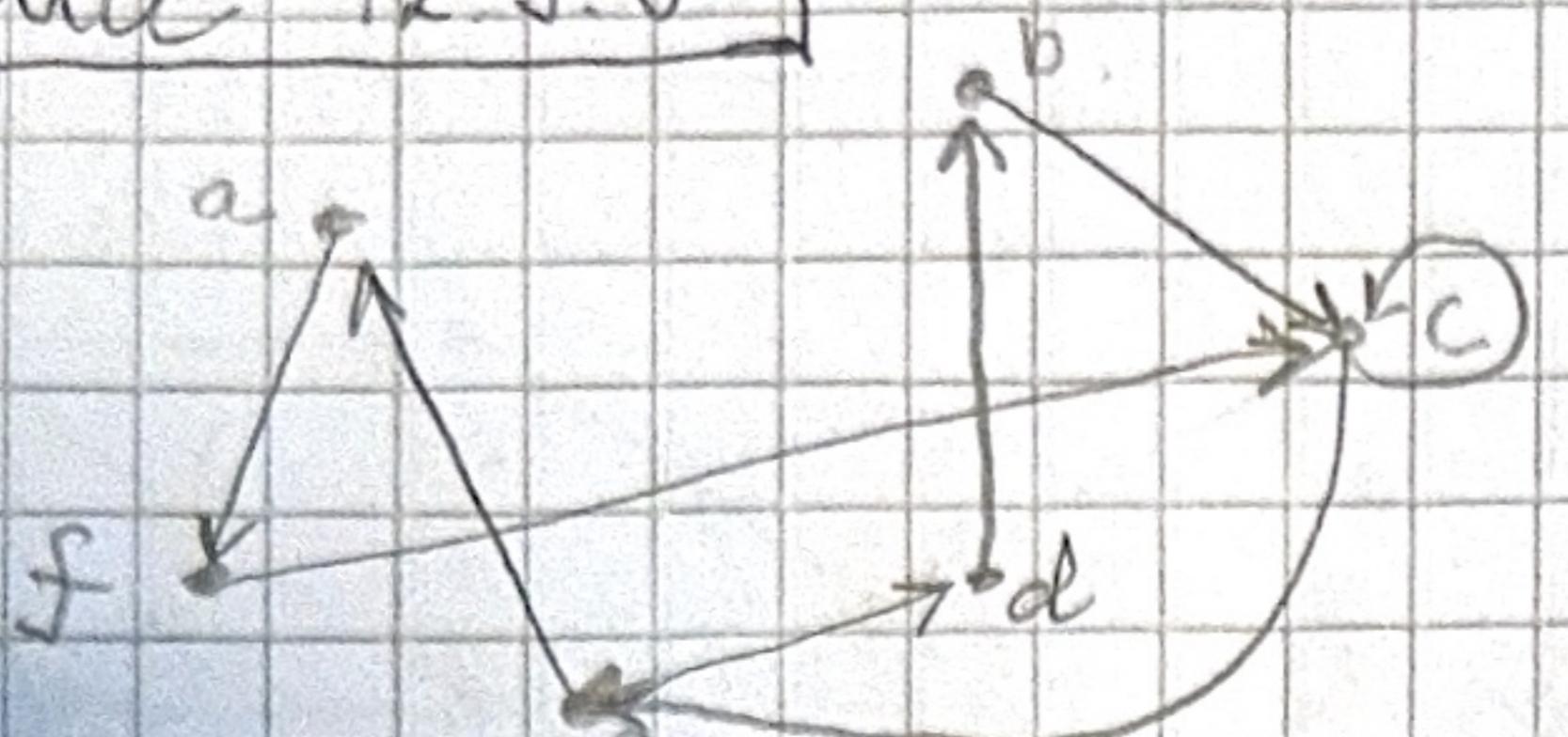


Oblig 12

Oppgave 12.3.3

a)



b)

