KØBENHAVNS UNIVERSITET

IPS - Assignment 4

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Indhold

Task 1

SubExp	I/O?	Elim?	UsedVars	OptSubExp
1	no	-	{u}	u
2	no	-	{x}	x + x
3	yes	-	{x}	foo(x)
4	no	-	{}	7
5	yes	no	{x}	let x = foo(x) in 7
6	no	-	{x, u}	x + u
7	no	-	{y, x}	y * x
8	no	yes	{t, x, u, y}	y * x
9	yes	no	{y, x}	let y = (let x = foo(x)) in 7
10	no	yes	{y, x}	let y = (let x = foo(x)) in 7
11	no	no	{x, y}	let x = u in (let y = (let x = foo(x)) in 7)

Task 2

a)

i	succ[i]	gen[i]	kill[i]
1	2		
2	3, 7	a, b	
3	4		
4	5	a	t
5	6	b	a
6	7	t	b
7	8		
8	9		z
9	10	a, b	b
10	1, 11	b, z	
11	12		
12		a	

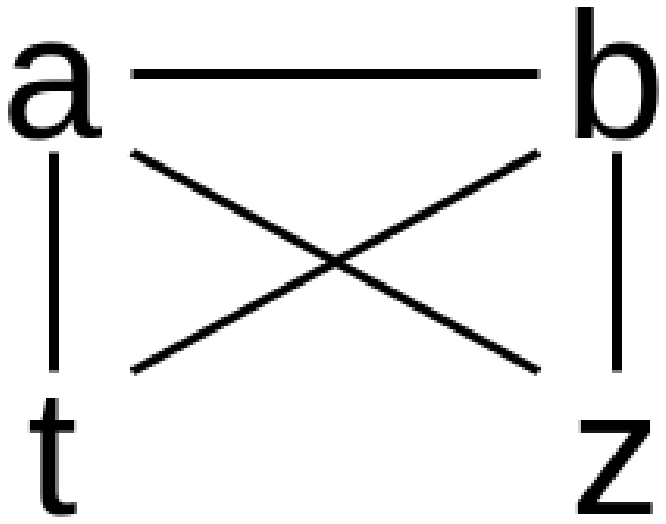
b)

	initial		iteration 1		iteration 2		iteration 3	
i	out[i]	in[i]	out[i]	in[i]	out[i]	in[i]	out[i]	in[i]
1			a, b	a, b	a, b	a, b	a, b	a, b
2			a, b	a, b	a, b	a, b	a, b	a, b
3			a, b	a, b	a, b	a, b	a, b	a, b
4			b, t	a, b	b, t	a, b	b, t	a, b
5			a, t	b, t	a, t	b, t	a, t	b, t
6			a, b	a, t	a, b	a, t	a, b	a, t
7			a, b	a, b	a, b	a, b	a, b	a, b
8			a, b, z	a, b	a, b, z	a, b	a, b, z	a, b
9			a, b, z	a, b, z	a, b, z	a, b, z	a, b, z	a, b, z
10			a	a, b, z	a, b	a, b, z	a, b	a, b, z
11			a	a	a	a	a	a
12				a		a		a

c)

i	kill[i]	out[i]	interferes with
1		a, b	a, b
2		a, b	a, b
3		a, b	a, b
4	t	b, t	b
5	a	a, t	t
6	b	a, b	a
7		a, b	a, b
8	z	a, b, z	a, b
9	b	a, b, z	a, z
10		a, b	a, b
11		a	a
12			

d)



