

Real simulation vs learning

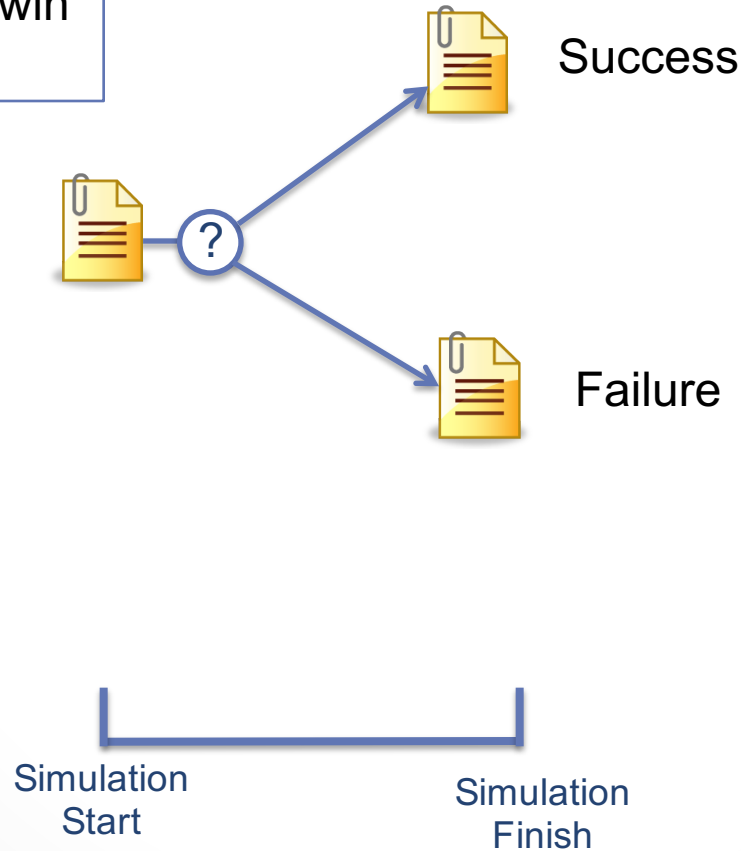
- In real simulations, the number of possible outcomes grows exponentially with the number of possible actions.
- But the number of pedagogically interesting situations for any learning experience is fixed and comparatively small.
- Hence, the more complex and realistic a real simulation becomes, the less likely a learner will encounter many pedagogically different situations.

Outcome-Driven Simulation

- Reverse the authoring process.
- First, define scenes for just the pedagogically interesting outcomes.
- Then, define rules for each scene to select the next scene to show.