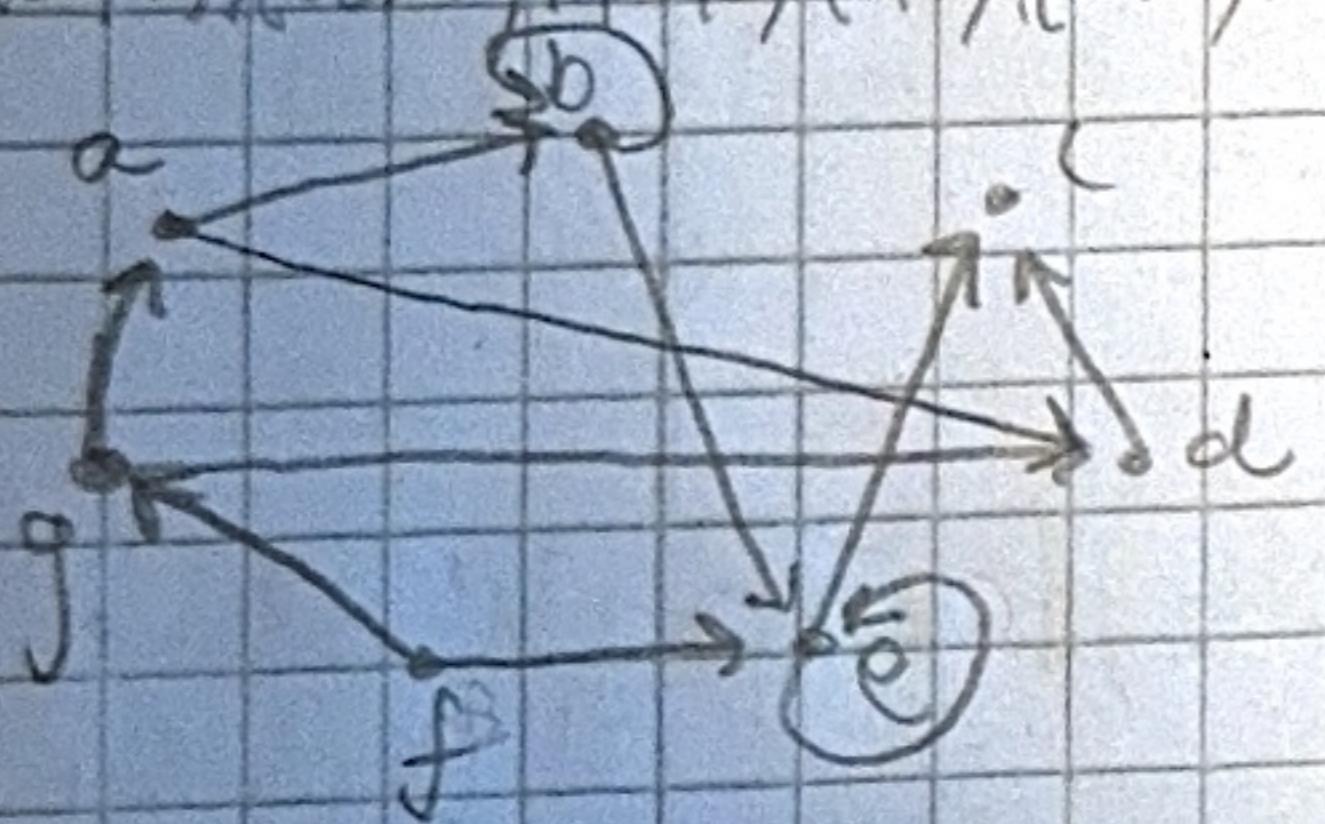
	a	b	c	d	e	f
a						1
b					1	
c					1	1
d				1		
e		1				1
f					1	

c)

