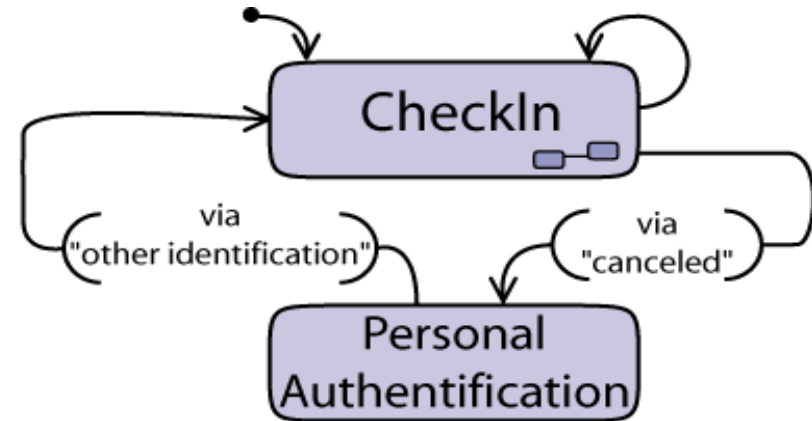
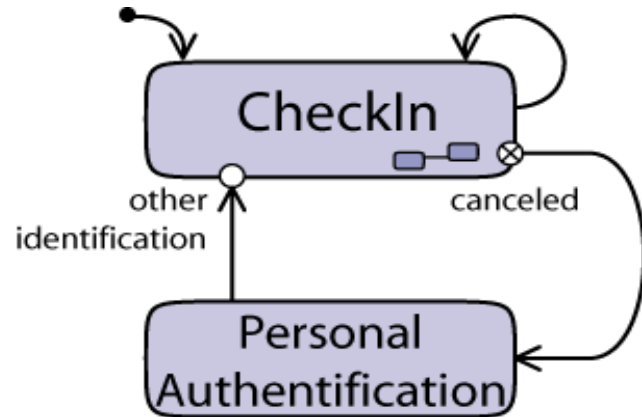
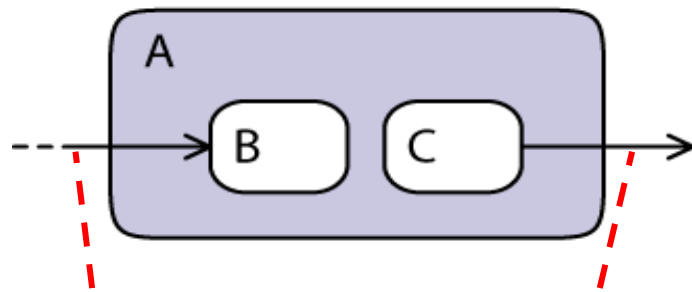


Entry and exit points (2)

