

敏捷中国大会

ThoughtWorks®

InfoQ
Enterprise Software Development Community

三川

Responsive Design

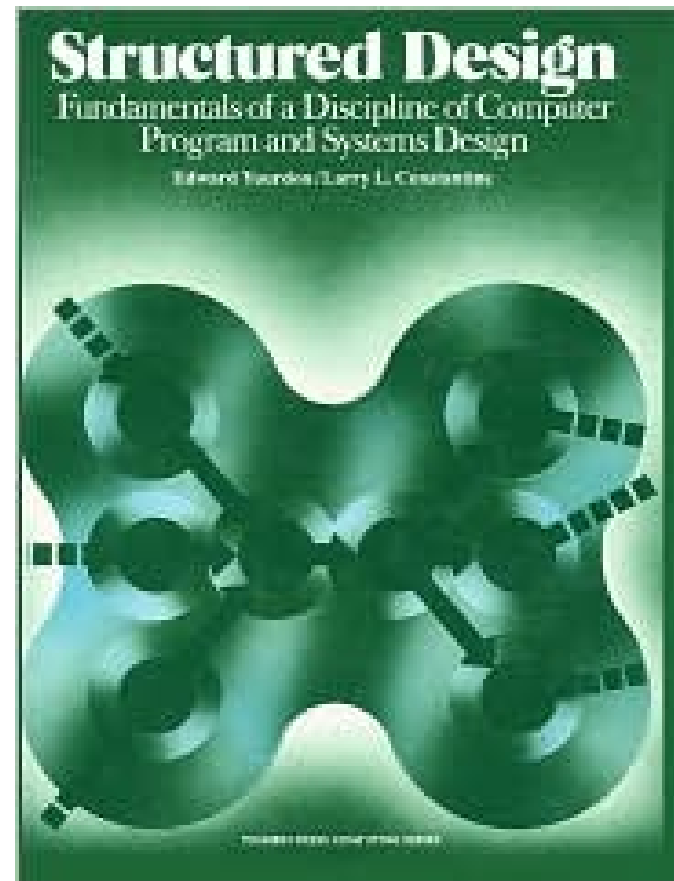
Kent Beck
Three Rivers Institute



Responsive Design Project

三川

- Study design
 - Introspectively
 - Empirically
 - Quantitatively



Why now?



- Design has leverage at times of change
 - End of free Moore's Law
 - Scale
 - Cloud
 - Re-client

Leverage



It is not a:

- Configuration
- Testing
- Reliability
- Build time
- Deployment

problem, it is a design problem

Goal of Development

三川



Steady
Flow of
Features

Design?

- Adding features should be straightforward

三川



Dilemma

三川

	Time	Options
Revenue	Sooner	More
Cost	Later	Less

Efficiency

三川

Initial work
+
Cost of features
+
Cost of changes * risk
+
Cost of mistakes
+
Opportunity cost

Latency, Throughput, Variance

三川



Challenges

- Human
- Social
- Sensitivity
- Succession
- Uncertainty

三川

Uncertainties

- Value
- Means
- Technology
- Team

三川

Values

- Feedback
- Humanity
- Courage
- Ambiguity

三川

Design

三川

Beneficially
Relating
Elements

Coupling

三川

- The probability that a change in one element will require a change in another



Cohesion

三川

- The probability that a change in one sub-element will require a change in all others
- Inversely related to coupling



