Type Highlighting.
A Client-Driven Visual Approach for Class Hierarchies Reengineering

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Class Hierarchies and Polymorphism

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- Keys for increased extensibility

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- Raise supplementary understandability issues

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- Keys for increased extensibility
- Raise supplementary understandability issues
- How to understand the role of a legacy hierarchy?

Look at the Clients of Hierarchies

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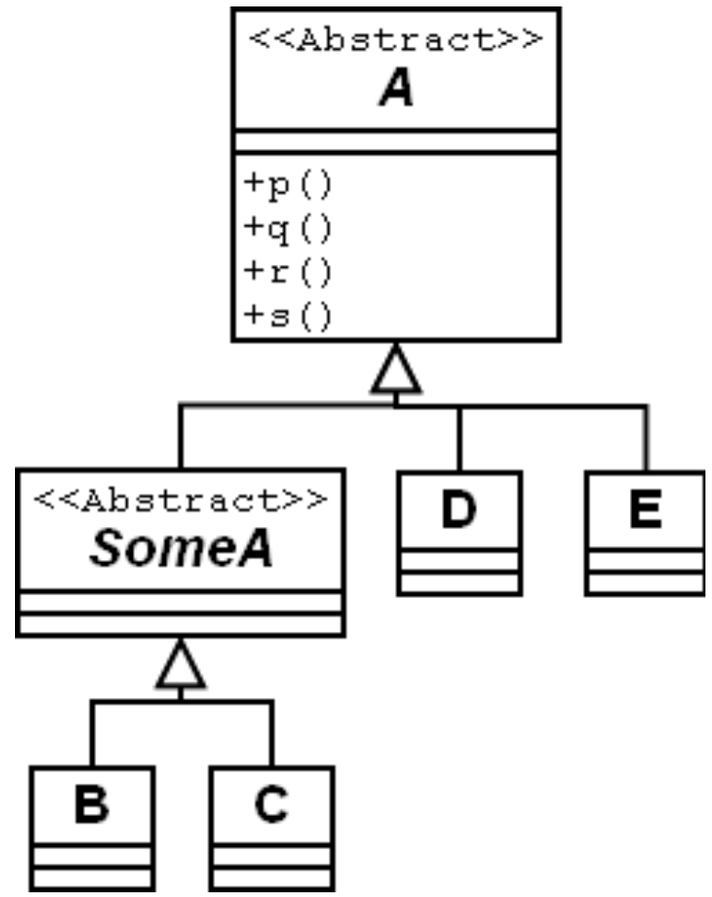

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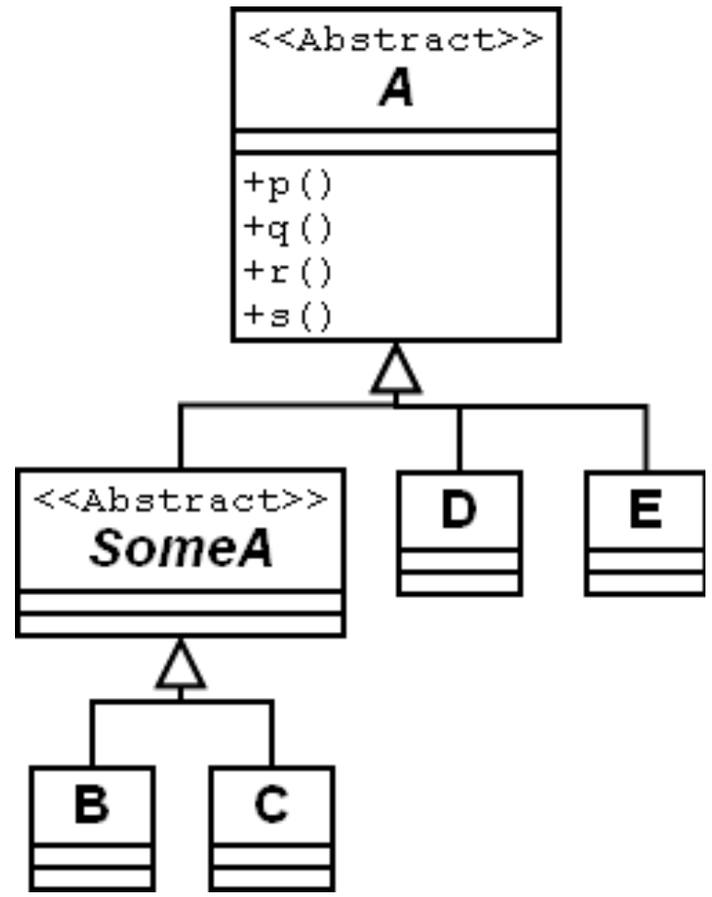

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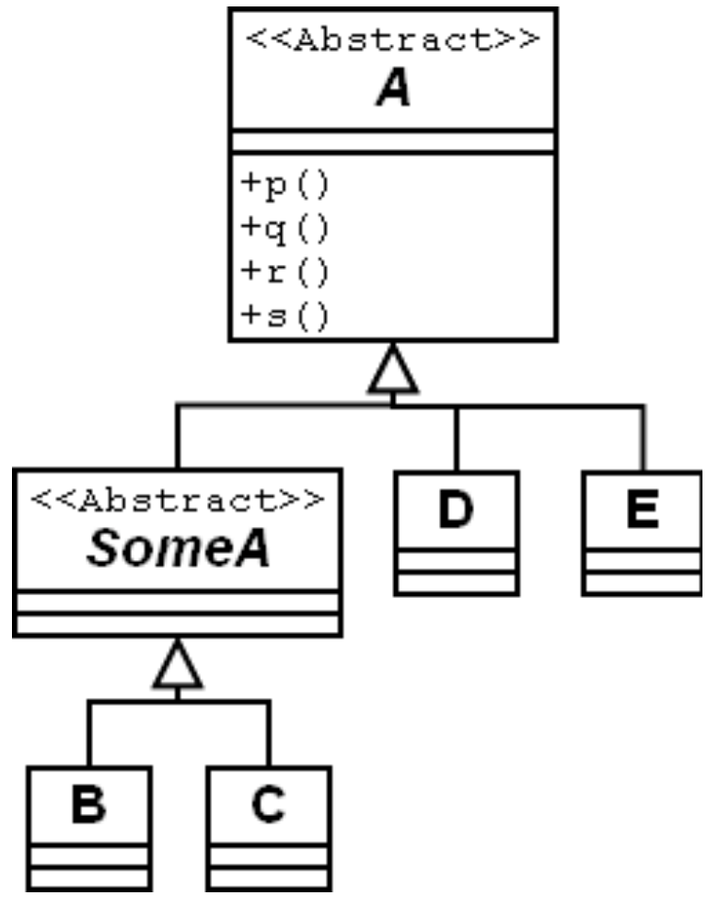