- 1) af, ce, ea
- 2) bc, ce, db, b

Oppgave 12.3.4

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



Oppgave 12.3.10

$$a) M^{[2]} = \begin{bmatrix} 0 & 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$b) N^{[2]} = H^{[2]} \cdot H = \begin{bmatrix} 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$c) M^{[4]} = H^{[4]} \cdot H = \begin{bmatrix} 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$d) M^{[8]} = H^{[8]} \cdot N = \begin{bmatrix} 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

e) ↓

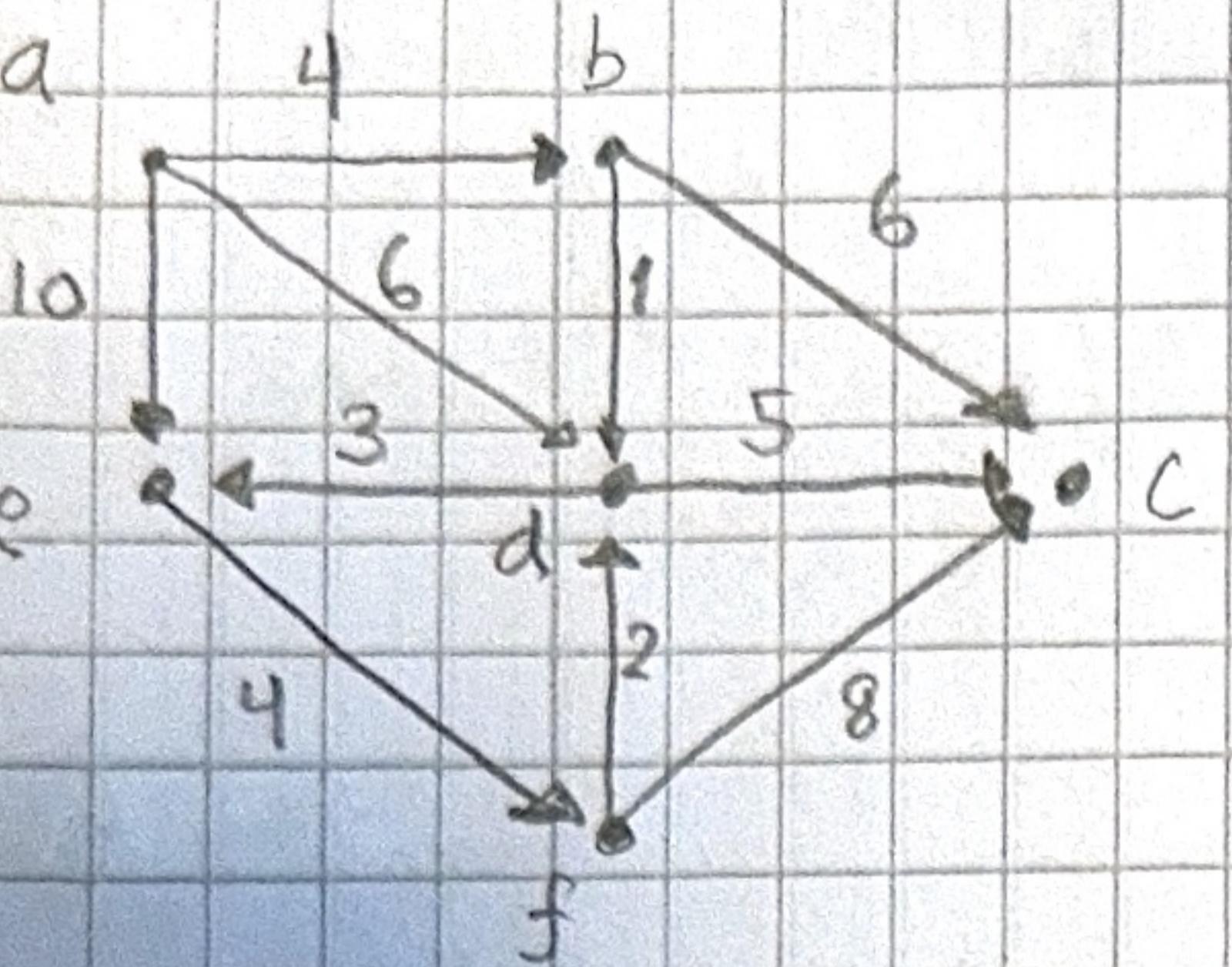
opgave 12.3.10 e

e) $M^{[1]} + M^{[2]} + M^{[3]} + M^{[4]} + M^{[5]}$

$$= \begin{bmatrix} 0 & 1 & 1 & 1 & 1 \\ 0 & 0 & 1 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

