Software Specificatie
Technieken 2e Practicum: SDL

Specification and Description Language
Why this lesson? Why SDL?

- Broader perspective
- Telecom origin ... that’s not us!
- 70’s ... that’s ancient!
- Real-time systems
- Consistency
- Validation & Verification
What are we **NOT** going to see?

- Code generation
- Test code generation
- Verification
- Object orientation
- Textual SDL
What are we going to see…

- Graphical SDL Notation
- Simulation
- Way of thinking
- Some form of consistency

- And we are going to play
Introduction to SDL

- System
- Block
- Processes
- Procedures

Static structure

Behaviour
Introduction to SDL

- **DishWasher demo on Cinderella SDL**
  - Install `<CD-ROM>\csdl13.exe`
  - Run CinderellaSDL
    - All Programs > Cinderella SDL > Cinderella SDL 1.3
  - “Continue”
  - Open `<CD-ROM>\DishWasher.cbf`
  - Double click on “system DishWasher”
DishWasher System

- System name
  - System DishWasher
- Text (variable declaration)
  - Signal evJetSpray...
- channel name
  - Start.here
- signal list
  - [evStart]
- Block
  - DishWasher

A signal list denotes the signals that can travel over the channel. Signals are an asynchronous way of communication. They are sent over channels.

To continue double click the DishWasher block
DishWasher Block

- Process

- Channel:
  - Bidirectional (true/false)
  - Name
  - Signal List

To continue double click the DishWasher process
DishWasher Process

- Start
- State
- Input
- Procedure call
- Procedure

To continue double click the Wash procedure
Wash Procedure

- ProcedureStart
- Output
- Decision
- Task
- Return

\[
\text{counter} \leftarrow \text{counter} + 1
\]

\[
\text{counter} < \frac{\text{washTime}}{20}
\]

\[
e\text{vJetPulse}
\]
Time to play
Extra 1: Simulation
Extra 2: Simulation

1. All Programs > Cinderella SDL > CSDLClientEx
2. Open SDL… <CD-ROM>\DishWasher.cbf
3. Play
Extra 3: Task 1

- Add the functionality to alert the user when the DishWasher needs maintenance (counter $\geq 20$). The user should be able to react on this signal by sending a repair man that can reset the counter.
Extra 4: Task 2

- Add the functionality to let the user configure the DishWasher. Three modes should be supported:
  - Quick
    - rinseTime = 10000
    - washTime = 8000
    - dryTime = 3000
  - Normal
    - rinseTime = 10000
    - washTime = 20000
    - dryTime = 3000
  - Intensive
    - rinseTime = 20000
    - washTime = 30000
    - dryTime = 5000
Extra 5: Task 3

Simulate a door.

- The DishWasher can only begin when the door is closed. When the user opens the door, the DishWasher should halt, and continue when the door is closed again. When the Tank is filled when the user wants to open the door the Tank needs to be drained first.
Links

- SDL:  www.sdl-forum.org
- Cinderella:  www.cinderella.dk
- Telelogic:  www.telelogic.com
- JSDL:
  http://home.t-online.de/home/Jens.Altmann/jsdl/jsdl_editor.htm