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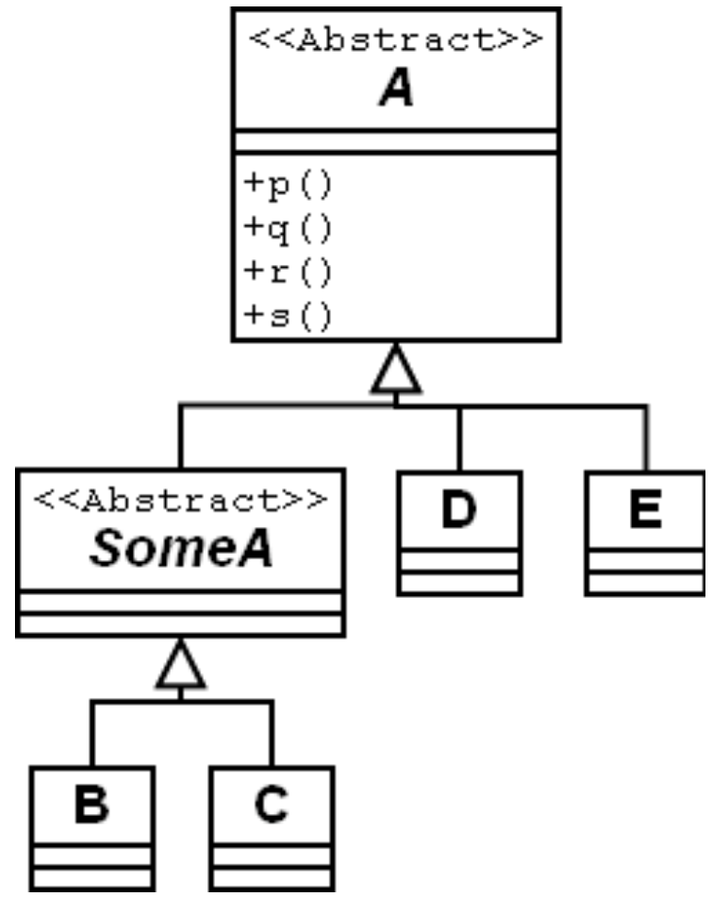

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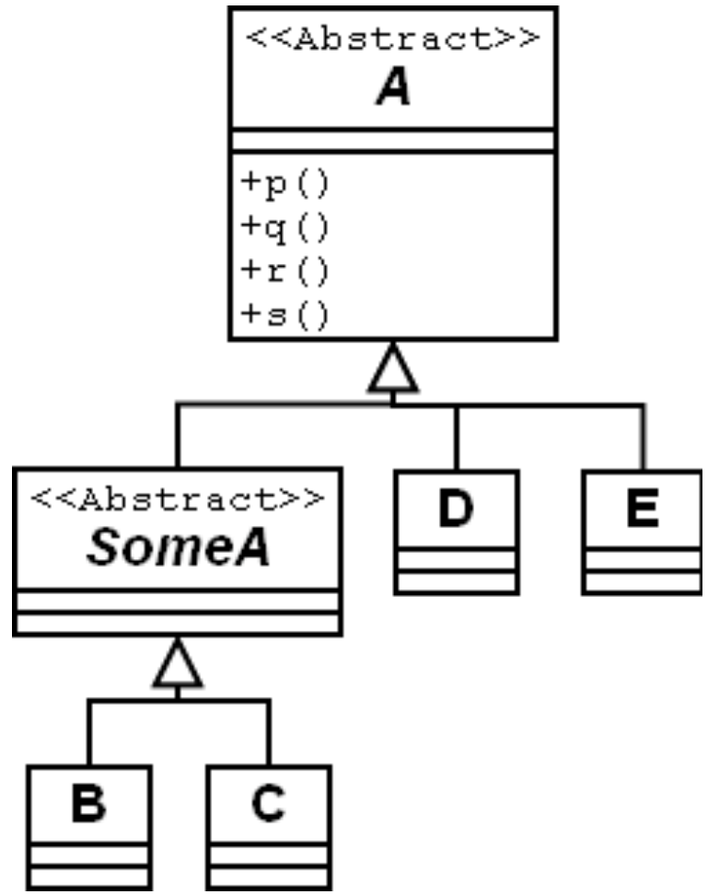

