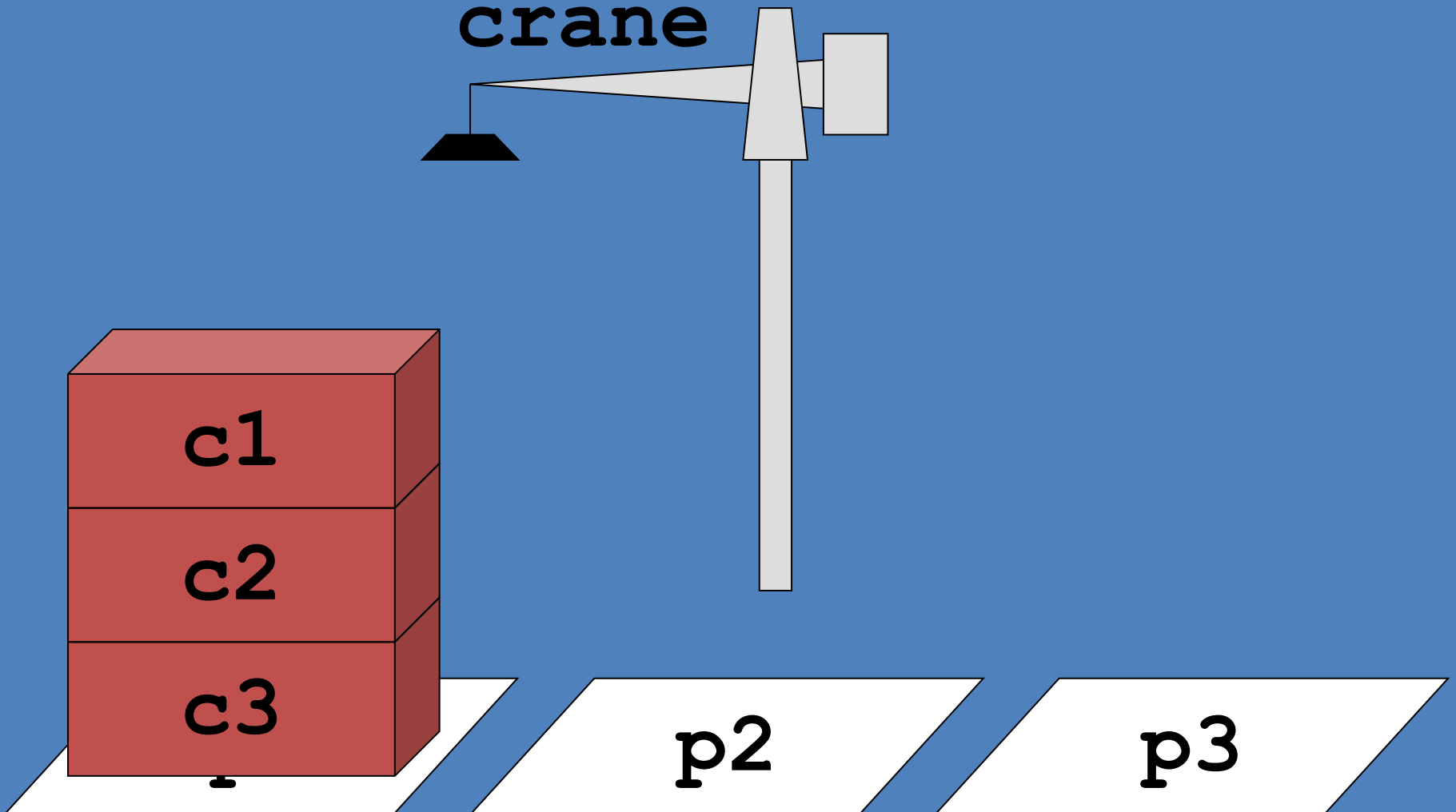




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Stack Moving Example



STN Methods: DWR Example (3)

