Waiting Queue

Zeit 0   10   20   30   40   50   60   70

K1: 1 | 4 | 6 | 9 | 12 | 14
K2: 2 | 5 | 7 | 11 | 13
K3: 3 | 8 | 10

On the Post Correspondence Problem

x_0 x_1

y_0 y_1

x_0 | x_0 | x_0 | x_0 | x_0 | x_1 | x_1 | x_1

y_0 | y_0 | y_0 | y_0 | y_0 | y_1 | y_1 | y_1

On the Halting Problem

Hält nicht

M'

M

σ_1 σ_2 $\cdots$ σ_n

q_{ja}

Triangulation of a Triangle

Q

$\triangle(Q,R,T)$

$\triangle(T,R,Q)$

T

$\triangle(P,Q,R)$

R

P

$\triangle(P,T,R)$

1

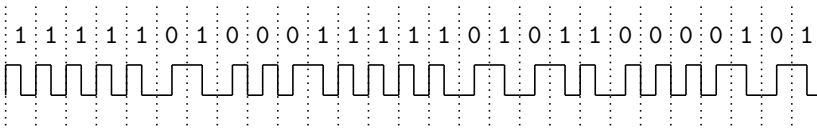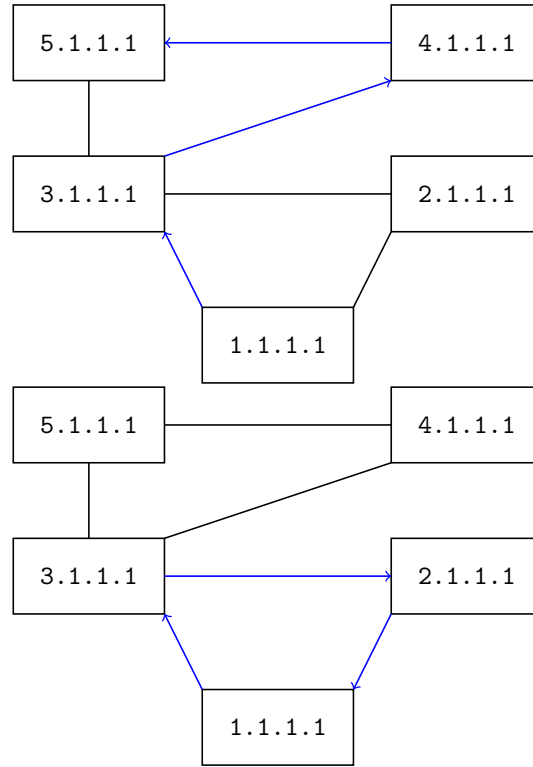## Matrices

$$C = \left(\begin{array}{ccc|ccc|ccc}
a_{11} & \cdots & * & * & \cdots & * & & & \\
\vdots & \ddots & \vdots & \vdots & & \vdots & & & \\
0 & \cdots & a_{rr} & * & \cdots & * & & \text{\Large 0} & \\
\hline
0 & \cdots & 0 & 0 & \cdots & 0 & & & \\
\vdots & & \vdots & \vdots & & \vdots & & & \\
0 & \cdots & 0 & 0 & \cdots & 0 & & & \\
\hline
 & & & & & & b_{11} & \cdots & * \\
 & \text{\Large 0} & & & & & \vdots & \ddots & \vdots \\
 & & & & & & 0 & \cdots & b_{ss} \\
\end{array} \right)$$

$$C' = \left(\begin{array}{cccccc|ccc}
a_{11} & \cdots & \cdots & \cdots & \cdots & * & * & \cdots & * \\
\vdots & \ddots & & & & \vdots & \vdots & & \vdots \\
\vdots & & a_{rr} & & & \vdots & \vdots & & \vdots \\
\vdots & & & b_{11} & & \vdots & \vdots & & \vdots \\
\vdots & & & & \ddots & \vdots & \vdots & & \vdots \\
0 & \cdots & \cdots & \cdots & \cdots & b_{ss} & * & \cdots & * \\
\hline
0 & \cdots & \cdots & \cdots & \cdots & 0 & 0 & \cdots & 0 \\
\vdots & & & & & \vdots & \vdots & & \vdots \\
0 & \cdots & \cdots & \cdots & \cdots & 0 & 0 & \cdots & 0 \\
\end{array} \right)$$

