Stability and Responsibility: Visualising Dependencies in Large Software Systems

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Dependency Visualisation

- Large Scale Software Engineering
- Software Architecture
- Software Process
- Software Visualisation
- Dependency Analysis
- Reverse Engineering
Principles of Software Architecture

- Dijkstra Hierarchy
- Parnas Information hiding
- Liskov Substitutability
- Meyers Open Closed Principle
- Booch Object are modules
- Martin Stability and responsibility
Forces on the Software Team

- Conway  Organisation Affects Architecture
- Brooks  Adding programmers does not scale
- Wolf    Team Communication Burden
- Rising  No more than ten people on the team
- Lakos   Physical issues will dominate
- Appleton Need for parallel team development
- Beck    Refactor ruthlessly, Integrate Often
- Estublier SCM tools insufficient
- Coplien Coupling is about people
Contribution

• Model of Dependencies in Large Software Systems
• Lens Visualisation Technique and Visual Class Multiple Lens (VCML) Views
• Temporal Lens Visualisation Technique
• Design of a Reverse Engineering Tool
• Software Architecture of Two Large Industrially Developed Software Systems
• Theory of Software Development