Variability Implementation Techniques

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Variability Implementation

- There are several techniques to implement variability
- Implementation techniques can be classified in three dimensions
  - Binding time
  - Language vs. Tool-based (Technology)
  - Annotation vs. Composition (Representation)

Implementation Techniques

Technique	Binding Time	Technology	Representation
Parameters	Load Time	Language	Annotation
Design Patterns	Both*	Language	Composition
Frameworks	Both*	Language	Composition
Components	Both	Both	Composition
Preprocessors	Compile Time	Tool	Annotation
FOP	Both*	Language	Composition
AOP	Both*	Language	Composition
Virtual Separation	Compile Time	Tool	Annotation

Popular Techniques

- The most common techniques to implement variability in industry are Parameters and Preprocessor
- Parameters
  - It uses of conditional statements, such as *if*
- Preprocessor
  - It defines directives to remove code fragments, such as *#ifdef*

Bibliography

- S. Apel, D. Batory, C. Kastner, G. Saake. **Feature-Oriented Software Product Lines: Concepts and Implementation**. Springer; 2013.
  - Section 3.3