Manchester Encoding

1 1 1 1 1 0 1 0 0 0 1 1 1 1 1 0 1 0 1 1 0 0 0 0 1 0 1

Network Package Routing

```
┌───────────┐          ┌───────────┐
│  5.1.1.1  │ ◄─────── │  4.1.1.1  │
└───────────┘          └───────────┘

┌───────────┐          ┌───────────┐
│  3.1.1.1  │ ──────── │  2.1.1.1  │
└───────────┘          └───────────┘

        ┌───────────┐
        │  1.1.1.1  │
        └───────────┘
```

```
┌───────────┐          ┌───────────┐
│  5.1.1.1  │ ──────── │  4.1.1.1  │
└───────────┘          └───────────┘

┌───────────┐          ┌───────────┐
│  3.1.1.1  │ ───────► │  2.1.1.1  │
└───────────┘          └───────────┘

        ┌───────────┐
        │  1.1.1.1  │
        └───────────┘
```

Swapping Algorithm Description
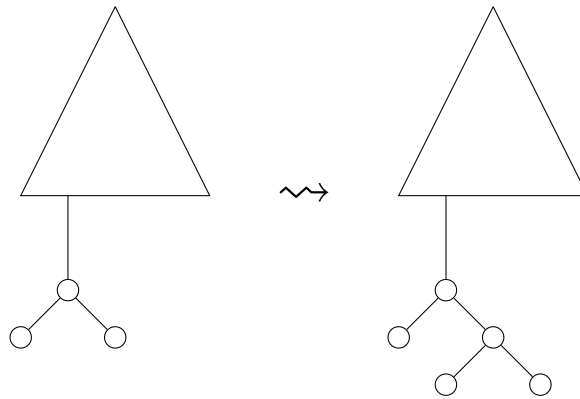

Algorithm 1 Swapping values

1: **procedure** SWAP(a, b)
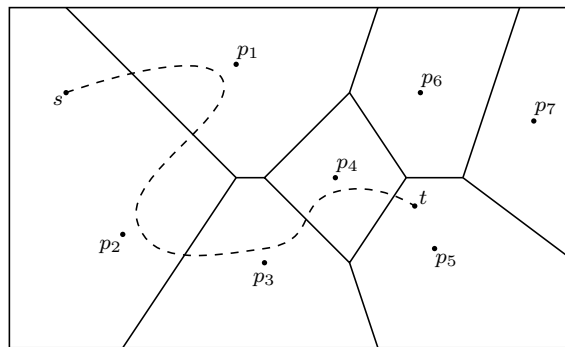2: $t \leftarrow a$
3:     $a \leftarrow b$
4:     $b \leftarrow t$

Binary Trees

Skip List

$h = 6$ $\quad$ 8

$h = 5$ $\quad$ 8

$h = 4$ $\quad$ 5 8

$h = 3$ $\quad$ 5 6 8

$h = 2$ $\quad$ 3 5 6 8

$h = 1$ $\quad$ 1 3 5 6 8 9 10
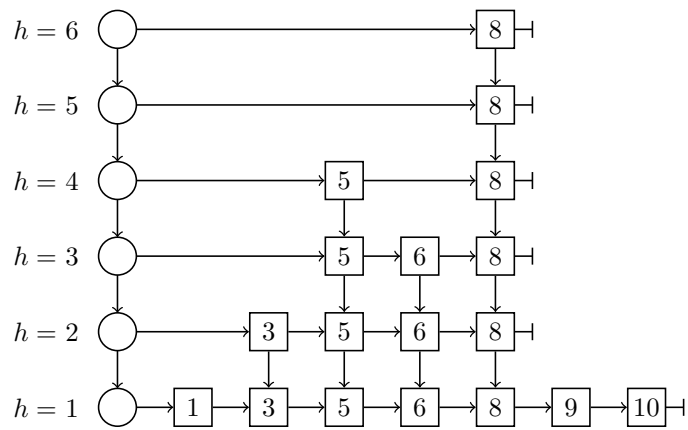
Countinuous First Neighbors

s p_1 p_6 p_7 p_4 t p_2 p_5 p_3

4

Rotation in der Ebene

$$\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ 0 \end{pmatrix} + \begin{pmatrix} 0 \\ y \end{pmatrix} \mapsto \begin{pmatrix} \cos(\psi) \cdot x - \sin(\psi) \cdot y \\ \sin(\psi) \cdot x + \cos(\psi) \cdot y \end{pmatrix}$$

$(0,1)$

$-\sin\phi$

$\cos\phi$

1

$\sin\phi$

1

ψ

ψ

$\cos\phi$

$(1,0)$