Elevator spec in Z (Event Z-Schemas contd.)

$\llcorner$ ServeExtReq Opp Dir
ΔSystem
$NextFloorToServe = CurFloor \wedge InReq(CurFloor) = off \wedge CurDir \notin ExtReq(CurFloor)$
$ExtReq' = ExtReq \oplus \{ CurFloor \mapsto \phi \}$
$\llcorner \theta Elevator' = \theta Elevator \wedge IntReq' = IntReq$

$\llcorner$ SystemInit
System'
$\forall i \in \{1 .. FLOORS\} \bullet IntReq'(i) = off \wedge ExtReq'(i) = \phi$
$\llcorner NextFloorToServe = 0 \wedge CurFloor' = 1 \wedge CurDir' = up$

- MoveToNextFloor can occur when

  $CurFloor \neq NextFloorToServe \neq 0$

  If $CurFloor > NextFloorToServe$, then $CurDir = dn$, and CurFloor decrements by 1

  If $CurFloor < NextFloorToServe$, then $CurDir = up$, and CurFloor increments by 1

- InternalPush can occur unconditionally any time from floor f?. f?'s value in IntReq is updated to "on"
- ExternalPush can occur unconditionally from floor f? with dir. dir?. f?'s value in ExtReq is update to include "dir?"
- Similarly, SystemInit is unconditional

- Other events ServeIntReq, ServeExtReqSameDir, ServeExtReqOppDir occur conditionally (on value of state-variables)

- Rapid prototyping of system possible by providing an intrepreter of spec lans. such as Z!