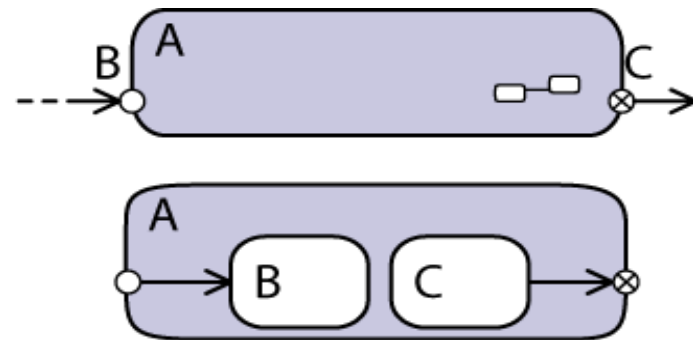
Notational alternatives



Semantically equivalent

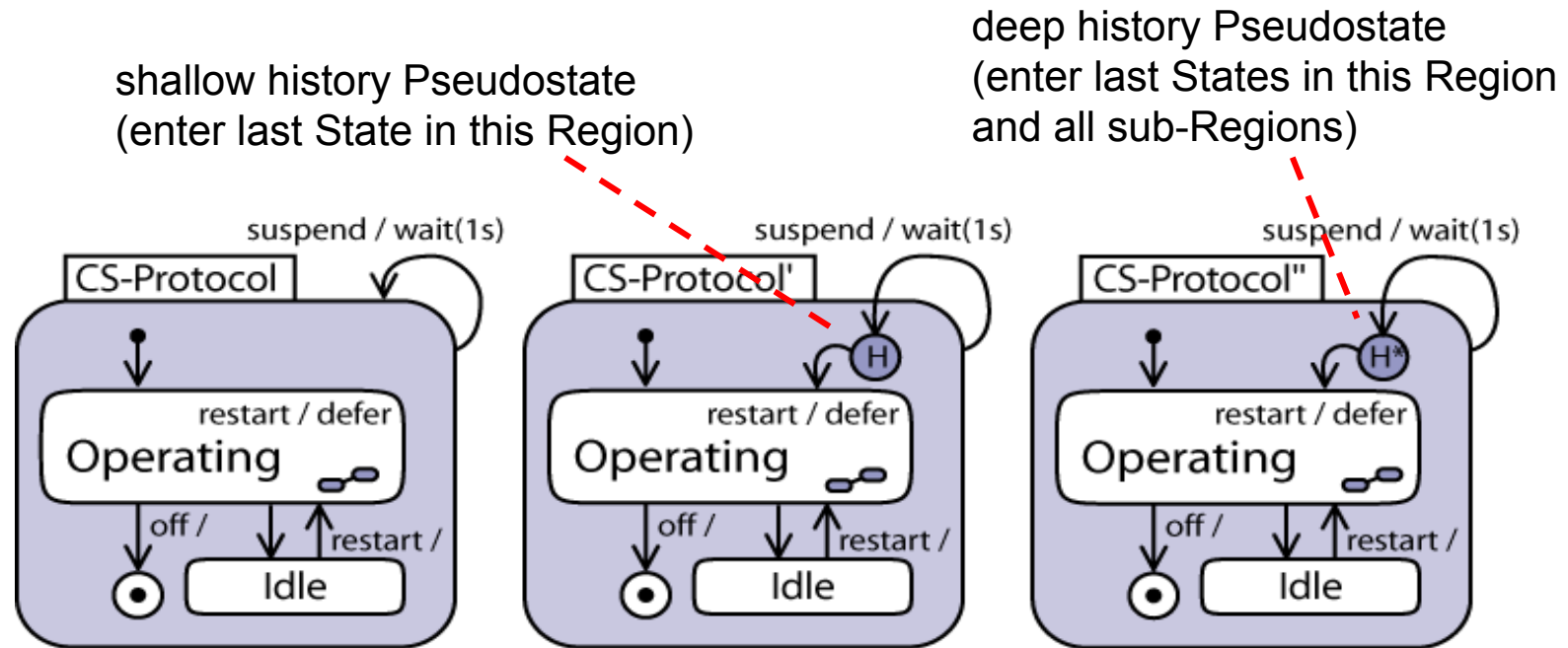


“unstructured” transitions

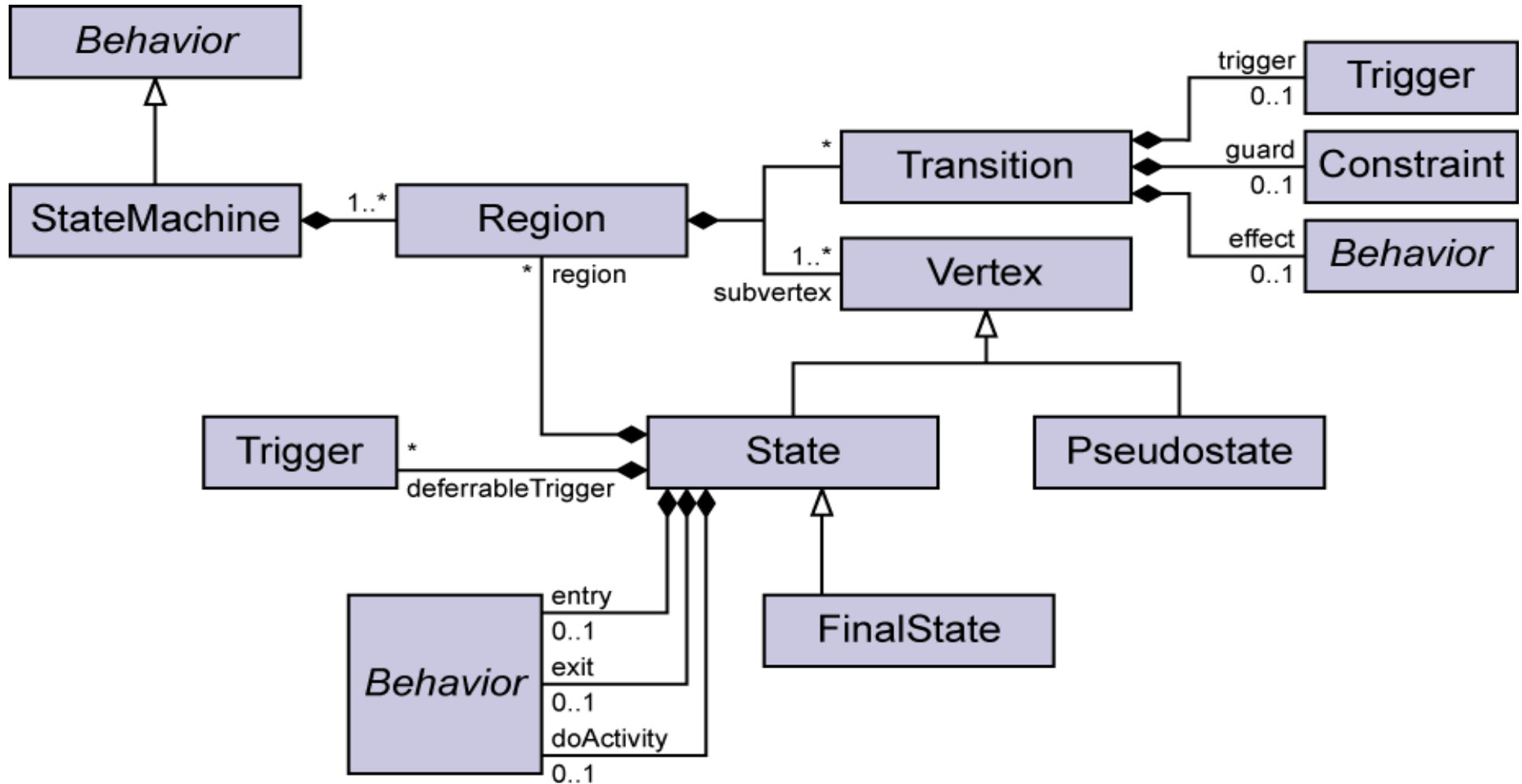


