09. NOV. 2011

AI Ü 2

Ex 1.2.)

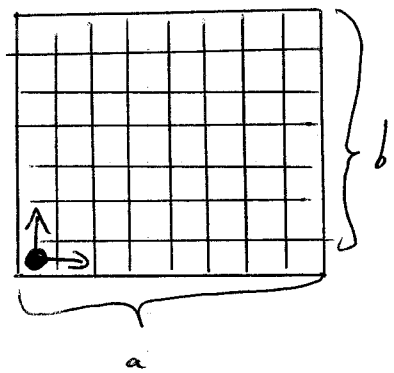
	Perf. Measure	Env.	Act.	Sensors
theorem prover	computation - time, # of goals proven,	space of possible derivations	select one of the rules to apply (in the calculus that is used)	none / input by mathematician

	Discrete	observable	Deterministic	Episodic	static
Domestic robot	~~[illegible]~~ continuous	partially	stochastic	sequential	dynamic
poker-playing agent	discrete	partially	stochastic	sequential	static (semi with clock)
Mars rover	continuous	partially	stochastic	sequential	dynamic (weather)
theorem prover	discrete	fully	deterministic	sequential	static

Ex 1.3.)

a.)

dirt	bump	→ action
no	no	up
yes	no	suck
no	yes	right
yes	yes	suck



If there are a · b squares, the agent only cleans a+b−1 squares.

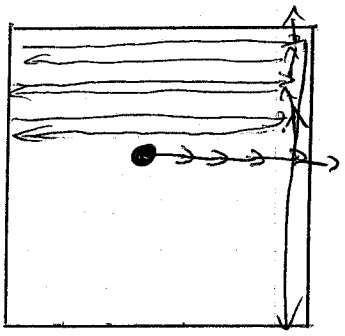
Probability that the room is completely clean afterwards

$$P(\text{cleaned}) = 0.9^{a \cdot b - (a+b-1)}$$

e.g. $a=8,\ b=5$: $P(\text{cleaned}) = 0.9^{40-12} \approx 0.053$

b.)

dirt	bump	last_move	→ action
yes	*	*	suck
no	no	none	→ right
no	no	right	right
no	yes	right	up
no	no	up	left
no	no	left	left
no	yes	left	right
no	yes	up	down
no	[illegible]	down	down
no	yes	down	left



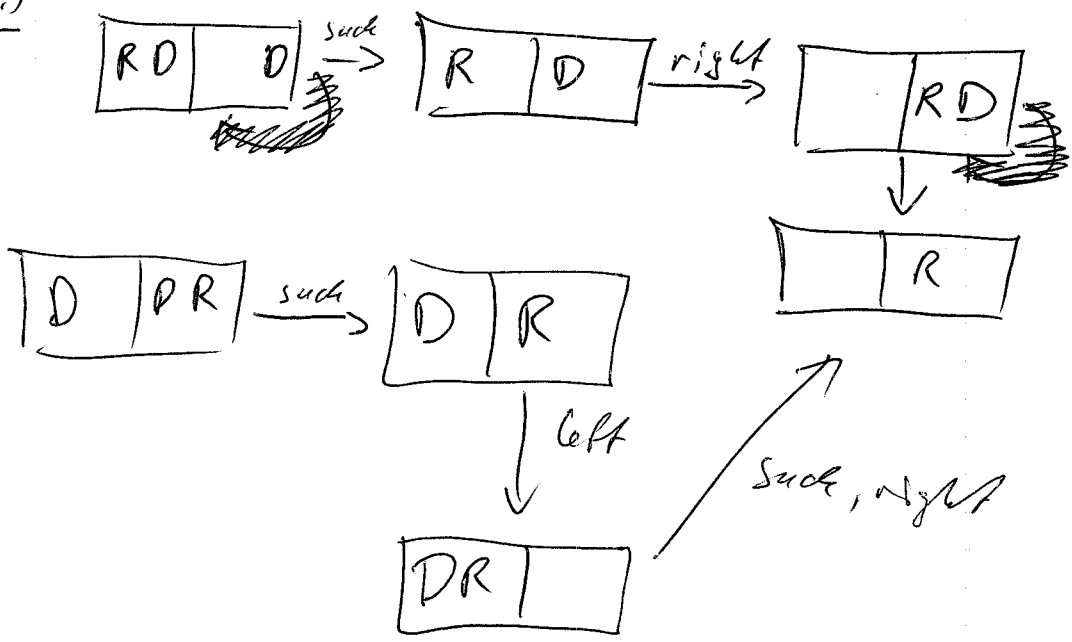
c.)

In general returning to the initial position or switching off after the work is done is not possible for a purely reflexive agent, since it cannot distinguish between states where there is still work to do and "final" states only by its sensors.

AI ü2

09. NOV. 2011

Ex 1.4.)



Ex 2.1.)

a.) UCS b.) BFS c) DFS