

Source Code Reuse Mechanism

Group Three

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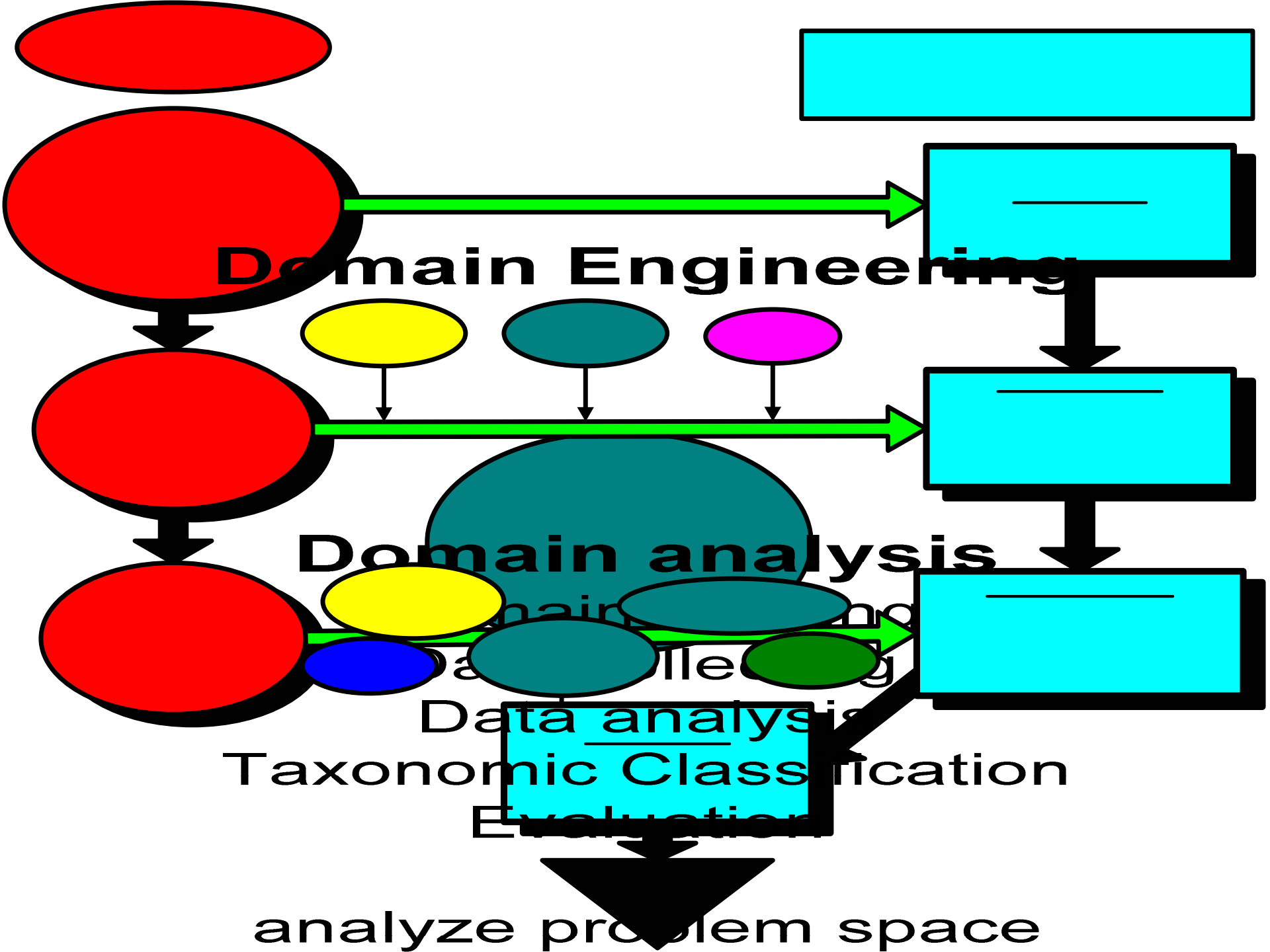
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INTRODUCTION

- Benefits of Code Reuse
 - Reduce development lifecycle
 - Save Money
- Current Reuse Mechanisms
 - Allow for some limited reuse
 - OOP is a step in the right direction, but too limited
- We are developing a reuse METHODOLOGY
 - Encompasses the entire development process
 - Attempts to solve MANY problems with a set of highly reusable components





GENERATIVE PROGRAMMING

Generative Programming

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graph TD; GP[Generative Programming] --- MP[Metaprogramming]; GP --- GP2[Generic Programming]; GP --- OOP[Object Oriented Programming]; GP --- AOP[Aspect Oriented Programming]; GP --- DE[Domain Engineering];
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Metaprogramming
useful for constructing libraries
uses extreme early binding

