

$$f: \Sigma^* \rightarrow \Sigma^*$$

A B

1) f é calculável

2) $\forall w \in \Sigma^* \quad w \in A \iff f(w) \in B$

PROBLEMA DE CORRESPONDÊNCIA DE POST (PCP)

	A	B	
w_1	1	111	s_4
w_2	10111	10	s_2
w_3	10	0	s_3
$\vdots$			$\vdots$

$$\exists i_1, i_2, \dots, i_n \quad n \geq 0$$

$$w_{i_1} \cdot w_{i_2} \cdot \dots \cdot w_{i_n} =$$

$$s_{i_1} \cdot s_{i_2} \cdot \dots \cdot s_{i_n}$$

2, 1, 1, 3

$$w \Rightarrow 101111110$$

$$s \Rightarrow 101111110$$

$$L_w \leq \text{PCP} \leq \text{PCP}$$

$$L_w \xrightarrow{f} \text{PCP} \xrightarrow{g} \text{PCP}$$

$$g \circ f$$

$$g(f(w))$$

$L_u \longrightarrow \text{MPCP}$

$(M, w) \longrightarrow (A, B)$

$\# a_1 \# a_2 \# a_3 \# \dots$

$a_1 \vdash_n a_2$

$w \rightsquigarrow \# a_1 \# a_2$

$s \rightsquigarrow \# a_1 \# a_2 \# a_3$

A

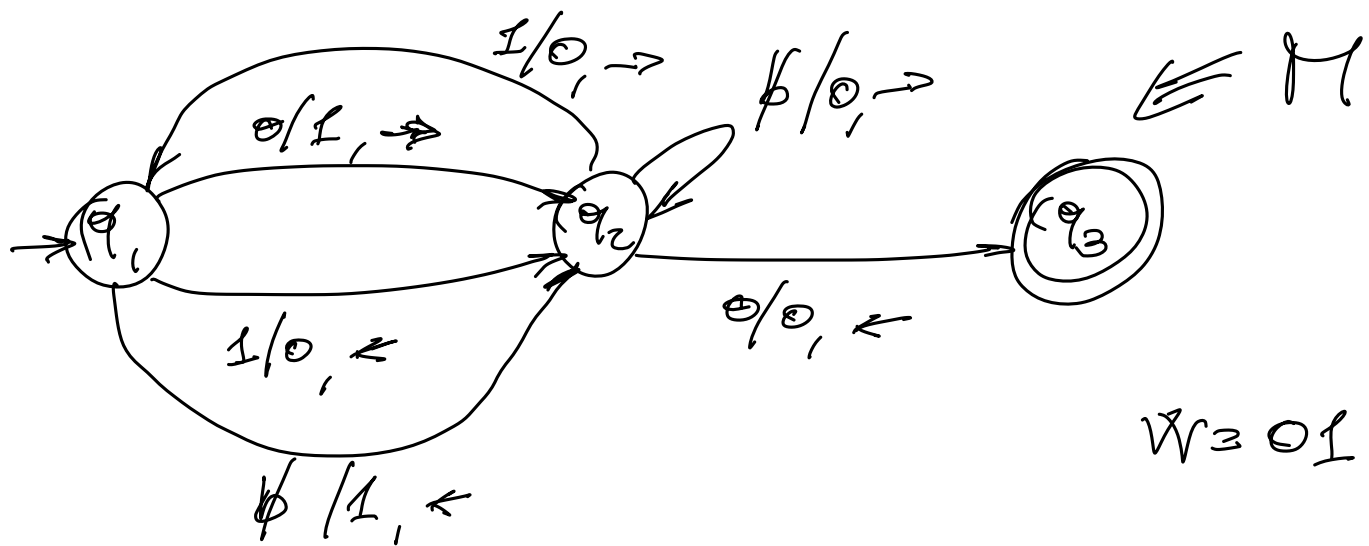
B

1)	$\#$	$\# q_0 w_1 \dots w_m \#$
2)	X	$X \quad \forall X \in \Gamma$
	$\#$	$\#$

3)	qX	Yp	$\delta(q, X) = (p, Y, \rightarrow)$
	$\exists qX$	$p \exists Y$	$\delta(q, X) = (p, Y, \rightarrow)$
$[q \in Q, F]$	$q\#$	$Yp\#$	$\delta(q, \#) = (p, Y, \rightarrow)$
	$\exists q\#$	$p \exists Y\#$	$\delta(q, \#) = (p, Y, \leftarrow)$

4)	XqY	q
$[q \in F]$	Xq	q
	qY	q

5)	$q\#\#$	$\#$
$[q \in F]$		



$q_1 01 \vdash 1q_2 1 \vdash 10q_1 \vdash 1q_2 01 \vdash q_3 101$

A	B
#	# $q_1 01$ #
0	0
1	1
$\emptyset$	$\emptyset$
#	#
$q_1 0$	$1q_2$
$0q_1 1$	$q_2 00$
$1q_1 1$	$q_2 10$
$q_2 1$	$0q_1$

$A \rightsquigarrow \# q_1 01 \# 1q_2 1 \# \dots \# q_3 \# \#$

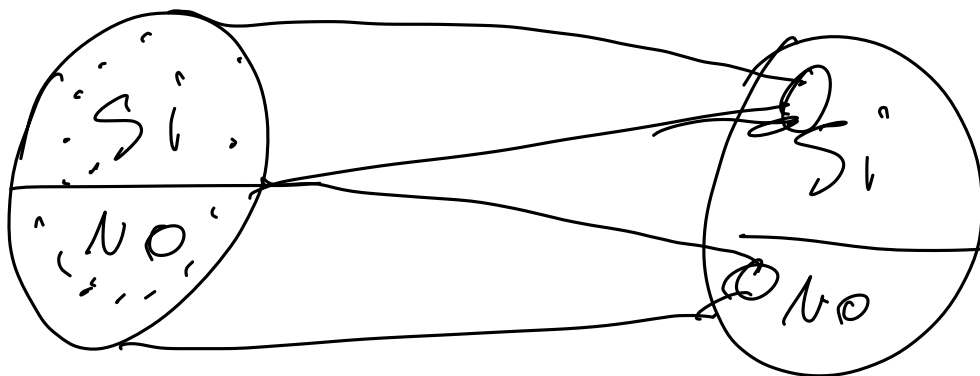
$B \rightsquigarrow \# q_1 01 \# 1q_2 1 \# 10q_1 \# \dots \# q_3 \# \#$

$L_u \leq \text{PCP}$

$$MPCP \leq PCP$$

$$(A, B) \rightsquigarrow (C, D)$$

A	B		C	D
1	111	0	* 1 *	* 1 * 1 * 1
10111	10	1	1 *	* 1 * 1 * 1
10	0	2	1 * 0 * 1 * 1 * 1 *	* 1 * 0
τ_i	δ_i	3	1 * 0 *	* 0
		4	\$	* \$
			α_i	β_i



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$1 \bar{u}_2 \bar{u}_3 \dots \bar{u}_m$

$\tau_1 \tau_{i_2} \tau_{i_3} \dots \tau_{i_m} = \delta_1 \delta_{i_2} \delta_{i_3} \dots \delta_{i_m}$

$\underbrace{* \alpha_1 \alpha_{i_2} \alpha_{i_3} \dots \alpha_{i_m}}_{\alpha_0} \underbrace{\beta_1 \beta_{i_2} \beta_{i_3} \dots \beta_{i_m}}_{\beta_0} \underbrace{* \beta_1 \beta_{i_2} \beta_{i_3} \dots \beta_{i_m}}_{\beta_{k+1}}$