CS 617 Object Oriented Systems
Lecture 15
Meta-patterns, Frameworks
3:30-5:00 pm, Mon Mar 3, 2008

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Outline

1. Frameworks
2. Meta-patterns
3. 'Unification' Patterns
4. Connection Patterns

Outline

1 Frameworks

2 Meta-patterns

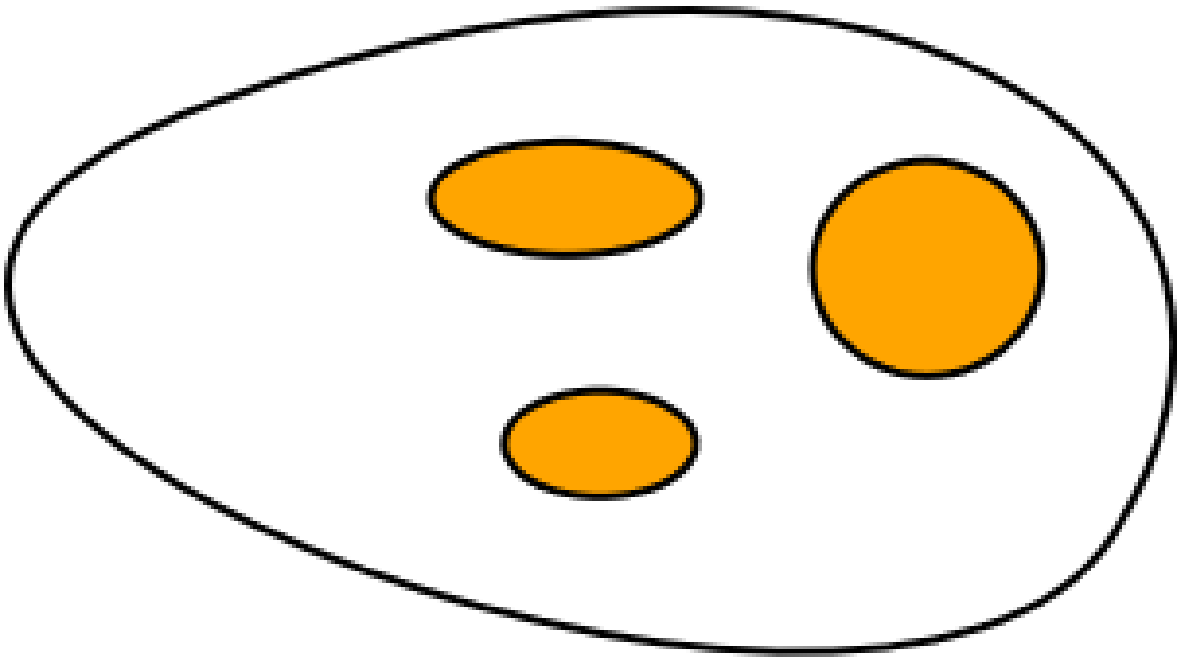
3 'Unification' Patterns

4 Connection Patterns

Application Framework

- Building blocks are ready to use
- They may be semi-finished
- Specific applications can be produced by adjusting the semi-finished blocks

Frameworks and Hot-spots



Rigid + Flexible

Meta-patterns

- =set of design patterns
- Describe how to construct frameworks independent of a specific domain
- i.e. the basic ingredients of framework making
- Very close to principles of object orientation
- Are at meta level, Complementary to main-stream design patterns

