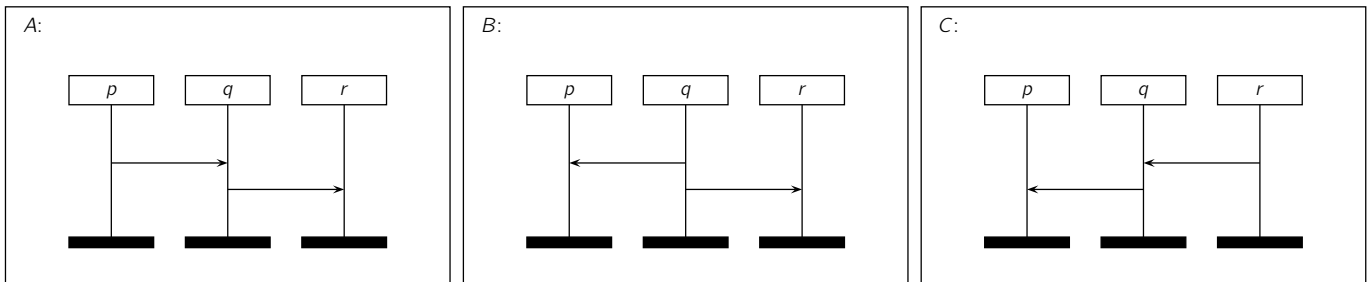


– Assignment 8 –

Exercise 1

(3 points)



Check whether the following regular expressions are realisable or not:

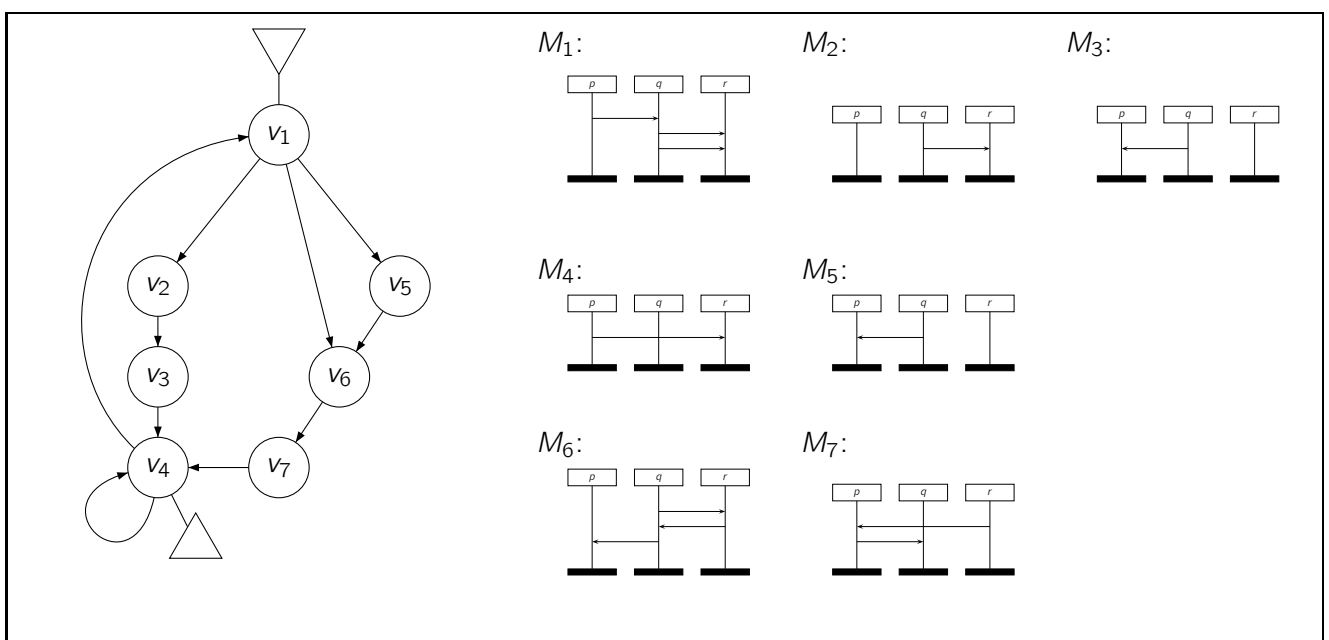
- $\alpha_1 = A^* + B^* + C^*$,
- $\alpha_2 = A \cdot (B + C)^*$,
- $\alpha_3 = (A \cdot B \cdot C)^*$,
- $\alpha_4 = (A \cdot B)^*$,
- $\alpha_5 = (A \cdot C)^*$,

and if so, whether they can be realized by a universally or existentially bounded CFM?

Exercise 2

(4 points)

Given the following local-choice MSG \mathcal{G} over $\mathcal{P} = \{p, q, r\}$, where $\lambda(v_i) = M_i$ (for $i \in \{1, \dots, 7\}$):



Construct a deadlock-free CFM A according to the algorithm presented in Lecture 14.

Exercise 3

(3 points)

Prove the following Remarks from the Lecture 12 slides p.27:

- Each set of MSCs defined by an MSG \mathcal{G} is finitely generated.
- Not every regular well-formed language is finitely generated.
- Not every finitely generated set of MSCs is regular.

*We wish you a merry Christmas and a
Happy New Year!*