



## Lecture 12: Modelling Enterprises

### → Modeling business processes

- ↳ Why business processes?
- ↳ Modelling concurrency and synchronization in business activities
- ↳ UML Activity Diagrams

### → Modelling organisational intent

- ↳ i\* modelling language
- ↳ Modelling agents and the strategic dependencies between them
- ↳ Explaining these dependencies in terms of agents' goals



## Business Processes

### → Business Process Automation

- ↳ Leave existing business processes as they are
  - Look for opportunities to automate parts of the process
- ↳ Can make an organisation more efficient; has least impact on the business

### → Business Process Improvement

- ↳ Make moderate changes to the way the organisation operates
- ↳ E.g. improve efficiency and/or effectiveness of existing process
  - Techniques: Duration analysis; activity-based costing; benchmarking

### → Business Process Reengineering

- ↳ Fundamental change to the way the organisation operates
- ↳ Techniques:
  - Outcome analysis - focus on the real outcome from the customer's perspective
  - Technology analysis - look for opportunities to exploit new technology
  - Activity elimination - consider each activity in turn as a candidate for elimination



## Modelling Business Processes

### → Business processes involve:

- ↳ Multiple actors (people, business units,...)
- ↳ Concurrent activities
- ↳ Explicit synchronization points
  - E.g. some task cannot start until several other concurrent tasks are complete
- ↳ End-to-end flow of activities

### → Choice of modelling language:

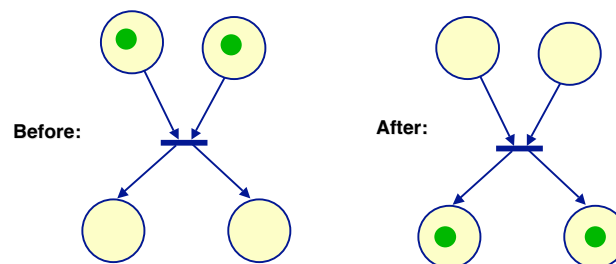
- ↳ UML Activity diagrams
  - ...based on flowcharts and petri nets
  - Not really object oriented (poor fit with the rest of UML)
- ↳ Business Process Modelling Notation (BPMN)
  - New (emerging) standard, loosely based on pi calculus

