Theoretical homework #1, TTTV 2017

By: Deborah Lambregts (11318643) & Bram Otten (10992456)
Group: G
TA: Douwe van der Wal
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(a) c, e
(b) b, d, e
(c) a, c, e

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(1) [A-z| ]*
(2) [a-z| ]*b
(4) (ab|ba)*
(6) (([A-z ]*[G( g)]rotto[. ][A-z ]*) ([A-z ]*[R( r)]aven[. ][A-z ]*)|
    ([A-z ]*[R( r)]aven[. ][A-z ]*)([A-z ]*[G( g)]rotto[. ][A-z ]*))
```

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(a) i
(b) Make q0 a final state.
(c)
Q = {q0, q1, q2}
F = {q0, q2}
$\delta = \{(< q0, 0 >, q0), (< q0, 1 >, q1), (< q1, 0 >, q1), (< q1, 1 >, q2), (< q2, 0 >, q2), (< q2, 1 >, q0)\}$

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(1) [A-z]*p[A-z ]t[A-z]*
(2) \w*ap(.t[rh].*|th.*)
(3) [br]?aff?g.* ?[hk].*
(4) .*[a-z)]+[.?!]['"")]? [A-Z].* % zou moeten kloppen, die site is er niet blij mee
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(2.8) (aba?)+
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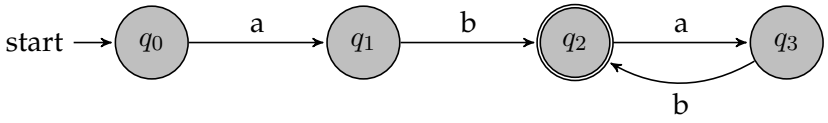
(a) The NSFA in the book is non-deterministic because in state q1, if b, there are two ways to go. Namely q2 and q3. Partial mathematical notation: $\delta = \{(< q1, b >, q2), (< q1, b >, q3)\}$
(b)



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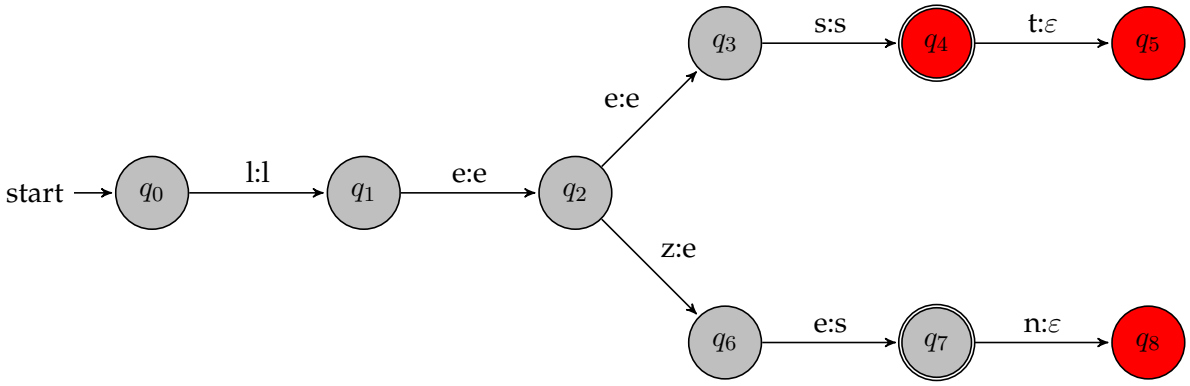

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Stemming is a way to bring a word back to the stem or root of that word by removing the suffixes. E.g. friend: friends (plural -s), frienship (-ship), friendships (-friend & plural -s).
Three stemming rules that seem appropriate for Dutch:
1) -heid $\rightarrow \varepsilon$
2) -heden $\rightarrow$ -heid
3) -ing $\rightarrow \varepsilon$
Errors will occur when, for example:
1) 'Afscheid' $\rightarrow$ afsc-heid. This is wrong. So when a 'c' is in front of the 'heid', it should be handled different. This is caused by the Dutch use of '(s)ch'.
2) 'Heden' is a noun in Dutch. So the word 'heden' could be transformed into 'heid', which is wrong. The word 'heden' alone should not be changed at all.
3) Words ending at -ing will be transformed falsly. E.g. 'ring' and 'ding'.