

Echivalenta dintre expresiile regulate si limbajele acceptate de AF

Teorema:

Daca r este o expresie regulara, atunci exista un AF care accepta multimea secventelor reprezentate de aceasta expresie (multimea regulara). Si reciproc.

- Echivalenta:
 - constructia automatului echivalent pentru fiecare dintre constructiile de mai sus (nu vom face dem.)
 - constructia expresiei regulate ce descrie limbajul acceptat de un automat (nu vom face dem.)
- (→ ~ curs 13)

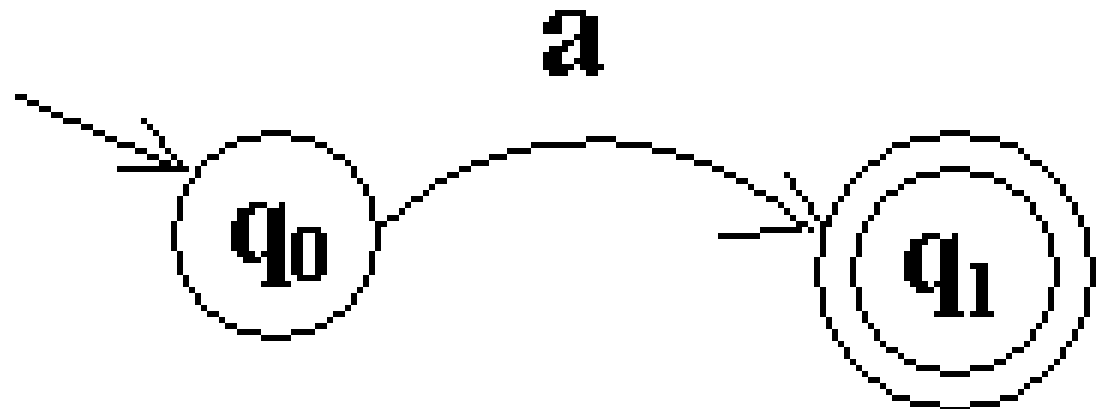
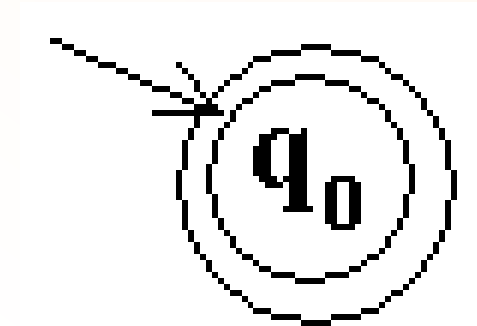
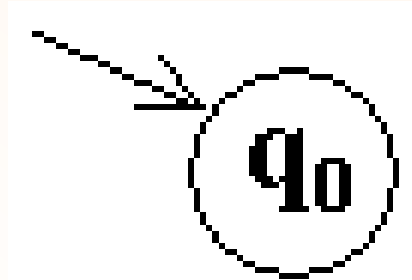
Expresie regulara

=> limbaj acceptat de AF

- Expresii regulate
 - \emptyset
 - ε
 - a daca: $a \in \Sigma$
 - $r+s$ daca r,s – expresii regulate
 - rs daca r,s – expresii regulate
 - r^* daca r – expresie regulara
- Constructia automatului echivalent
pentru fiecare dintre constructiile de mai sus

