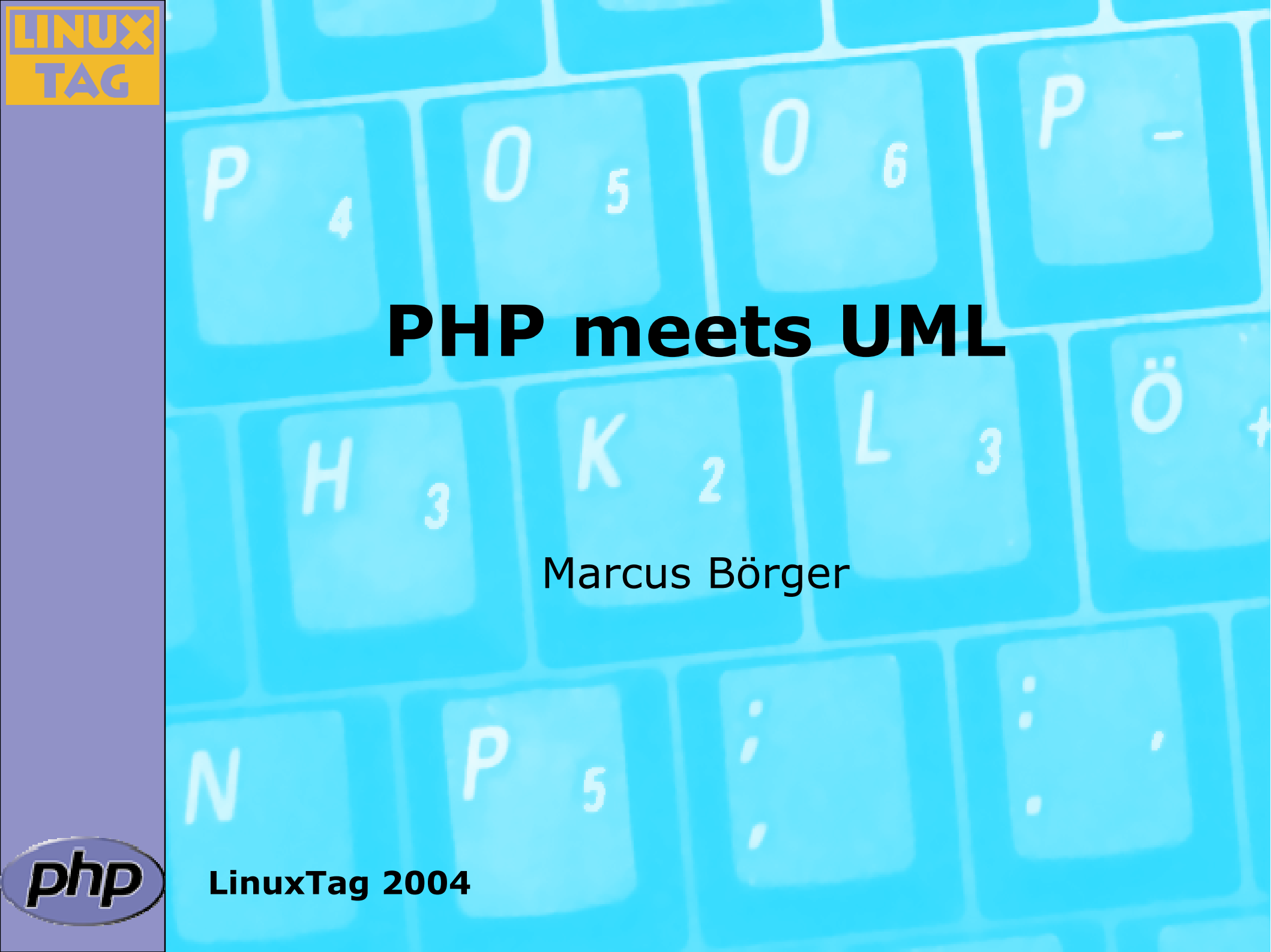


PHP meets UML

Marcus Börger

LinuxTag 2004

Overview

- ☑ PHP 5 vs. PHP 4
- ☑ PHP 5 OO
- ☑ PHP and UML

PHP 4 and OO ?

- Poor Object model
  - ☑ Methods
    - ☒ No visibility
    - ☒ No abstracts, No final
    - ☒ Static without declaration
  - ☑ Properties
    - ☒ No default values
    - ☒ No static properties
  - ☑ Inheritance
    - ☒ No abstract, final inheritance, no interfaces
  - ☑ Object handling
    - ☒ Copied by value
    - ☒ No destructors

PHP 5's revamped OO Model

- ☑ PHP 5 has really good OO
  - ☑ Better code reuse
  - ☑ Better for team development
  - ☑ Easier to refactor
  - ☑ Some patterns lead to much more efficient code
  - ☑ Fits better in marketing scenarios