Oblig 12

Oppgave 12.3.11 a)



Noder/Vekt

a :	0,-
b :	4,a
c :	∞ , a 10,b
d :	6,a 5,b
e :	10,a 8,d
f :	∞ , a 12,e

$$\begin{aligned}
 S &= \{a\} \\
 S &= \{a, b\} \\
 S &= \{a, b, d\} \\
 S &= \{a, b, d, e\} \\
 S &= \{a, b, d, e, f\} \\
 S &= \{a, b, c, d, e, f\}
 \end{aligned}$$

at tille

Sjekk oppdatering:

$$S = \{a\}$$

$$b = [4, a], d = [6, a], e = [10, a], cf = [\infty, a]$$

$$S = \{b\}$$

Node d :

$$\hookrightarrow D(d) = 6$$

$$\hookrightarrow N_y : D(b) + W(b, d) = 4 + 1 = 5$$

→ oppdater d

Node c :

$$\hookrightarrow N_y : D(b) + W(b, c) = 4 + 6 = 10$$

→ oppdater

$$S = \{d\}$$

Node e :

$$\hookrightarrow D(e) = 10$$

$$\hookrightarrow N_y = 5 + 3 = 8$$

→ oppdater

Node c :

$$\hookrightarrow D(c) = 10$$

$$\hookrightarrow N_y = 5 + 5 = 10$$

→ ikke oppdater

$$S = \{e\}$$

Node f :

$$\hookrightarrow N_y : D(e) + W(e, f) = 8 + 4 = 12$$

→ oppdater

$$S = \{f\}$$

Node c :

$$\hookrightarrow D(c) = 10$$

$$\hookrightarrow N_y = 12 + 0 = 12$$

→ ikke oppdater

$N_2 \in N$)

$N_1 \rightarrow a$

Oblig 12

Oppgave 1)

$$N = \{s, t, u\} \quad T = \{0, 1\}$$

a) kontekstfri : Ja

- ↳ VS består av ett symbol fra N
- ↳ HS bruker stringer fra NUT
- ↳ N og T er endelige mengder og sen

Regular : Nei

- ↳ Prod. regel 2 følger ikke regelen(e) for en regular grammatiske

b) kontekstfri : Nei

- ↳ 2. prod. regel har element fra T i VS

Regular : Nei

- ↳ 2. prod. regel følger ikke regelen(e) ($w_1 \rightarrow a w_2$) (a ∈ Σ og $w_2 \in N$)

c) kontekstfri : Ja

- ↳ VS består av ett symbol fra N
- ↳ HS bruker stringer fra NUT (inkl. λ)
- Følger alle regler

Regular : Ja

- Følger enten regel 1: $w_1 \rightarrow \lambda$, 2: $w_1 \rightarrow a w_2$ eller 3: $w_1 \rightarrow a$

