Things to consider for testable code

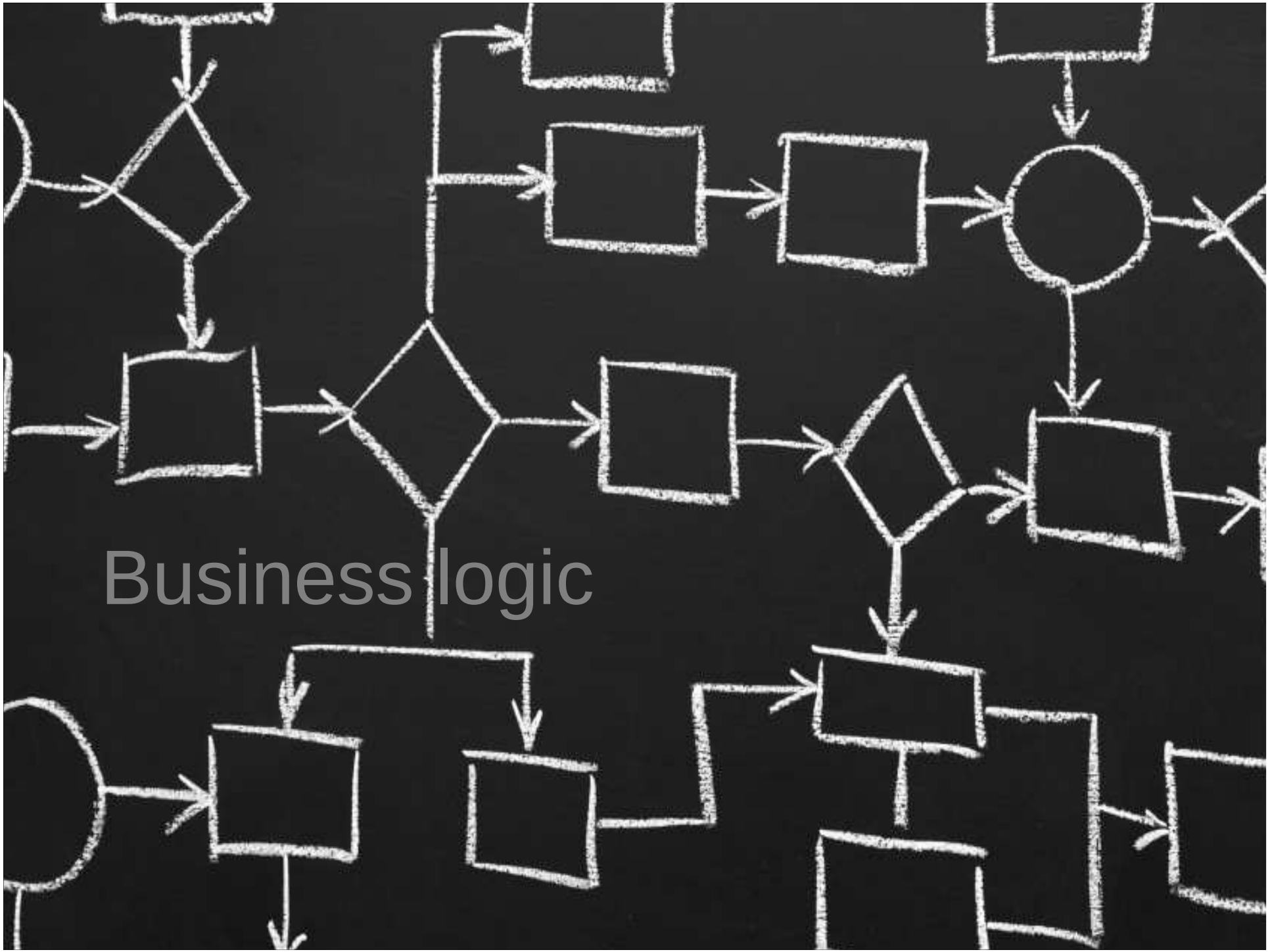
Frank Kleine, 27.10.2009

The Speaker: Frank Kleine

- 1&1 Internet AG
  (Head of Web Infrastructure)
- PHP since 2000
- Lead Developer
  - Stubbles
  - XJConf for PHP
  - vfsStream
- Technical editor "PHP Design Patterns"

Separation of Concerns

- Typical concerns in applications


Business logic


Logging

Error handling

Environment handling

Didn't we forget something really important?

