COMP235 : Logic and Computation

Supplementary notes on the subset method for converting an NFSA to a DFSA

Many presentations of NFSA's do not allow the empty word to be an edge label. In the subset method as presented in the lectures, this is allowed (and it is important in other places too). So the version of the subset method covered in the booklet does not allow empty word labels.

Given an NFSA M, here is how to modify the subset method for obtaining a DFSA $\delta(M)$ (as presented in the booklet) in case λ appears as an edge label in M.

- the starting state consists of the original starting states plus any other states reachable from one of these by a path consisting entirely of edges labelled λ

- given a state S in the new DFSA (which is a subset of states from M), the edge in $\delta(M)$ starting at S and labelled $x \in X$ goes to a state consisting of all states in M reachable from a state in S by a path consisting of edges exactly one of which is labelled x with all others labelled λ