Completely new XML support

- ☑ PHP 4's XML was pathetic
  - ☑ SAX was OK
  - ☑ DOM was crappy, DOM was fake
  - ☑ There was nothing else
- ☑ PHP 5's XML is brilliant
  - ☑ SAX is OK
  - ☑ DOM is functional
  - ☑ SimpleXML is the solution to all your problems
  - ☑ Native SOAP support

Reflection API

- ☑ Can reflect nearly all aspects of your PHP code
  - ☑ Functions
  - ☑ Classes, Methods, Properties
  - ☑ Extensions

```php
<?php
class Foo {
    public $prop;
    function Func($name) {
        echo "Hello $name";
    }
}
ReflectionClass::export('Foo');
ReflectionObject::export(new Foo);
ReflectionMethod::export('Foo', 'Func');
ReflectionProperty::export('Foo', 'prop');
ReflectionExtension::export('standard');
?>
```

Reflection API

- ☑ Can be used to generate XMI
- ☑ Can be used to reverse engineer PHP

Unified Database API

- ☑ PHP 5.1 will come with PDO
  - ☑ Unified object oriented API
  - ☑ Support for MSSql, MySQL, Oracle, Postgres, ...
  - ☑ Support for transactions
  - ☑ Support for LOBs
  - ☑ Support for iterators

Why UML

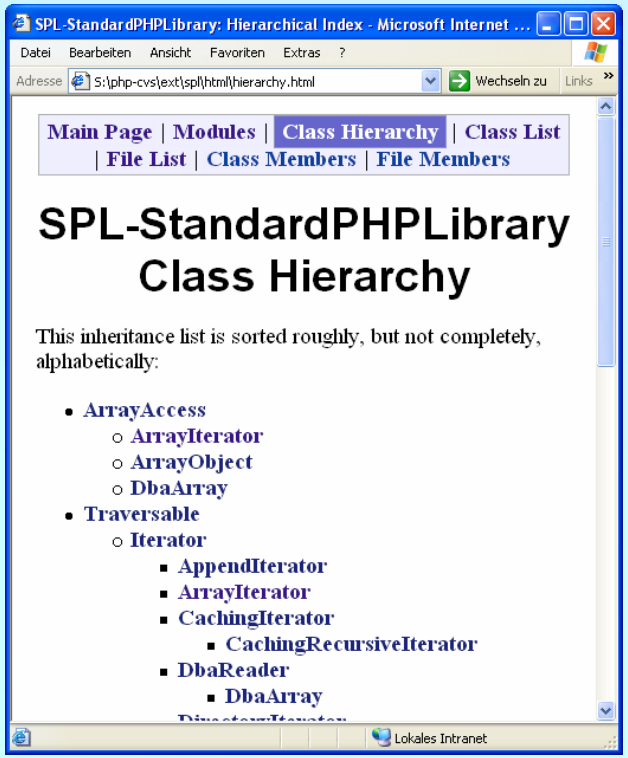
- ☑ Improve Communication
  - ☑ With customer
  - ☑ With management
  - ☑ Between developers
- ☑ Visualize Concepts
- ☑ Improve documentation
- ☑ Model verification
  - ☑ Mistakes during design are cheap
  - ☑ Mistakes during implementation are expensive
- ☑ Automatic code generation

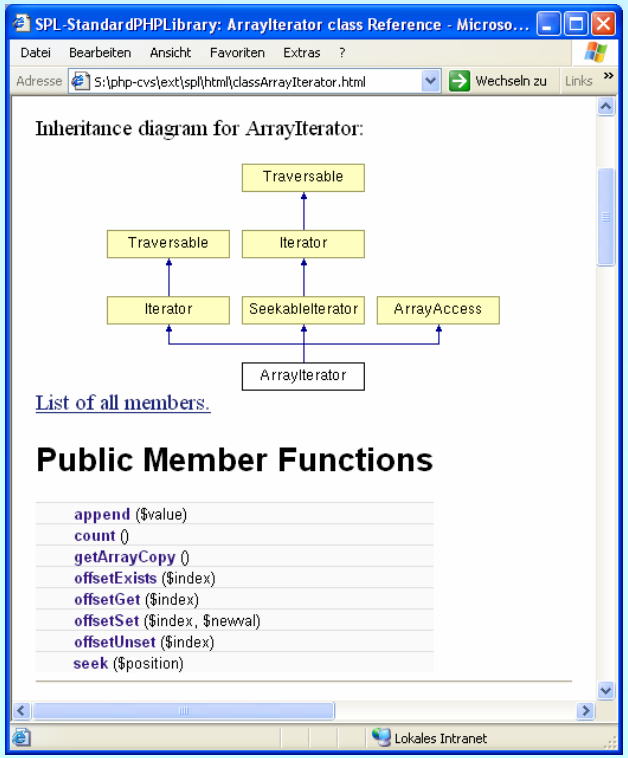
PHP and UML

- ☑ Support for OO syntax/semantic
- ☑ Support through open source tools
  - ☑ Doxygen
  - ☑ Umbrello
  - ☑ ArgoUML
- ☑ Support through commercial/proprietary tools
  - ☑ Poseidon
  - ☑ Waterproof UML
  - ☑ BITPlan smartGENERATOR
  - ☑ Sybase PowerDesigner