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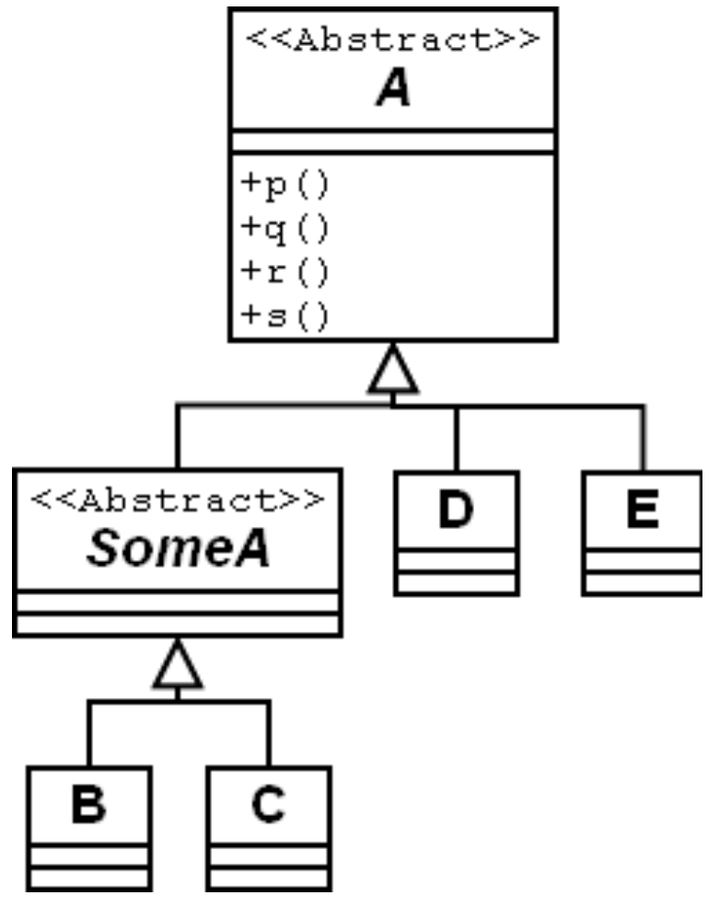

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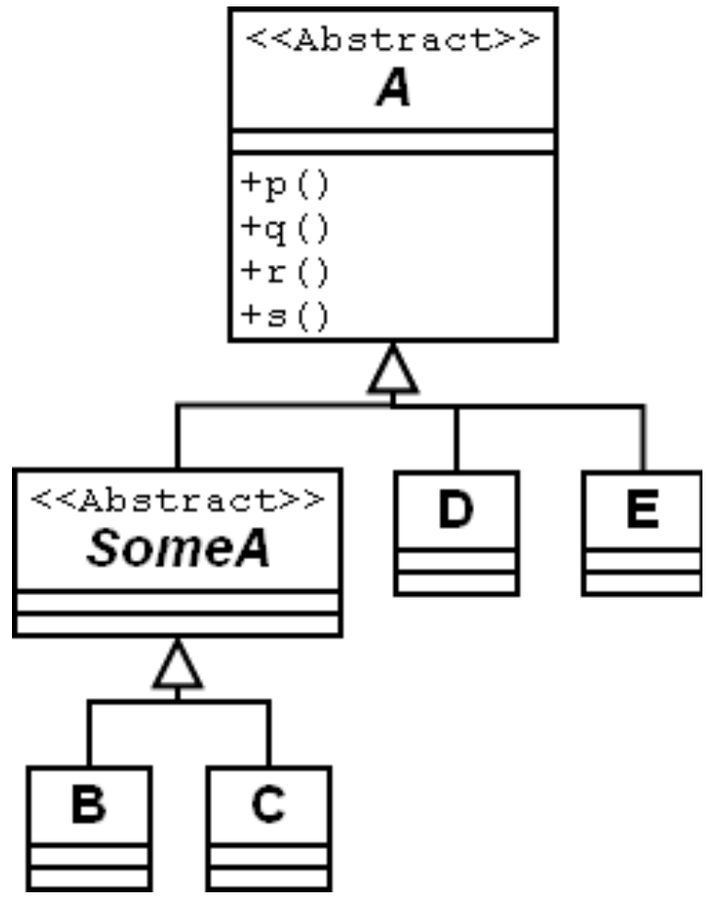

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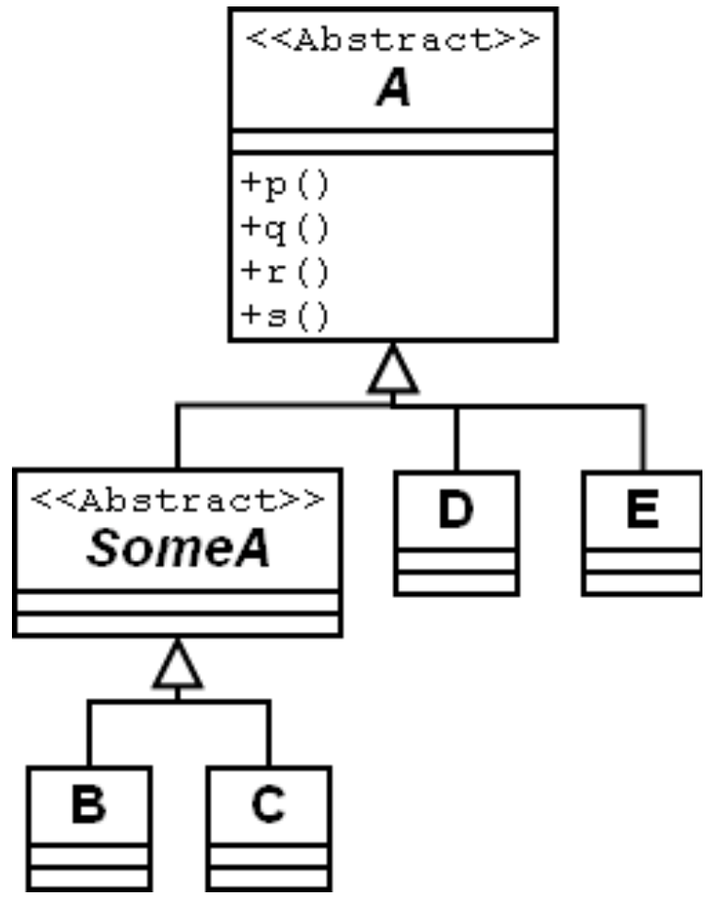

