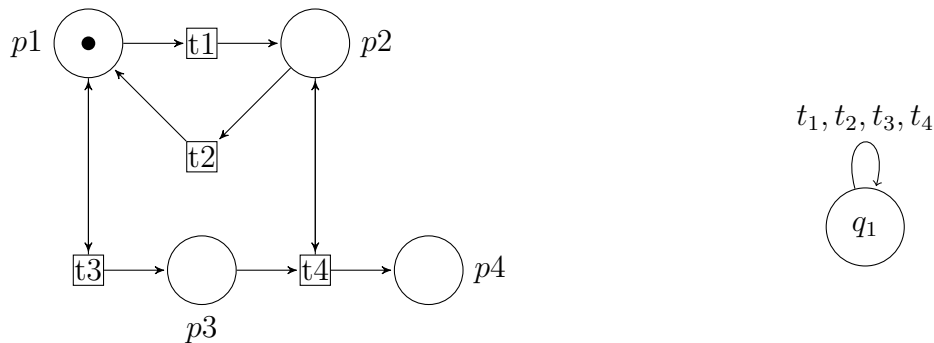Out: November 28

Due: December 09

Submit your solutions until Monday, December 09, during the lecture. You may submit in groups up to three persons.

Exercise 1: Coverability

Consider the following Petri net N and graph G

1. Construct the coverability graph $\mathcal{G} \in \mathrm{CG}(N, M_0, G, q_1)$ using the algorithm seen in the lecture.

2. Show that the coverability graph need not be unique, use a different initial marking and or graph if necessary.

Exercise 2

Recall the definition of $\leqslant_\omega$ over the generalised markings. Prove the following.

- That $\leqslant_\omega$ is a partial order.

- That $\leqslant_\omega$ is monotonic. That is given generalized markings M, M', M'' with $M \leqslant_\omega M'$, prove that $M + M'' \leqslant_\omega M' + M''$.

Exercise 3: Precovering graphs

Recall the definition of a precovering graph from the lecture, prove that any strongly connected sub-graph of a precovering graphs is also a precovering graph.