

Handwritten: *Handwritten: binary*

Handwritten: *mapping*

Handwritten:  $x_2 = s_1$   $x_1 = s_0$

2 vars *sh*

Nr	x2	x1	y
0	0	0	0
1	0	1	1
2	1	0	0
3	1	1	X

y:

	x2	x2'
x1	X	1
x1'		

Handwritten:  $\rightarrow s_1 = s_0$

3 vars

Nr	x3	x2	x1	y
0	0	0	0	
1	0	0	1	
2	0	1	0	
3	0	1	1	
4	1	0	0	
5	1	0	1	
6	1	1	0	
7	1	1	1	

y:

	x3		x3'
x2			
x2'			
	x1'	x1	x1'

4 vars

Nr	x4	x3	x2	x1	y
0	0	0	0	0	
1	0	0	0	1	
2	0	0	1	0	
3	0	0	1	1	
4	0	1	0	0	
5	0	1	0	1	
6	0	1	1	0	
7	0	1	1	1	
8	1	0	0	0	
9	1	0	0	1	
10	1	0	1	0	
11	1	0	1	1	
12	1	1	0	0	
13	1	1	0	1	
14	1	1	1	0	
15	1	1	1	1	

y:

	x4		x4'	
x3				x1'
				x1
x3'				x1'
	x2'	x2	x2'	



Nfächfregterw 30  
binär

mapping  $x_2 = s_1$   $x_1 = s_0$

2 vars

Nr	x2	x1	y
0	0	0	1
1	0	1	0
2	1	0	0
3	1	1	X

y:

	x2	x2'
x1	X	
x1'		1

—  $x_2' x_1'$

$$\rightarrow s_0' = s_1 s_0$$

3 vars

Nr	x3	x2	x1	y
0	0	0	0	
1	0	0	1	
2	0	1	0	
3	0	1	1	
4	1	0	0	
5	1	0	1	
6	1	1	0	
7	1	1	1	

y:

	x3		x3'
x2			
x2'			
	x1'	x1	x1'

4 vars

Nr	x4	x3	x2	x1	y
0	0	0	0	0	
1	0	0	0	1	
2	0	0	1	0	
3	0	0	1	1	
4	0	1	0	0	
5	0	1	0	1	
6	0	1	1	0	
7	0	1	1	1	
8	1	0	0	0	
9	1	0	0	1	
10	1	0	1	0	
11	1	0	1	1	
12	1	1	0	0	
13	1	1	0	1	
14	1	1	1	0	
15	1	1	1	1	

y:

	x4		x4'	
x3				x1'
				x1
x3'				x1'
	x2'	x2	x2'	



2. find frequency of  
binary

y

mapping  $x_2 = s_1$ ,  $x_1 = s_0$

2 vars

Nr	x2	x1	y
0	0	0	1
1	0	1	0
2	1	0	0
3	1	1	X

y:

	x2	x2'
x1	X	
x1'		1

→  $x_2'x_1$

→  $y = !s_1!s_0$

3 vars

Nr	x3	x2	x1	y
0	0	0	0	
1	0	0	1	
2	0	1	0	
3	0	1	1	
4	1	0	0	
5	1	0	1	
6	1	1	0	
7	1	1	1	

y:

	x3		x3'
x2			
x2'			
	x1'	x1	x1'

4 vars

Nr	x4	x3	x2	x1	y
0	0	0	0	0	
1	0	0	0	1	
2	0	0	1	0	
3	0	0	1	1	
4	0	1	0	0	
5	0	1	0	1	
6	0	1	1	0	
7	0	1	1	1	
8	1	0	0	0	
9	1	0	0	1	
10	1	0	1	0	
11	1	0	1	1	
12	1	1	0	0	
13	1	1	0	1	
14	1	1	1	0	
15	1	1	1	1	

y:

	x4		x4'	
x3				x1'
				x1
x3'				x1'
	x2'	x2	x2'	



nfach frequenztable  
one-hot

$S'_2$

2 vars

Nr	x2	x1	y
0	0	0	
1	0	1	
2	1	0	
3	1	1	

y:

	x2	x2'
x1		
x1'		

mapping  $x3 = S_2$ ,  $x2 = S_1$ ,  $x1 = S_0$

3 vars

Nr	x3	x2	x1	y
0	0	0	0	X
1	0	0	1	0
2	0	1	0	1
3	0	1	1	X
4	1	0	0	0
5	1	0	1	X
6	1	1	0	X
7	1	1	1	X

y:

	x3		x3'	
x2	X	X	X	1
x2'	0	X	0	X
	x1'	x1		x1'

