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# Timeless Way Of Building

Dwight Deugo

deugo@scs.carleton.ca

<http://www.scs.carleton.ca/~deugo>

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# Background

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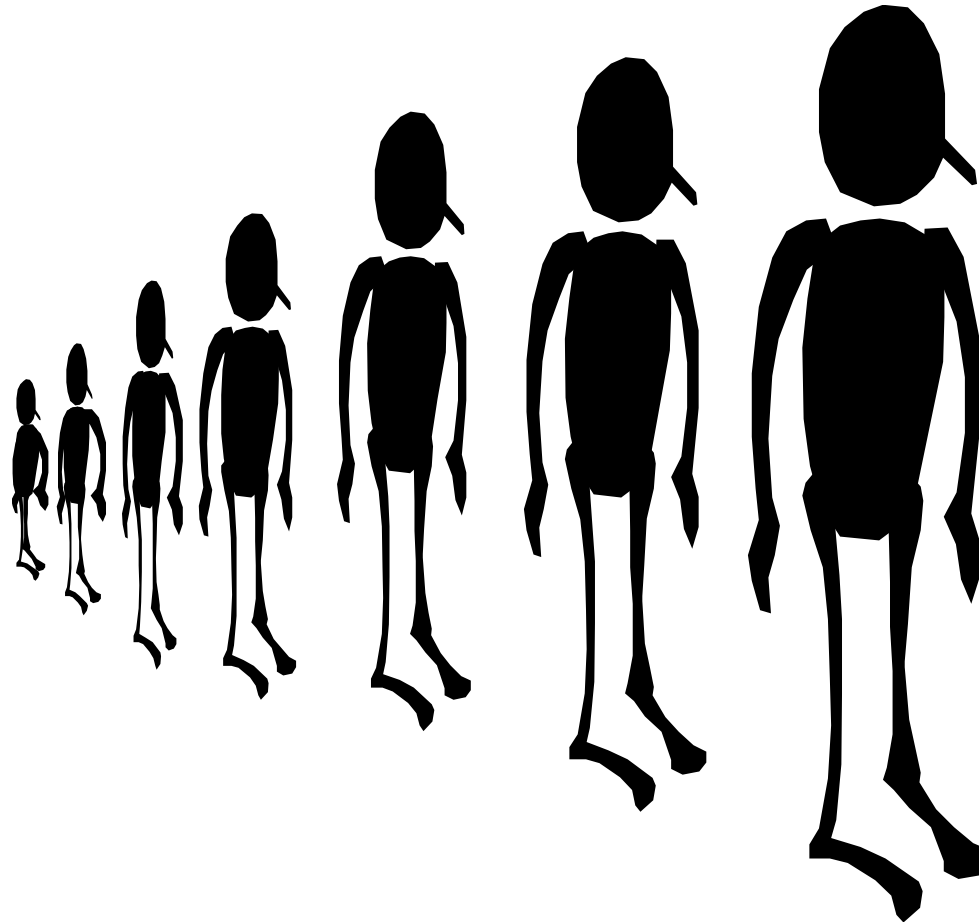
- Involved with object technology since 85
- Editor-in-chief, Java Report
- Assistant professor, School of Computer Science, Carleton University
- Director of Java Services, The Object People
- Smalltalk and Java Report columnist

# Outline

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- Context

- Problem



- Forces

- Solution

- The Timeless Way of Building

# Context

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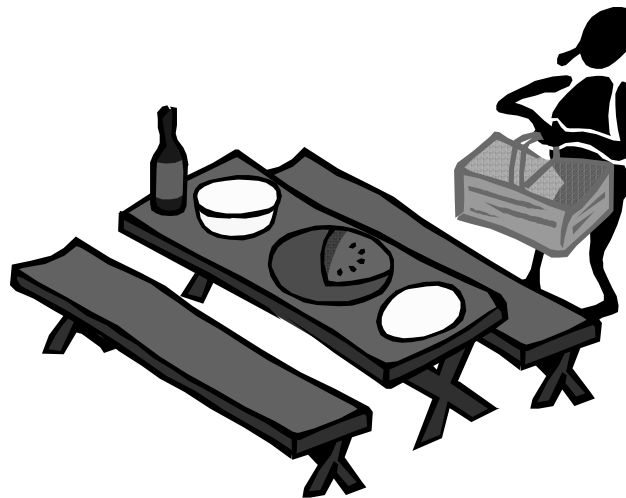
- This software is #\$\$%^