History states

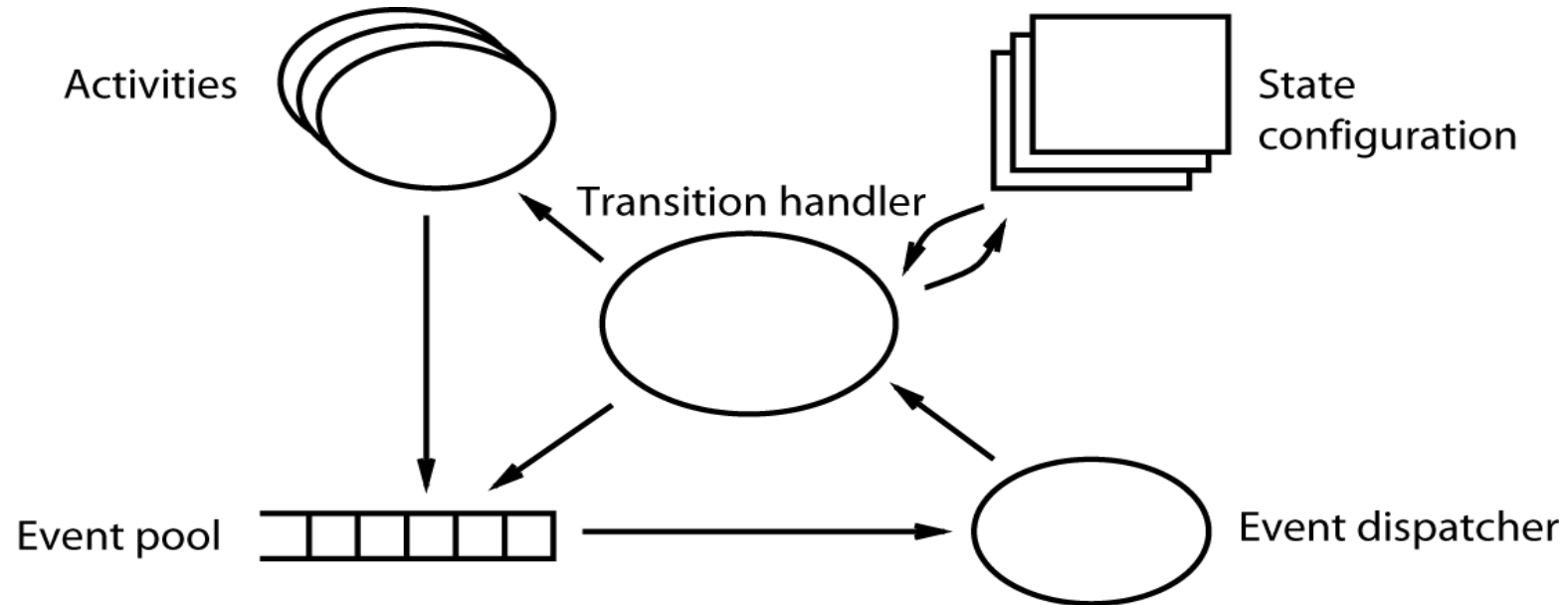
- History states represent the last active
 - substate (shallow history), or
 - configuration (deep history)of a region.



