Tutorial 11

1. Find a family of processes for which the intersection of all finite approximants (i.e., ω-level of approximation) is not a fixed point of F.
2. Prove that if processes P and Q satisfy the condition that they and all their descendants have finite branching over every letter Σ then the approximants stabilize at ω-level.
3. Show that $P \approx Q \;\Leftrightarrow\; P = Q \vee P = \tau.Q \vee \tau.P = Q$.
4. Prove that $P = Q$ if and only if for every process R it hold that $P+R \approx Q+R$, given the assumption that there exists an action l such that both P and Q do not have l-descendants.
5. Show that for deterministic processes strong bisimulation equivalence is the same as the language equality relation (we assume that all states are accepting in the transition graph).
6. How to modify the definition of strong bisimulation equivalence to allow any set of accepting states in the previous problem?

Homework (not mandatory)

1. Prove that strong bisimulation equivalence allows for the nondeterministic automata minimization.