# Forces

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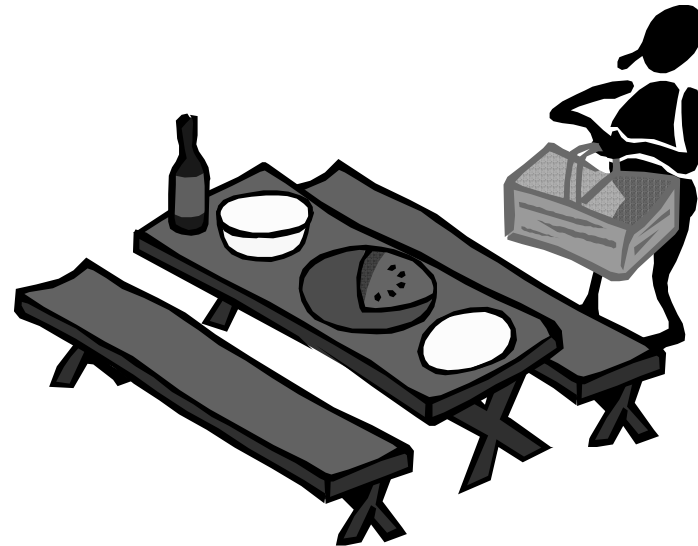
- Developers intend to do a good job
- Time
- Cost
- Competition
- Many different solutions to same problem



# Solutions and Problem

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- Problem: You are thirsty
- Solutions
  - ⇒ Drink Water
  - ⇒ Drink Coffee
  - ⇒ Drink Beer

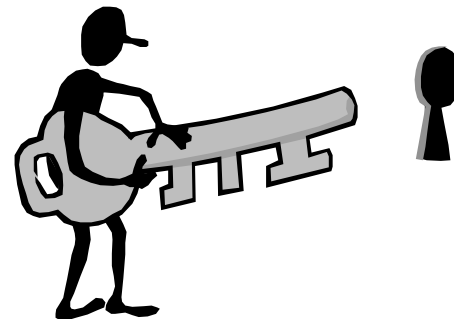


- New Problem: Which is the correct solution?

# What's Missing?

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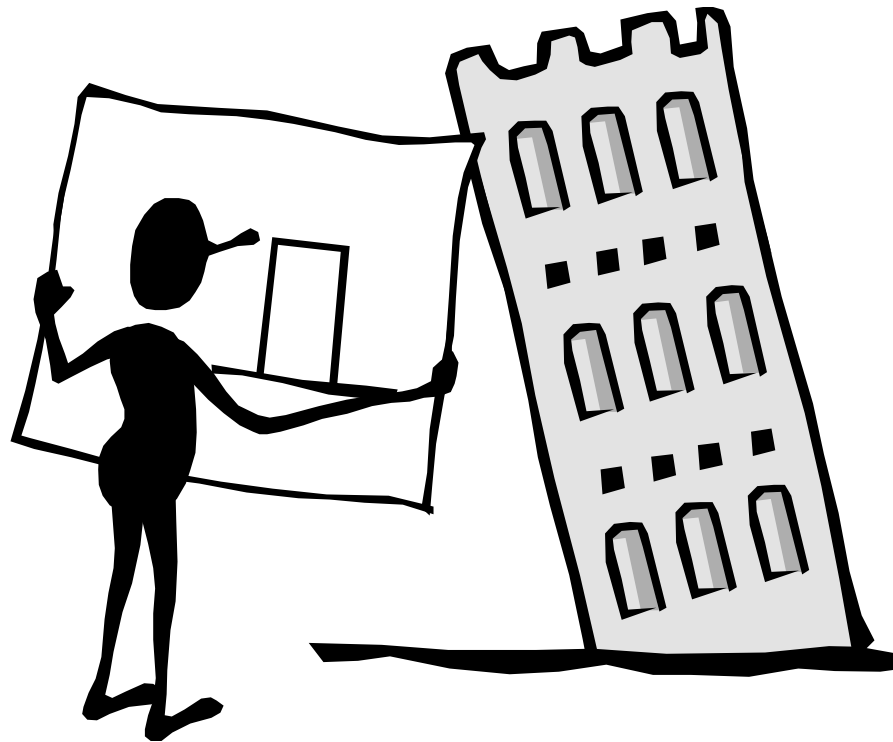
- Context
  - ⇒ You are rock climbing
  - ⇒ You are giving a morning lecture
  - ⇒ It's six p.m. and the conference is over for the day
- Forces
  - ⇒ Drinking too much fluids will force you to visit the washroom
  - ⇒ Caffeine will keep you awake
  - ⇒ Too much alcohol can ....