Expresie regulara=> limbaj acceptat de AF

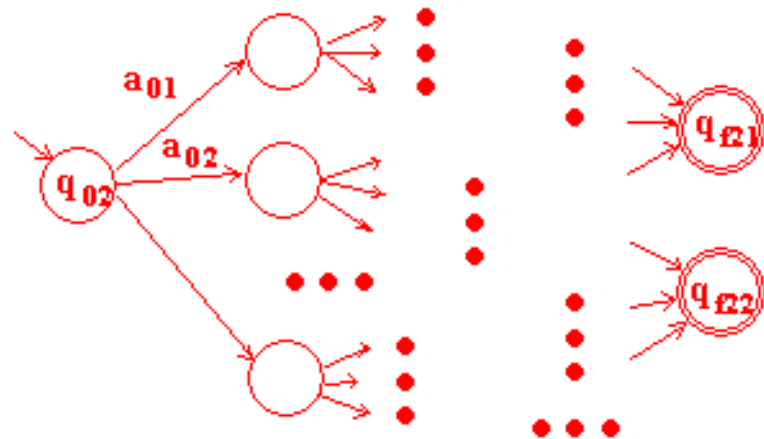
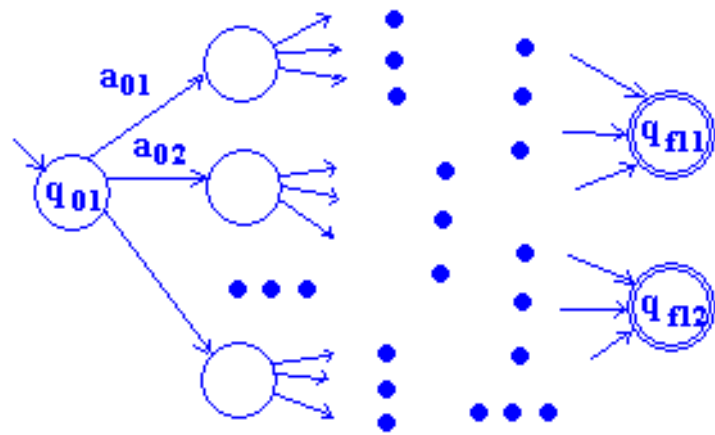
- Automatul ce accepta: Φ
- Automatul ce accepta: ε
- Automatul ce accepta: a (daca: $a \in \Sigma$)



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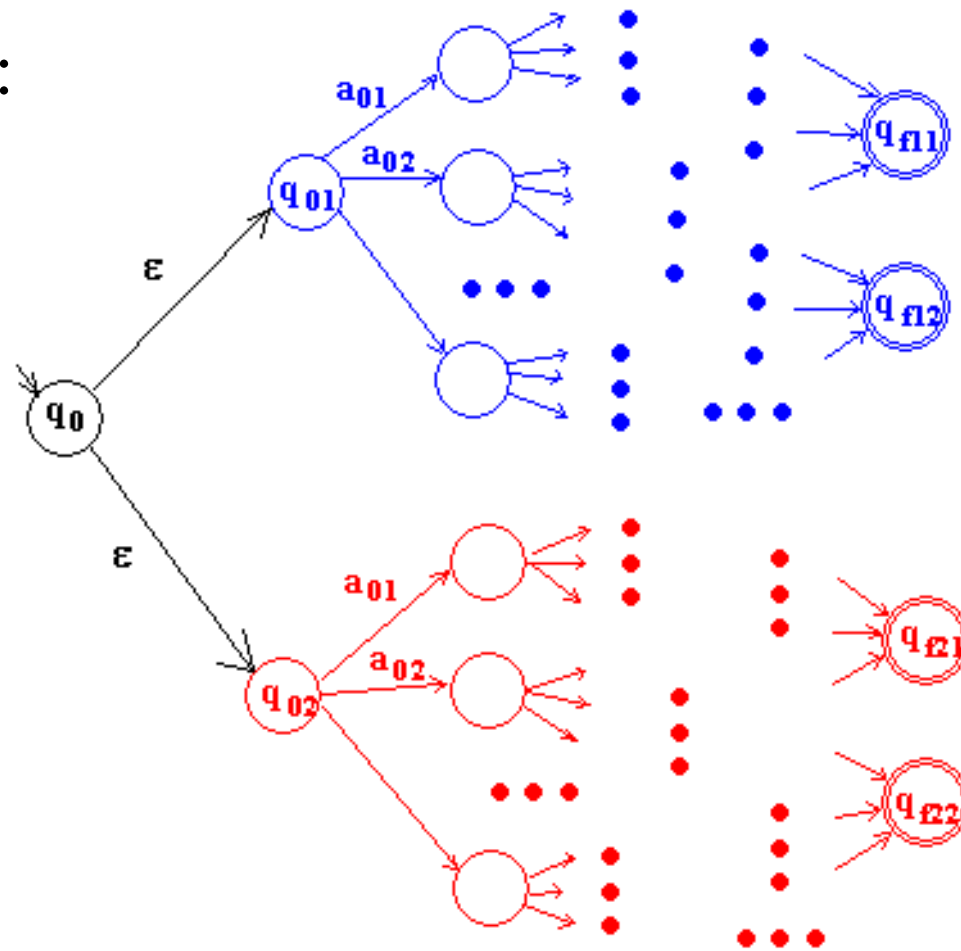
- Automatul ce accepta reuniunea limbajelor acceptate de doua automate date

