

# MPCP zur Turingmaschine $M$ mit Eingabe 1011

## 1. Anfangskonfiguration

$$(\#, \#z_0 1011\#)$$

## 2. Kopierregeln

$$\begin{aligned} &(0, 0) \\ &(1, 1) \\ &(\square, \square) \\ &(\#, \#) \end{aligned}$$

## 3. Löseregeln

$$\begin{aligned} &(0 z_E, z_E), (z_E 0, z_E) \\ &(1 z_E, z_E), (z_E 1, z_E) \\ &(\square z_E, z_E), (z_E \square, z_E) \end{aligned}$$

## 4. Abschluß

$$(z_E \#\#, \#)$$

## 5. $\delta$ -regeln

$$\delta(z_0, 0) = (z_0, 0, R) \Rightarrow (z_0 0, 0 z_0)$$

$$\delta(z_0, 1) = (z_0, 1, R) \Rightarrow (z_0 1, 1 z_0)$$

$$\begin{aligned} \delta(z_0, \square) = (z_1, \square, L) \Rightarrow &(0 z_0 \square, z_1 0 \square), (0 z_0 \#, z_1 0 \#), \\ &(1 z_0 \square, z_1 1 \square), (1 z_0 \#, z_1 1 \#), \\ &(\square z_0 \square, z_1 \square \square), (\square z_0 \#, z_1 \square \#) \\ &(\# z_0 \square, \# z_1 \square), (\# z_0 \#, \# z_1 \square \#), \end{aligned}$$

$$\begin{aligned} \delta(z_1, 0) = (z_2, 1, L) \Rightarrow &(0 z_1 0, z_2 01), \\ &(1 z_1 0, z_2 11), \\ &(\square z_1 0, z_2 \square 1), \\ &(\# z_1 0, \# z_2 \square 1) \end{aligned}$$

$$\delta(z_1, 1) = (z_1, 0, L) \Rightarrow \begin{aligned} &(0 z_1 1, z_1 00), \\ &(1 z_1 1, z_1 10), \\ &(\square z_1 1, z_1 \square 0), \\ &(\# z_1 1, \#z_1 \square 0) \end{aligned}$$

$$\delta(z_1, \square) = (z_E, 1, N) \Rightarrow \begin{aligned} &(z_1 \square, z_E 1), \\ &(z_1 \#, z_E 1\#) \end{aligned}$$

$$\delta(z_2, 0) = (z_2, 0, L) \Rightarrow \begin{aligned} &(0 z_2 0, z_2 00), \\ &(1 z_2 0, z_2 10), \\ &(\square z_2 0, z_2 \square 0), \\ &(\# z_2 0, \#z_2 \square 0) \end{aligned}$$

$$\delta(z_2, 1) = (z_2, 1, L) \Rightarrow \begin{aligned} &(0 z_2 1, z_2 01), \\ &(1 z_2 1, z_2 11), \\ &(\square z_2 1, z_2 \square 1), \\ &(\# z_2 1, \#z_2 \square 1) \end{aligned}$$

$$\delta(z_2, \square) = (z_E, \square, R) \Rightarrow (z_2 \square, \square z_E), (z_2 \#, \square z_E \#)$$