NC STATE UNIVERSITY

ENGINEERING ONLINE

Lecture Notes

Course Number: CSC 513

Instructor: Dr. Singh

Lecture Number: 1

Mechanics

- Scope
- Grading
- Policies
  - Especially, academic integrity

Scope of this Course

- Directed at computer science students
- Emphasizes concepts and theory
- Requires a moderate amount of work
- Fairly easy if you don't let things slip

Outline

Electronic Business

- B2C: retail, finance
- B2B: supply chains (more generally, supply networks)
- Different perspectives
  - Traditionally: merchant, customer, dealmaker
  - Trends: collaboration among various parties; virtual enterprises; coalition formation

Main technical consequence: interacting across enterprise boundaries or administrative domains

Properties of Business Environments

EMPHASIZES ENHANCEMENTS BEYOND TRAD. CSC ≒ MULTIPLE LOCI OF CONTROL

ONE LOCUS OF CONTROL ≒ dictatorship

- Traditional computer science deals with closed environments
- Business environments are *open*
  - Autonomy: independent action (how will the other party act?)
  - Heterogeneity: independent design (how will the other party represent information?)
  - Dynamism: independent configuration (which other party is it?)
    - Usually, also large scale
- Need flexible approaches and arms-length relationships

Outline

Autonomy

(1) FUNDAMENTAL FACT

(2) DESIRABLE AS A MODELING ASSUMPTION

Independence of business partners

- Sociopolitical or economic reasons] commonsense obvious
  - Ownership of resources by partners
  - Control, especially of access privileges
  - Payments
- Technical reasons: opacity with respect to key features, e.g., precommit — OPAQUE DECISION MAKING
  - Model components as autonomous to simplify interfaces ("assume nothing")
  - Model components as autonomous to accommodate underlying exceptions

≈ form of encapsulation

Heterogeneity

DEFINITION OF "YEAR" IN NCSU

- CALENDAR JAN 1 - DEC 31
- FALL + SPR ~~AH~~ SEMESTERS
- ~~FALL~~ SPR + SUM + FALL (SEASONS)
- CLASSIFICATION OF SENIORITY
- FISCAL YEAR JULY 1 - JUN 30
- AY: FALL, SPR (SUM)
- RESEARCH AY AUG 16 - MAY 15

Independence of component designers and system architects (~~JUNIOR~~ AUGR

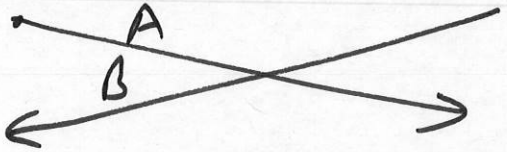
- Historical reasons
- Sociopolitical reasons
  - Differences in local needs
  - Difficulty of achieving agreement
- Technical reasons: difficulty in achieving homogeneity
  - Conceptual problems: cannot easily agree
  - Fragility: a slight change can mess it up

1. FUNDAMENTAL FACT
2. DESIRABLE ENGINEERING ASSUMPTION ≈ ENCAPSULATION

(FUTURE REF: NOT BLACK BOXES)

LING DING

LEONEL



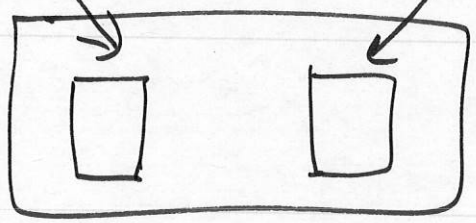
REAL WORLD

A OCCURS BEFORE B

B OCCURS BEFORE A

LING DING (D)

LEONEL (L)



FB EBAY

D WINS OR L WINS