Construction of Objects!

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- Golden rule of new:
  - OK for domain classes, but not for services
  - OK in tests and specialised construction classes, but not in business logic

Construction of objects II

- Bad:

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class Car {
    public function __construct() {
        $this->engine = new Engine();
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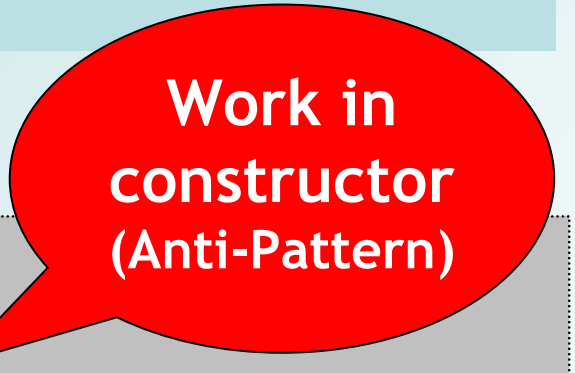

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    public function __construct(Engine $eng, Tire $tire) {
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Dependency Injection

Dependency Injection

- Pile of new (startup phase)
  - Create objects and stack them together
  - "Boilerplate", but automatable with DI framework
- Pile of objects (runtime phase)
  - Business logic, error handling, etc.
- Factories or DI instances for runtime object creation


CAUTION
Dependency Injection is viral

Law of Demeter

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class Driver {
    public function drive($miles) {
        $this->vehicle->engine->start();
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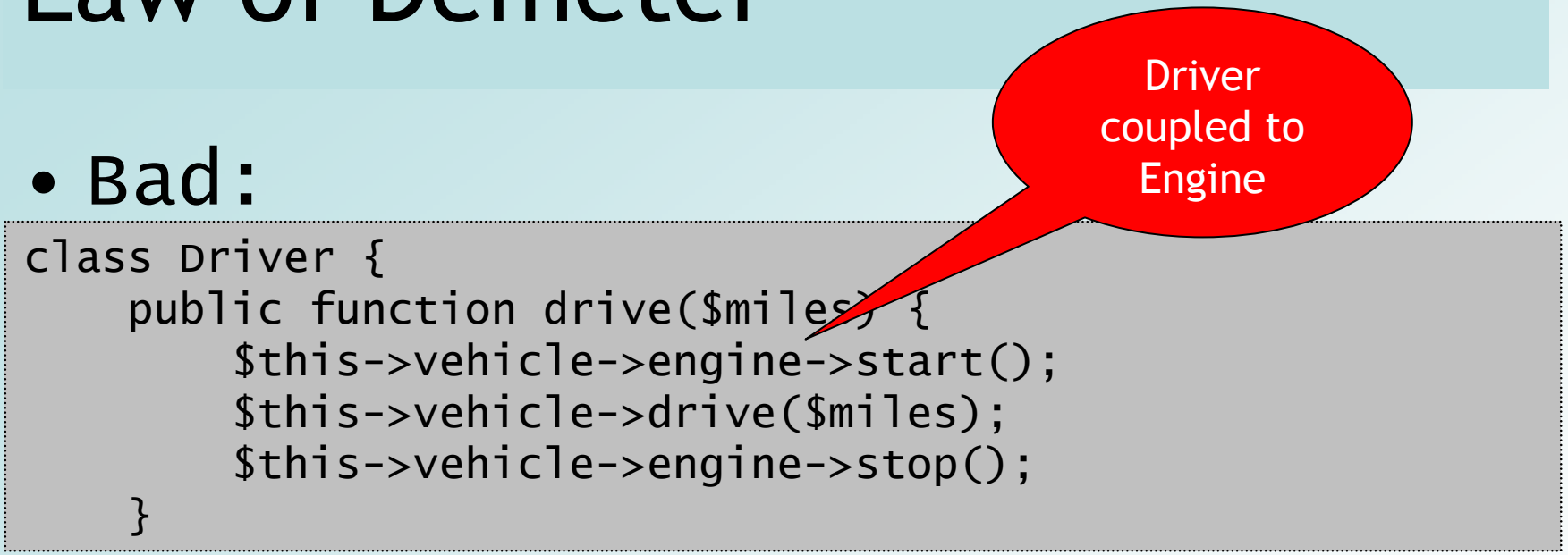


