

Autonomous Intelligent Systems

Lab 3

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February 2022

1 Exercise 1: STRIPS

- a)
- I: $\{Focusing(none), Empty(right), Empty(left), Available(luck), Available(wealth), Available(health)\}$
 - G: $\{Stamped(veggie, health), Stamped(chicken, wealth), Stamped(rose, health), Stamped(rose, luck), \neg Stamped(veggie, wealth), \neg Stamped(veggie, luck), \neg Stamped(chicken, health), \neg Stamped(chicken, luck), \neg Stamped(rose, wealth)\}$
- b)
- LookAt(c) for all $c \in \{veggie, chicken, rose, none\}$:
 $Pre_{LookAt} : \{Focusing(none)\}$
 $Add_{LookAt} : \{Focusing(c)\}$
 $Del_{LookAt} : \{Focusing(none)\}$
 - PickUp(h, s) for all $h \in \{left, right\}, s \in \{Luck, Health, Wealth\}$:
 $Pre_{PickUp} : \{Empty(h), Available(s)\}$
 $Add_{PickUp} : \{Holding(h, s)\}$
 $Del_{PickUp} : \{Empty(h), Available(s)\}$
 - Drop(h, s) for all $h \in \{left, right\}, s \in \{health, wealth, luck\}$:
 $Pre_{Drop} : \{Holding(h, s)\}$
 $Add_{Drop} : \{Available(s), Empty(h)\}$
 $Del_{Drop} : \{Holding(h, s)\}$
 - Stamp(h, s, c) for all $h \in \{left, right\}, s \in \{health, wealth, luck\}, c \in \{chicken, veggie, rose, none\}$:
 $Pre_{Stamp} : \{Focusing(c), Holding(h, s)\}$
 $Add_{Stamp} : \{Stamped(c, s)\}$
 $Del_{Stamp} : \{\}$

2 Exercise 2: FDR

$\Pi = \{V, A, I, G\}$

- V : at-pigeon : $\{L_1, L_2, L_3\}$, mes-found : $\{T, F\}$, mes-sent : $\{T, F\}$,
adjacent(x, y) : $\{T, F\}$ for $x, y \in \{L_1, L_2\} \vee x, y \in \{L_2, L_3\}$
- I : {at-pigeon = L_1 , mes-found = F , mes-sent = F }
- A :
 - move(x, y) :
 - * Pre_{move} : at-pigeon = x , adjacent(x, y) = T
 - * Eff_{move} : at-pigeon = y
 - take-mes :
 - * $Pre_{take-mes}$: at-pigeon = L_2
 - * $Eff_{take-mes}$: mes-found = T
 - send-mes :
 - * $Pre_{send-mes}$: at-pigeon = L_3 , mes-found = T
 - * $Eff_{send-mes}$: mes-sent = T
- G : {mes-sent = T }