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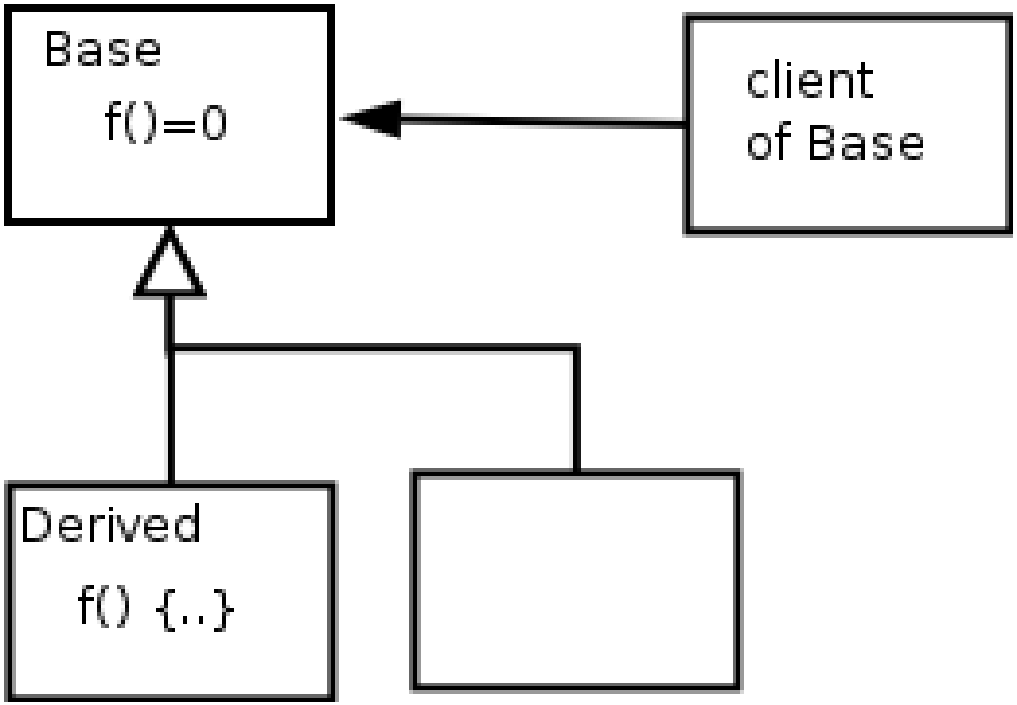
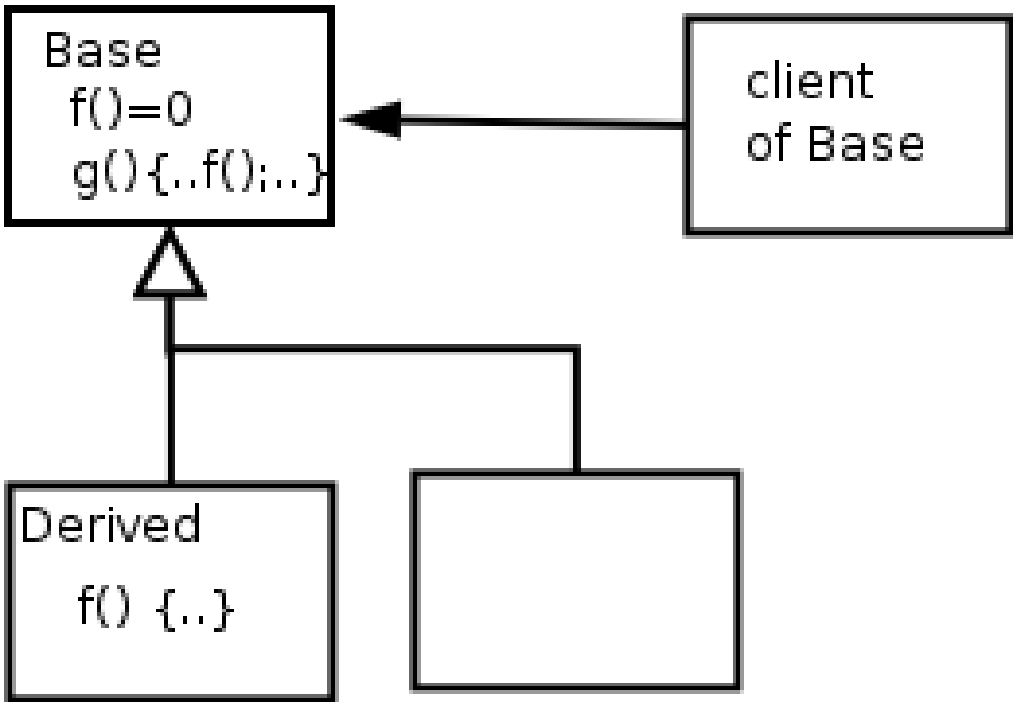
Hook Methods



