State transition diagram nodes and edges:

- $(c\_q0 \cong ((Balance = 60) \wedge (CofeeLeft = 1) \wedge (Mago = 0) \wedge (Statut = 1)))$ —ServeCoffee→ $(c\_q2 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 60) \wedge (Statut = 1)))$

- $(c\_q4 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6121) \wedge (Statut = 0)))$ ←powerUp / powerDown— $(c\_q2 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6121) \wedge (Statut = 1)))$ —AutoOut→ $(c\_q0 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6121) \wedge (Statut = 2)))$

- $(c\_q2 \cong ((Balance = 1) \wedge (CofeeLeft = 0) \wedge (Mago = 6121) \wedge (Statut = 1)))$ —backBalance→

- $(c\_q2 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 0) \wedge (Statut = 1)))$ —insert (self loop)

- $(c\_q1 \cong ((Balance = 60) \wedge (CofeeLeft = 1) \wedge (Mago = 6120) \wedge (Statut = 1)))$ —ServeCoffee→ $(c\_q2 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6180) \wedge (Statut = 1)))$

- $(c\_q0 \cong ((Balance = 60) \wedge (CofeeLeft = 2) \wedge (Mago = 0) \wedge (Statut = 1)))$ —ServeCoffee→ $(c\_q0 \cong ((Balance = 0) \wedge (CofeeLeft = 1) \wedge (Mago = 60) \wedge (Statut = 1)))$

- $(c\_q3 \cong ((Balance = 1) \wedge (CofeeLeft = 0) \wedge (Mago = 6120) \wedge (Statut = 1)))$ —backBalance→ $(c\_q3 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6120) \wedge (Statut = 1)))$

- $(c\_q0 \cong ((Balance = 60) \wedge (CofeeLeft = 1) \wedge (Mago = 6060) \wedge (Statut = 1)))$ —ServeCoffee→ $(c\_q3 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6120) \wedge (Statut = 1)))$

- $(c\_q3 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6120) \wedge (Statut = 1)))$ —insert (self loop); —powerDown / powerUp→ $(c\_q4 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6120) \wedge (Statut = 0)))$; —AutoOut→ $(c\_q0 \cong ((Balance = 0) \wedge (CofeeLeft = 0) \wedge (Mago = 6120) \wedge (Statut = 2)))$

- $(c\_q1 \cong ((Balance = 60) \wedge (CofeeLeft = 2) \wedge (Mago = 6120) \wedge (Statut = 1)))$ —ServeCoffee→ $(c\_q0 \cong ((Balance = 0) \wedge (CofeeLeft = 1) \wedge (Mago = 6180) \wedge (Statut = 1)))$

- $(c\_q1 \cong ((Balance = 1) \wedge (CofeeLeft = 1) \wedge (Mago = 6120) \wedge (Statut = 1)))$ —backBalance→ $(c\_q1 \cong ((Balance = 0) \wedge (CofeeLeft = 1) \wedge (Mago = 6120) \wedge (Statut = 1)))$

- $(c\_q0 \cong ((Balance = 60) \wedge (CofeeLeft = 2) \wedge (Mago = 6060) \wedge (Statut = 1)))$ —ServeCoffee→ $(c\_q1 \cong ((Balance = 0) \wedge (CofeeLeft = 1) \wedge (Mago = 6120) \wedge (Statut = 1)))$

- $(c\_q1 \cong ((Balance = 0) \wedge (CofeeLeft = 1) \wedge (Mago = 6120) \wedge (Statut = 1)))$ —insert (self loop); —powerDown / powerUp→ $(c\_q4 \cong ((Balance = 0) \wedge (CofeeLeft = 1) \wedge (Mago = 6120) \wedge (Statut = 0)))$; —AutoOut→ $(c\_q0 \cong ((Balance = 0) \wedge (CofeeLeft = 1) \wedge (Mago = 6120) \wedge (Statut = 2)))$

- $(c\_q4 \cong ((Balance = 0) \wedge (CofeeLeft = 100) \wedge (Mago = 0) \wedge (Statut = 0)))$ —addCofee→ $(c\_q4 \cong ((Balance = 0) \wedge (CofeeLeft = 101) \wedge (Mago = 0) \wedge (Statut = 0)))$ —takeMago (self loop); —insert→ $(c\_q4 \cong ((Balance = 1) \wedge (CofeeLeft = 100) \wedge (Mago = 0) \wedge (Statut = 0)))$ ←powerUp / powerDown→ $(c\_q0 \cong ((Balance = 1) \wedge (CofeeLeft = 100) \wedge (Mago = 0) \wedge (Statut = 1)))$ —backBalance→ $(c\_q0 \cong ((Balance = 0) \wedge (CofeeLeft = 100) \wedge (Mago = 0) \wedge (Statut = 1)))$ —insert (self loop)