Metamodel



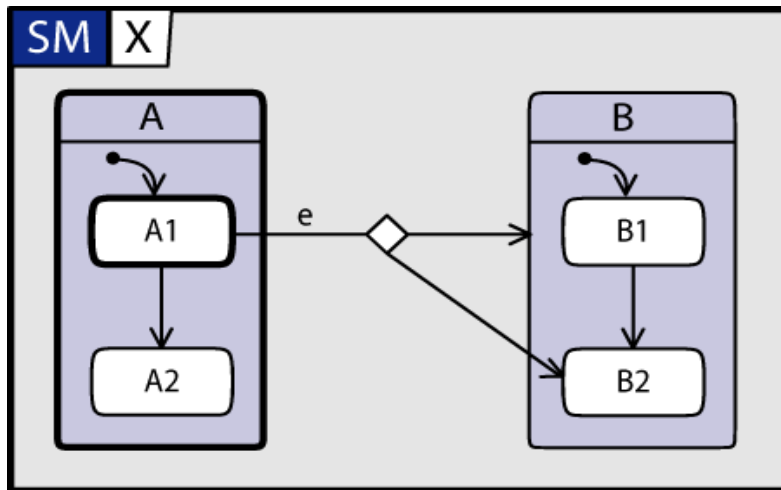
Run-to-Completion Step: Overview



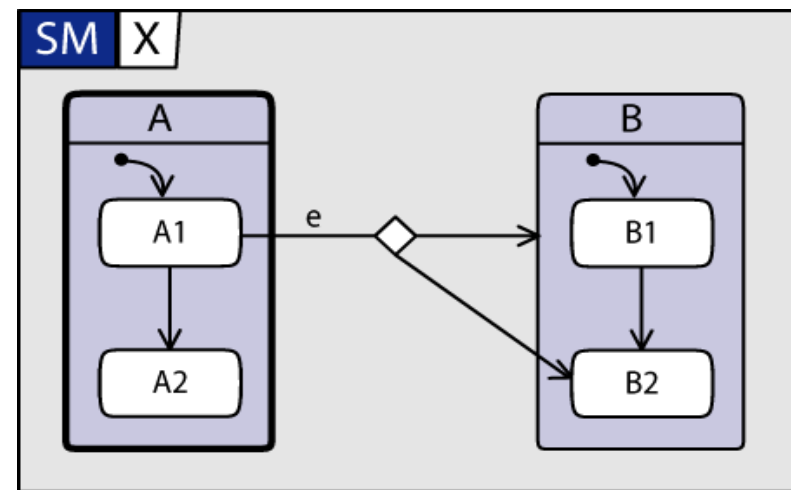
- Choose an **event** from the event pool (queue)
- Choose a **maximal, conflict-free, prioritized**, set of transitions enabled by the event
- Execute set of transitions
 - exit source states (inside-out)
 - execute transition effects
 - enter target states (outside-in)thereby generating new events and activities