Template Methods

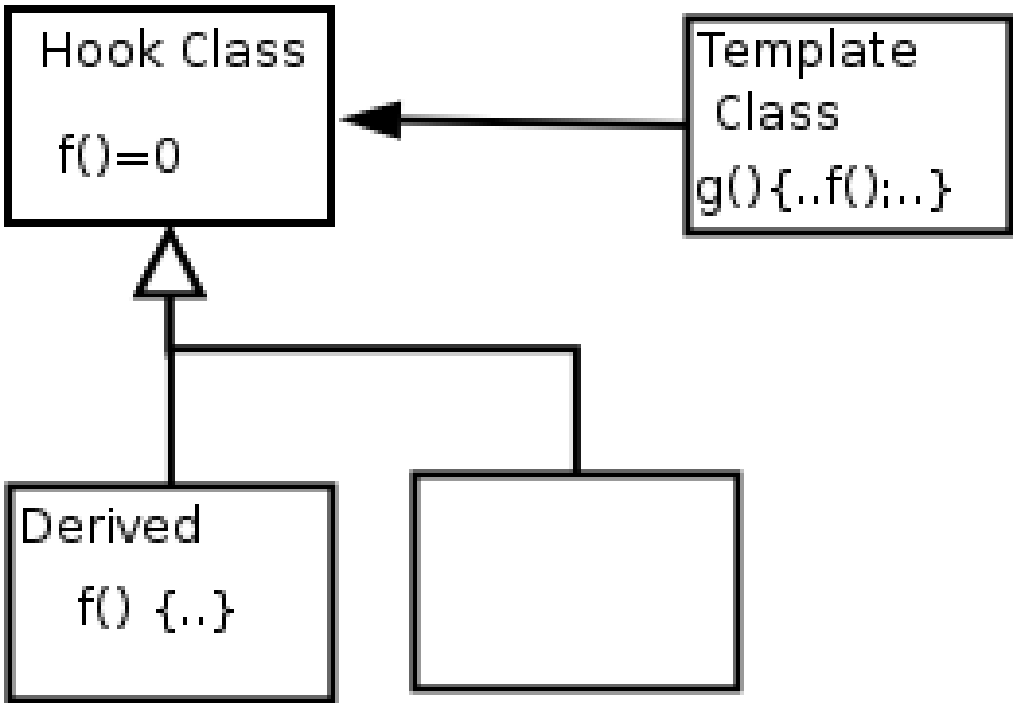


* We are not talking about type templates such as those in C++

Narrow Inheritance, Hooks and Templates

- Set overridable methods reduced to a minimum core set Easy for subclasses to adapt the superclass by
- overriding just a few methods
- But enough *flexibility* is also needed for making good frameworks: Go for template methods to set the balance.

Template Methods may be located in a Different Class



* where are template methods located? —- in subclass? in client of hook class?
* how many instances of hook class does the template class refer to?

..more patterns..

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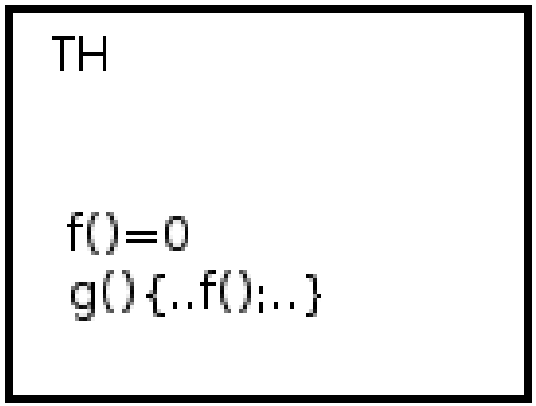
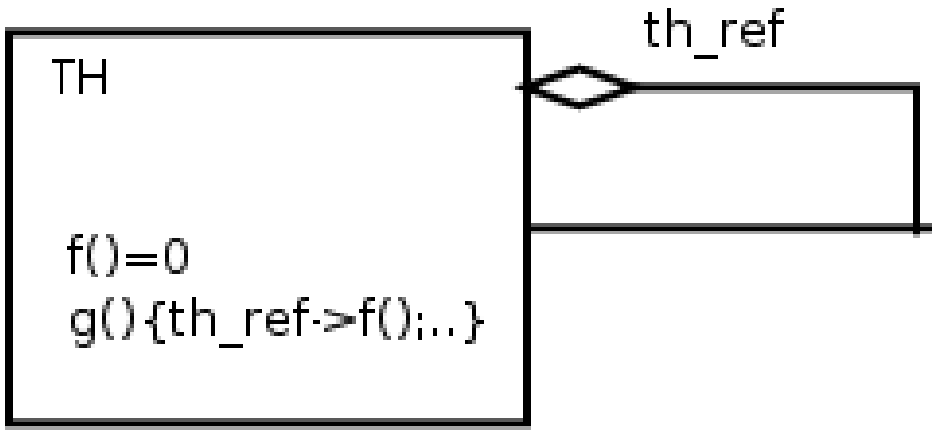
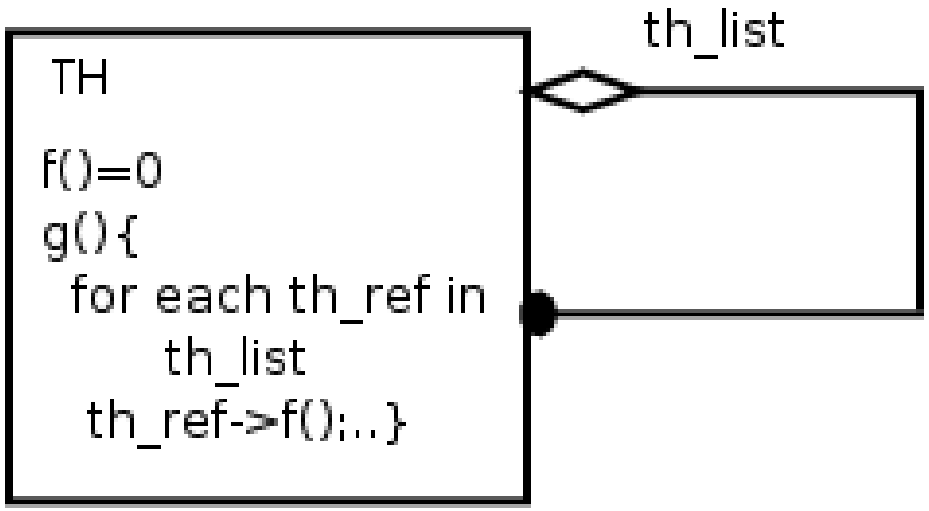
'Unification' Pattern