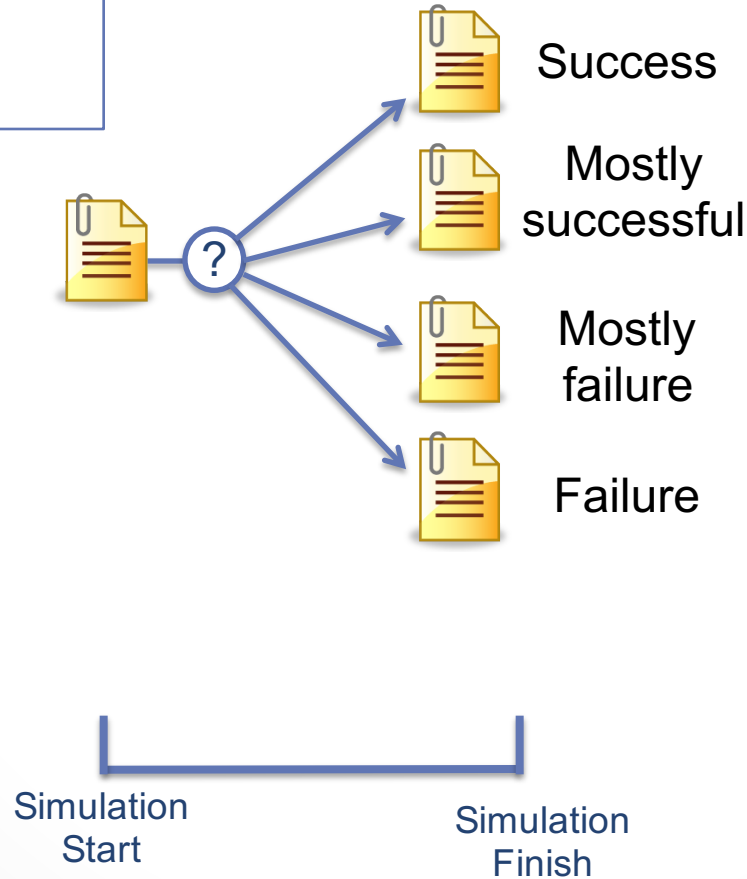
Outcome-Driven Simulation

The simplest simulation: you win or you lose.



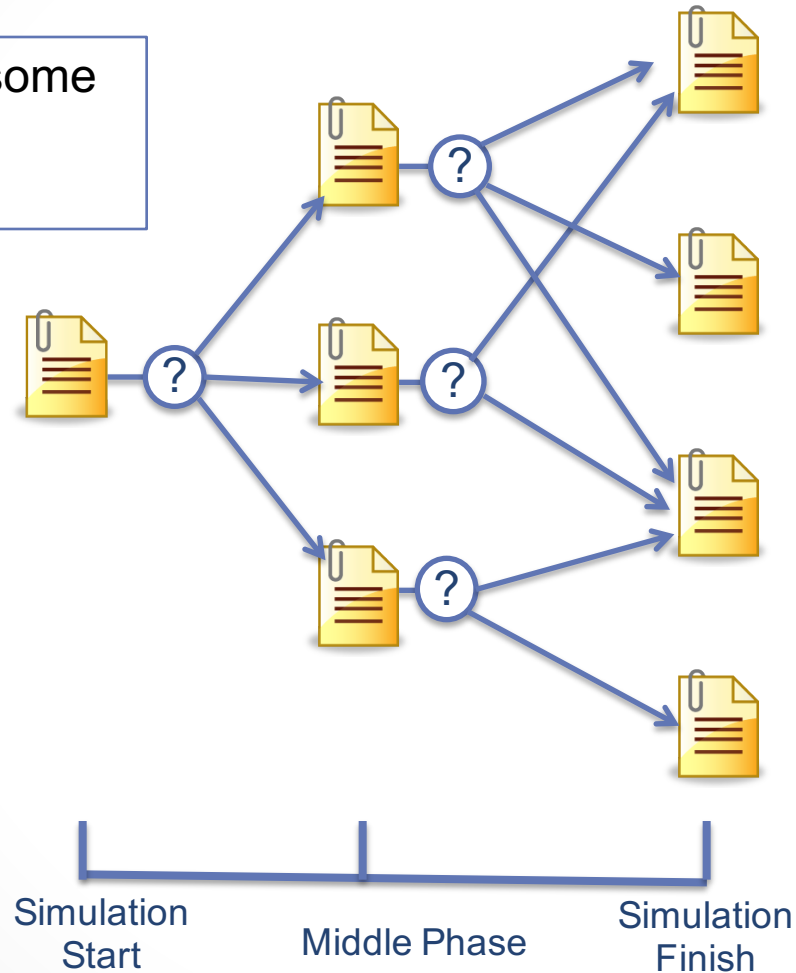
Outcome-Driven Simulation

Or maybe there are a few more outcomes.