Safe Steps

三川

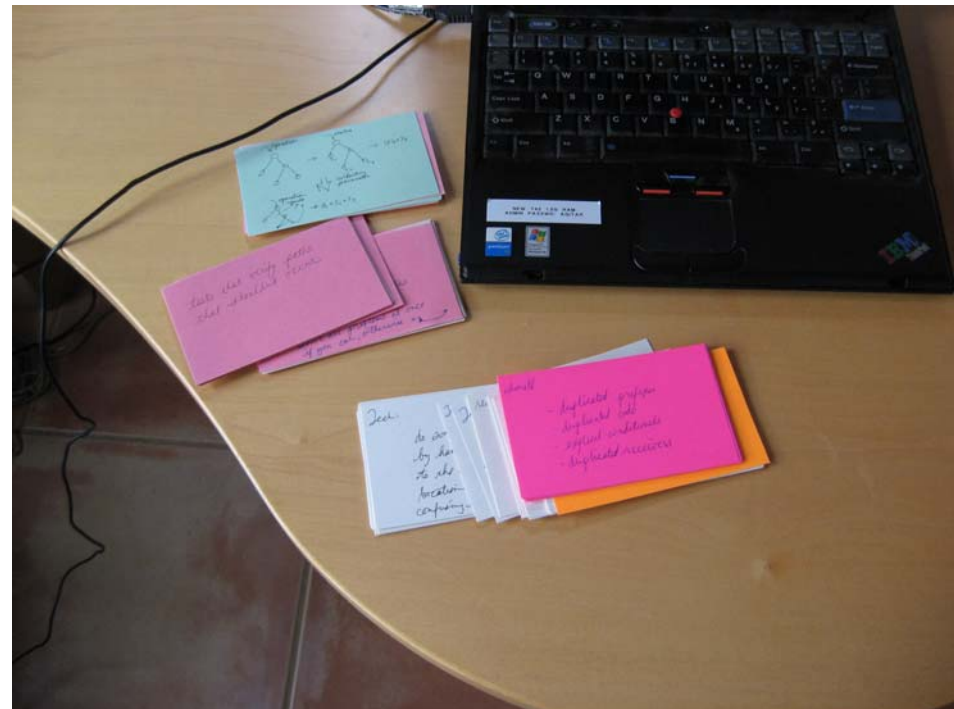
- Balance
 - Efficiency
 - Risk
 - Feedback
 - Teamwork



Strategies

三川

- Can see?
 - Leap
 - Parallel
- Can't see?
 - Stepping Stone
 - Simplification



Leap

三川

- If
 - You can imagine what you want
 - You can build it
 - You can install it

↑ Efficiency

↓ Risk



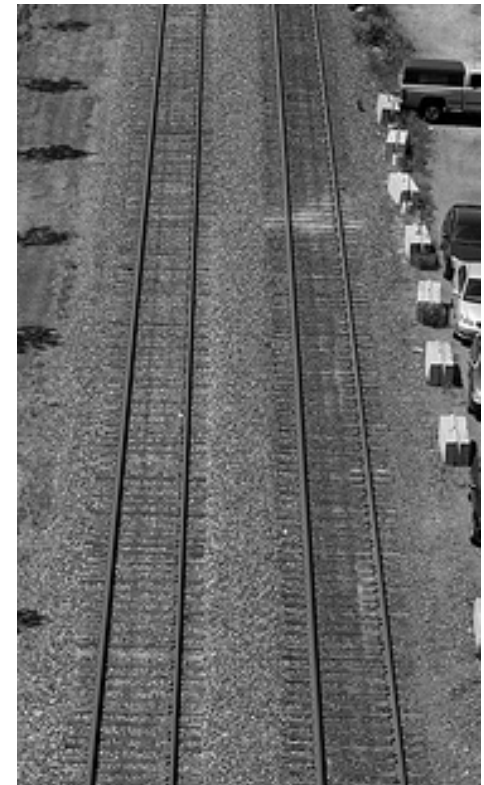
Parallel

三川

- If
 - You can imagine what you want but
 - You can't build it or install it safely
- Support two designs simultaneously
 - Gradual migration
 - Forwarding both ways