- move via intermediate: move stack to intermediate pile (reversing order) and then to final destination (reversing order again)
- $\text{move-stack-twice}(p_o, p_i, p_d)$
 - task: $\text{move-ordered-stack}(p_o, p_d)$
 - precondition: -
 - subtasks:
 $\langle \text{move-stack}(p_o, p_i), \text{move-stack}(p_i, p_d) \rangle$

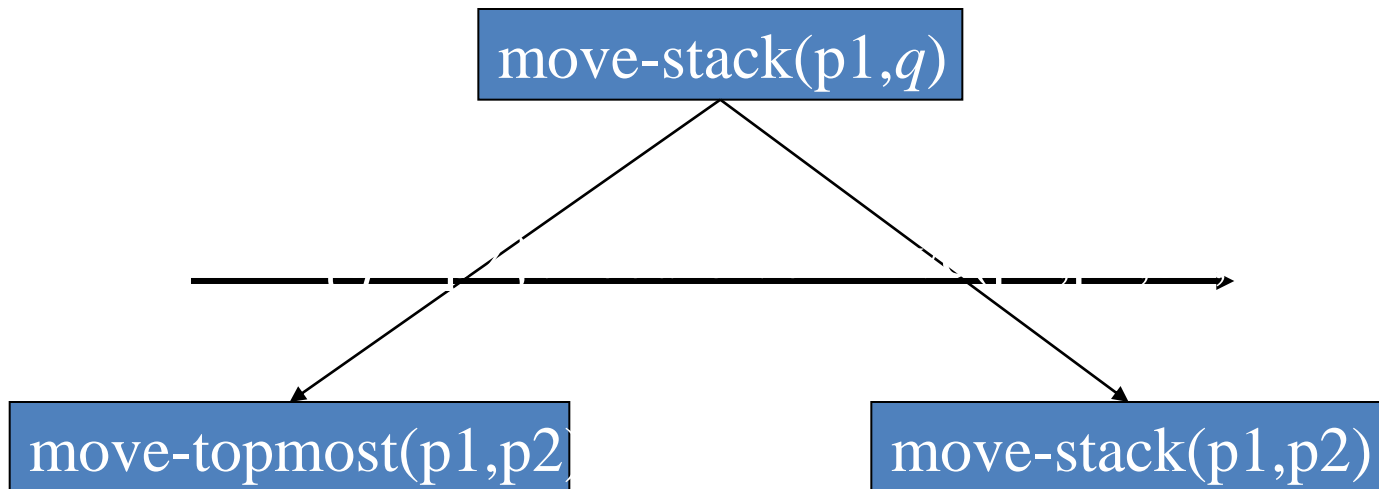
STN Methods: DWR Example (2)

- move stack: repeatedly move the topmost container until the stack is empty
- recursive-move(p_o, p_d, c, x_o)
 - task: move-stack(p_o, p_d)
 - precondition: top(c, p_o), on(c, x_o)
 - subtasks: \langle move-topmost(p_o, p_d), move-stack(p_o, p_d) \rangle
- no-move(p_o, p_d)
 - task: move-stack(p_o, p_d)
 - precondition: top(pallet, p_o)
 - subtasks: \langle