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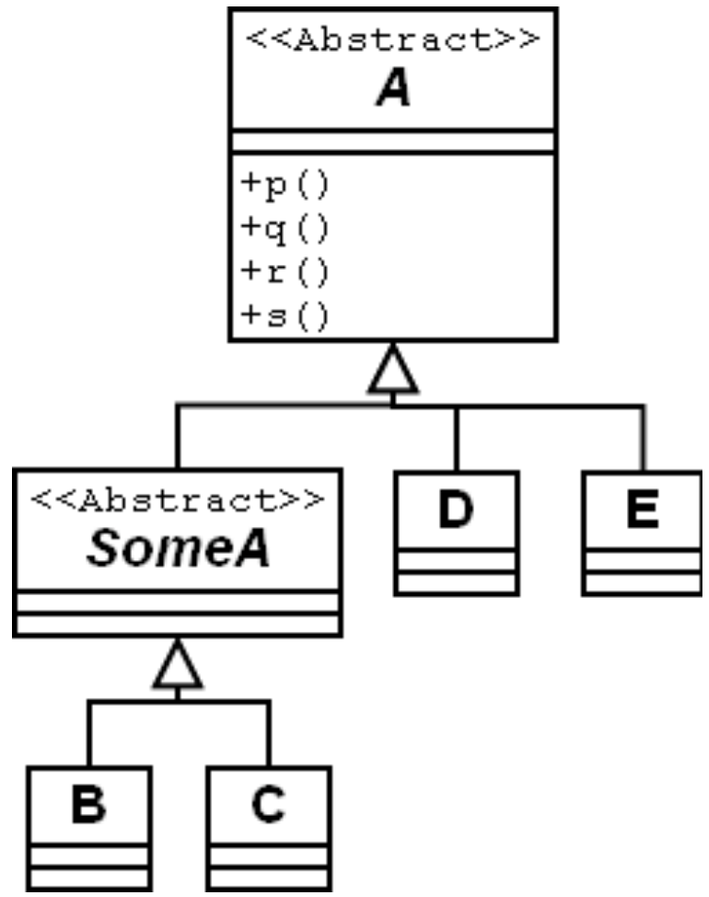

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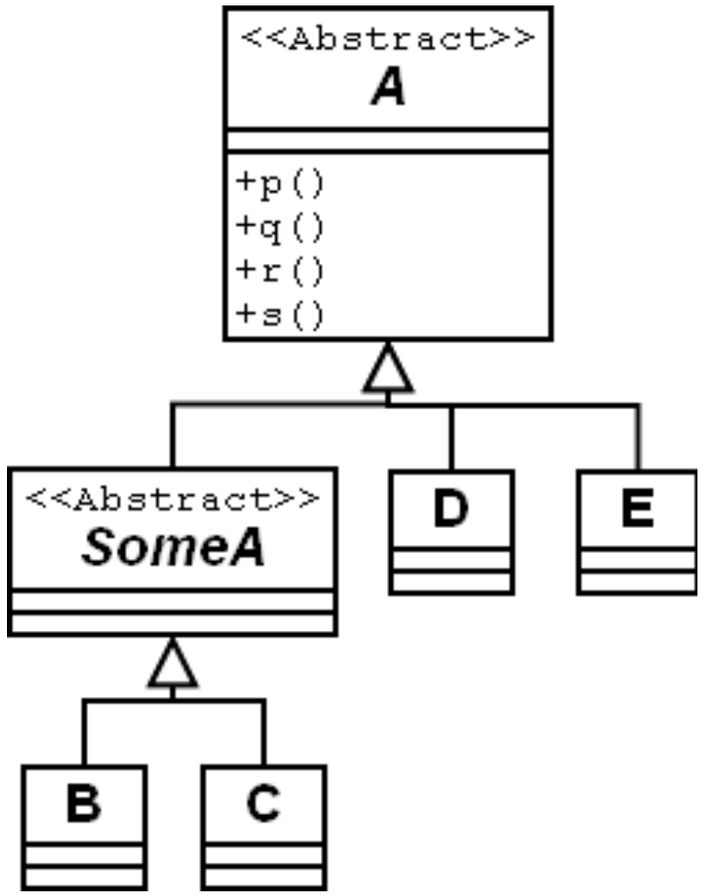

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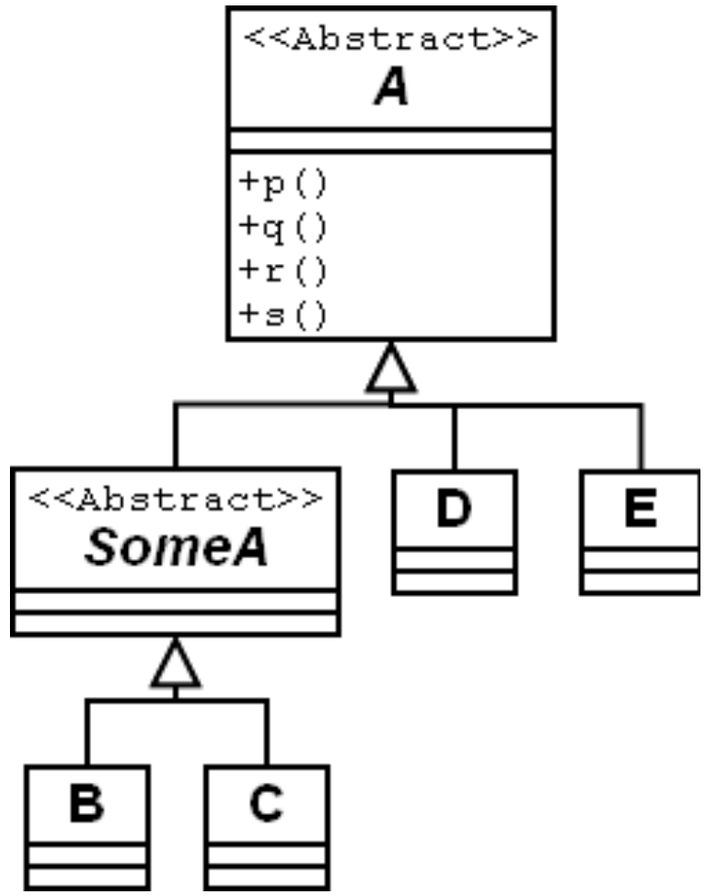