– se dau:





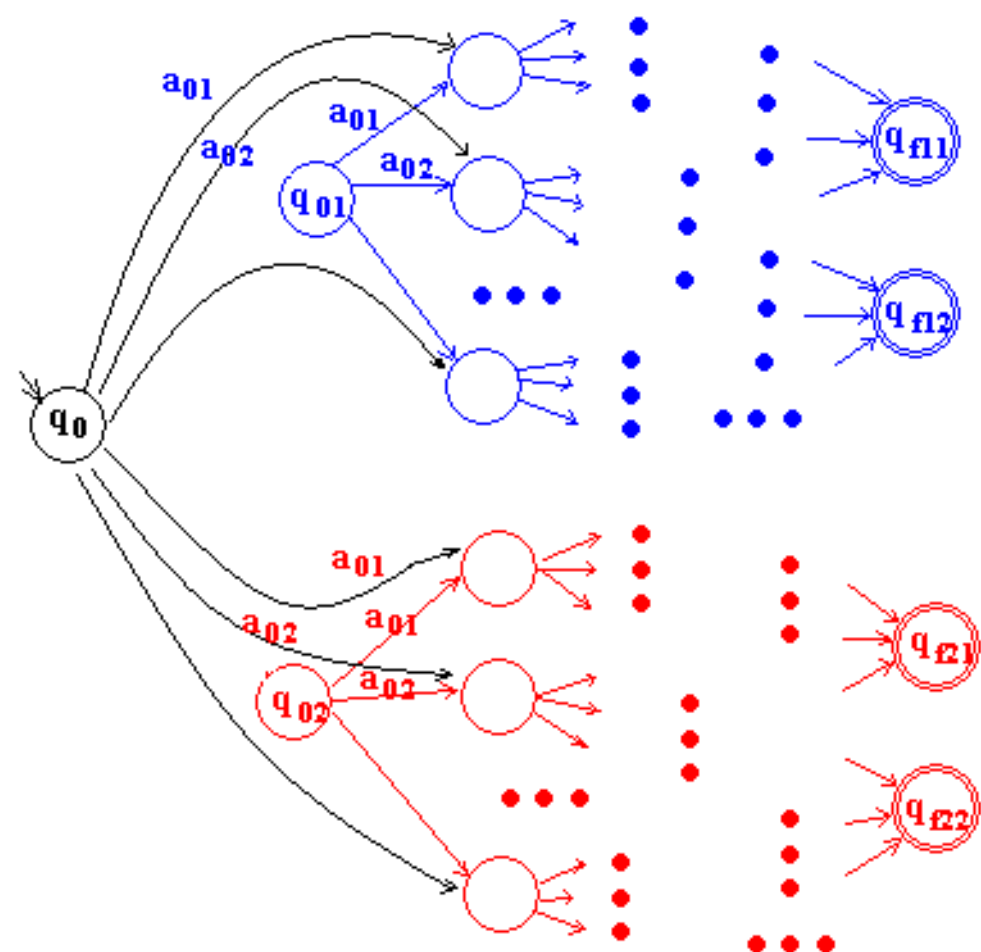
- Automatul ce accepta reuniunea limbajelor acceptate de doua automate date
 - AF cu ϵ tranz.:





