Reuse Based Refactoring Tools

**Reuse approaches**
- Systematic
- Transformational

**Automated refactoring tools**
- Reuse refactoring definitions when adapting to new source language

Reuse is important in software reuse and software reuse is important for refactoring.

**Goals**
- Language definition-independent refactorings
- Object-Oriented programming languages: statically typed with or without genericity
- Software support definition

**Solution**
MOON as model language for defining refactorings and reuse based on frameworks

**Framework Support**
- Language Independence – MOON Framework
  1. Core – common language contructions
  2. Extensions – language variable contructions
  3. Refactoring Run Environment – Engine Framework
  4. Core: Provide template method to complete refactoring by checking preconditions, executing actions...
  5. Extensions: Concrete refactoring definitions based on concrete predicates, actions and functions.

**Refactoring Analysis on Model Language: Template**
- **Description**: A brief description explaining the refactoring
- **Motivation**: When refactoring can be useful
- **Inputs**: Inputs parameters supported in the MOON model language
- **Preconditions**: Conditions to check before running refactorings. They are defined with predicates and functions on model language MOON
- **Actions**: Set of edition primitives defined on MOON elements. They transform the model instances.
- **Postconditions**: Conditions to check after running refactorings. They are defined with predicates and functions on model language MOON

**Refactoring Tool**
- Java partial support
- Including generic classes
- .NET support
- Validate architecture
- New refactorings
- XML refactoring definition
- Metric independent support

**Current State**
- Java partial support
- Including generic classes

**Future Work**
- .NET support
- Validate architecture
- New refactorings
- XML refactoring definition
- Metric independent support

**Refactoring Set**
- Add Parameter
- Rename Parameter
- Remove Parameter
- Move Attribute
- Move Method
- Rename Class
- Rename Method
- Other generic refactorings