Doxygen

- ☑ Doxygen is a documentation system
  - ☑ Code comments to documentation
  - ☑ Creates UML like graphs automatically
  - ☑ Generates html, chm, TEX, PostScript, PDF, man pages
  - ☑ Runs on Linux/Windows



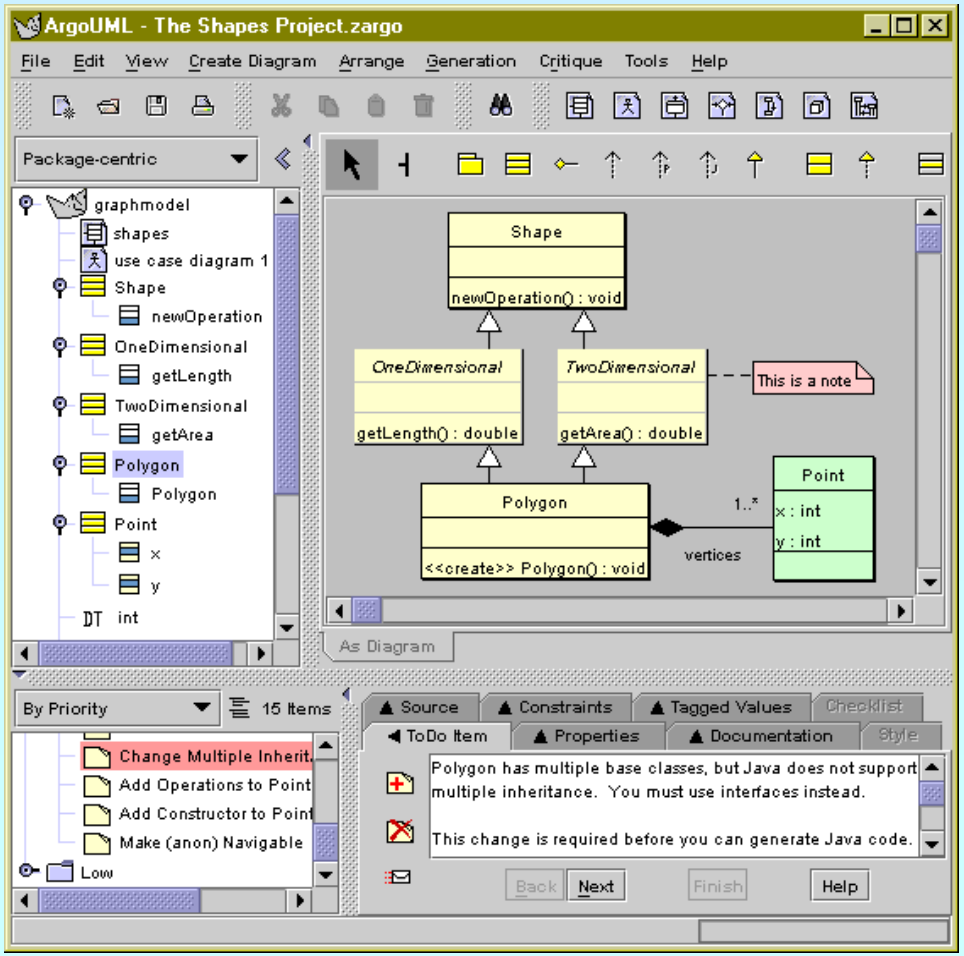


Umbrello

- ☑ Most of UML 1 diagram types
- ☑ Code generation for
  - C++, Java, PHP, Perl, Python, SQL, ADA, AS, JavaScript, IDL, XML Schema
- ☑ Export to PNG and XMI
- ☑ Runs on Linux/KDE
- ☑ Manual in English and German

ArgoUML

- ☑ Runs on any platform with Java 1.3+
- ☑ Exports GIF, PS, EPS, PGML and SVG
- ☑ XMI Support
- ☑ OCL Support
- ☑ Code generation
  - ☑ C++
  - ☑ Java
  - ☑ PHP
- ☑ Support through commercial version Poseidon



