

Software Modeling and Analysis

Reading Log 
'Software Design: An Introduction'
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1. The Role of Software Design

What exactly is the purpose of design?

- To produce a workable solution to a given problem.

What is end goal?



1.1 The software design process

Software properties

- The complexity of software
- The problem of conformity
- The ease of changeability
- The invisibility of software



1.1 The software design process

Features of Software Design

- Procedural manner**
- Constrained process**



1.2 Design in the software development cycle

Designing software

-Not an isolated and independent activity.

Specification

-Designer must provide a set of specification



2. Describing Designs

2.1 Recording the design model: design viewpoint

2.2 Design representation forms

2.1 Recording the design model :design viewpoints

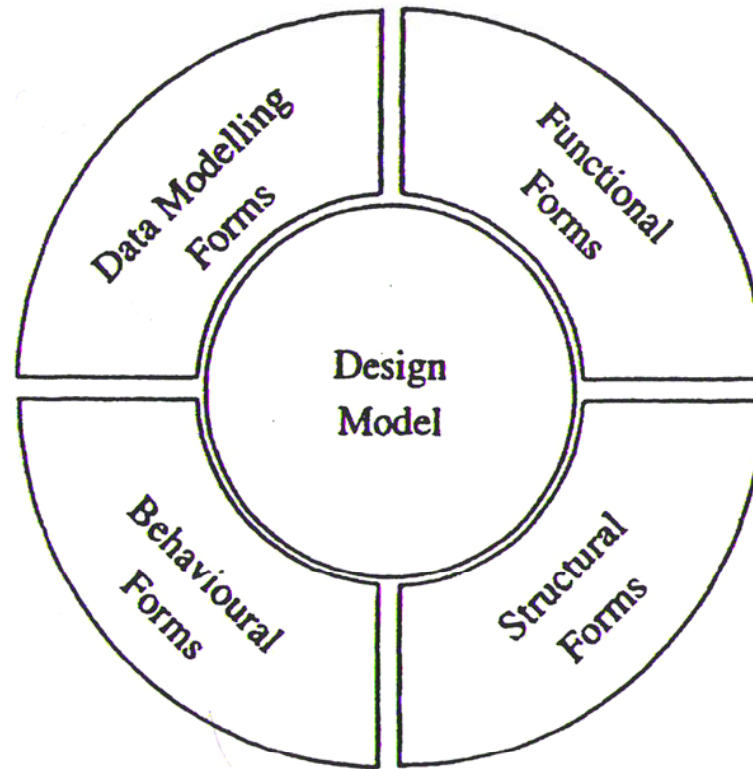


Figure 1. Design viewpoints projected from the design model.



