Hausaufgaben zum 24./25. November 2011
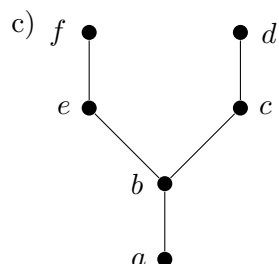
Elena Noll, Sven-Hendrik Haase, Arne Feil

24. November 2011
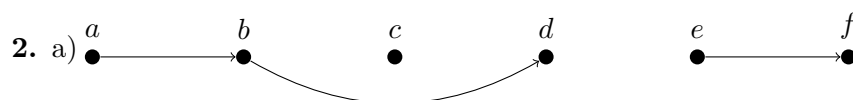
1. a)
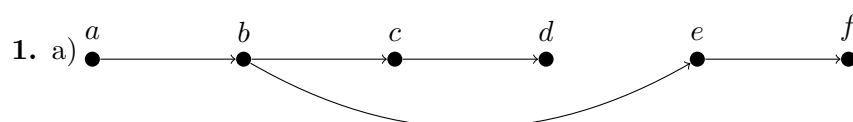
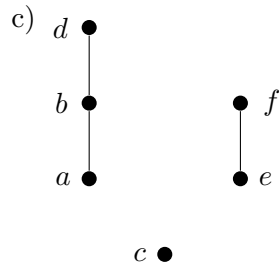|	a	b	c	d	e	f
a	0	1	0	0	0	0
b	0	0	1	0	1	0
c	0	0	0	1	0	0
d	0	0	0	0	0	0
e	0	0	0	0	0	1
f	0	0	0	0	0	0

b) $(a,a),(b,b),(c,c),(d,d),(e,e),(f,f),(a,c),(b,d),(a,d),(b,f),(a,e),(a,f)$

c)

d) $(a,a),(b,b),(c,c),(d,d),(e,e),(f,f),(a,c),(b,d),(a,d),(b,f),(a,e),(a,f),(b,a),(c,b),$
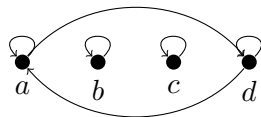$(e,b),(f,e),(c,a),(d,b),(d,a),(f,b),(e,a),(f,a)$

2. a)

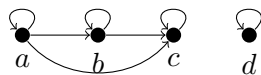|	a	b	c	d	e	f
a	0	1	0	0	0	0
b	0	0	0	1	0	0
c	0	0	0	0	0	0
d	0	0	0	0	0	0
e	0	0	0	0	0	1
f	0	0	0	0	0	0

b) $(a,a), (b,b), (c,c), (d,d), (e,e), (f,f), (a,d)$

c)

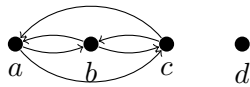d) $(a,a), (b,b), (c,c), (d,d), (e,e), (f,f), (a,d), (b,a), (d,b), (f,e), (d,a)$

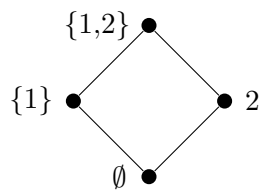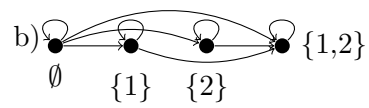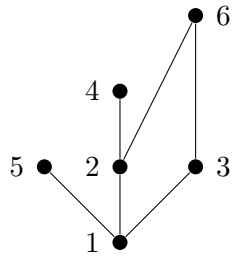**3.** a) $R = \left\{ (a,a), (b,b), (c,c), (d,d), (a,d), (d,a) \right\}$

b) $R = \left\{ (a,a), (b,b), (c,c), (d,d), (a,b), (b,c), (a,c) \right\}$

c) $R = \left\{ (a,b), (b,c), (a,c), (b,a), (c,b), (c,a) \right\}$

4. a) $R = \left\{ (1,1), (1,2), (1,3), (1,4), (1,5), (1,6), (2,2), (2,4), (2,6), (3,3), (3,6), (4,4), (5,5), (6,6) \right\}$

2

b)

$\emptyset$ $\{1\}$ $\{2\}$

c) $A = \mathcal{P}(M) = \Big\{\emptyset, \{1\}, \{2\}, \{3\}, \{1,2\}, \{1,3\}, \{2,3\}, \{1,2,3\}\Big\}$