BITPlan smartGENERATOR

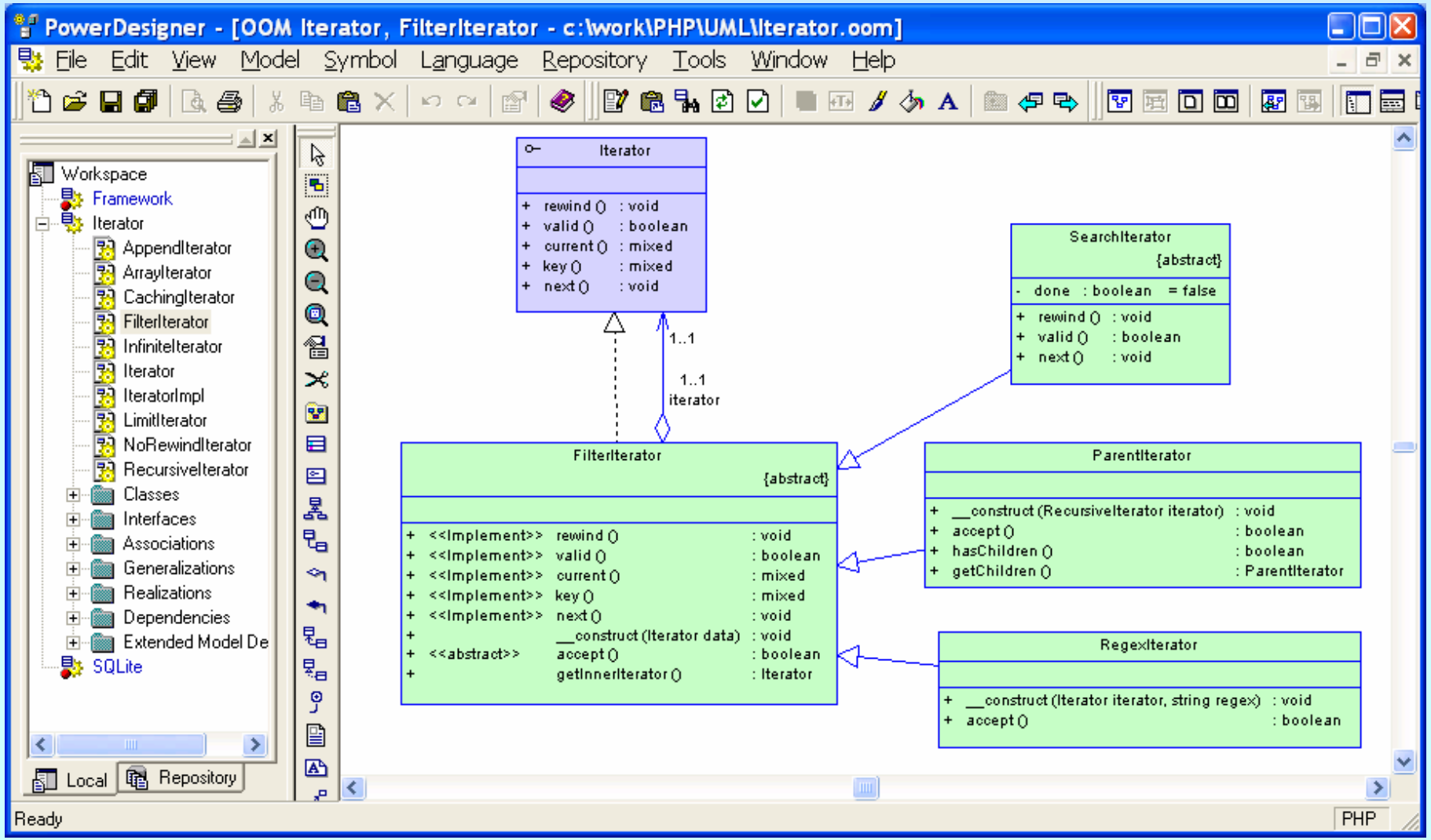
- ☑ Code generation from XMI
  - ☑ This allows to use all XMI compliant UML tools
    - ☑ Rational Rose
    - ☑ Poseidon Gentleware
    - ☑ microTOOL objectivF
    - ☑ Together Soft Together/J oder C++
    - ☑ Object Domain from Object Domain Systems
    - ☑ JDBC-Quellen and other Repositories
  - ☐ At the moment only a prototype

Sybase PowerDesigner

- ☑ Complete UML 1.3 support
- ☑ Process Execution
  - ☑ Service Oriented Architecture support
  - ☑ ebXML, BPEL4WS
- ☑ Data Modeling
  - ☑ Conceptual, Logical, Physical and Warehouse Data
  - ☑ Roundtrip engineering for databases
- ☑ Enterprise Modeling
  - ☑ Model Driven Architecture
  - ☑ Object/Relational, XML to Database and Warehouse Source mapping Techniques
  - ☑ Roundtrip engineering for C#, C++, Java, VBA, XML, ...
- ☑ Documentation generation
- ☑ Highly Extensible and Customizable

