What is test-driven development?
and why do I care?

a primer for managers

First, a taste

Excel workshop

What's design?

Is it
a document that describes the design

\- or -
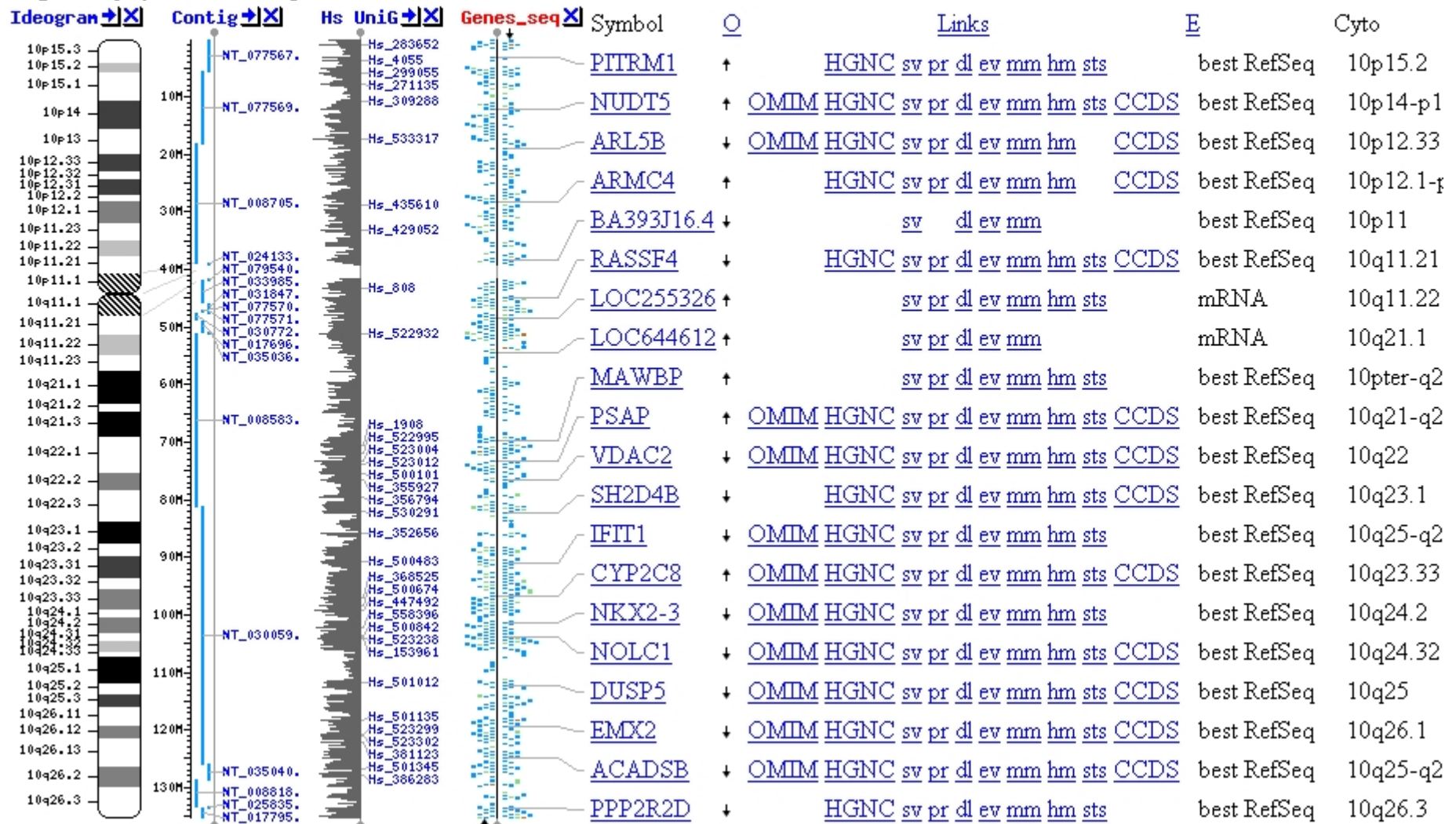
Is it
the living expression of design in the code?

To change people, do you change this…

…or this?

