

On #-rewriting systems with pure pushdowns

Jiří Kučera (#102)

Demonstration (#-rewriting system with pure pushdowns of index 3):

$(p, \text{aaa}\#\text{bbb}\#\text{ccc}\#\text{ddd}\$AaBbCD)$

is rewritten by

$p_2\# \dashrightarrow qd$

to

$(q, \text{aaa}\#\text{bbb}d\text{ccc}\#\text{ddd}\$AaBbCD)$

and by

$q\# \dashleftarrow qA$

to

$(q, \text{aaa}\#\text{bbbdccc}\#\text{ddd}\#\$aBbCD)$

Result - Infinite hierarchy of languages ($k \geq 1$):

$$\begin{array}{ccc} L(ST, k) & \subset & L(ST, k+1) \\ \parallel & & \parallel \\ L(\#RS_{p_D}, k) & \subset & L(\#RS_{p_D}, k+1) \\ \cup & & \cup \\ L(\#RS, k) & \subset & L(\#RS, k+1) \\ \parallel & & \parallel \\ L(PG, k) & \subset & L(PG, k+1) \end{array}$$