# Problem

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- How can you develop quality software and applications?





# Solution (Partial)

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- Understand quality
- Create new software patterns when you recognize quality
- Use applicable patterns to build your applications



*The Timeless Way of Building*

- We have known this solution for years

# The Timeless Way of Building

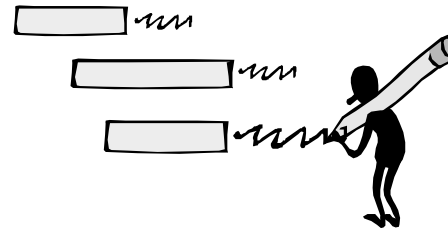
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- Christopher Alexander, Oxford University Press, 1979,  
(Detailed Table of Contents, ix-xv)

⇒The Quality

⇒The Gate

⇒The Way



- The Timeless Way

⇒A building or town will only be alive to the extent that it is governed by the timeless way.

⇒*It is a process which brings order out of nothing but ourselves; it cannot be attained, but it will happen of its own accord, if we will only let it.*

# The Quality

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- *There is a central quality which is the root criterion of life and spirit in man, a town, a building or a wilderness. This quality is objective and precise, but it cannot be named.*
- *The search which we make for this quality, in our own lives, is the central search of any person, and the crux of any individual person's story. It is the search for those moments and situations when we are most alive.*
- *In order to define this quality in buildings and in towns, we must begin by understanding that every place is given its character by certain patterns of events that keep on happening there.*

# The Quality

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- *These patterns of events are always interlocked with certain geometric patterns in space. Indeed, as we shall see, each building and each town is ultimately made out of these patterns in the space, and out of nothing else.*
- *The specific patterns out of which a building or a town is made may be alive or dead. To the extent they are alive, they let our inner forces loose, and set us free; but when they are dead, they keep us locked in inner conflict.*
- *The more living patterns there are in a place - a room, a building, or a town - the more it comes to life as an entirety, the more it glows, the more it has that self-maintaining fire which is the quality without a name.<sup>12</sup>*

# The Gate

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- *The people can shape buildings for themselves, and have done it for centuries, by using languages which I call pattern languages.*
- *These patterns languages are not confined to villages and farm society. All acts of building are governed by a pattern language of some sort.*
- *And, beyond that, it is not just the shape of towns and buildings which comes from pattern languages - it is their quality as well. Even the life and beauty of the most awe-inspiring great religious buildings came from the languages their builder used.*

# The Gate

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- *But in our time the languages have broken down. Since they are no longer shared, the processes which keep them deep have broken down; and it is therefore virtually impossible for anybody, in our time, to make a building live.*
- *To work our way towards a shared and living language once again, we must first learn how to discover patterns which are deep, and capable of generating life.*
- *Then finally, from separate languages for different building tasks, we can create a larger structure still, a structure of structures, evolving constantly, which is the common language of a town. This is the gate.*

# The Way

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- *Now we shall begin to see in detail how the rich and complex order of a town can grow from thousands of creative acts. For once we have a common pattern language in our town, we shall all have the power to make our streets and buildings live, through our most ordinary acts. The language, like a sea, is the genetic system which gives our millions of small acts the power to form a whole.*
- *The process of unfolding goes step by step, one pattern at a time. Each step brings just one pattern to life; and the intensity of the result depends on the intensity of these individual steps*

