Multi-Agent Systems, Winter Semester 2018/2019, Exercise 11
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Exercise 11.1

a)

Step	L
0	$\emptyset$
1	$\{(a, \textbf{in})\}$
2	$\{(a, \textbf{in}), (b, \textbf{out})\}$
3	$\{(a, \textbf{in}), (b, \textbf{out})\}$

The grounded labeling is $L_1 := \{(a, \textbf{in}), (b, \textbf{out}), (c, \textbf{undec}), (d, \textbf{undec}), (e, \textbf{undec})\}$

b)

The grounded labeling L_1 is (by definition) complete. Further complete labelings are:
$L_2 := \{(a, \textbf{in}), (b, \textbf{out}), (c, \textbf{out}), (d, \textbf{in}), (e, \textbf{out})\}$
$L_3 := \{(a, \textbf{in}), (b, \textbf{out}), (c, \textbf{in}), (d, \textbf{out}), (e, \textbf{in})\}$
L_2 and L_3 are both preferred and stable.

c)

- e is in the **in** set of some preferred labeling
  M: in(e)
  S: out(d)
  M: in(c)
  S: out(b)
  M: in(a)

- d is in the **in** set of some preferred labeling
  M: in(d)
  S: out(c)
  M: in(d)

- c is in the **in** set of some preferred labeling
  M: in(c)
  S: out(b)
  M: in(a)
  S: out(d)
  M: in(c)

- b is not in the **in** set of some preferred labeling
  M: in(b)
  S: out(a)

- a is in the **in** set of some preferred labeling
  M: in(a)