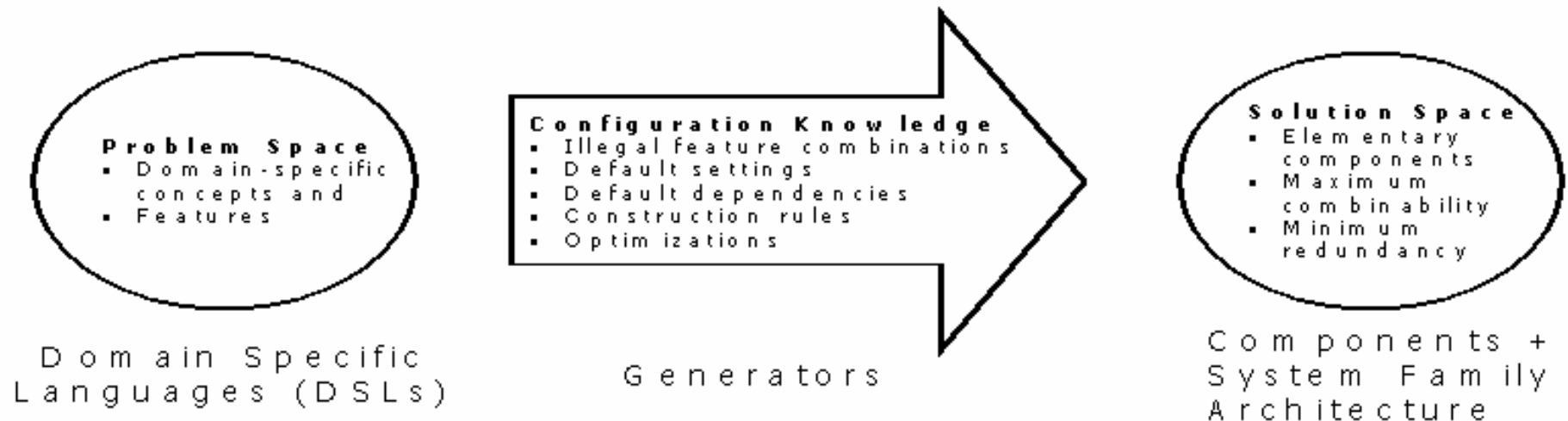
Generic Programming
ex: policy classes

Object Oriented Programming

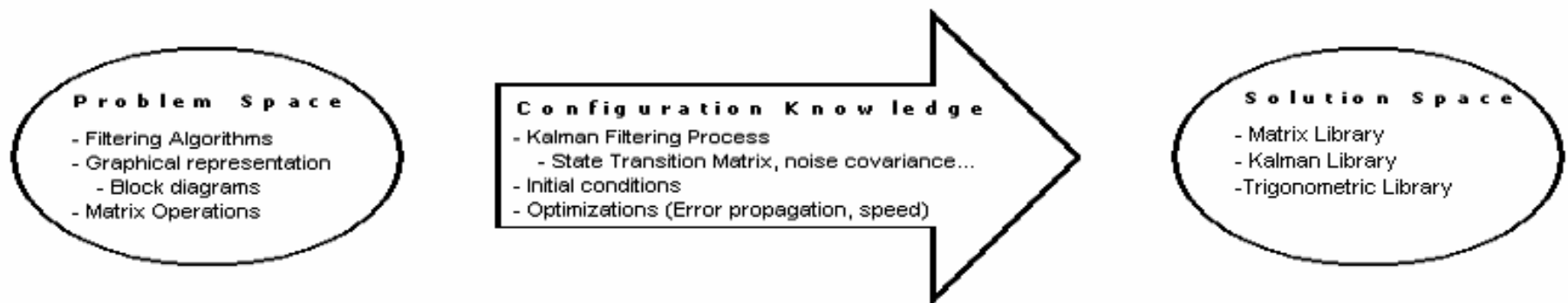
Aspect Oriented Programming
Separation of Concerns

Domain Engineering

Domain Implementation Model



Domain Engineering Applied: Kalman Filtering Example



SUMMARY

What is it?	It is a process for software development that allows code to be safely reused in a variety of applications. From a higher level we focus on the creation of these reusable components in order to automate the software development process.
Why use it?	Reuse of pre developed components saves time and money. It also provides a known correct solution.
Who does this affect?	The reusable software mechanism affects everyone from the system architect down to the application programmer.
Where can it be applied?	The reusable software mechanism applies to all stages of the software development process for any software development project. We will apply it in a Kalman Library, a Matrix Library, and a Trigonometric Library.
How?	Strive for generality in the creation of reusable components. Done so with Generative Programming and its related technologies.
When can I see it?	...next semester...