- Automatul ce accepta reuniunea limbajelor acceptate de doua automate date

– AF

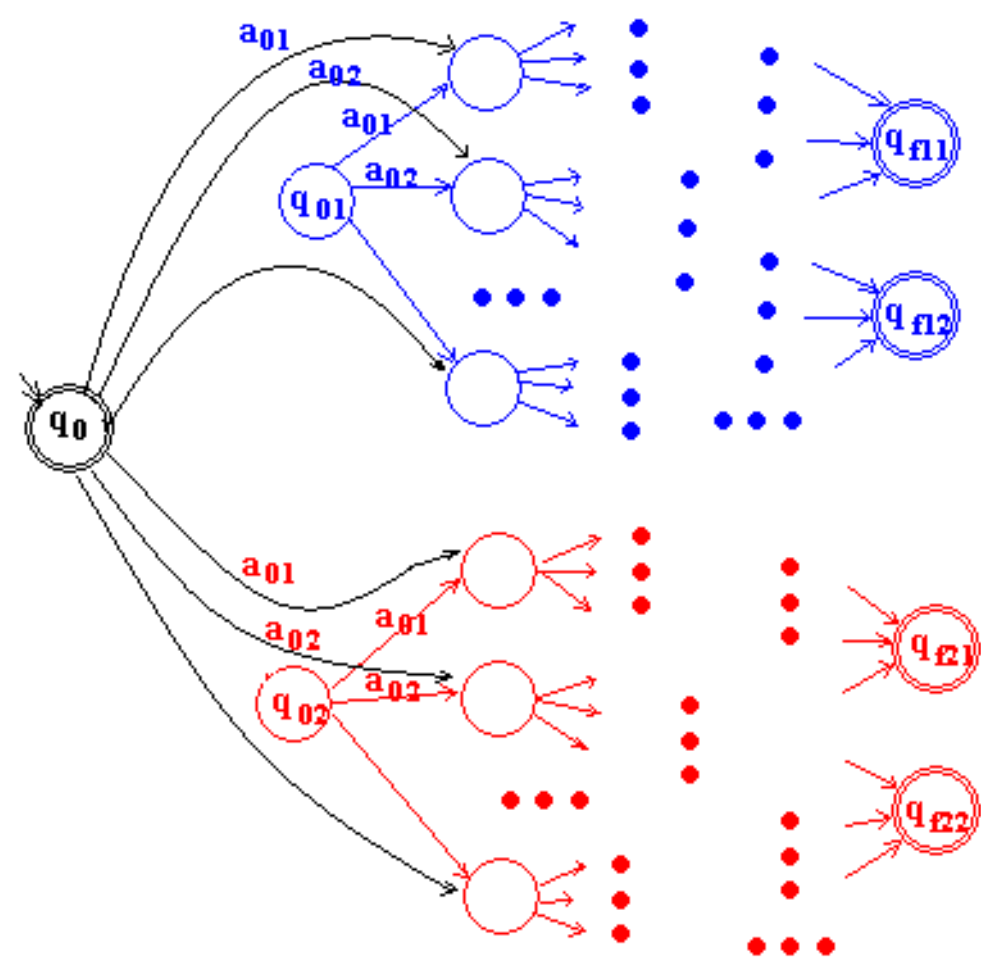


??! cel puțin una
dintre q_{01} sau q_{02}
e stare finală

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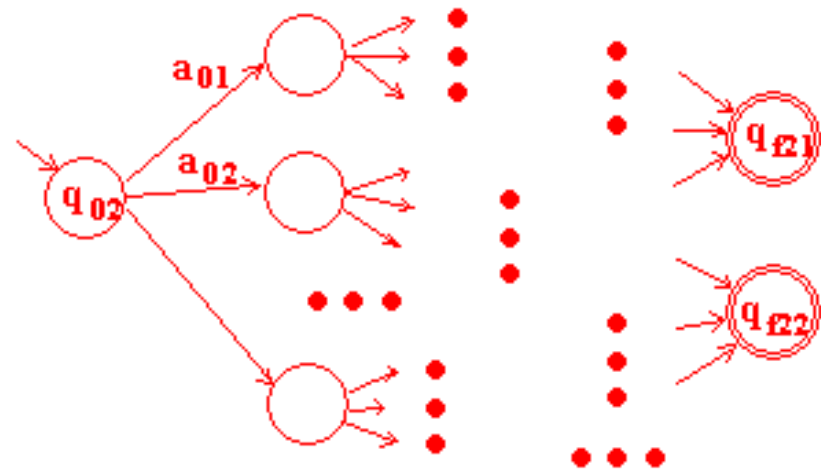
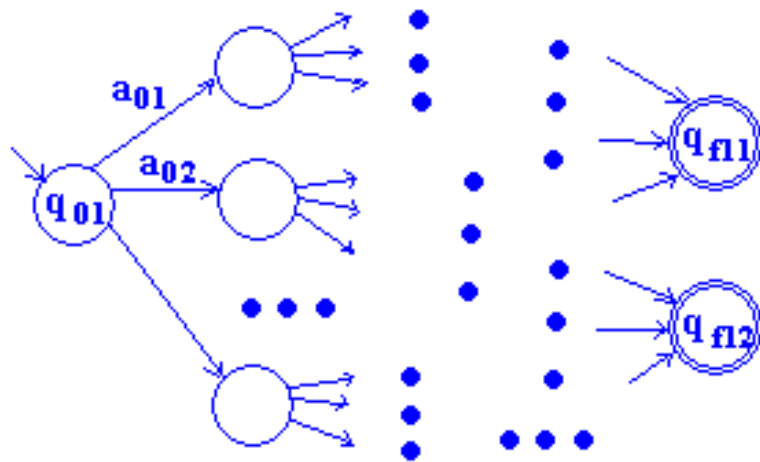
- Automatul ce accepta reuniunea limbajelor acceptate de doua automate date
 - AF

