Discrete Event Modeling

- Bridges gap between modeling objects and algorithms
    - As states & transitions between them
    - Two essential questions:
        i. What do the **states** look like?
            - Initial states? Final states?
        ii. What do **transitions** between states look like?
            - Can you get to a bad state by following good state transitions?
    - Consider a game of tic-tac-toe:
        i. What are states? *Boards at some time*
        ii. What are transitions between states? *Adding an X/O on the board*
- We can model our transition using **events**
    - Each **event** represents a move
    - Parameters to our move?
        i. In tic-tac-toe: the player moving, the row, and column of the new mark
    - What constraints go on a transition?
        i. Use this for the prestate and this' for the poststate syntax
        ii. Specify what relationship must hold between prestates and poststates i.e. what is a valid transition
            - In tic-tac-toe, for a transition (i.e. move) to be valid, the space that's being marked must be empty in the pre-state and filled in the post-state