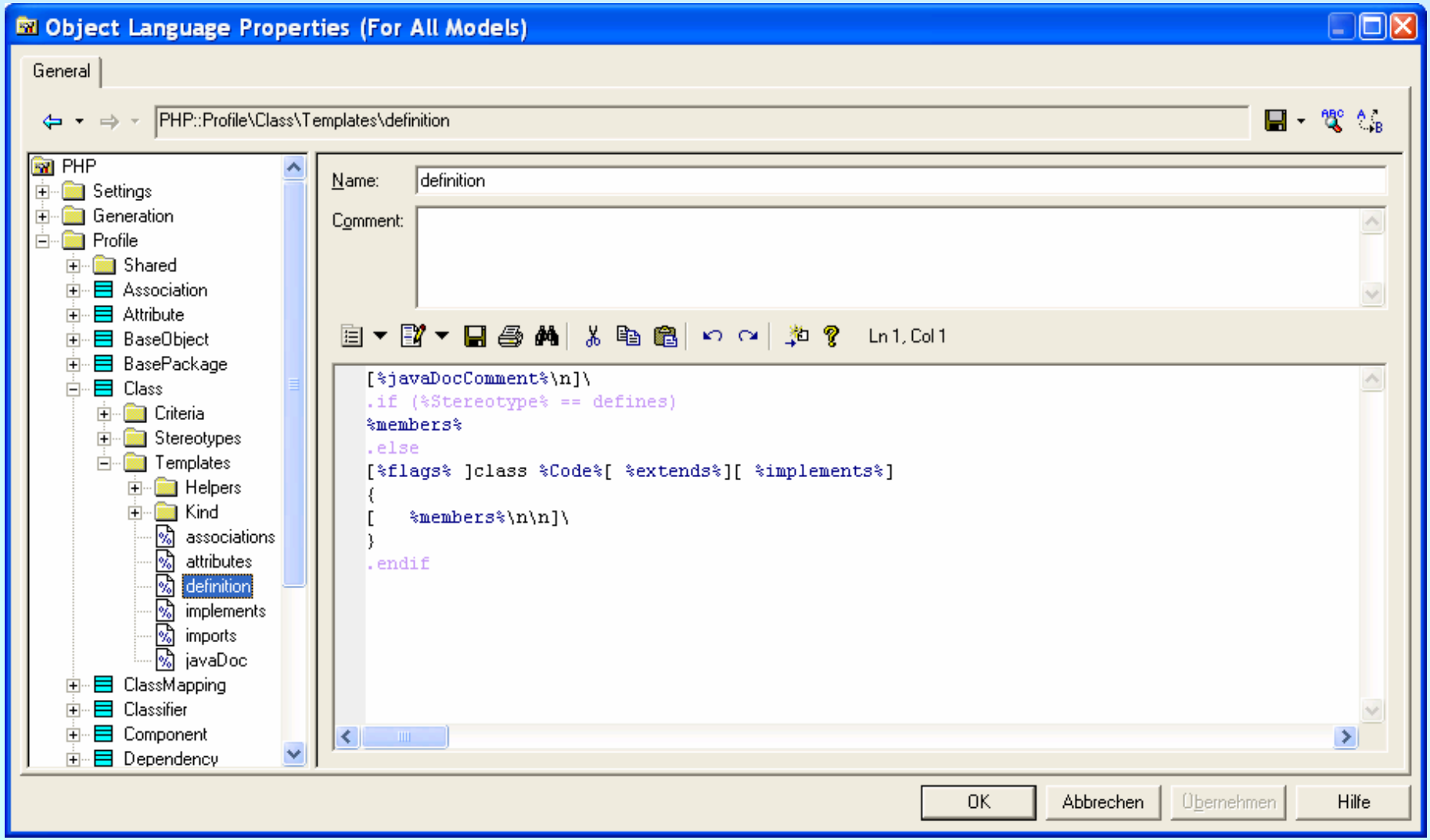
Sybase PowerDesigner

- ☑ Working with class diagrams



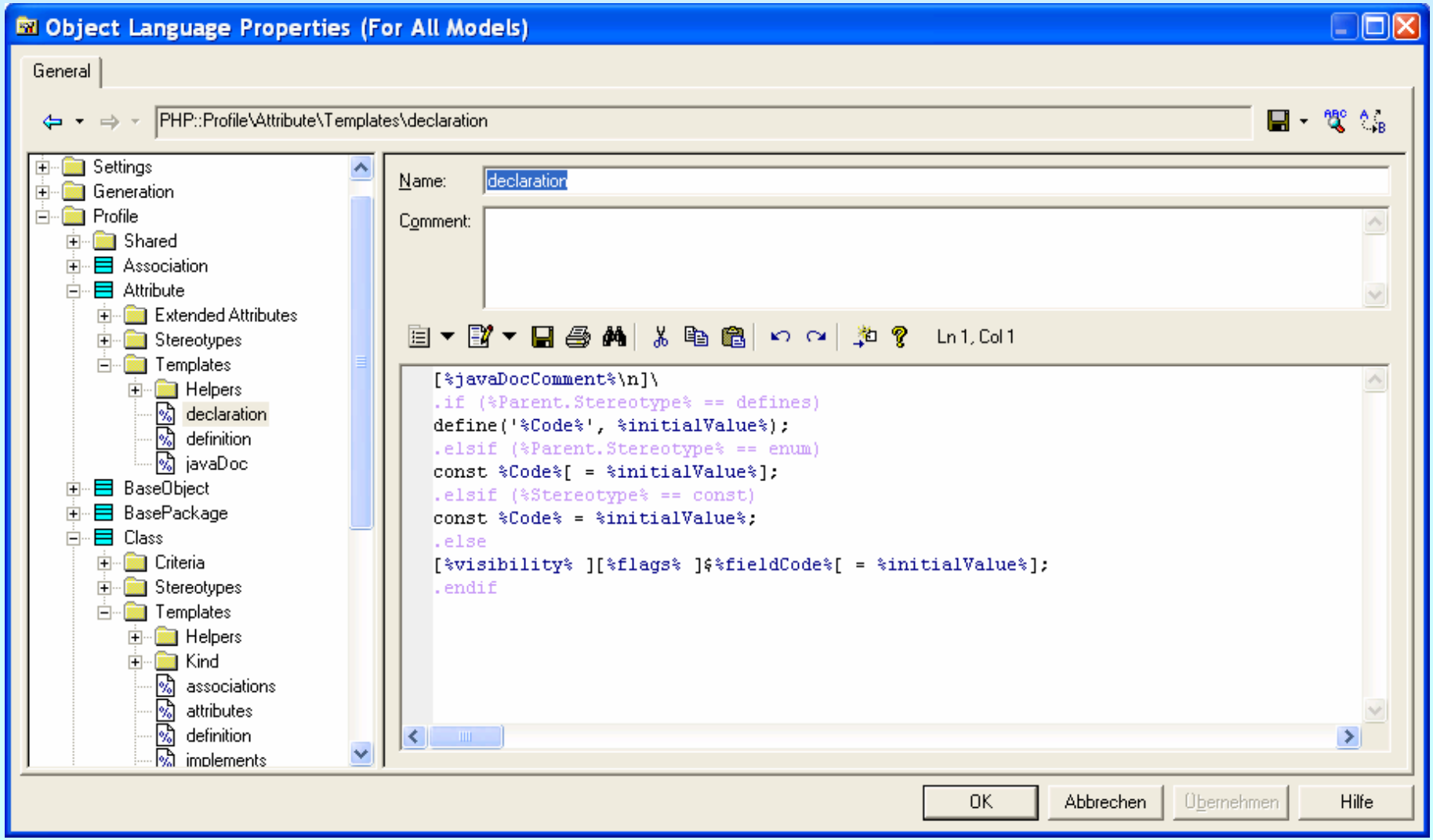
Sybase PowerDesigner

- ☑ Teaching PHP



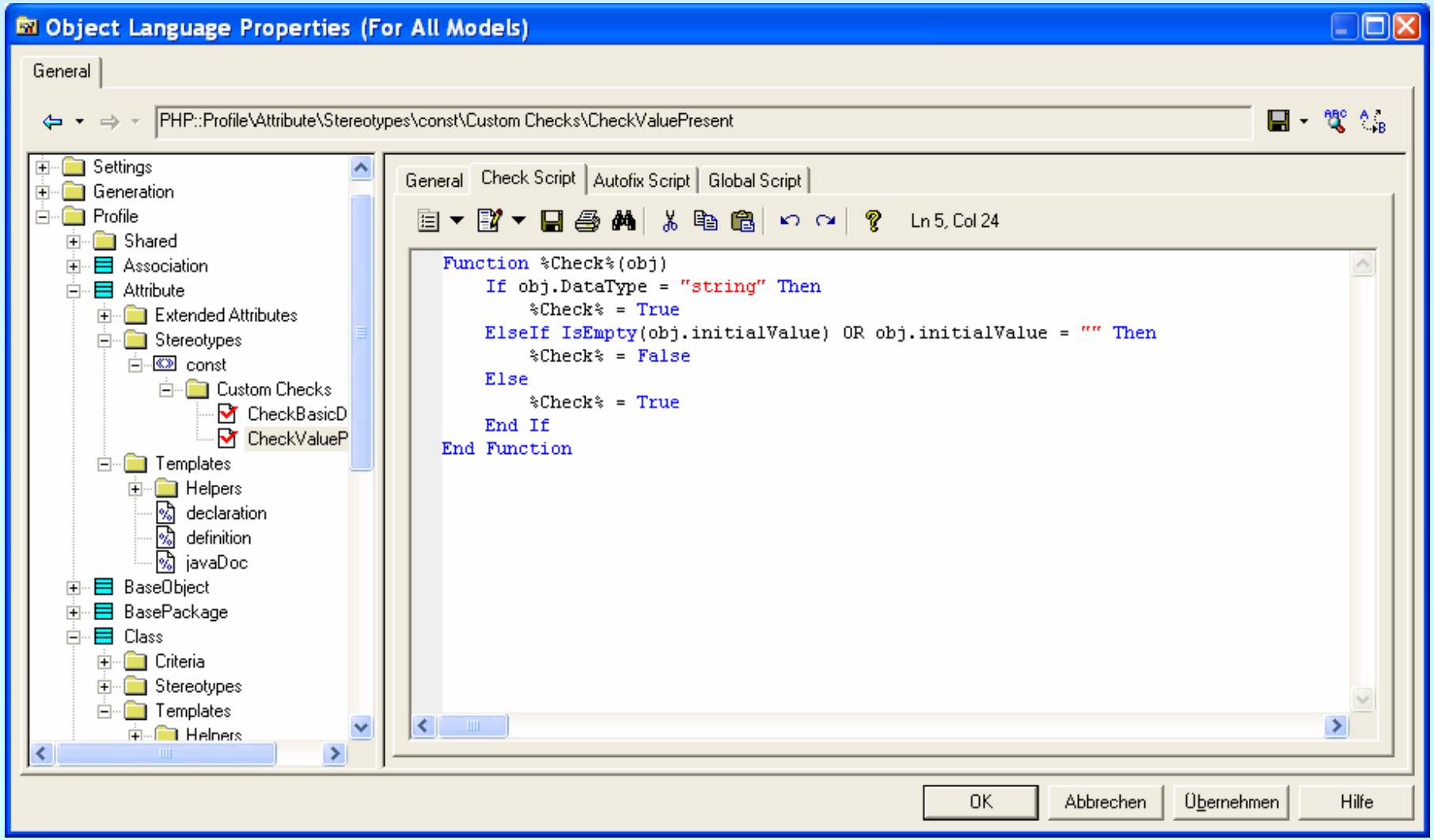
Sybase PowerDesigner

- ☑ Teaching PHP



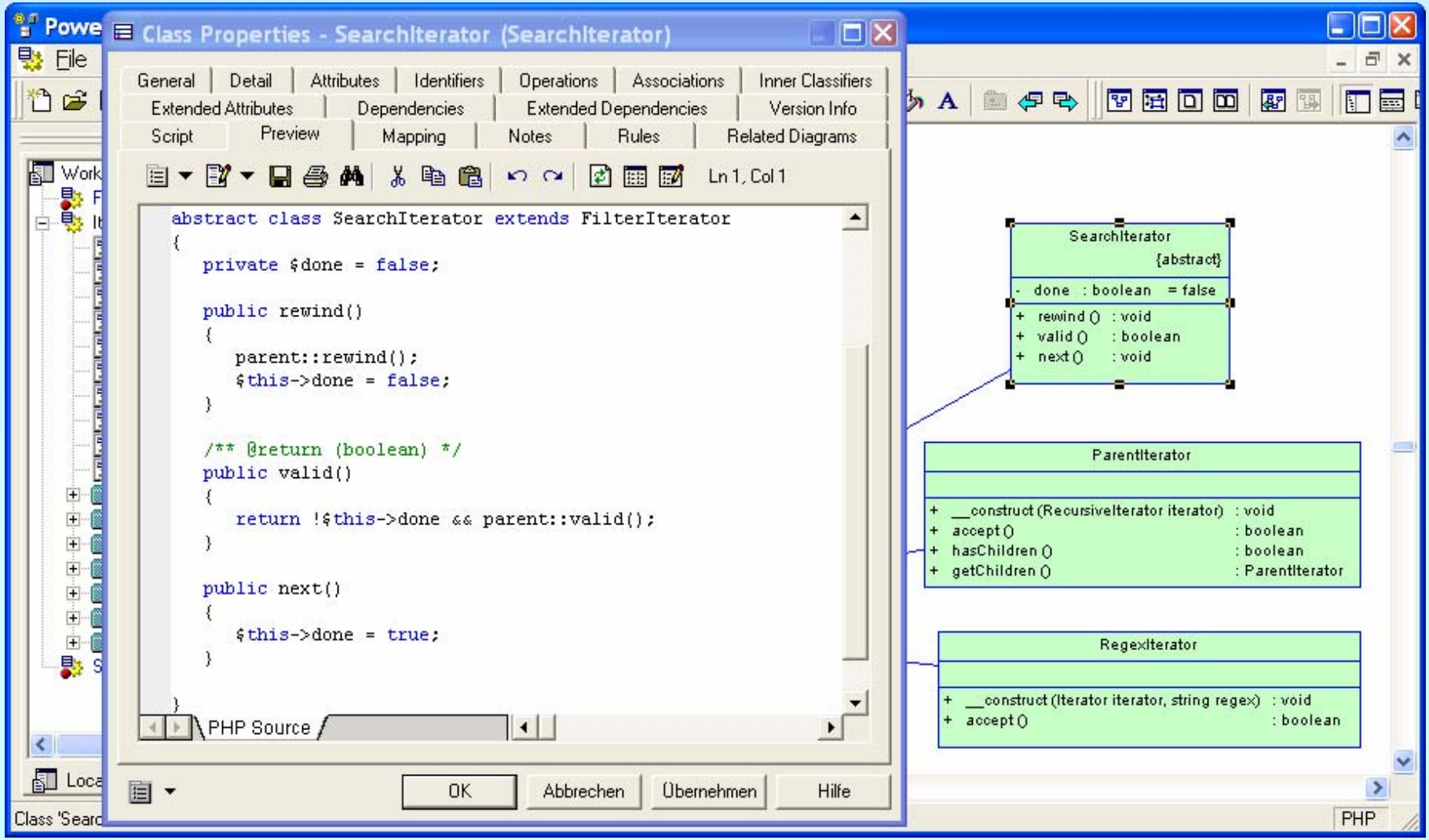
Sybase PowerDesigner

