Lecture 16 – Validating DFDs

· Rules for DFDs
· Examples of Errors in DFDs

**Learning outcomes**: describe the rules to create valid DFDs; recognise difference between syntactic and semantic errors in DFDs; validate single and multi-level DFDs.

---

**Rules for DFDs**

**Syntax** – DFDs follow rules and have correct structure within each DFD and across DFDs.

**Semantics** – diagrams convey the correct meaning and reflect the business process accurately.

**Validating Processes**

· A unique name (verb-noun), number and description
· At least one input data flow and at least one output data flow
· Output data flow names different than input data flow names
· No more than around 10 processes per DFD

---

**Validating Data Flows**

· A unique name (noun)
· Connects to at least one process
· Shown in only one direction (no two-headed arrows)
· A minimum number of crossed lines

**Validating Data Stores**

· A unique name (noun) and identification number
· At least one input data flow and at least one output data flow

**Validating External Entities**

· A unique name (noun)
· At least one input or output data flow

---

**Validating Across DFDs**

**Context Diagram**

· Every set of DFDs must have one Context Diagram

**Viewpoint**

· There is a consistent viewpoint for the entire set of DFDs

**Decomposition**

· Every process is wholly and complete described by the processes on its children DFDs

**Balance**

· Every data flow, data store, and external entity on a level i DFD is shown on the level i+1 DFD that decomposes it
· Every data store, data flow or external entity that appears on a parent DFD is also shown in its child DFD
**Semantic Validation**

Appropriate Representation
- To verify correct representation: user walk-through and/or role-play to verify semantics

Consistent Decomposition
- Examine lowest level DFDs for same level of detail

Consistent Terminology
- Examine names carefully for the same component across all DFDs

---

**Exercise 16.1** Identify errors in the following Level 0 DFD.

**Exercise 16.2** Identify errors in the following multi-level DFD.

**Example 16.1** Other examples of DFD will be shown and analysed for validity in class. These are a sample of coursework from students in previous years.
Additional Reading

Chapter 6 of (Dennis et al., 2006)

Chapter 7 of (Kendall and Kendall, 2005)