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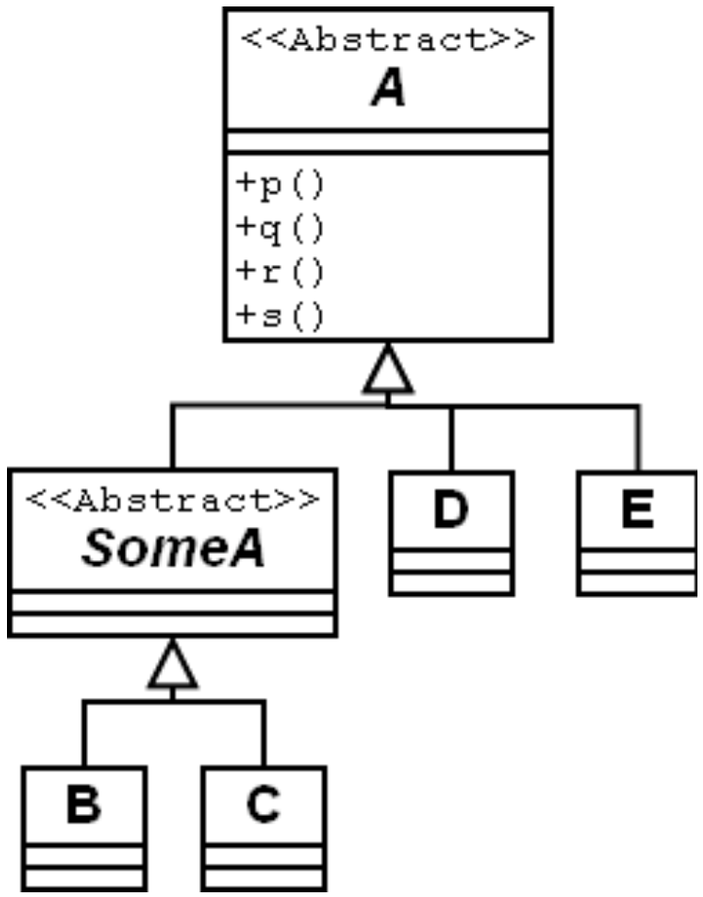

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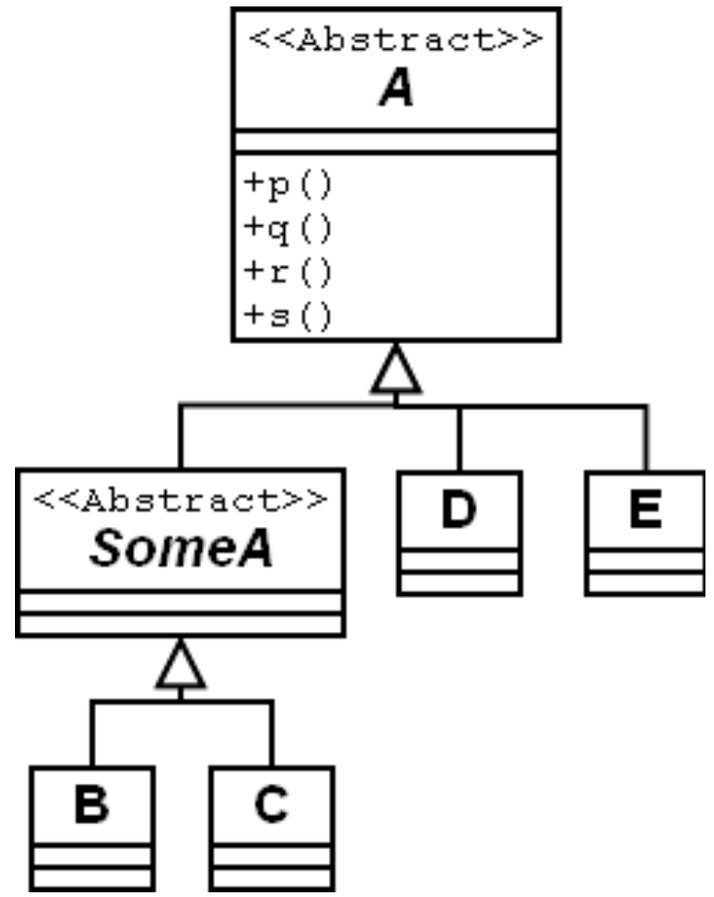