To change software do you change this…

Design Document

…or this?

```
if (confirm("Are you old enough to read about beer\n"
        + "according to your local community standards?")) {
    for (i = 99 ; i > 0 ; i--) {
        j = i - 1;
        if (i != 1) {
            icase = "bottles";
        } else {
            icase = "bottle";
        }
        if (j != 1) {
            jcase = "bottles";
        } else {
            jcase = "bottle";
        }
        document.writeln(i + " " + icase
            + " of beer on the wall,");
        document.writeln(i + " " + icase + " of beer,");
        document.writeln("Take 1 down, pass it around,");
        if (j != 0) {
            document.writeln(j + " " + jcase
                + " of beer on the wall.");
        } else {
            document.writeln("No more bottles of beer on the wall!");
        }
        document.writeln();
    }
} else {
    document.write("You might want think about moving to another community.")
}
```
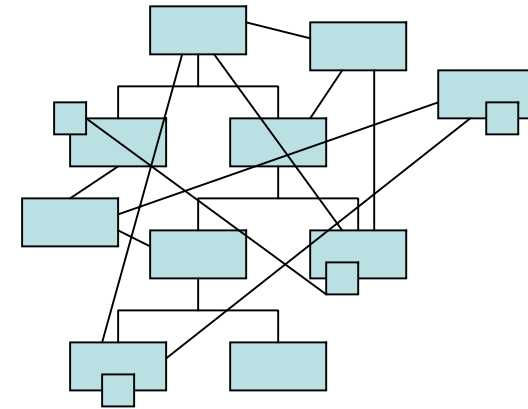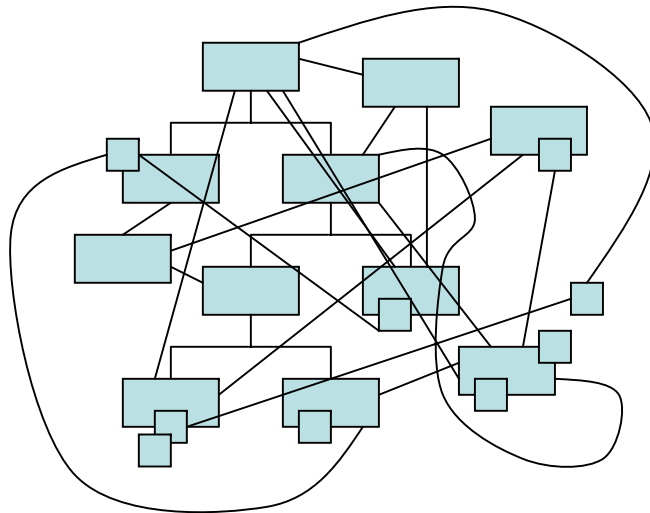
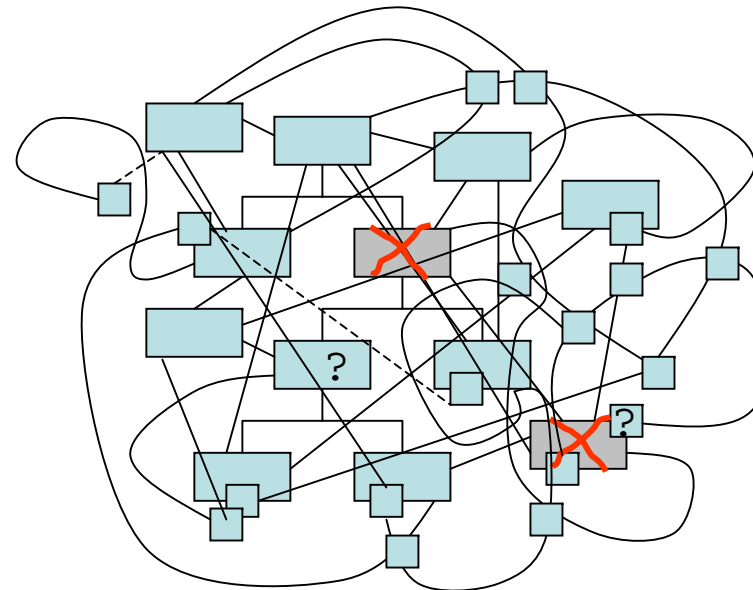# What's design debt?
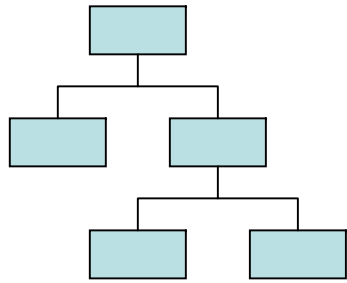
Cost of change: C

Cost of change: C + n
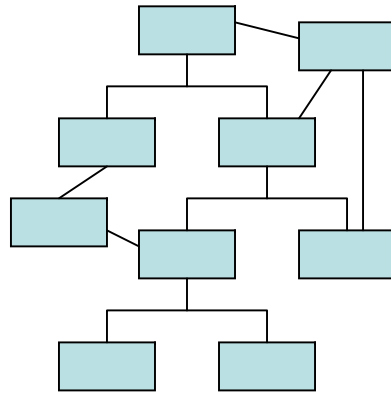
Cost of change: C x n