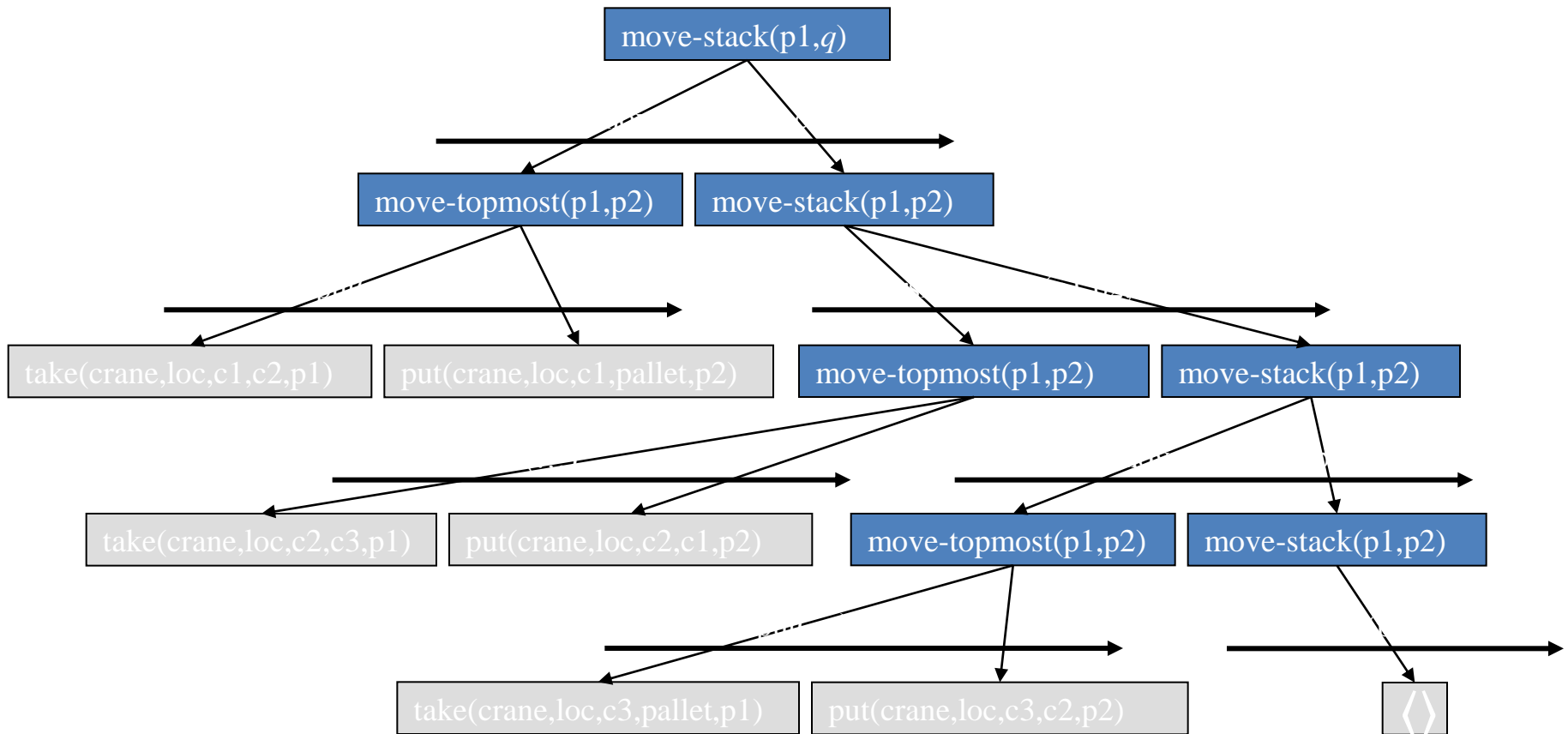
Method Decomposition: DWR

Example

- $\delta(t, m_i, \sigma) =$
 $\langle \text{move-topmost}(p1, p2), \text{move-stack}(p1, p2) \rangle$