Run-to-Completion Step: Preliminaries (1)

- **Active state configuration**
 - the states the state machine currently is in
 - forms a tree
 - if a composite state is active, all its regions are active
- **Least-common-ancestor (LCA)** of states s_1 and s_2
 - the least region or orthogonal state (upwards) containing s_1 and s_2



bold: active state configuration

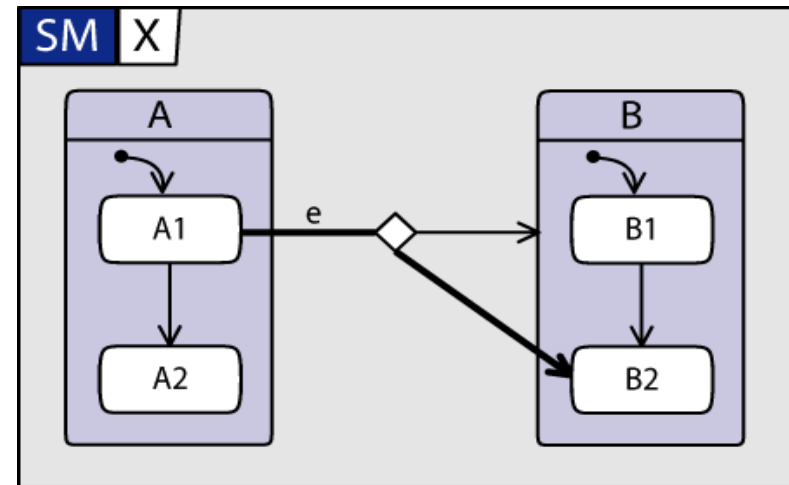
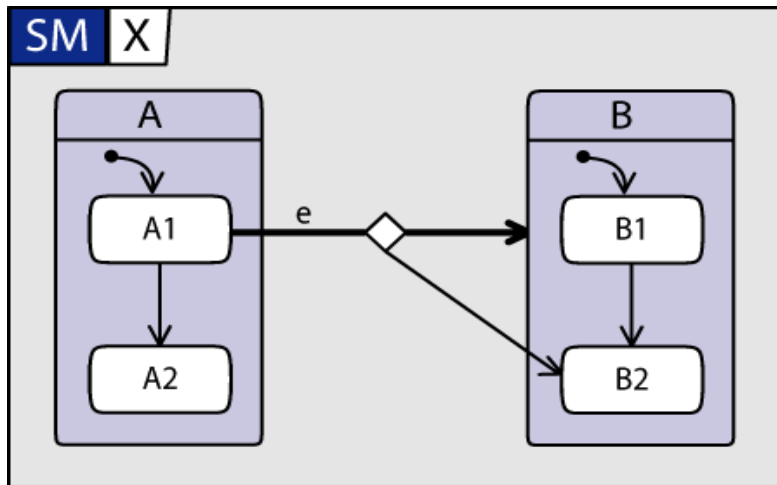


bold: LCA of states A1 and A2

Run-to-Completion Step: Preliminaries (2)

- **Compound transitions**

- transitions for an event are “chained” into compound transitions
 - eliminating pseudostates like junction, fork, join, entry, exit
 - this is not possible for choice pseudostates where the guard of outgoing transitions are evaluated dynamically (in contrast to junctions)
- several source and target states



Run-to-Completion Step: Preliminaries (3)

- **Main source / target state** m of compound transition t
 - Let s be LCA of all source and target states of t
 - If s region: $m =$ direct subvertex of s containing all source states of t
 - If s orthogonal state: $m = s$
 - Similarly for main target state
 - All states between main source and explicit source states are exited, all state between main target and explicit target states are entered.
- **Conflict** of compound transitions t_1 and t_2
 - intersection of states exited by t_1 and t_2 not empty
- **Priority** of compound transition t_1 over t_2
 - s_i “deepest” source state of transition t_i
 - s_1 (direct or transitive) substate of s_2