# The Way

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- *Several acts of building, each one done to repair and magnify the product of the previous acts, will slowly generated a larger and more complex whole than any single act can generated.*
- *Finally, within the framework of a common language, millions of individual acts of building will together generate a town which is alive, and whole, and unpredictable, without control. This is a the slow emergence of the quality without a name, as if from nothing.*



# The Kernel of the Way

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- And yet the timeless way is not complete, and will not fully generate the quality without a name, until we leave the gate behind.
- *Indeed this ageless character has nothing, in the end, to do with languages. The language, and the processes which stem from it, merely release the fundamental order which is native to us. They do not teach us, they only remind us of what we know already, and of what we shall discover time and time again, when we give up our ideas and opinions, and do exactly what emerges from ourselves.*

# Pattern

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- *Each pattern is a three-part rule, which expresses a relation between a certain context, a problem and a solution... The pattern is, in short, at the same time a thing which happens in the world and the rule which tells us how to create the that thing, and when we must create it. It is both a process and a thing; both a description of a thing which is alive, and a description of the process which will generate that thing.*

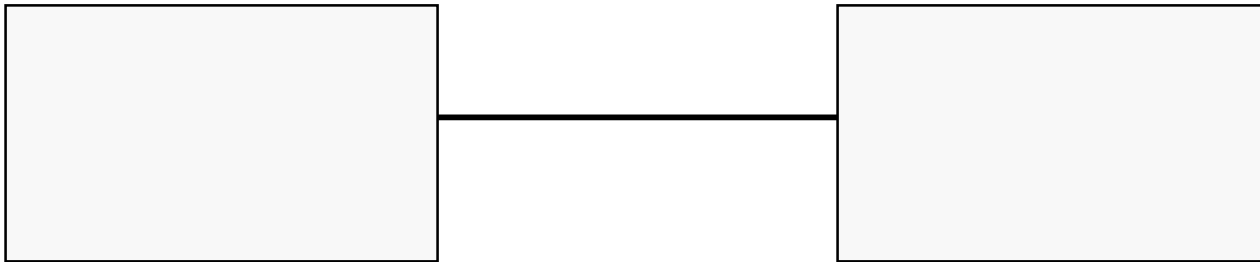
# Pattern Language

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- Collection of patterns that build on each other to generate a system
- A software family
- A collection of rules that build all members of a family and only members of a family, e.g. Farmhouses, Cap Cod houses, Testing
- Place individual patterns in context
- Not a decision tree of patterns

