(Q, V, T, E, S, F)
Q
V
$T \in$
$P(Q \times$
$V \times$
$Q)$
$E \in$
$P(Q \times$
$Q)$
ϵ
$S \subseteq$
Q
$F \subseteq$
Q

StatePool
StateSet

$_domain(constintr); classBitVec//uesdmaxnumberbitsindata, denotewidth(domain), [0, bits_in_use) ==> [0, width)intbit$

transition relation:

$T \in$
$Q \rightarrow$
$P(V \times$
$Q), T(p) =$
$\{(a, q)|(p, a, q) \in$
$T\}p$

??

$_label; Statetransition_destination; classTransImplTransPair * data; classTrans :$
$protectedTransIml$

ϵ-relation

$E \in$
$P(Q \times$
$Q) \Rightarrow$
$E \in$
$Q \rightarrow$
$P(Q), E(p) =$
$\{q|(p, q) \in$
$E\}\epsilon pq$
q_0
q_1
q_2
q_3
a
b
c
q_1
$\{(q_0, a, q_1)\}$
q_1
$\{(q_1, b, q_2), (q_1, c, q_3)\}$

?

the signatures of the transition relations:

$T \in$
$P(Q \times$
$V \times$
$Q)$

$T \in$
$V \rightarrow$
$P(Q \times$
$Q)$

$T \in$
$Q \times$
$Q \rightarrow$
$P(V)$

$T \in$
$Q \times$
$V \rightarrow$
$P(Q)$

$T \in$
$Q \rightarrow$
$P(V \times$
$Q)$

$T \in$
$Q \rightarrow$
$P(V \times$
$Q)$
$T(p) =$
$\{(a, q) :$
$(p, a, q) \in$
$T\}$

$T \in$
$P(Q \times$
$V \times$
$Q), T =$
$\{(p, a, q)\}$

$T \in$
$Q \rightarrow$
$P(V \times$
$Q), T(p) =$

$Q), T(p) =$
$\{(a, q) :$
$(p, a, q) \in$
$T\}$
$\pi_2(T(p)) =$
$\{q|(p, a, q) \in$
$T\}, \bar{\pi}_2(T(p)) =$
$\{a|(p, a, q) \in$
$T\}$
$Q_{map} :$
$Q\times$
$V, T(p) =$
$\{(a, q) :$
$(p, a, q) \in$
$T\}$
$Q_{map}(q) =$
$\{a\}$
$Q_{map} :$
$Q\times$
$V, T \in$
$P(Q\times$
$V\times$
Q
$\pi_1(T) =$
$\{p|(p, a, q) \in$
$T\}, \bar{\pi}_1(T) =$
$\{(a, q)|(p, a, q) \in$
$T\}$
$Q_{map} =$
$(\bar{\pi}_1(T))^R =$
$\{(a, q)|(p, a, q) \in$
$T\}^R =$
$\{(q, a)|(p, a, q) \in$
$T\}$
$M =$
$(Q, V, T, E, S, F), M_0 =$
$(Q_0, V_0, T_0, E_0, S_0, F_0), M_1 =$
$(Q_1, V_1, T_1, E_1, S_1, F_1)$
FA
FA
$|M| =$
$|Q|$
$(\cong$
$)$
$FA's$
$(\cong$
$)$
M_0
M_1
$M_0 \cong$
M_1
$V_0 =$
V_1
$g \in$
$Q_0 \rightarrow$
Q_1
$T_1 =$
$\{(g(p), a, g(q)|(p, a, q) \in$
$T_0\}$
$E_1 =$
$\{(g(p), g(q)|(p, q) \in$
$E_0\}$
$S_1 =$
$\{g(s)|s \in$
$S_0\}$
$F_1 =$
$\{g(f)|f \in$
$F_0\}$
??
s
p
q
f
$g(s)$
$g(p)$
$g(q)$
$g(f)$
$\cdots$
a
$\cdots$
a
$\cdots$
g
g
g
g
$M_0 \cong$

B
$f(a) =$
$(f_d(a^R))^{R'}$
B
$f_d\circ$
$R(a) =$
$R'\circ$
$f(a) \Rightarrow$
$f_d(R(a)) =$
$R'(f(a)) \Rightarrow$
$f_d(a^R) =$
$(f(a))^{R'} \Rightarrow$
$f(a) =$
$(f_d(a^R))^{R'}$
$(m)[matrixofmathnodes, rowsep =$
$2em, columnsep =$
$2em]AB \circ \circ; [->$
$, font =$
$](m-$
$1-$
$1)edgenode[auto](m-$
$1-$
$2)(m-$
$1-$
$1)edgenode[auto, swap](m-$
$2-$
$2)(m-$
$1-$
$2)edgenode[auto]'$
R
f_d
$f(a) =$
$(f_d(a^R))^{R'})$
$C_{\cdot,RFA}(rfa(\$), rfa(E)) =$
$C_{\cdot,RFA}(C_{\$,RFA}, rfa(E)) =$
$L_{RE}(\$E) =$
$\{\$\}L_{RE}(E)$
$covert$
$EL_{FA}\circ$
$convert\circ$
$rfa(E) =$
$V^{-1}L_{RE}(E)$
$convert(C_{\cdot,RFA}(C_{\$,RFA}, rfa(E)) =$
$rfa(E)$
$(m)[matrixofmathnodes, rowsep =$
$2em, columnsep =$
$2em]RERFA(\$, E)(rfa(\$), rfa(E))L_{reg}\$ \cdot Erfa(\$) \cdot rfa(E); [->$
$, font =$
$](m-$
$1-$
$1)edgenode[auto](m-$
$1-$
$2)(m-$
$1-$
$1)edgenode[auto, swap]_{RE}$
L_{FA}
rfa
$(m-2-5)(m-1-4)edgenode[auto, swap]$
$.$
$FA\cdot$
rfa
$convert(C_{\cdot,RFA}(C_{\$,RFA}, rfa(E)) =$
$rfa(E)$
$useful_s\circ$
$subset$
$D =$
$\emptyset, U =$
S
$d :=$
$\bigcup_{q\in u} T(q, a)$
$(m)[matrixofmathnodes, rowsep =$
$2em, columnsep =$
$2em]\{q_1, q_2\}\{T(q_1, a), T(q_2, a)\}; [->$
$, font =$
$](m-$
$1-$
$1)edgenode[auto](m-$
$1-$
$2);$
$\overrightarrow{d} :=$
$\bigcup\{q|q \in$
$first\wedge$
$Q_{map}(q) =$