

Grundlagen

Hobby-Kurven

Ergebnis:



Grundlagen

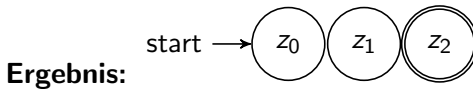
Styles für gesamtes TikZpicture

Ergebnis:



Automaten

Zustände



Automaten

Positionierung

TikZ-Code:

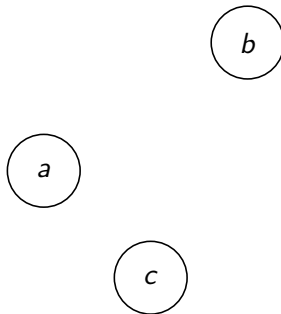
```
\usetikzlibrary{
    automata,
    arrows,
    positioning}
% ...
\begin{tikzpicture}[->,
    >=stealth',
    semithick,
    node distance=2cm]

    \node [state] (a)                                {$a$};
    \node [state] (b) [above right=1cm and 2cm of a] {$b$};
    \node [state] (c) [below right of = a]            {$c$};
\end{tikzpicture}
```

Automaten

Positionierung

Ergebnis:



Automaten

Pfeile

TikZ-Code:

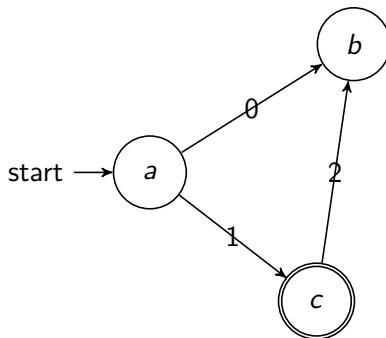
```
\begin{tikzpicture}[->,
  >=stealth',
  semithick,
  node distance=2cm]

\node [state,initial]    (a)           {$a$};
\node [state]            (b)           {$b$};
  [above right=1cm and 2cm of a]
\node [state,accepting] (c)           {$c$};
  [below right = 1cm and 1.5cm of a]

\path (a) edge node {0} (b)
      (a) edge node {1} (c)
      (c) edge node {2} (b);
\end{tikzpicture}
```

Automaten

Pfeile



Ergebnis:

Automaten

Pfeile

TikZ-Code:

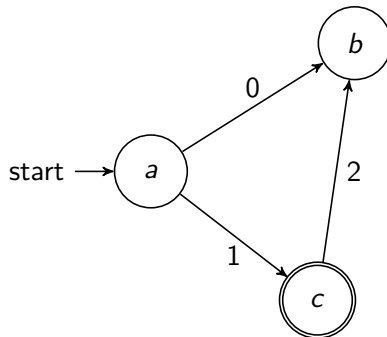
```
\begin{tikzpicture}[->,
  >=stealth',
  semithick,
  node distance=2cm]

\node [state,initial]    (a)           {$a$};
\node [state]            (b)           {$b$};
  [above right=1cm and 2cm of a]
\node [state,accepting] (c)           {$c$};
  [below right = 1cm and 1.5cm of a]

\path (a) edge[above] node {0} (b)
        edge[below] node {1} (c)
        (c) edge[right] node {2} (b);
\end{tikzpicture}
```

Automaten

Pfeile



Ergebnis:

Automaten

Pfeile

TikZ-Code:

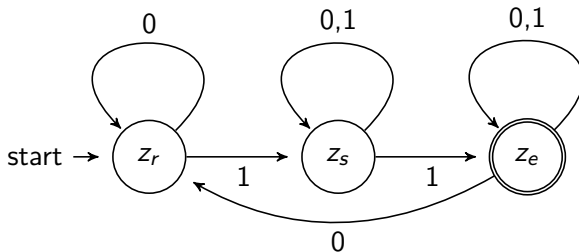
```
\begin{tikzpicture}[->,>=stealth',
  shorten >=5pt,
  node distance=2.5cm,
  semithick]

\node[initial,state] (R) ($z_r$);
\node[state] (S) [right of=R] ($z_s$);
\node[state,accepting] (E) [right of=S] ($z_e$);

\path (R) edge [loop,above] node {0} (R)
      edge [below] node {1} (S)
      (S) edge [loop,above] node {0,1} (S)
      edge [below] node {1} (E)
      (E) edge [bend left,below] node {0} (R)
      edge [loop,above] node {0,1} (E);
\end{tikzpicture}
```