2.2 Design representation forms

Three principal forms

- Textual descriptions
- Diagrammatical descriptions
- Mathematical descriptions

2.3 Some examples of design representations

The State Chart

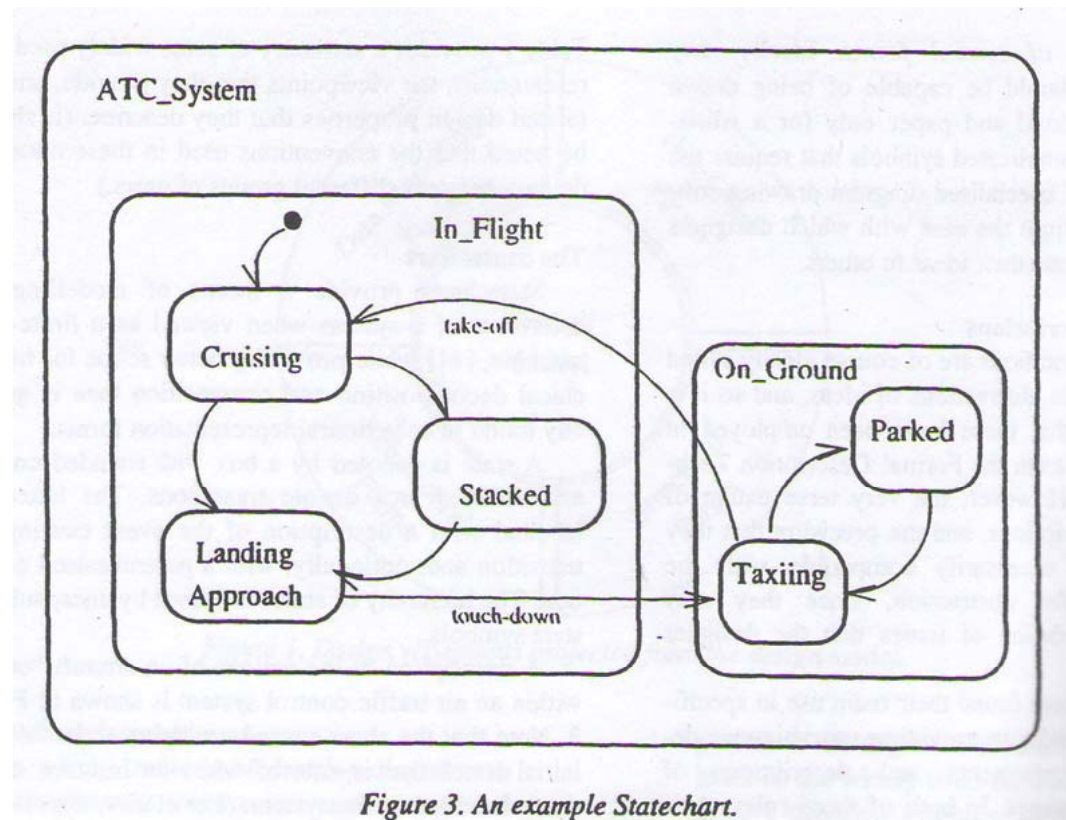


Figure 3. An example Statechart.

2.3 Some examples of design representations cont.

The Jackson Structure Diagram

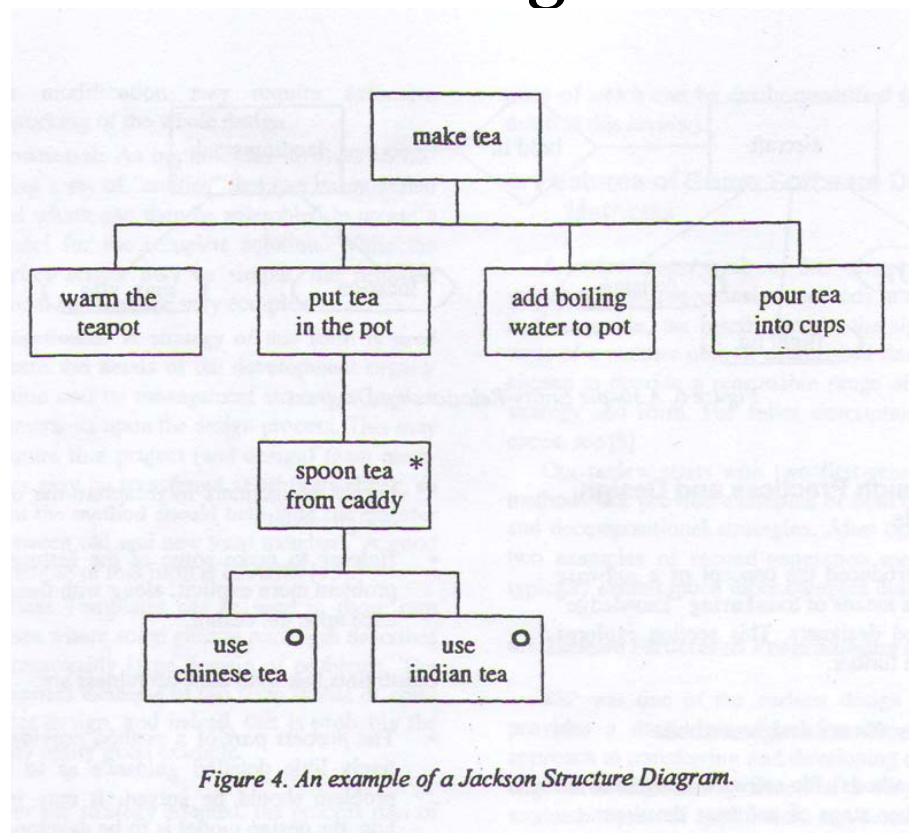


Figure 4. An example of a Jackson Structure Diagram.