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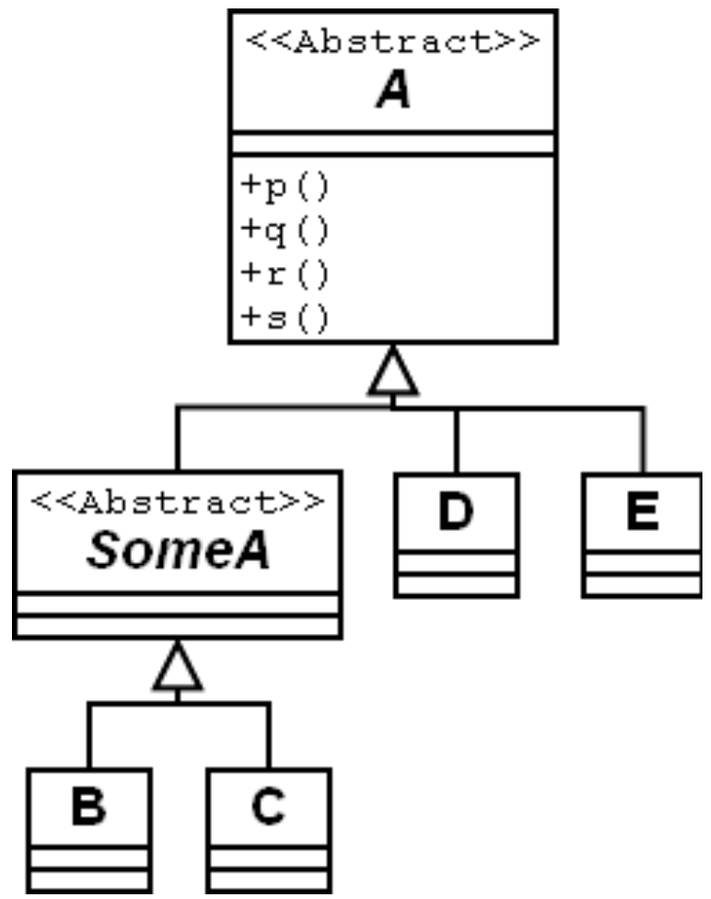
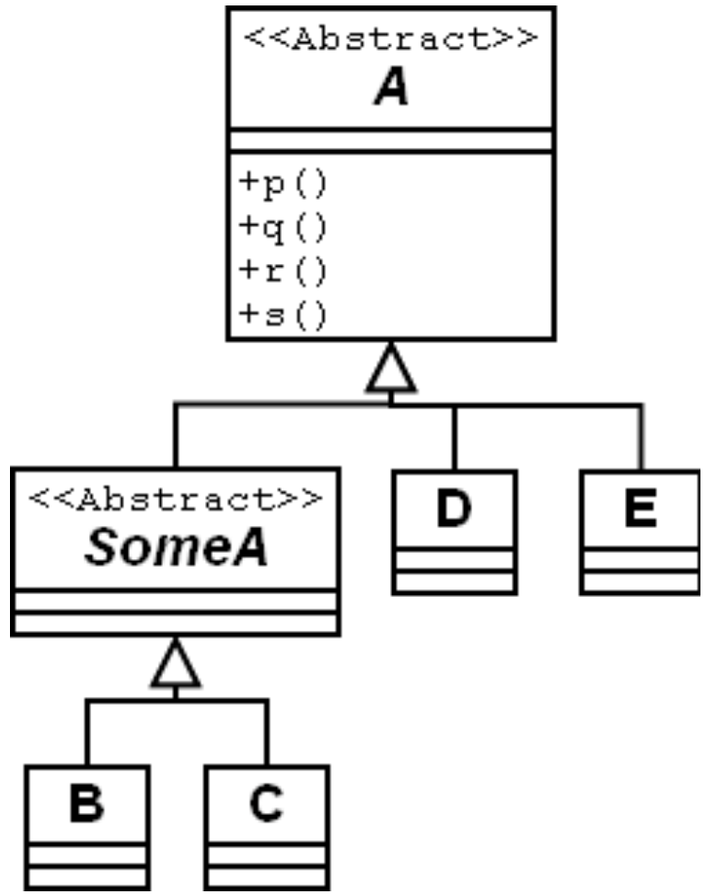


Look at the Clients of Hierarchies

Level of Abstraction View

- The extent of polymorphic manipulation
- Fast identification of polymorphic clients
- Detects client-type checking design flaws
- etc.



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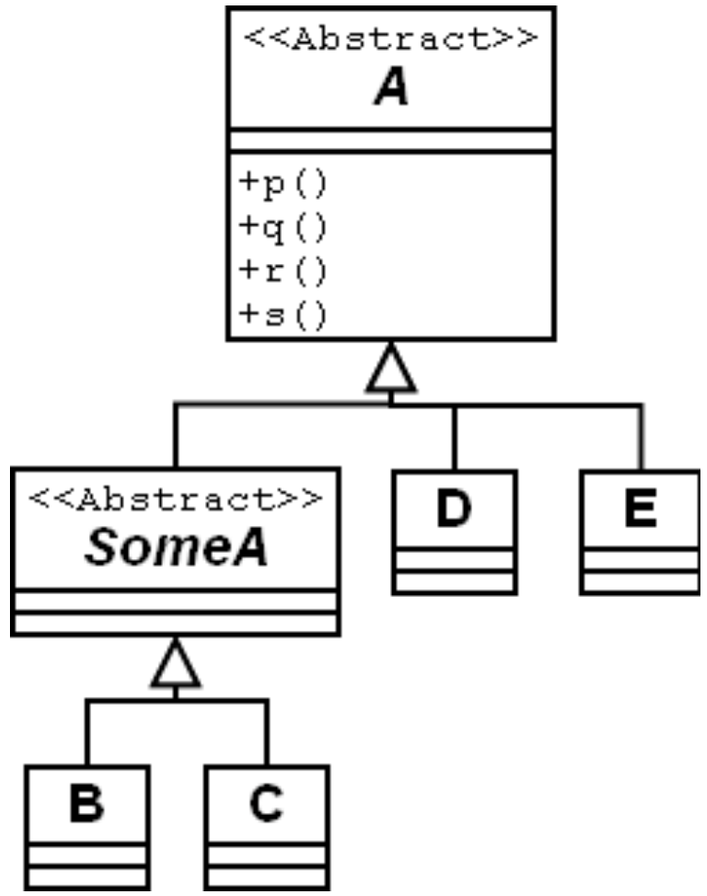

Implementation

- Levels of red = LA metric values
- Computed using Static Class Analysis

A Real Example

A Real Example

UserDataContainer Hierarchy

- Height - 8
- Descendants - 63
- External clients - 121

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Fast findings

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- One relevant polymorphic client

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Fast findings

- One relevant polymorphic client
- Several “splitable” big clients
- Not polymorphic-intense

Group Discrimination View

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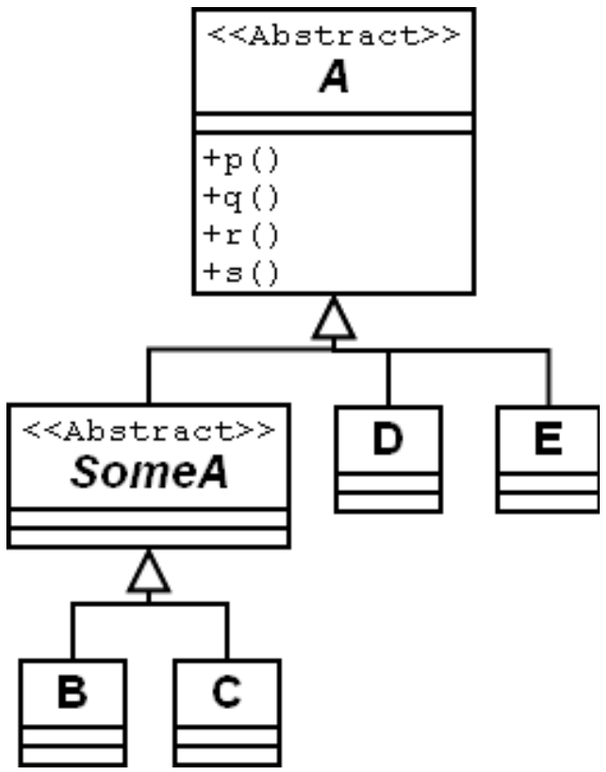