Automaten

Pfeile



Ergebnis:

Funktionen Zeichnen

TikZ

```
\usepackage{pgf}
% ...
\begin{tikzpicture}[>=latex,semithick,font=\scriptsize,scale=0.75]
  \draw[very thin,color=lightgray] (-3.2,-1.2) grid (3.2,4.2);
  \draw[->] (-3.2,0) -- (3.4,0) node[right] {$x$};
  \draw[->] (0,-1.2) -- (0,4.4) node[above] {$y$};

  \foreach \x/\xtext in {-3/-3, -2/-2, -1/-1, 1/1, 2/2, 3/3}
  \draw[shift={(\x,0)}] (0pt,2pt) -- (0pt,-2pt) node[below] {$\xtext$};

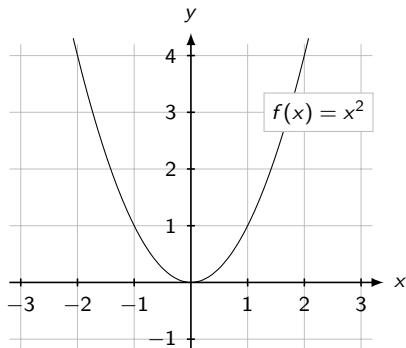
  \foreach \y/\ytext in {-1/-1, 1/1, 2/2, 3/3, 4/4}
  \draw[shift={(0,\y)}] (2pt,0pt) -- (-2pt,0pt) node[left] {$\ytext$};

  \draw[thin,domain=-2.075:2.075,smooth,variable=\x,black]
    plot ({\x},{\x*\x});
  \draw[thin] node[inner sep=1mm,
    fill=white,
    draw=lightgray] at (2.25,3) {$f(x)=x^2$};
  \draw[thin] node[inner sep=1mm,
    fill=white,
    draw=lightgray] at (2.25,3) {$f(x)=x^2$};
```

Funktionen Zeichnen

TikZ

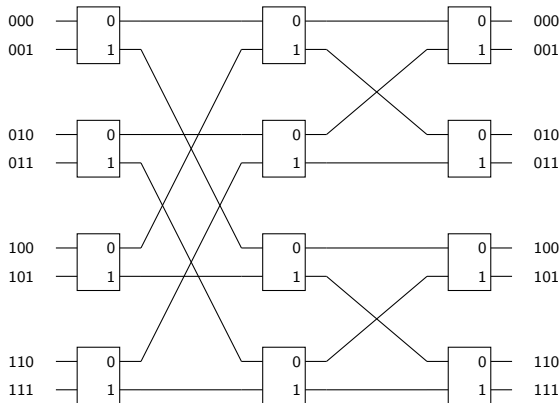
Ergebnis:



Alternative: Gnuplot lässt sich vielfältig mit L^AT_EX kombinieren

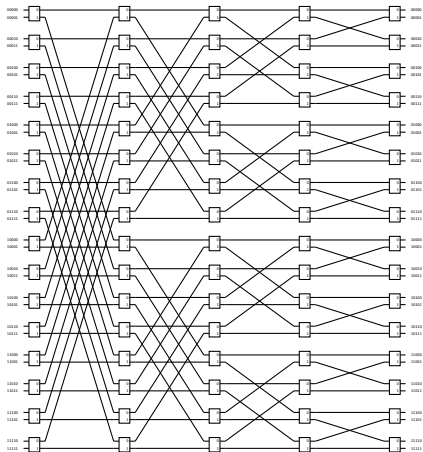
TikZ an die Grenzen getrieben

Banyan-Netz (3 Stufen)



TikZ an die Grenzen getrieben

Banyan-Netz (5 Stufen)



TikZ an die Grenzen getrieben

BEWARE

Das Kompilieren dieses Dokumentes dauert auf einem 4 GHz-Quad Core knapp eine halbe Minute!

Versionsverwaltung

make & latexmk

Beispiel für Makefile:

```
.PHONY: default all clean
```

```
default: all
```

```
all: Abgabe.pdf
```

```
%.pdf: %.tex
```

```
latexmk -pdf $<
```

```
clean:
```

```
latexmk -C
```