

# Chapter 21

## Structured HCI Design

# Chapter 21 Overview

- Command Language Grammar (CLG)
- Conceptual design - What the task involves
- Task Allocation - maps conceptual to physical
- Physical Design - How to implement the task
- Consistency
- Completing the Design

# Command Language Grammar (CLG)

- Includes 4 hierarchical layers
  - Conceptual component
    1. Task level
    2. Semantic level
  - Communication component
    3. Syntactic level
    4. Interactive level
- Each level includes a complete system description
- Mappings go between levels

# Conceptual Design

- User's perspective
- Develop Dataflow Diagrams
  - Level 0: System level: inputs and outputs
  - Level 1: Main tasks
- Develop ER Models
  - Depict the required data elements and the relationships that exists between them
- Conceptual design shows what is required not how the system will be implemented.

# Task Allocation

- Allocate tasks
  - to human
  - to computer
  - to human computer system
- Developer decides
  - who provides data / knowledge to perform task
  - who is going to physically accomplish task
- Consider mental load on human

# Physical Design

- Operational Aspects
  - users actions and system's physical responses
- Representational aspects
  - display actions
  - how to display information
- Main aspects
  - how does the system reveal the state it is in
  - what actions can the user take
  - system responses (ie: feedback)

# Design Consistency

- Physical Consistency
  - Operational
  - Representational
- Conceptual Consistency
  - Consistent metaphor
  - Consistent treatment of entities in same class
  - Task consistency

# Completing the Design

- Layered approach to design
- Conceptual layer
- Task allocation - maps conceptual to physical
- Physical layer
- Consistency
- User support - what knowledge must user's have to use the system