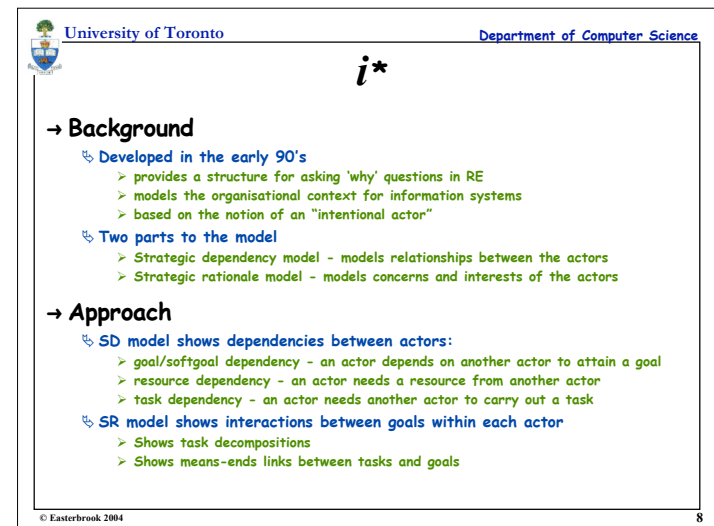
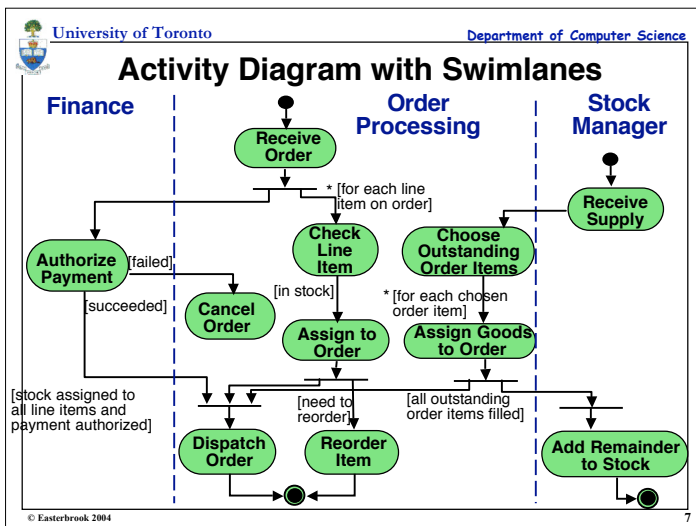
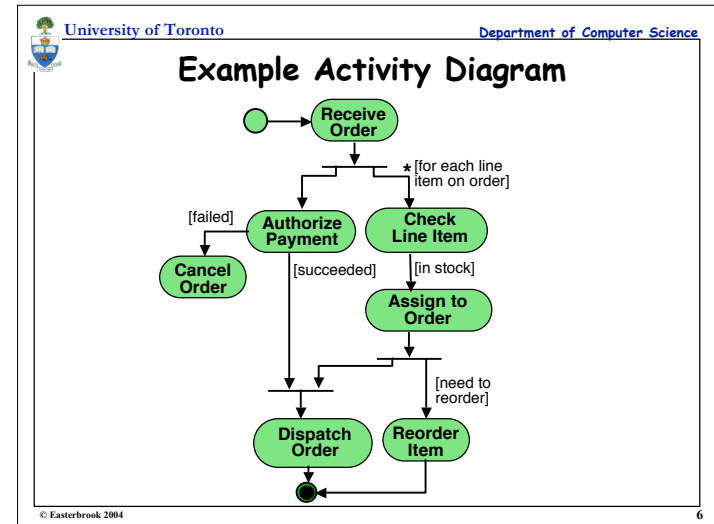
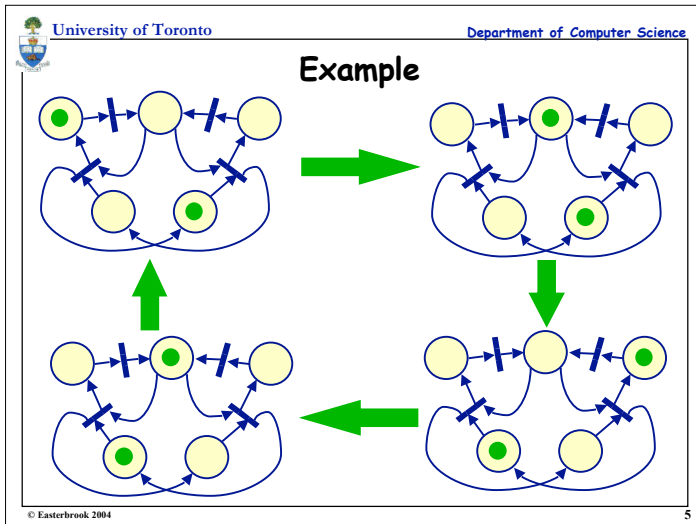


## Refresher: Petri Nets

### → Petri net syntax:

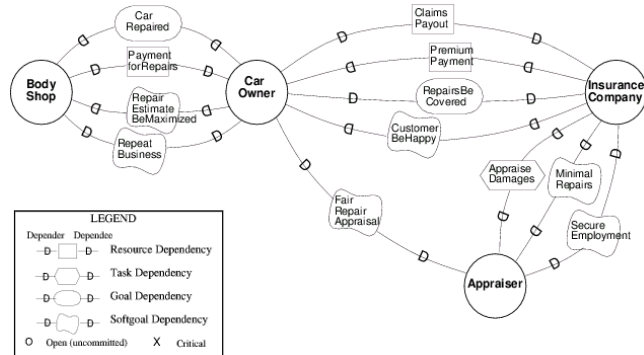
- ↳ Places and transitions
- ↳ Tokens (possibly coloured)







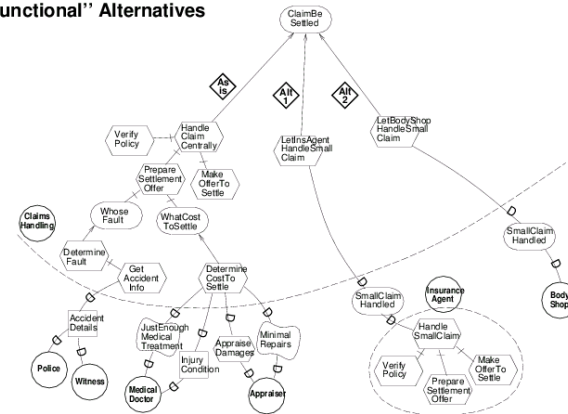
### E.g. Strategic Dependency Model



This diagram ©2001, Eric Yu



### E.g. Strategic Rationale Model "Functional" Alternatives



This diagram ©2001, Eric Yu



### Summary

→ Need to understand business processes

- ↳ Existing business process
  - to understand the problem
- ↳ Potential changes to the business process
  - To investigate alternative solutions

→ Need to understand organisational interdependencies

- ↳ How people depend on one another to achieve their goals
- ↳ How goals relate to tasks