↑ Safety

↓ Scaffolding



Stepping Stone

三川

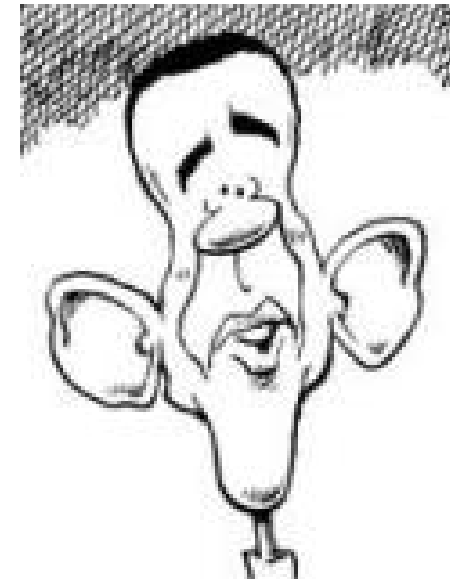
- If
 - You can't imagine exactly what you want to build but
 - You can imagine what would make the end easier/safer to reach
 - Build a platform from which your goal is easier to reach
- ↑ Some well-known components
- ↓ Risk of over-engineering
- ↓ Lack of feedback



Simplification

三川

- If
 - You can't imagine exactly what you want to build
 - Getting to the end is too expensive
- Eliminate requirements until you reach a safe step
- Gradually re-introduce requirements
- ↑ Almost always possible
- ↑ Establishes initiative
- ↓ Non-linearities in cost depending on requirements ordering



Four Strategies

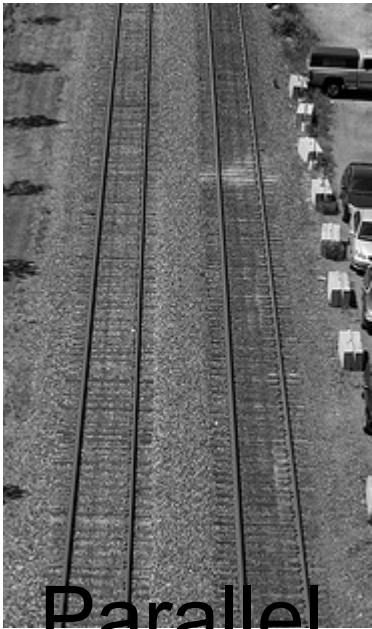
三川



Leap



Stepping Stone



Parallel

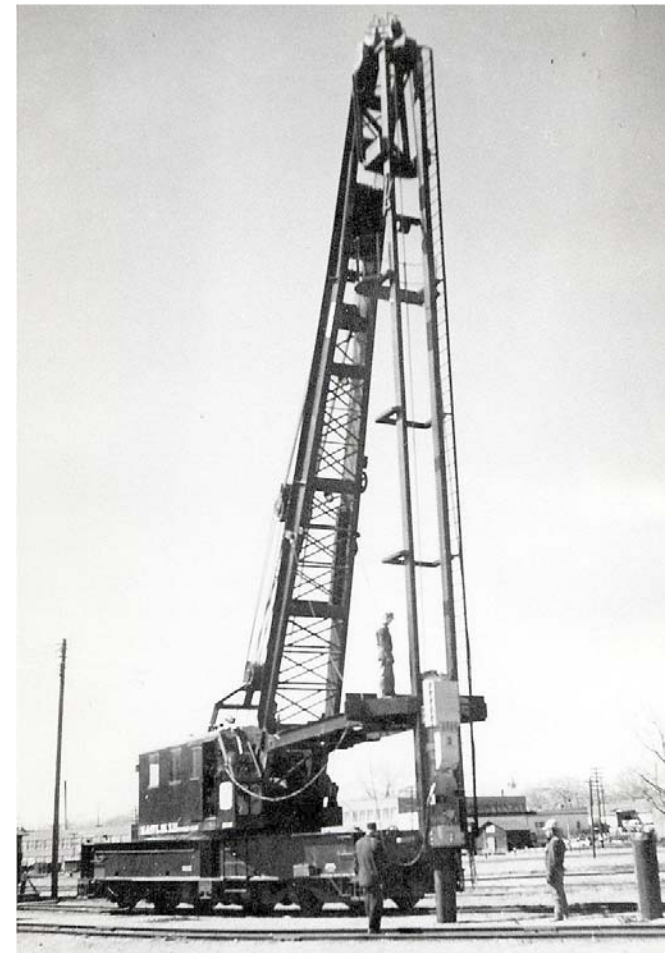


Simplification

...and One More

- If
 - You can't see how to make adding the feature straightforward
- Add it anyway
- Expect to pay the price later