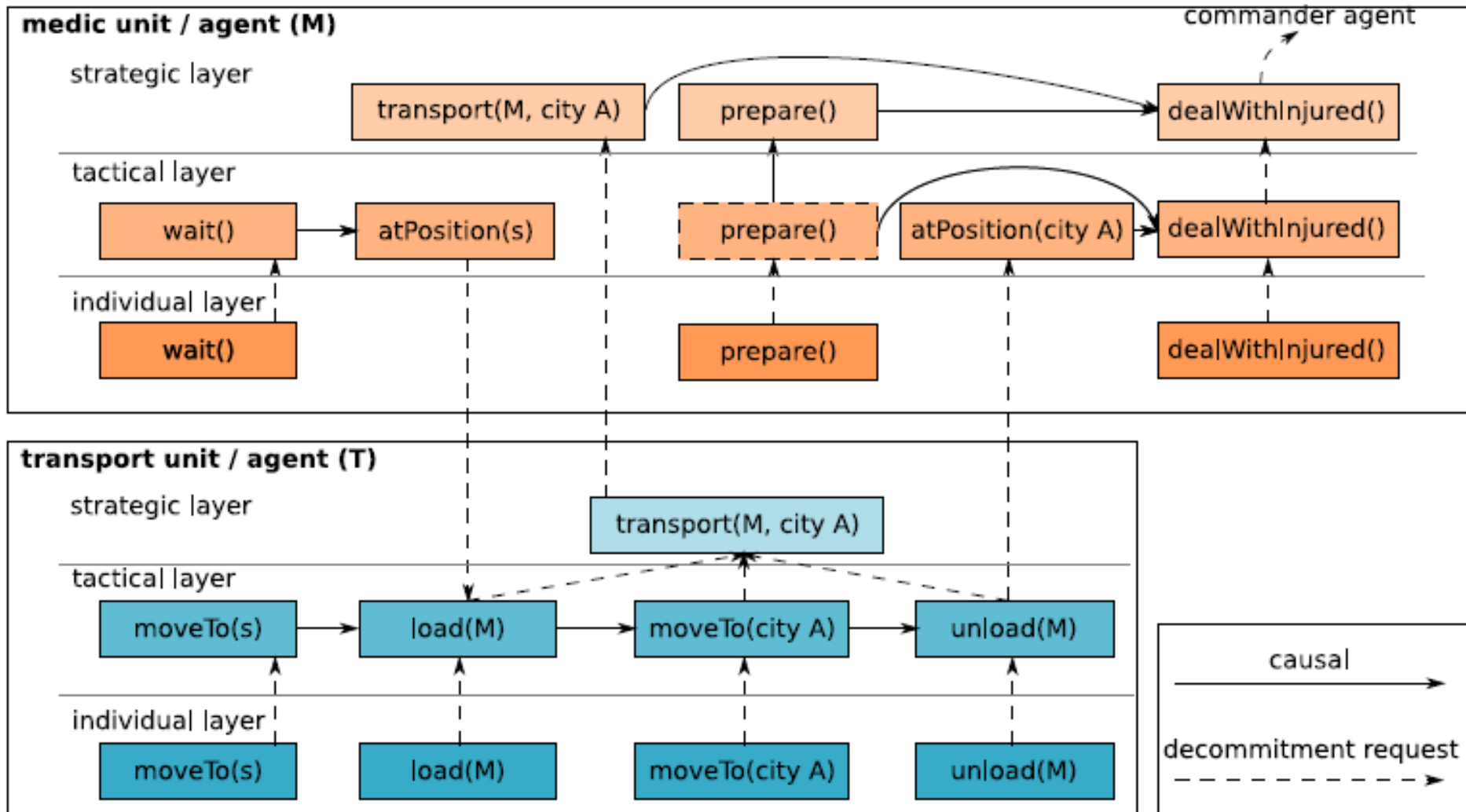
Decomposition Tree: DWR Example



HTN Methods: DWR Example (2)

- move stack: repeatedly move the topmost container until the stack is empty
- recursive-move(p_o, p_d, c, x_o)
 - task: move-stack(p_o, p_d)
 - network:
 - subtasks: $\{t_1 = \text{move-topmost}(p_o, p_d), t_2 = \text{move-stack}(p_o, p_d)\}$
 - constraints: $\{t_1 < t_2, \text{before}(\{t_1\}, \text{top}(c, p_o)), \text{before}(\{t_1\}, \text{on}(c, x_o))\}$
- move-one(p_o, p_d, c)
 - task: move-stack(p_o, p_d)
 - network:
 - subtasks: $\{t_1 = \text{move-topmost}(p_o, p_d)\}$
 - constraints: $\{\text{before}(\{t_1\}, \text{top}(c, p_o)), \text{before}(\{t_1\}, \text{on}(c, \text{pallet}))\}$

HTN action example





speed: normal
current time: 29

Pointer: X: 693.077 Y: 750.198



C - toggle communication I - toggle entity info A - toggle agentdata
N - toggle node IDs E - toggle events M - toggle 2D/3D



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