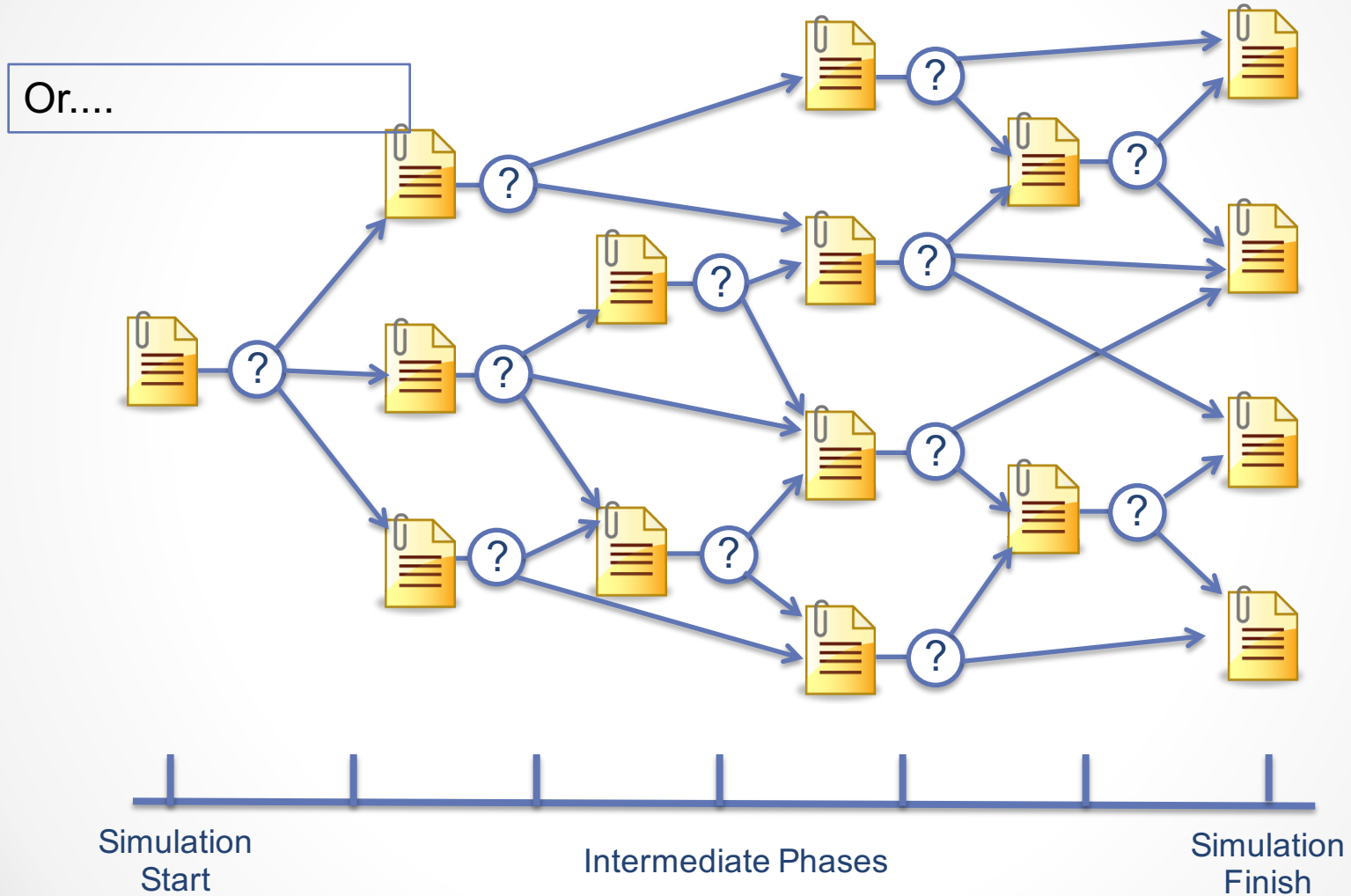


Outcome-Driven Simulation

Or there are some interesting midpoints.



Outcome-Driven Simulation



Outcome-Driven Simulation

- Define scenes for just the pedagogically interesting outcomes.
 - Choose scenes for the learning opportunities they provide.
 - Include “unexpected” events not directly caused by previous learner actions.
 - Include elements to display internal simulation variables, e.g., money spent, or members selected for a team.
- Define rules for each scene to select the next scene to show.
 - Rules look at learner actions and non-actions.
 - Rules inspect and update internal simulation variables.