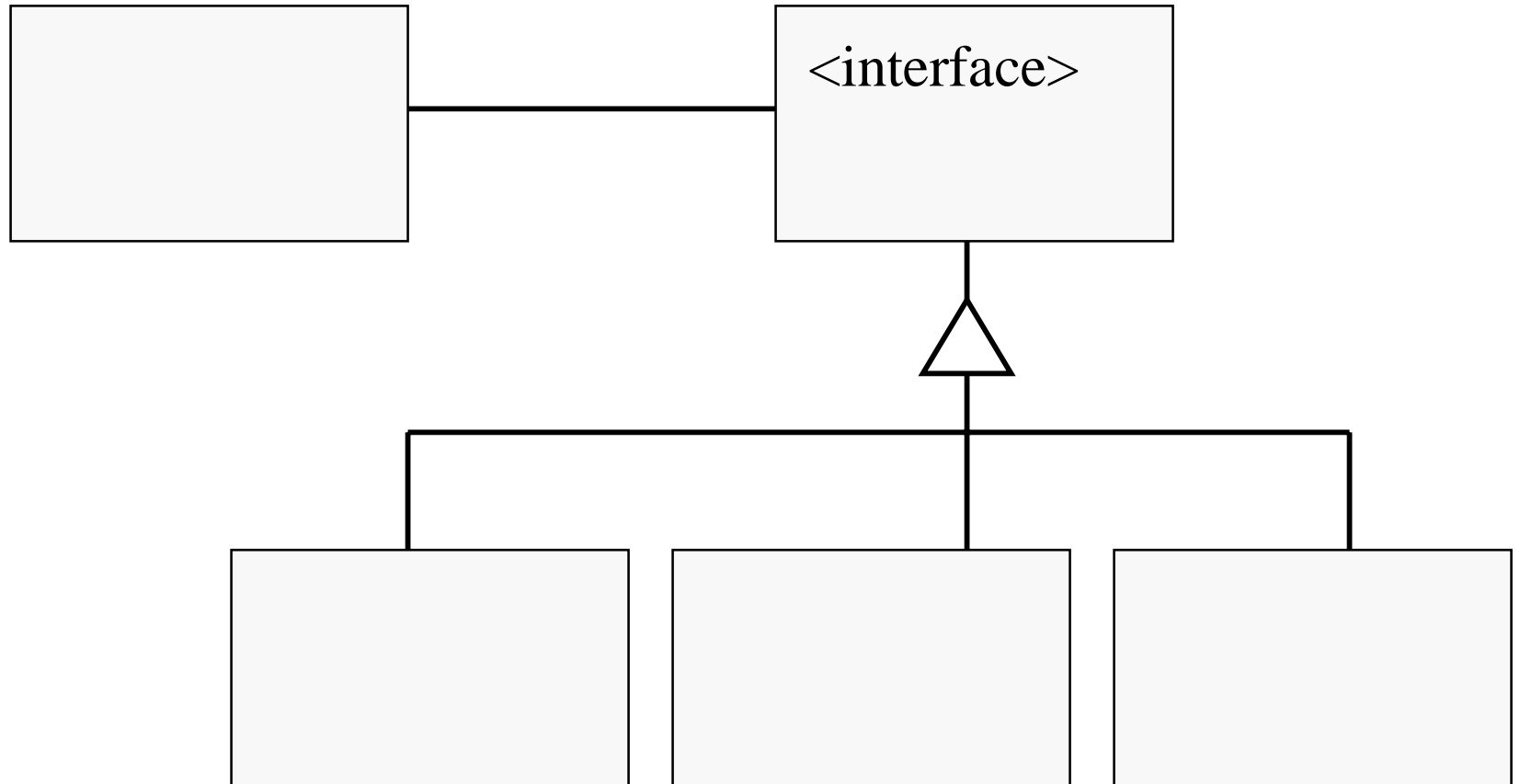
# Pattern Example: Delegation

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# Pattern Example: Substitution

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# Pattern Language Example: State

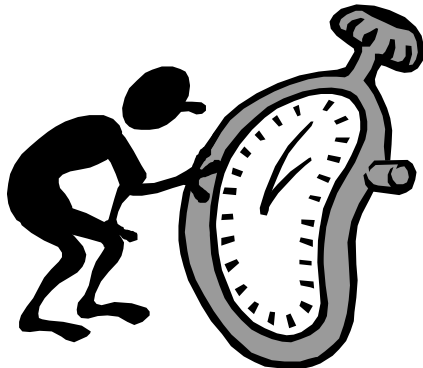
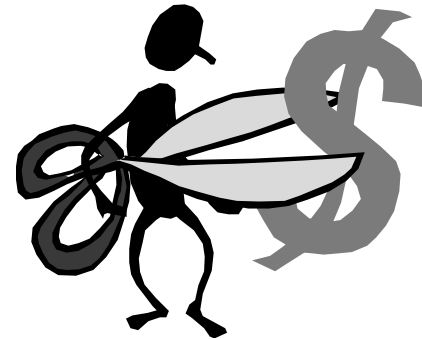
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- State
- State Transition
- Pure State
- State Members
- ...
- ...

# Summary

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- There is a way
- It is called the Timeless Way
- Practice it
  - ⇒The Quality
  - ⇒The Gate
  - ⇒The Way
- We will all be better for it.



# Useful Links

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- WWW Patterns Home Page (<http://hillside.net/patterns>)
- PLoP 99 (<http://st-www.cs.uiuc.edu/~plop/plop99>)
- PLoP 98 (<http://st-www.cs.uiuc.edu/~plop/plop98>)
- PLoP 97 (<http://jerry.cs.uiuc.edu/~plop/plop97/Workshops.html>)
- My Pattern Home Page  
(<http://www.scs.carleton.ca/~deugo/Patterns>)