Daca cel putin una dintre q_{01} sau q_{02} este stare finala



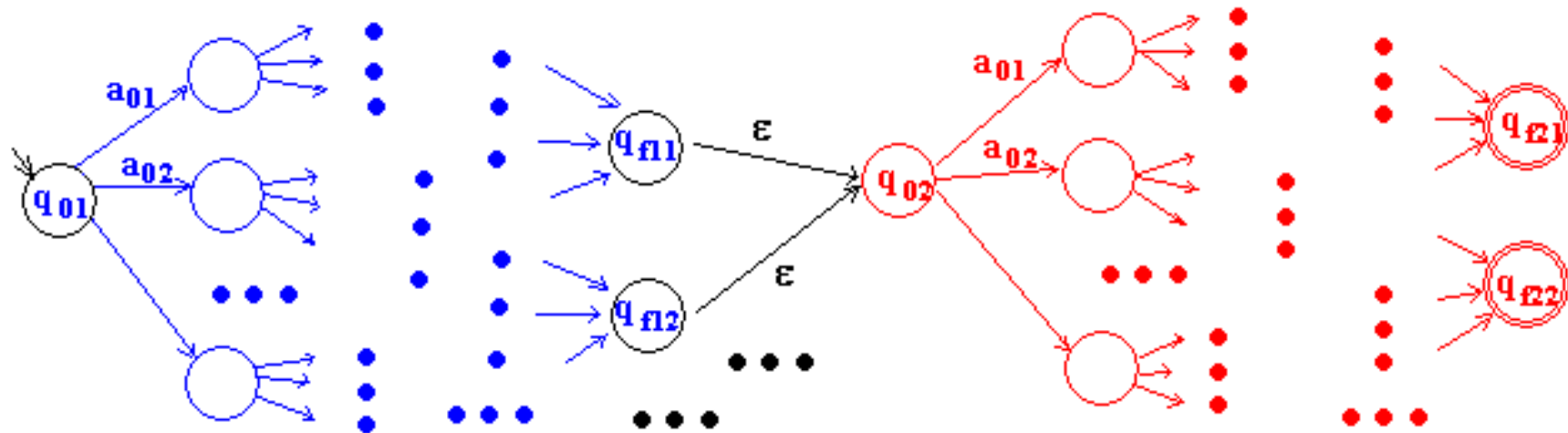
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- Automatul ce accepta concatenarea limbajelor acceptate de doua automate date
 - se dau