Group Discrimination View

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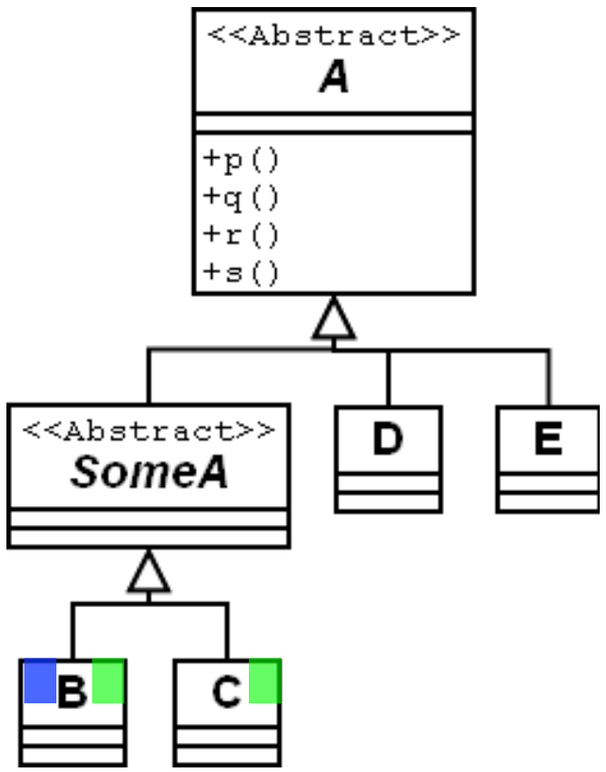

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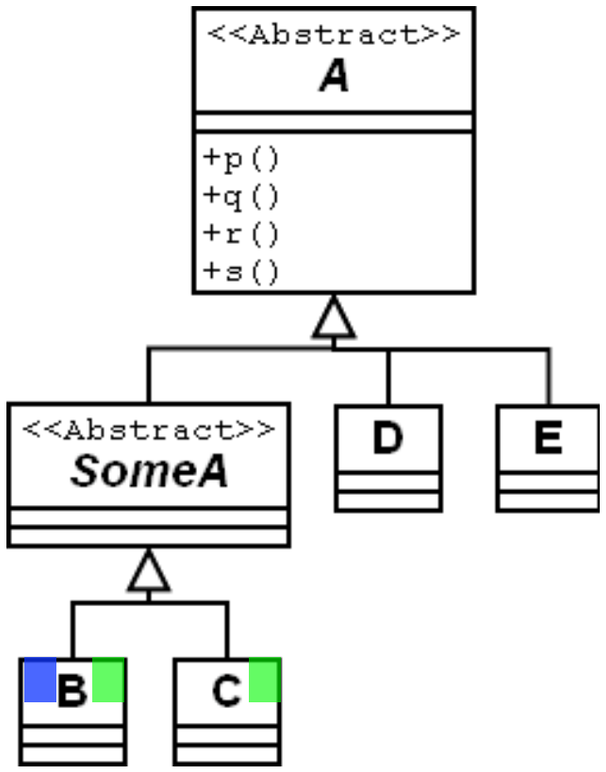

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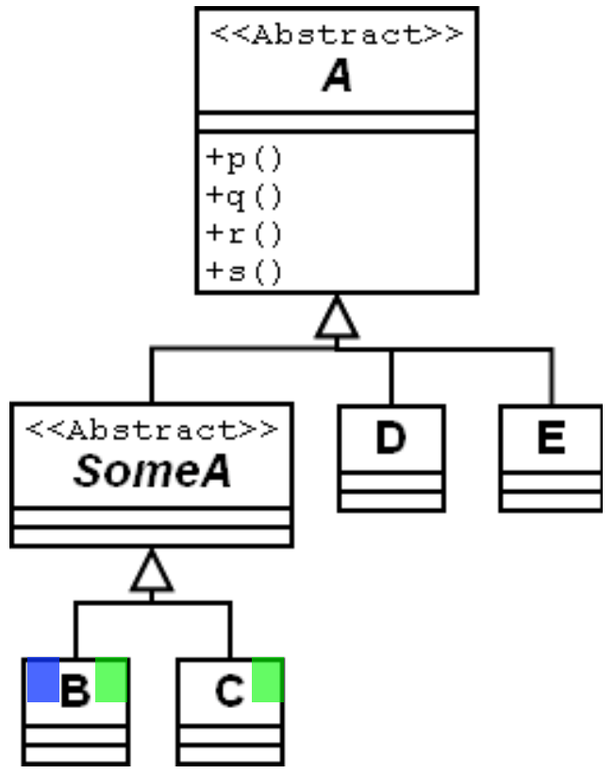