d) kontekstfri : T

- ↳ Følger regler som tidligere nevnt

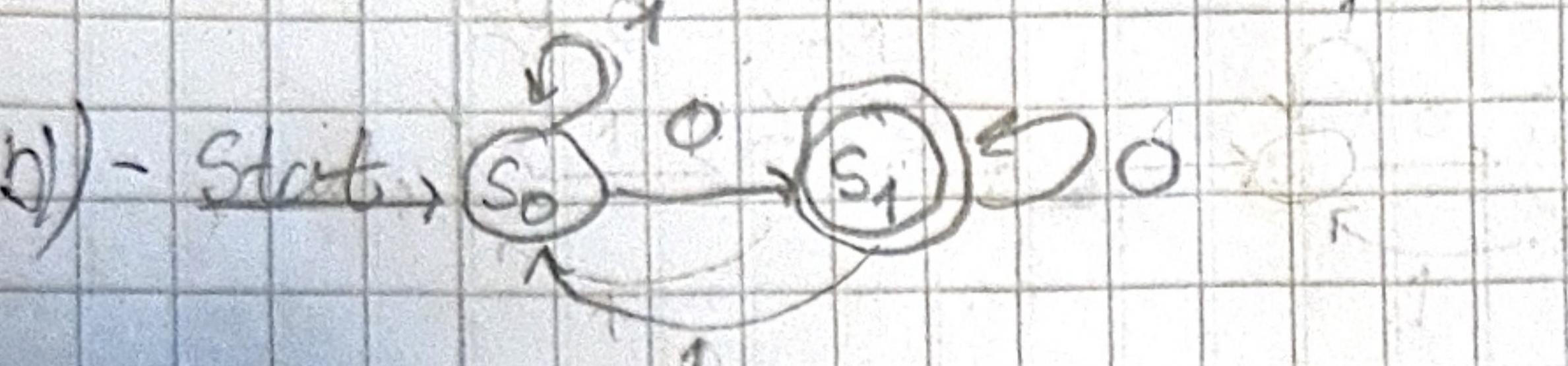
Regular : Nei

- ↳ 3. prod. regel følger ikke regelen $w_1 \rightarrow a w_2$ eller noen andre.

Oblig 12

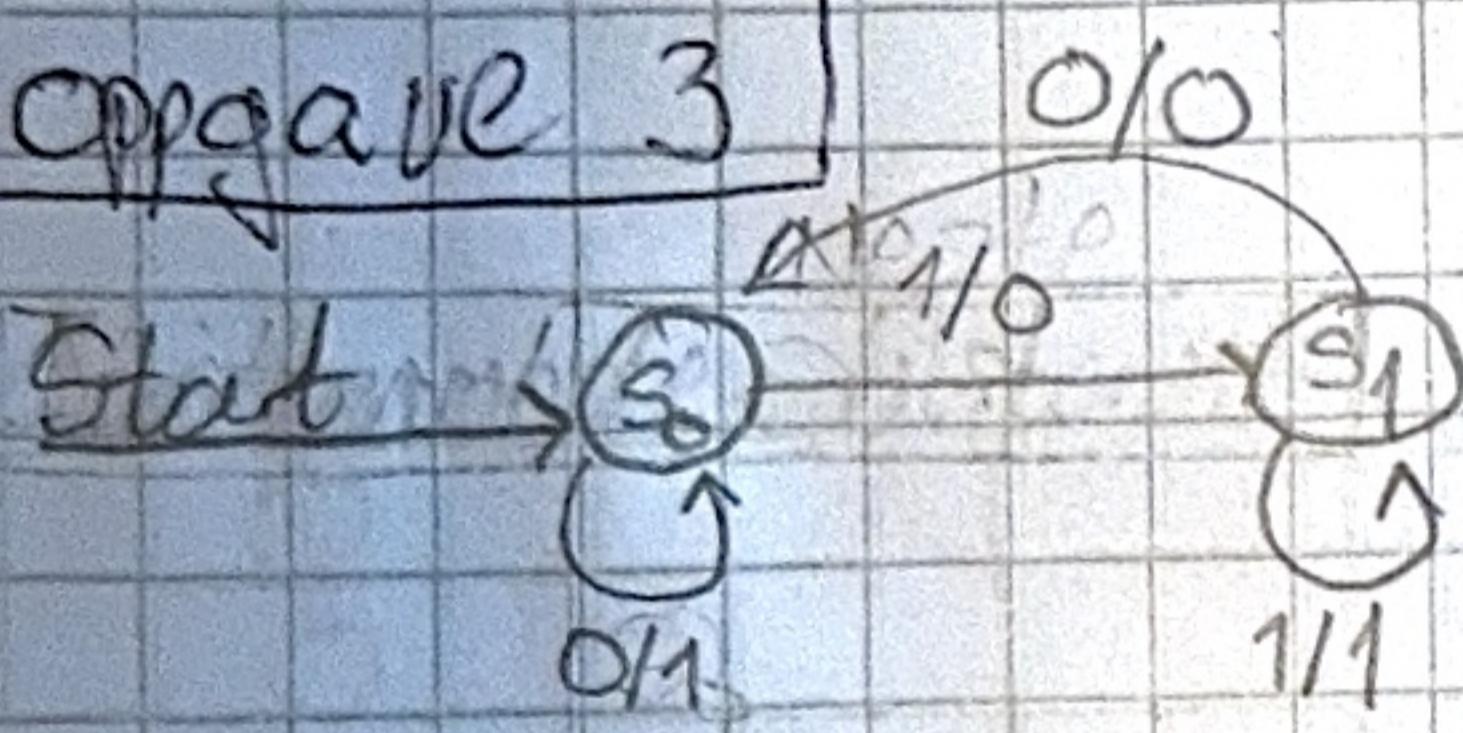
Oppgave 2)