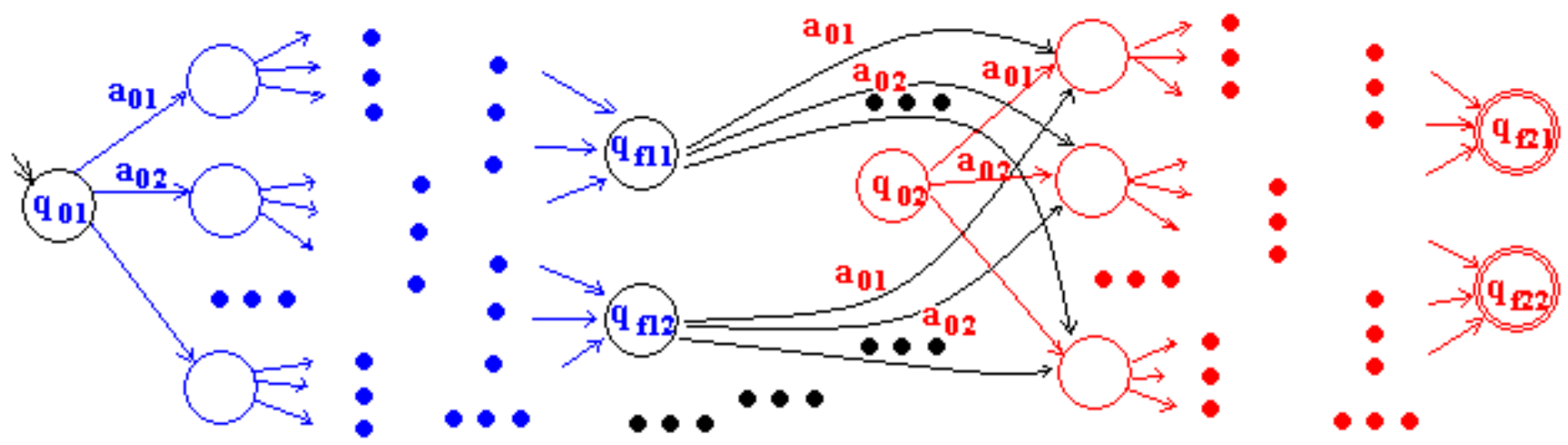
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- Automatul ce accepta concatenarea limbajelor acceptate de doua automate date
 - AF cu ϵ tranz.:



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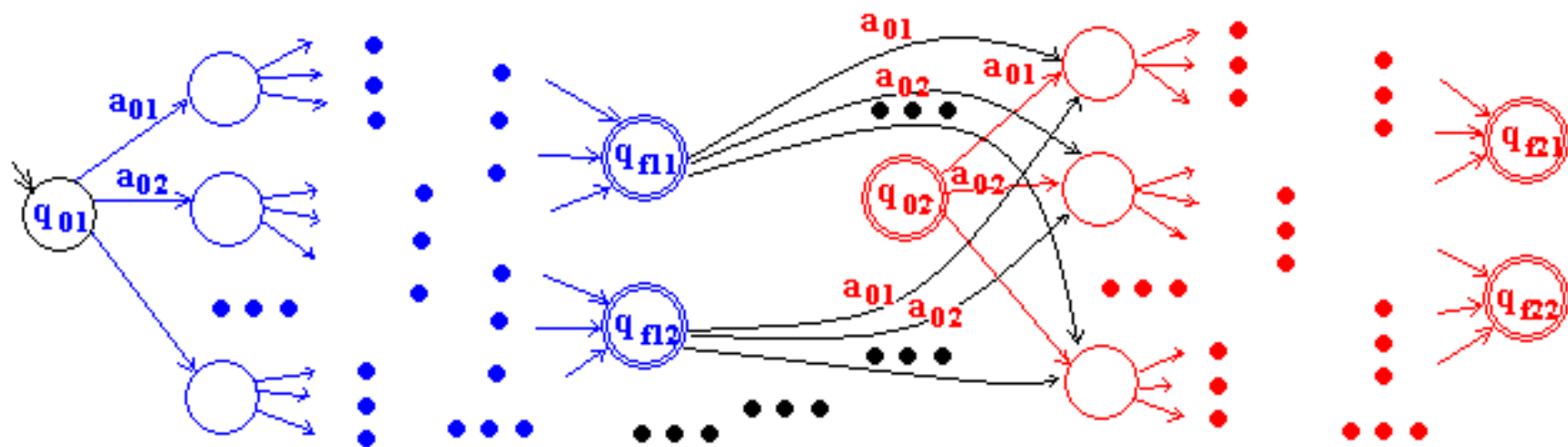
- Automatul ce accepta concatenarea limbajelor acceptate de doua automate date
 - AF



