Context-Oriented Programming

Willian Paiva & Nathalie Craeye

January 29, 2017

Outline

The objective

Simplification and control

- Make it simpler to take the context in consideration.
- Better control over the method selection.
- Well define the entities.
- Tackle *crosscutting-concerns*.

Context and behavior variants

COP subdivide the Context into 3 categories:

Actor

Ex: Function or methods call, messages ...

Environment

Ex: GPS, battery, light sensor ...

System

Ex: Methods, objects, subsystems ...

Layers

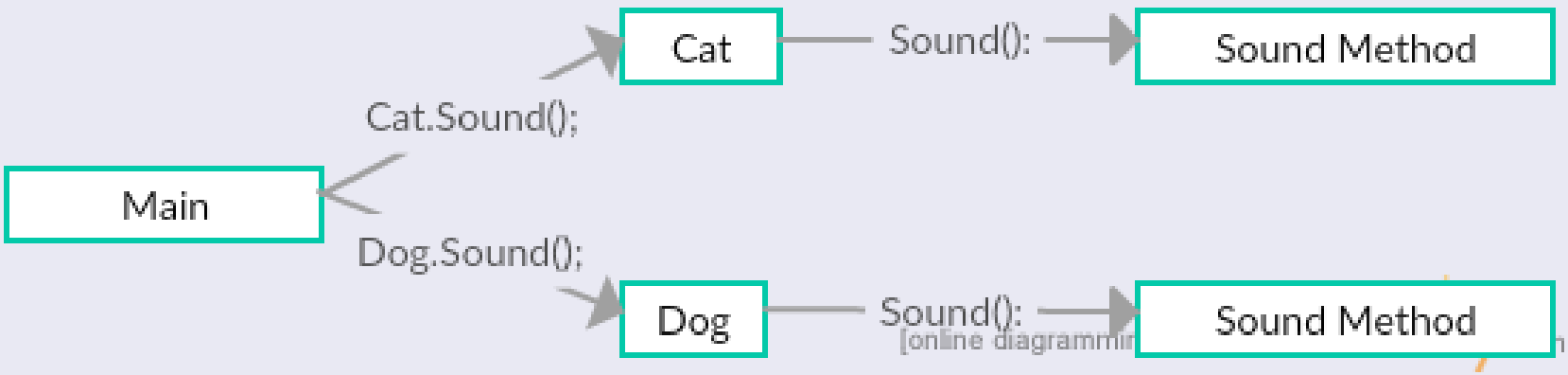
- First-class entities
- Activation and deactivation
  - Arbitrary parts of the code
  - Conditional (environment)
- Scope
  - executes the code on the scope in or out the layer

Multi-dimensional message dispatch

one dimension (Procedural programming)

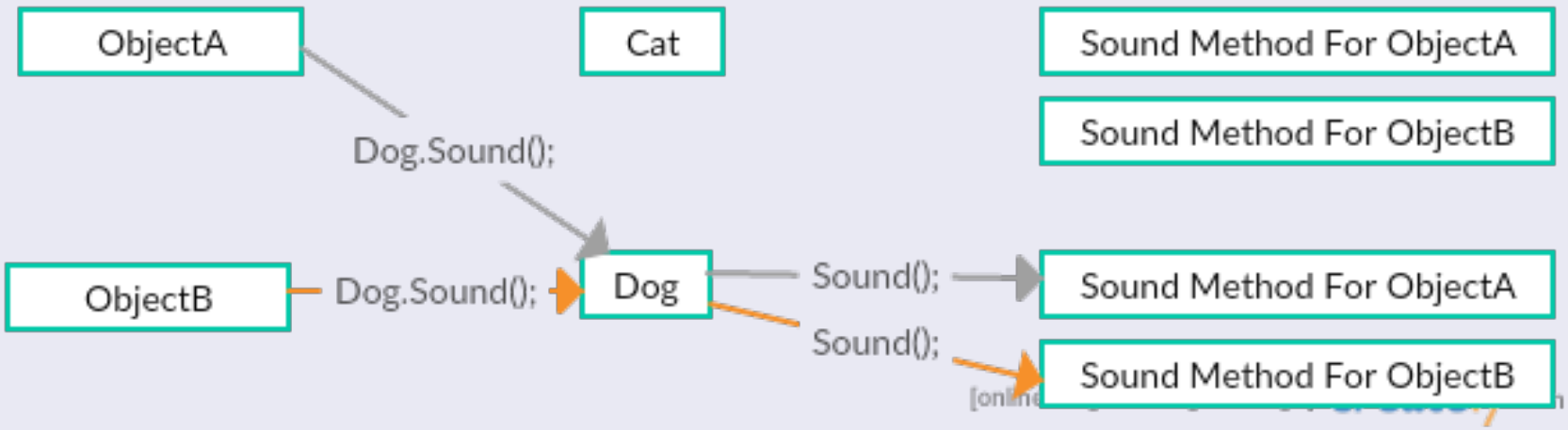
Multi-dimensional message dispatch

two dimension (Object-oriented programming)



Multi-dimensional message dispatch

three dimension (Subject-oriented programming)



Multi-dimensional message dispatch

four dimension (Context-oriented programming)

Decorator

Aspect-oriented programming

Crosscutting-concerns