2.3 Some examples of design representations cont.

The Structure Chart

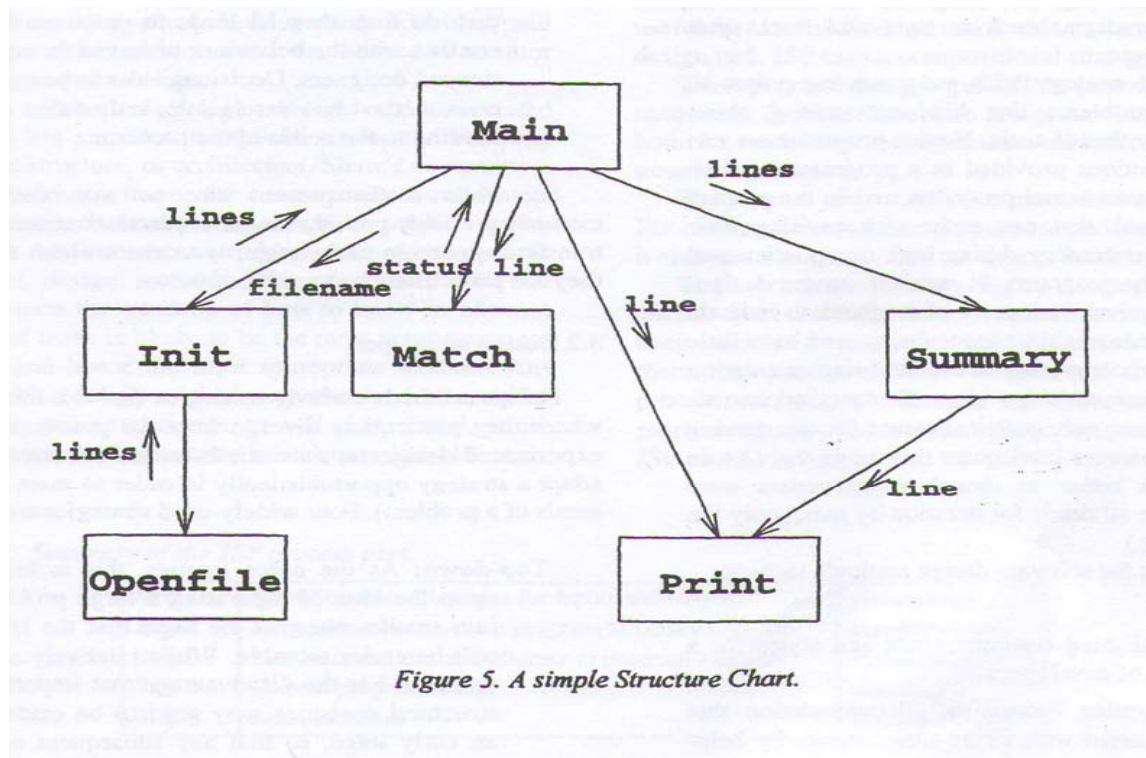


Figure 5. A simple Structure Chart.

2.3 Some examples of design representations cont. **The Entity-Relation Diagram**

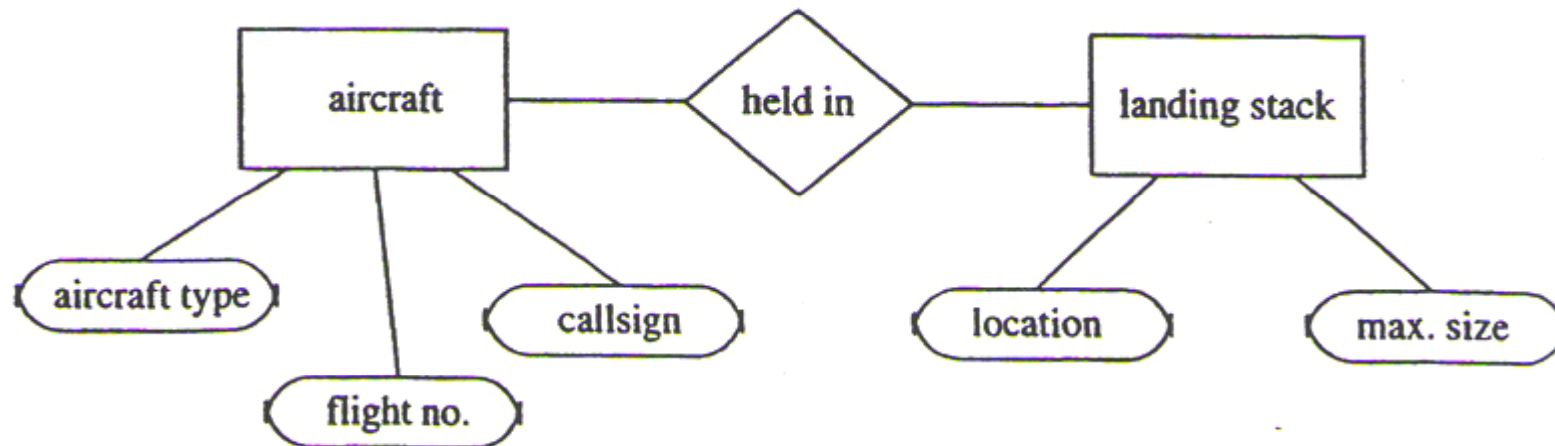


Figure 6. A simple Entity-Relationship Diagram.



3. Software Design Practice and Design Method

3.1 Rationale for software design methods

3.2 Design strategies



3.1 Rationale for software design methods

- **The use of “methods” for software design**
- **Other roles for software design methods**
- **Constraints that limit their usefulness**



3.2 Design strategies

- **Top Down**
- **Compositional**
- **Organizational**
- **Template**