三川



Refactoring

三川

- Bi-directional
- Isolate change
- Interface or implementation

Isolate change



- Before making a change, reduce risk by isolating the area that will need to be changed

Design is an island

三川

- No “best” design
- Improvement
- Deterioration
- Sea level
- Change in basis



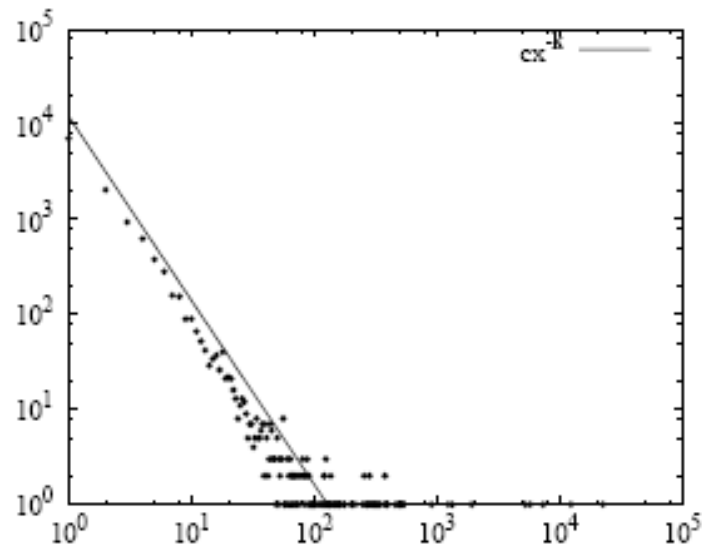
Observations

- Power laws
- Fractal
- Symmetry
- Punctuated equilibrium

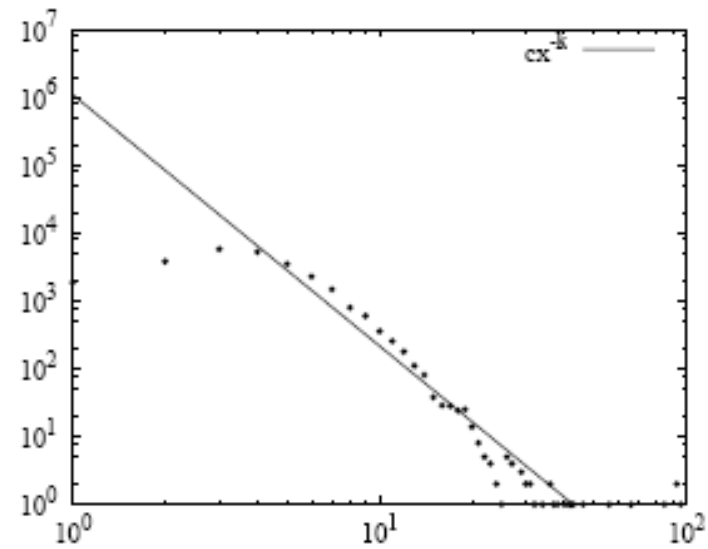
三川

Power Laws

三川



(a) incoming ($k = 1.94$)



(b) outgoing ($k = 3.70$)

