Programming 2: Advanced OO Design

Jorge Ressia
Programming 2
Programming ?
Program ?
Dahl and Nygaard at the time of Simula’s development
Ole-Johan Dahl
Kristen Nygaard

Dahl and Nygaard at the time
Simula 67
Dahl and Nygaard at the time of Simula's development
Dahl and Nygaard at the time of the Turing Award

Turing Award

2001
Christopher Alexander: Notes on the Synthesis of Form 1964

NATO Software Engineering Conference 1969
Christopher Alexander: Notes on the Synthesis of Form 1964

NATO Software Engineering Conference 1969

http://homepages.cs.ncl.ac.uk/brian.randell/NATO/
Programming as a Theory Building
Programming as a Theory Building

Peter Naur
1985
Put all this together

Alan Kay

Friday, April 15, 2011
OOPSLA keynote 1997
Simula
Programming as a Theory
building
Christopher Alexander
Biology
We need a new metaphor
We need things that are adapting to constant change
Biology metaphor
Object-oriented programming
Smalltalk 1980
Object-oriented programming
Smalltalk 1980

Turing Award 2003
Program ?
Program?
Computational simulation of a domain
Program?

Computational simulation of a domain
Computational Model

Problem Domain

Reality

Computational Model
Computational Model

Problem Domain

Semantic Gap

Computational Model
OOP
Program for OOP?
Program for OOP?
Set of object that collaborate sending messages
Program for OOP?

Set of object that collaborate sending messages
Let’s Model:

Model a system which prints the invoices for the customers of a Telco. There are 3 different types of calls: locals, nationals and internationals.

   The cost of an international call is $2 per minute
   The cost of a national call is $1.50 per minute
   The cost of a local call depends if it was done during peak hour or not. Peak hour cost is $1 per minute, not peak hour cost is $0.50 per minute.