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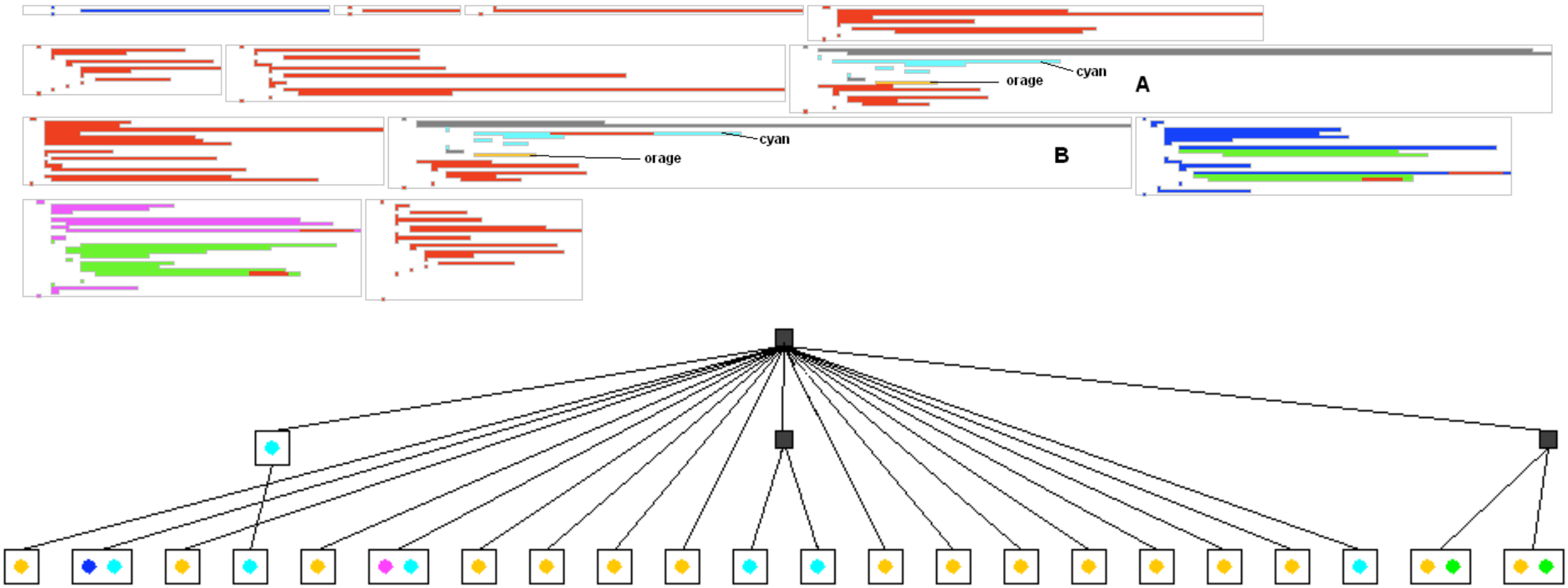

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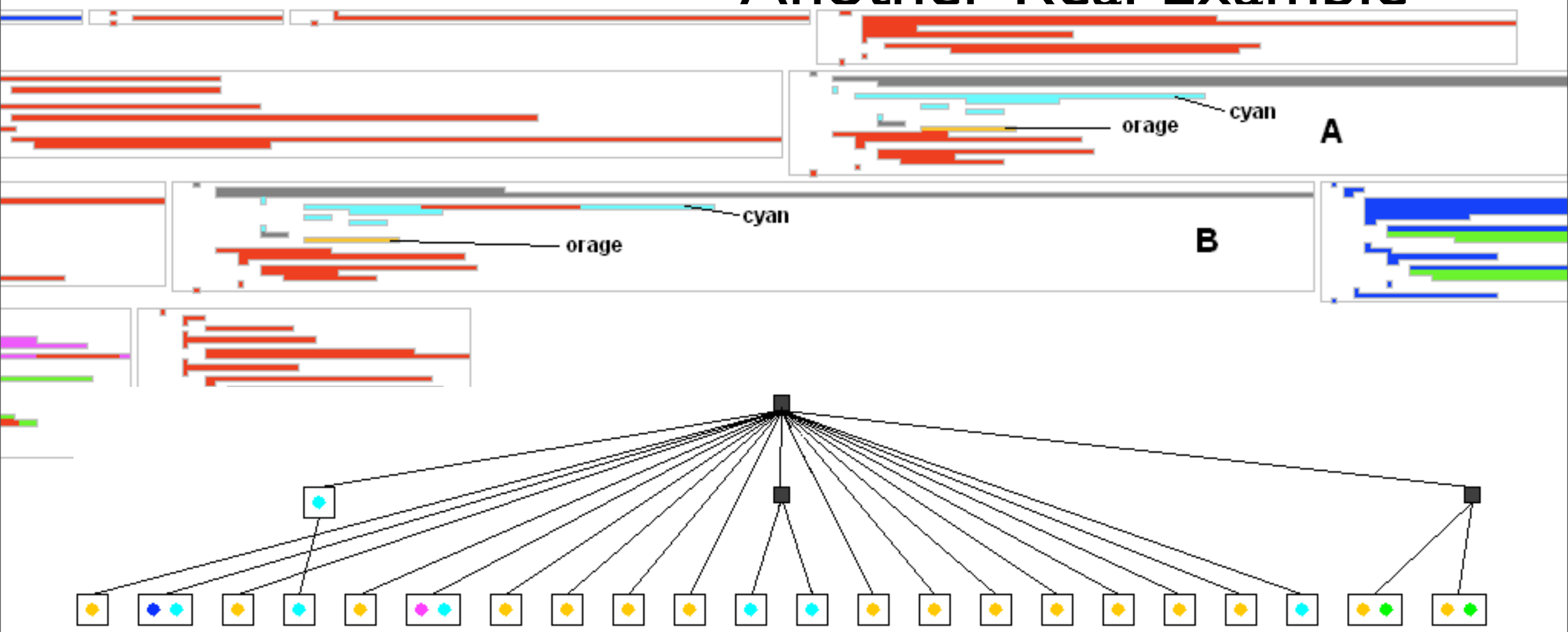

Support for

- Planning the client/self-type checking reengineering pattern
- etc.

Conclusions and Future Work

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Type highlighting views are promising for

- Program comprehension
- Planning/estimating restructuring actions

Questions

- How to detect high-level policies in legacy code ?
- How many client methods should we have ?

My apologies to color blind people

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Looking forward to seeing you all in Timișoara
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