'Recursive 1:1 Unification' Pattern



'Recursive 1:N Unification' Pattern



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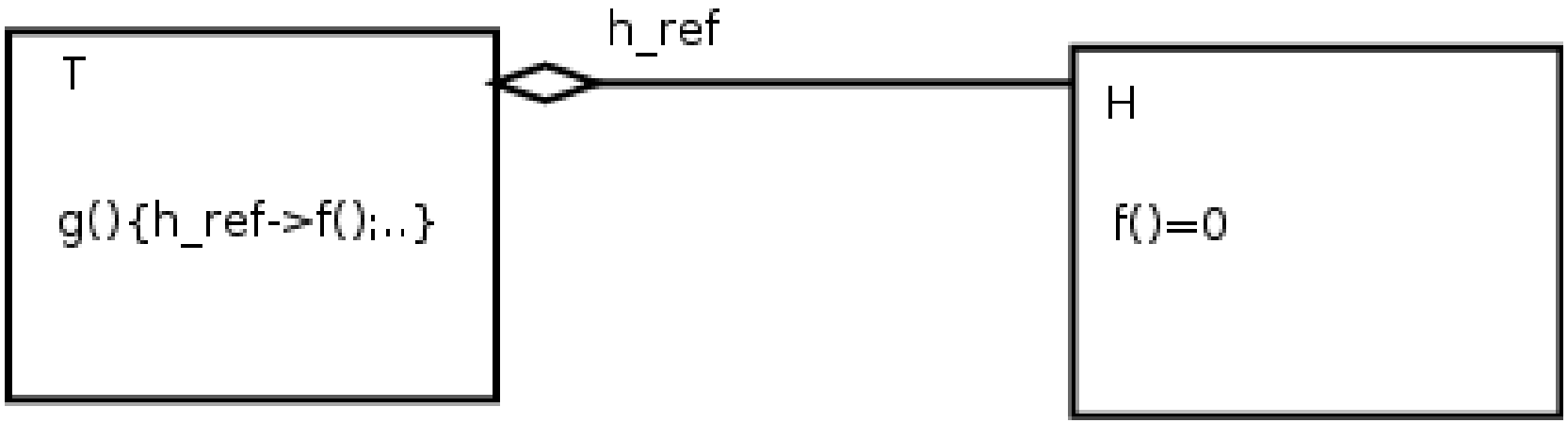
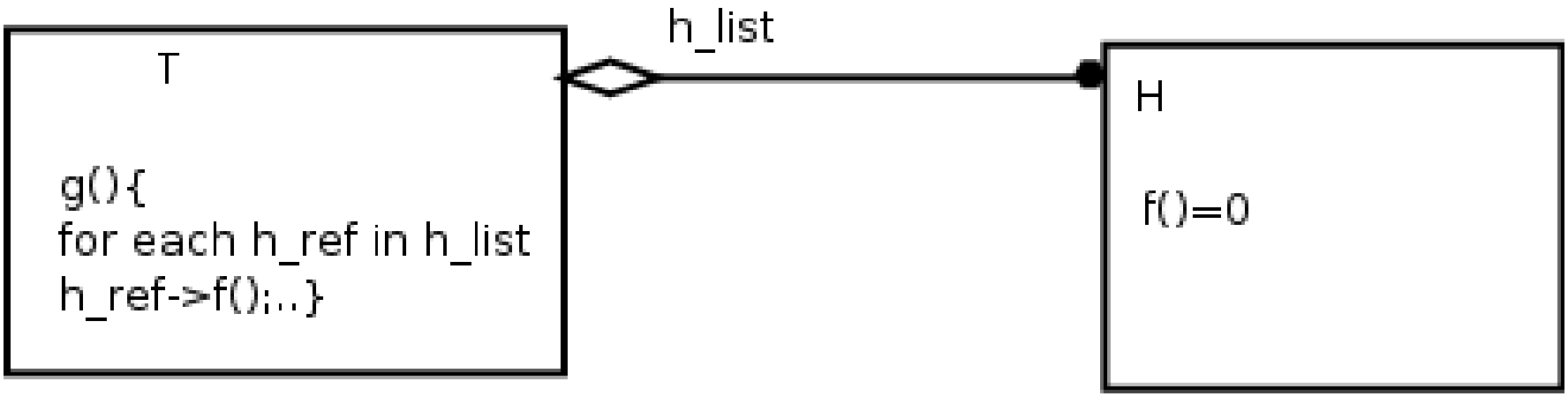
When T is not located with H