?! q_{02} stare finala

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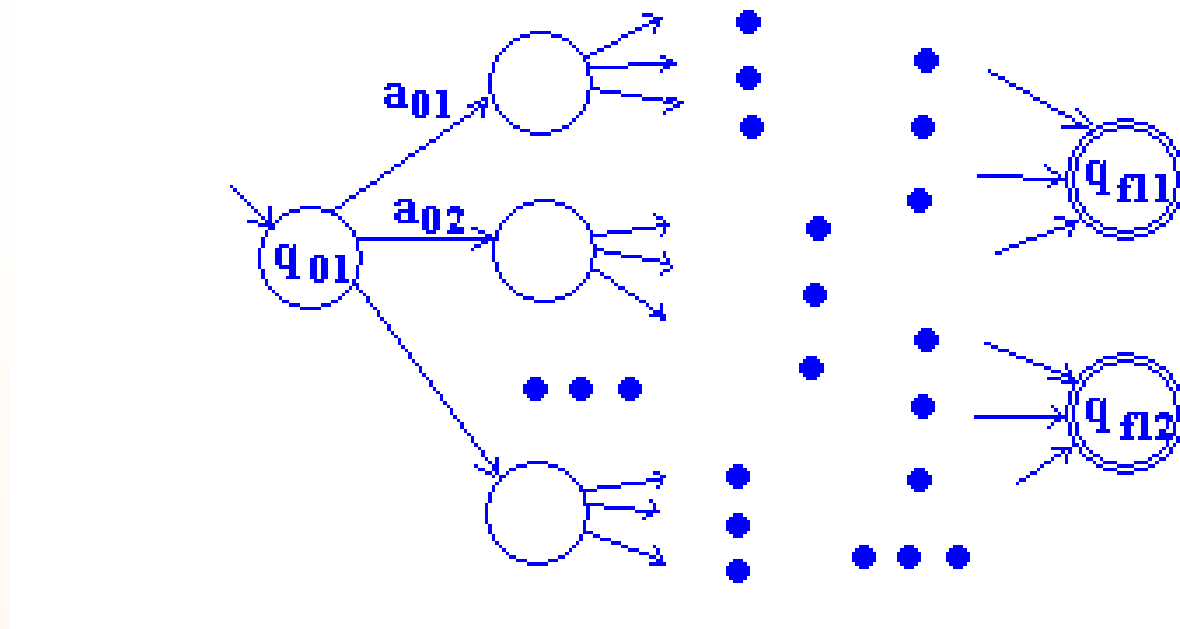
- Automatul ce accepta concatenarea limbajelor acceptate de doua automate date
 - AF



Daca q_{02} stare finala

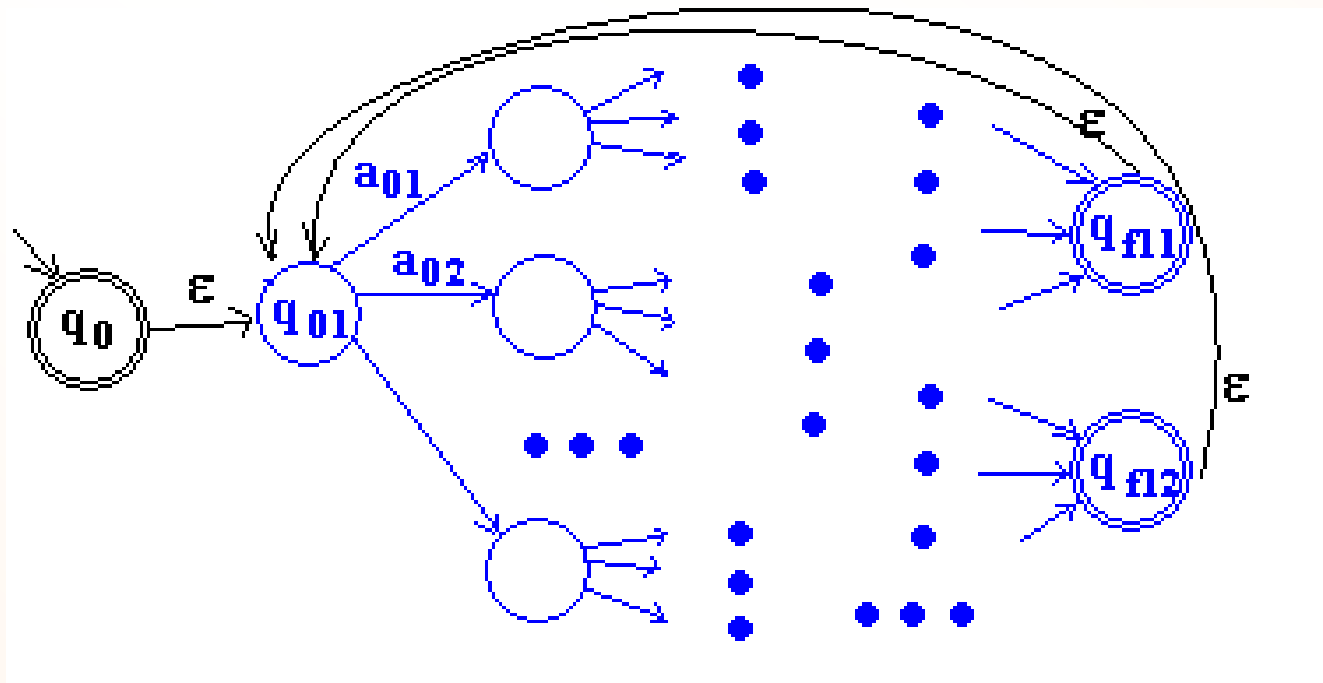
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- Automatul ce accepta orice secventa peste limbajul acceptat de un automat dat
 - se da:



