Product Line Engineering with Language Workbenches

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itemis
Configuration

... selecting options
... setting param values
Configuration Feature Models

Aircraft

Wing
- high
- shoulder
- low

Engine
- Jet
- Piston

Materials
- metal
- wood
- cloth
- plastic

Features:
- mandatory
- optional
- alternative
- or (n of m)
Customization

... „real languages“
... instantiation
... connections
Language Workbench
(Martin Fowler)
Language Workbench

use persistent abstract representation

(Martin Fowler)
Language Workbench
(Martin Fowler)

projectional editing
Language Workbench

(Martin Fowler)

language ::= schema + editors + generators
Language Composition

There's no parsing.

Unique Language Element Identity.

Unlimited language composition.
Flexible Notations

Textual
like ASCII

Graphical
box & line

Semi-Graphical
mathematical

treated the same
can be mixed
Multiple Notations

... for the same concepts

e.g. in different contexts or for different tasks
modeling == programming
modeling == programming

... at different levels of abstraction
... from different viewpoints
... integrated!
modeling ==
programming

... with different degrees of domain-specificity
... with suitable notations
... with suitable expressiveness
modeling == programming

And always:
precise and tool processable
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currently

1.1
Embedded Systems
DEMO

Embedded Systems Case Study