* 1:1 Connection
* 1:N Connection
* 1:1 Recursive connection
* 1:N Recursive connection

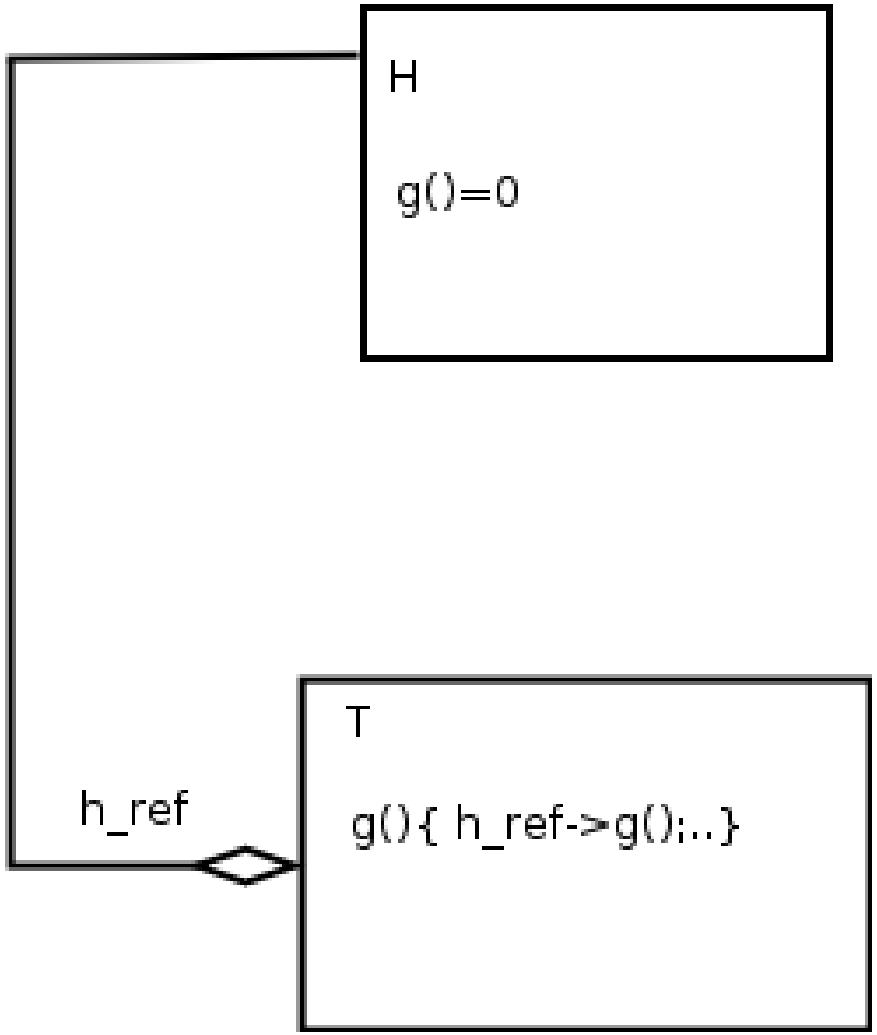
1:1 Connection Pattern



1:N Connection Pattern



1:1 Recursive Connection Pattern



1:N Recursive Connection Pattern