 0 | 60 |
| 0 | 18 | 20 | 30 | 50 | 55 |
| -10 | -10 | 10 | 10 | 34 | 45 |

Experience2 10% (Action success 65%)   Localisation (100%)

How to do the Verification?

Unknown Situation 1   (Action success ??%)

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Unknown Situation 2

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