Fig. 3: Perl CPAN packages dependencies

Fractal



三川

Symmetry

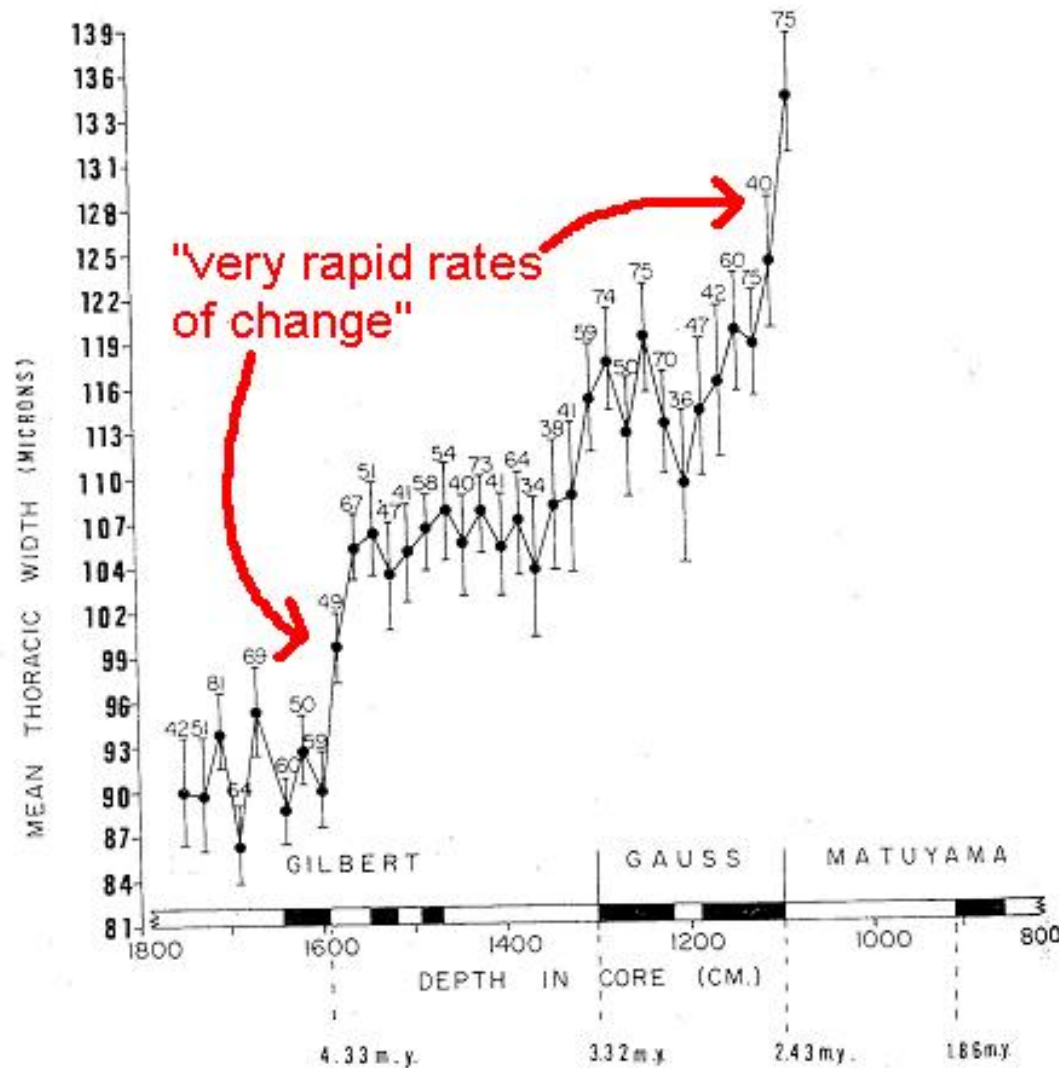


(C)2001 Ph. Wautelet
www.fractalzone.be

三川

Punctuated Equilibrium

三川



Psychology

- Confidence
- Initiative
- Creativity

三川

Ask the system

- Visualization
- Debugger

三川

Recovery

- Broken windows
- Site repair

三川

Design for testability

三川

Timing

三川

Least commitment

三川