- ☑ Teaching PHP



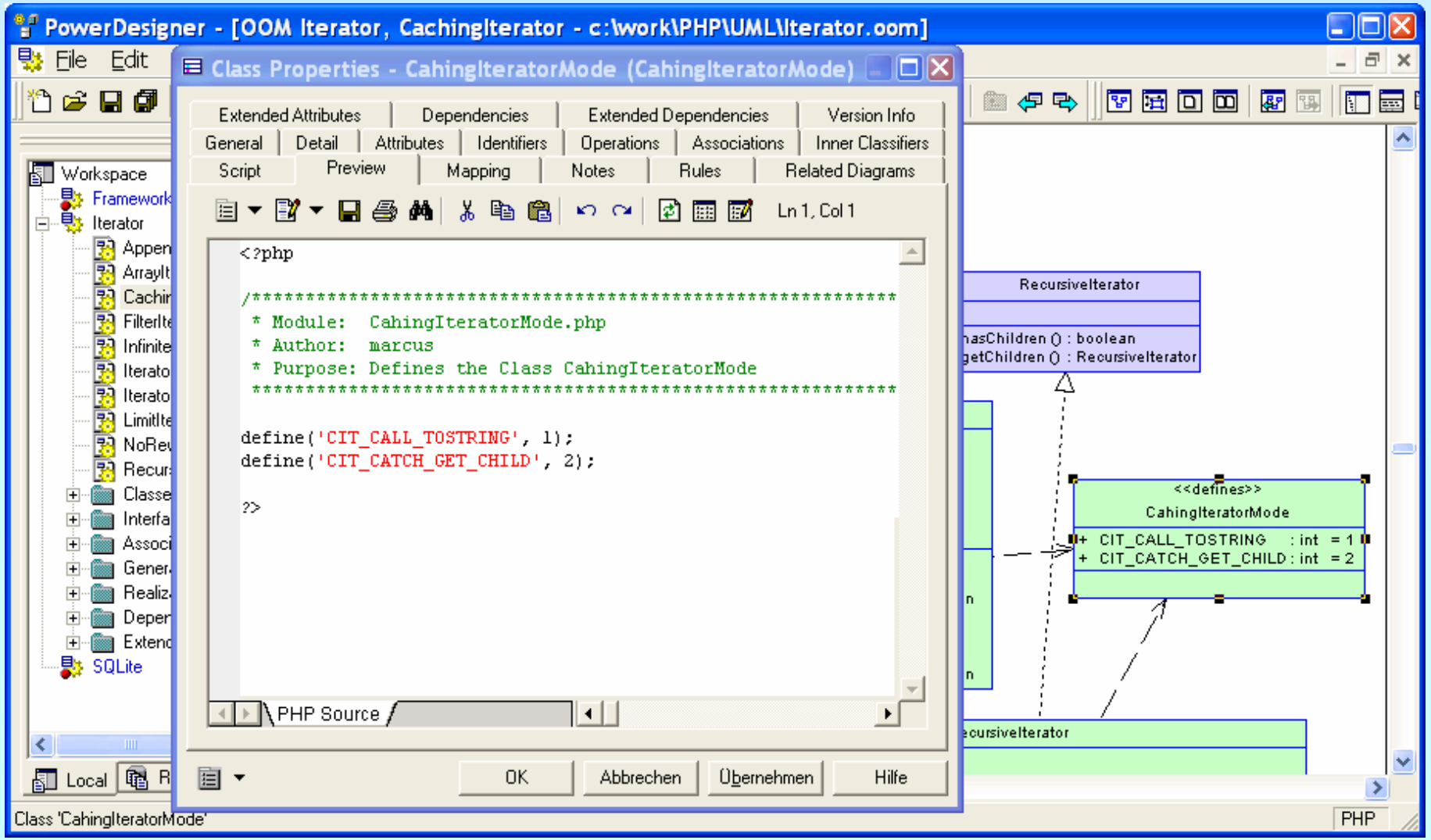
Sybase PowerDesigner

- ☑ Generating PHP scripts from UML



Sybase PowerDesigner

- ☑ Generating PHP code for constants



What to do next

- ☑ Automatically generate data query classes
- ☑ Extending PHP’s reflection API to write XMI
- ☑ Typehints for properties and return values
- ☑ Implement roundtrip engineering
- ☑ Implement a script packaging extension
- ☑ Extend PHP with the keyword ‘package’

What else?

- ☑ Using PHP to script UML tools
- ☑ Generate PHP code from Activity Diagrams
- ☑ Validating generated PHP code

Links

- ☑ This slides
  http://somabo.de/talks
- ☑ PHP
  http://php.net
- ☑ Doxygen
  http://doxygen.org
- ☑ ArgoUML
  http://argouml.tigris.org
- ☑ Poseidon
  http://www.gentleware.com
- ☑ Umbrello
  http://uml.sourceforge.net
- ☑ Waterproof
  http://www.waterproof-software.com/uml/
- ☑ PowerDesigner
  http://www.sybase.com/products/enterprisemodeling