$\rightarrow x2$

$\rightarrow S'_2 = S_1$

4 vars

Nr	x4	x3	x2	x1	y
0	0	0	0	0	
1	0	0	0	1	
2	0	0	1	0	
3	0	0	1	1	
4	0	1	0	0	
5	0	1	0	1	
6	0	1	1	0	
7	0	1	1	1	
8	1	0	0	0	
9	1	0	0	1	
10	1	0	1	0	
11	1	0	1	1	
12	1	1	0	0	
13	1	1	0	1	
14	1	1	1	0	
15	1	1	1	1	

y:

	x4		x4'	
x3				x1'
				x1
x3'				x1'
	x2'	x2		x2'



n fact frequently  
one-hot

$S_1$

2 vars

Nr	x2	x1	y
0	0	0	
1	0	1	
2	1	0	
3	1	1	

y:

	x2	x2'
x1		
x1'		

mapping  $x_3 = s_2$ ,  $x_2 = s_1$ ,  $x_1 = s_0$

3 vars

Nr	x3	x2	x1	y
0	0	0	0	X
1	0	0	1	1
2	0	1	0	0
3	0	1	1	X
4	1	0	0	0
5	1	0	1	X
6	1	1	0	X
7	1	1	1	X

y:

	x3		x3'
x2	X	X	X
x2'	0	X	1
	x1'	x1	x1'

$\rightarrow s'_1 = s_0, s_0$

4 vars

Nr	x4	x3	x2	x1	y
0	0	0	0	0	
1	0	0	0	1	
2	0	0	1	0	
3	0	0	1	1	
4	0	1	0	0	
5	0	1	0	1	
6	0	1	1	0	
7	0	1	1	1	
8	1	0	0	0	
9	1	0	0	1	
10	1	0	1	0	
11	1	0	1	1	
12	1	1	0	0	
13	1	1	0	1	
14	1	1	1	0	
15	1	1	1	1	

y:

	x4		x4'
x3			
	x2'	x2	x2'



Infach frequenzkriter  
one-hot

S<sub>0</sub>

2 vars

Nr	x2	x1	y
0	0	0	
1	0	1	
2	1	0	
3	1	1	

y:

	x2	x2'
x1		
x1'		

mupprv- )  $x_3 = s_2$ ,  $x_2 = s_1$ ,  $x_1 = s_0$

3 vars

Nr	x3	x2	x1	y
0	0	0	0	X
1	0	0	1	0
2	0	1	0	0
3	0	1	1	X
4	1	0	0	1
5	1	0	1	X
6	1	1	0	X
7	1	1	1	X

y:

	x3		x3'	
x2	X	X	X	0
x2'	1	X	0	X
	x1'	x1		x1'

→ x<sub>3</sub>

S<sub>0</sub> = s<sub>2</sub>

4 vars

Nr	x4	x3	x2	x1	y
0	0	0	0	0	
1	0	0	0	1	
2	0	0	1	0	
3	0	0	1	1	
4	0	1	0	0	
5	0	1	0	1	
6	0	1	1	0	
7	0	1	1	1	
8	1	0	0	0	
9	1	0	0	1	
10	1	0	1	0	
11	1	0	1	1	
12	1	1	0	0	
13	1	1	0	1	
14	1	1	1	0	
15	1	1	1	1	

y:

	x4		x4'	
x3				x1'
				x1
x3'				x1'
	x2'	x2	x2'	



n hoch frequenz level  
one-hot

y

2 vars

Nr	x2	x1	y
0	0	0	
1	0	1	
2	1	0	
3	1	1	

y:

	x2	x2'
x1		
x1'		

mapping:  $x_3 = s_2$ ,  $x_2 = s_1$ ,  $x_1 = s_0$

3 vars

Nr	x3	x2	x1	y
0	0	0	0	X
1	0	0	1	1
2	0	1	0	0
3	0	1	1	X
4	1	0	0	0
5	1	0	1	X
6	1	1	0	X
7	1	1	1	X

y:

	x3		x3'
x2	X	X	0
x2'	0	X	1
	x1'	x1	x1'

X 1

$\Rightarrow y = s_0$

4 vars

Nr	x4	x3	x2	x1	y
0	0	0	0	0	
1	0	0	0	1	
2	0	0	1	0	
3	0	0	1	1	
4	0	1	0	0	
5	0	1	0	1	
6	0	1	1	0	
7	0	1	1	1	
8	1	0	0	0	
9	1	0	0	1	
10	1	0	1	0	
11	1	0	1	1	
12	1	1	0	0	
13	1	1	0	1	
14	1	1	1	0	
15	1	1	1	1	

y:

	x4		x4'
x3			
x3'			
	x2'	x2	x2'

x1'  
x1  
x1'