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Less prone to errors

Global state

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- Not necessarily true with global state.
- Hidden global state
  - Singleton
  - `static` methods
  - $_GET, $_POST, $_SESSION, $_...
  - Registry

Global state: Singletons

- Never implement any
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- Use a DI framework with support for Singleton scope
  - Gives full power of Singletons
  - Code using the Singleton stays simple

Singleton with DI framework

```
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       ->to('PhpSession')
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Singleton wit[Configure the binding] ...nework

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Singleton wit

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Dependency Injection

Piece of cake to test: independent of PhpSession

Global state: `static` methods

- Not always bad
  - Simple operations without dependencies
- Always bad if state is involved
  - Might return different results with same input.

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  - Remember: Singleton is evil
- Even better: interfaces
- Security: use a Request class which enforces filtering/validating input

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Global state: Registry

- Using a DI framework: no registry required
- Without DI framework: use Registry for config values only
- Did I already mentioned that Singletons are evil?
  - `static` methods are enough


Change is coming.


Modify
Change is coming.


Simplify
Modify
Change is coming.


Simplify
Improve
Modify
Change is coming.

Finally…

- If you remember only one little thing of this presentation it should be…


Singletons are really, really
(and I mean really)
DANGER
EXTREMELY FLAMMABLE
CAUTION

Singletons are really, really (and I mean really)

EVIL

The End

- Questions and comments?

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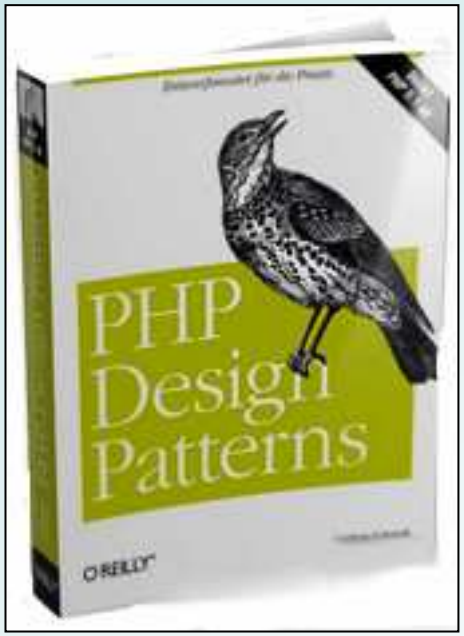
- Thank you.

Commercial break

- Stephan Schmidt: PHP Design Patterns



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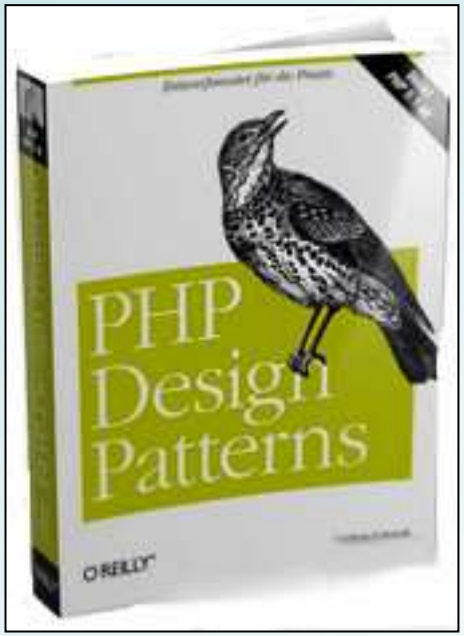

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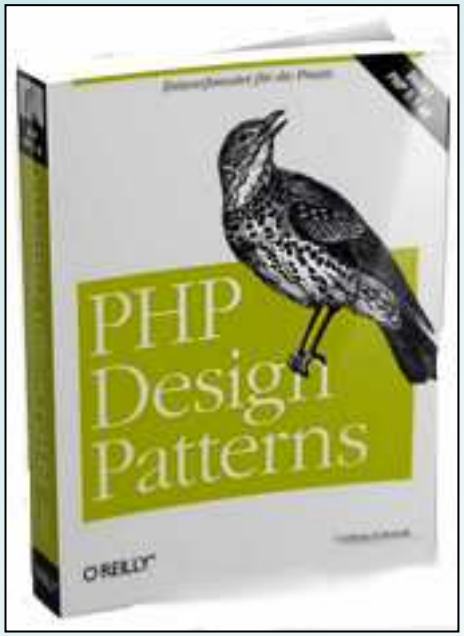

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