Figur 1: Caption

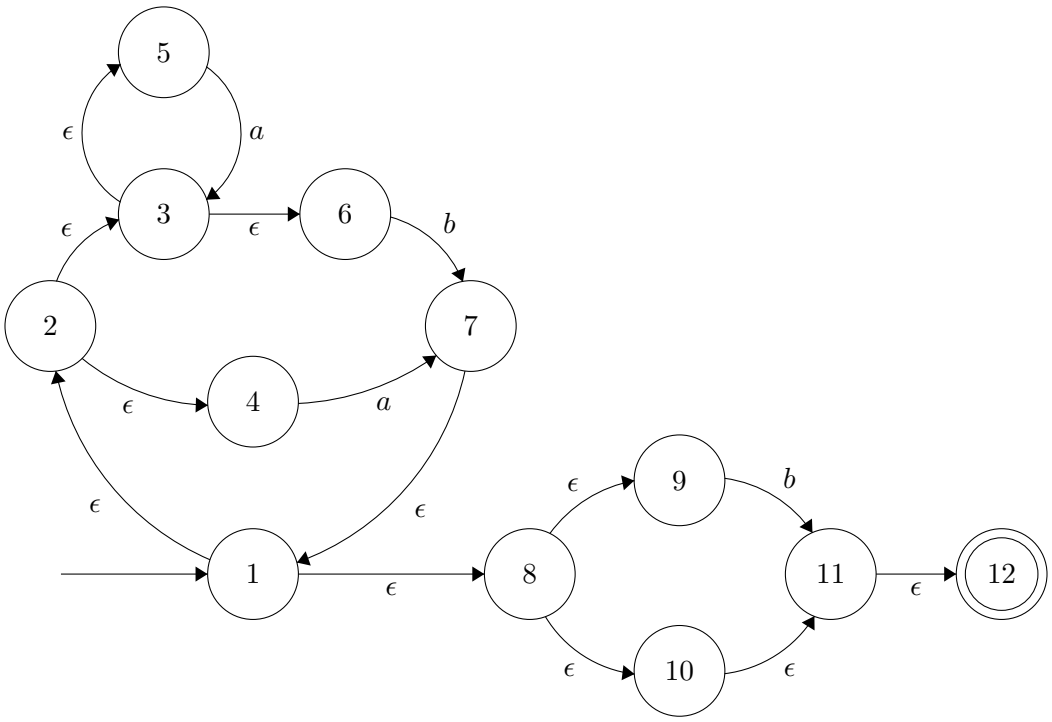
e)

node	neighbours	color
z		1
b	z	2
a	b, z	3
t	a, b	1

f)

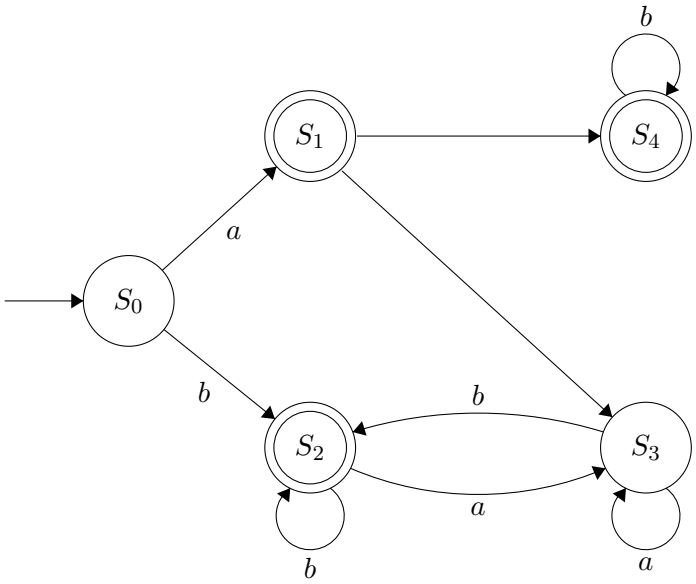
node	neighbours	color
z		1
b	z	2
a	b, z	spill
t	a, b	1

Task 3



Task 4

$\{1\}$		1, 2, 4, S_0		not accepting
$\{S_0$, a$\}$	$\epsilon\{3, 4\}$	3, 4, 6	S_1	accepting
$\{S_0$, b$\}$	$\epsilon\{5\}$	4, 5, 6	S_2	accepting
$\{S_1$, a$\}$	$\epsilon\{4\}$	4	S_3	not accepting
$\{S_1$, b$\}$	$\epsilon\{3, 5\}$	3, 4, 5, 6	S_4	accepting
$\{S_2$, a$\}$	$\epsilon\{4\}$	4	S_3	not accepting
$\{S_2$, b$\}$	$\epsilon\{3, 5\}$	4, 5, 6	S_2	accepting
$\{S_3$, a$\}$	$\epsilon\{4\}$	4	S_3	not accepting
$\{S_3$, b$\}$	$\epsilon\{5\}$	4, 5, 6	S_2	accepting
$\{S_4$, a$\}$	-	-	-	not accepting
$\{S_4$, b$\}$	$\epsilon\{3, 5\}$	3, 4, 5, 6	S_4	accepting


b
S_1
S_4
a
S_0
b
b
S_2
S_3
a
b
a