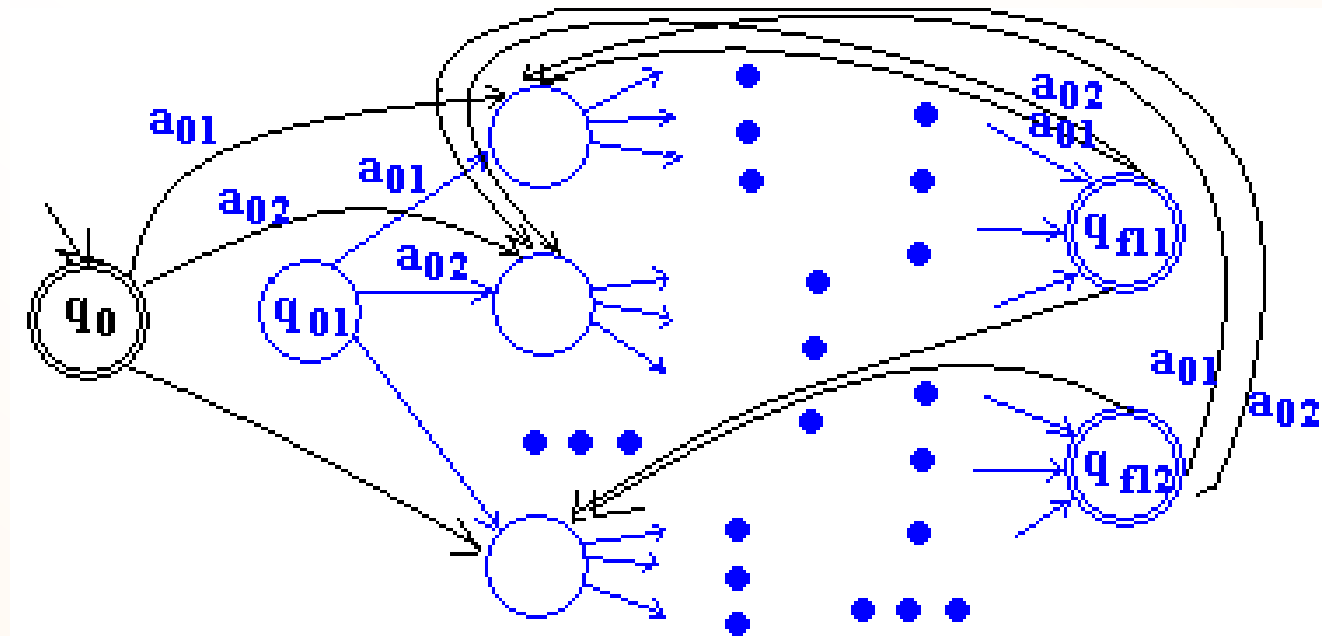
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- Automatul ce accepta orice secventa peste limbajul acceptat de un automat dat
 - AF cu ϵ tranz.:



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- Automatul ce accepta orice secventa peste limbajul acceptat de un automat dat
 - AF:



??! q_{01} stare finala OK !