$$a) \quad S \xrightarrow{\text{3}} IS \xrightarrow{\text{4}} 10t \xrightarrow{\text{5}} OS \xrightarrow{\text{6}} 1011S \xrightarrow{\text{7}} 10110t \xrightarrow{\text{8}} 101010$$



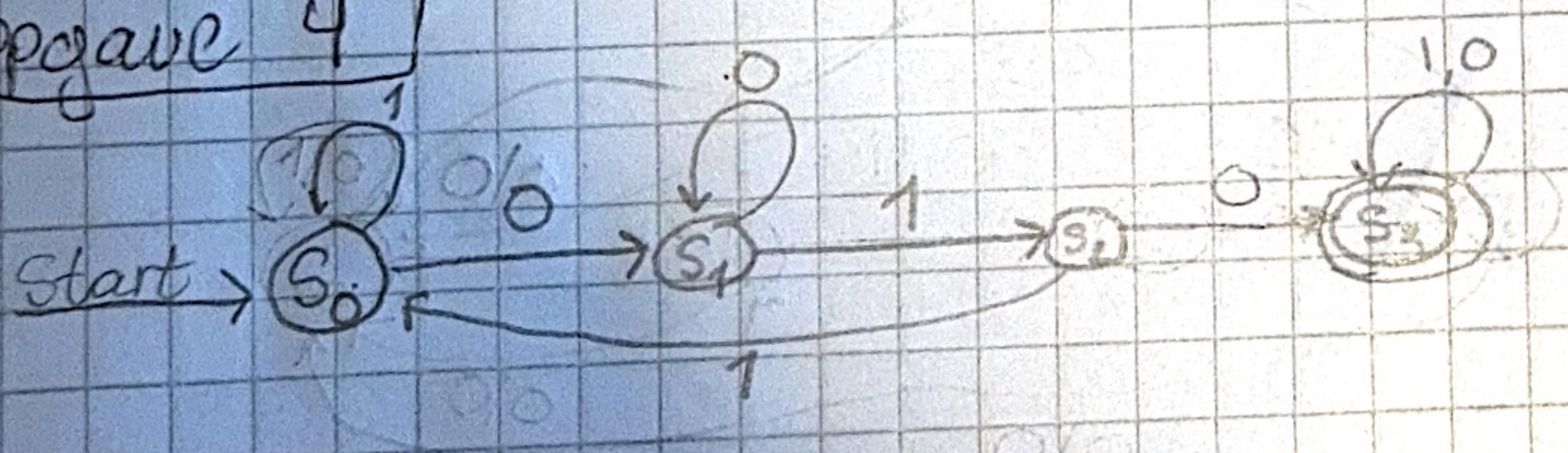
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Loppgave 3



Nestle U.S.A.

gave 4



opposite 5

a) $N = \{S_0, S_1, S_2, S_3\}$ $T = \{0, 1\}$, Prod regel: 2) $S_0 \rightarrow 1S_1$
 3) $S_1 \rightarrow 1S_1$

1) $S_0 \rightarrow O_{S_0}$	5) $S_3 \rightarrow 1s$
2) $S_0 \rightarrow 1s_1$	6) $S_2 \rightarrow O_s$
3) $S_1 \rightarrow 1s_1$	7) $S_3 \rightarrow 2s$
4) $S_1 \rightarrow O_{S_1}$	8) $S_3 \rightarrow 1s_1$

b) Strenge i): Denne eader i S3 og er dorført afslag på

Sånnig er det
Sånnig ii) Denne ender i s_2 og er derfor ikke akkord.