Cost of change: C^n

Cost of change: C^{n^n}

Installment payments for design debt

1
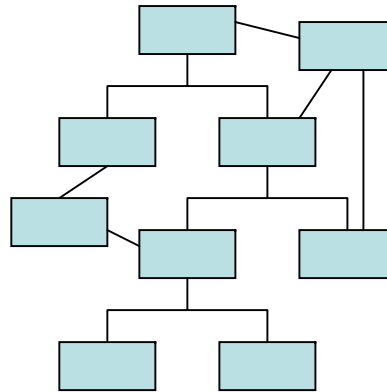
2

3

4

5

Tests for
new features

Tests for
new features
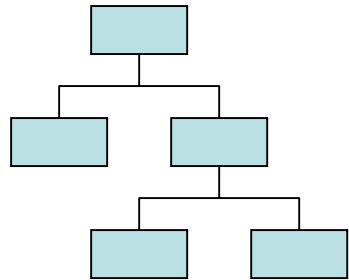
Starting code base
Cost of change: C
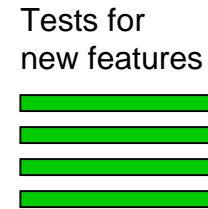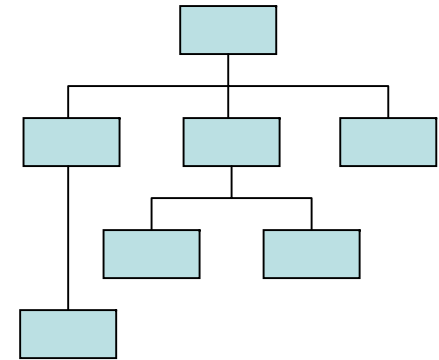
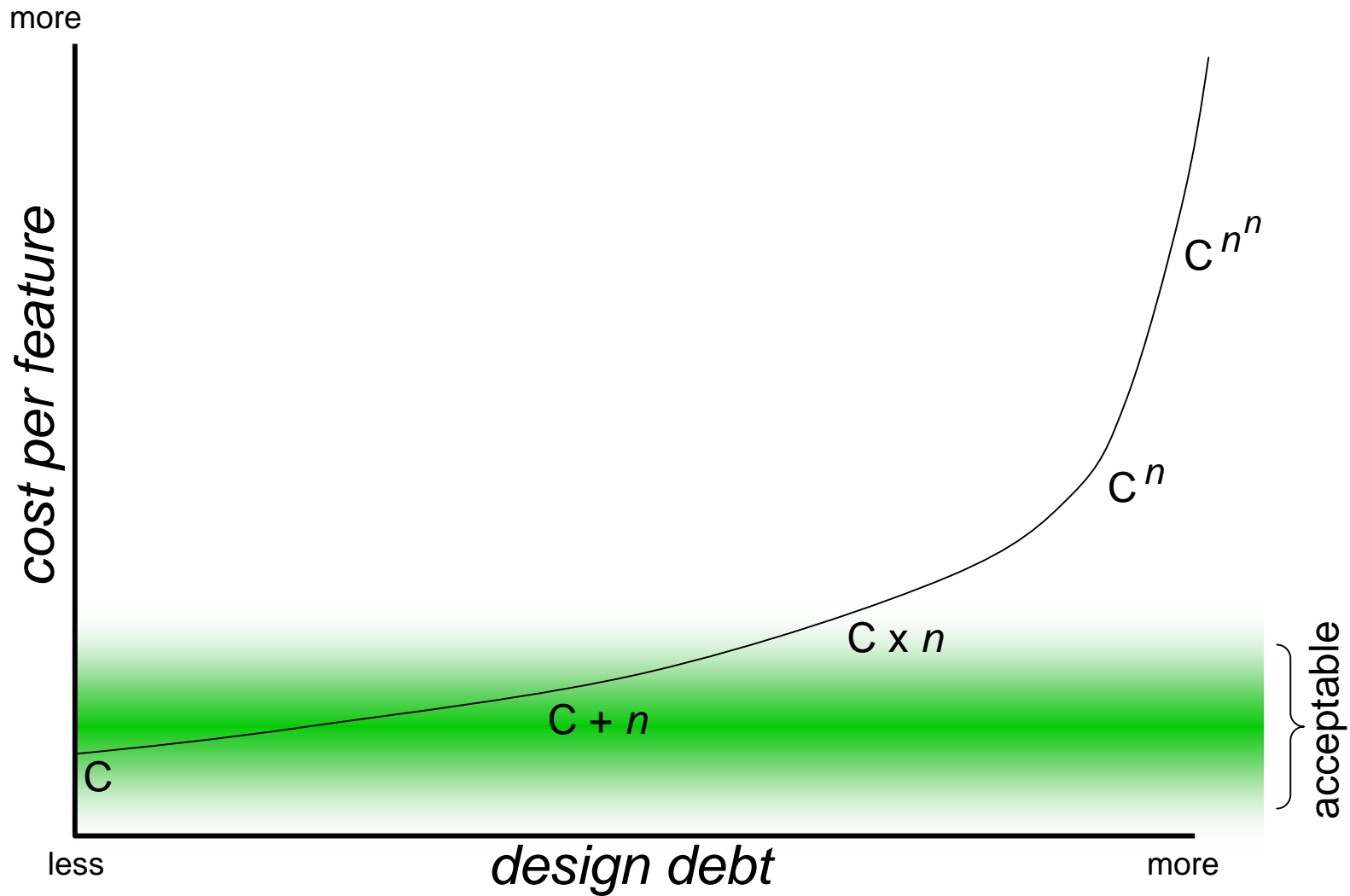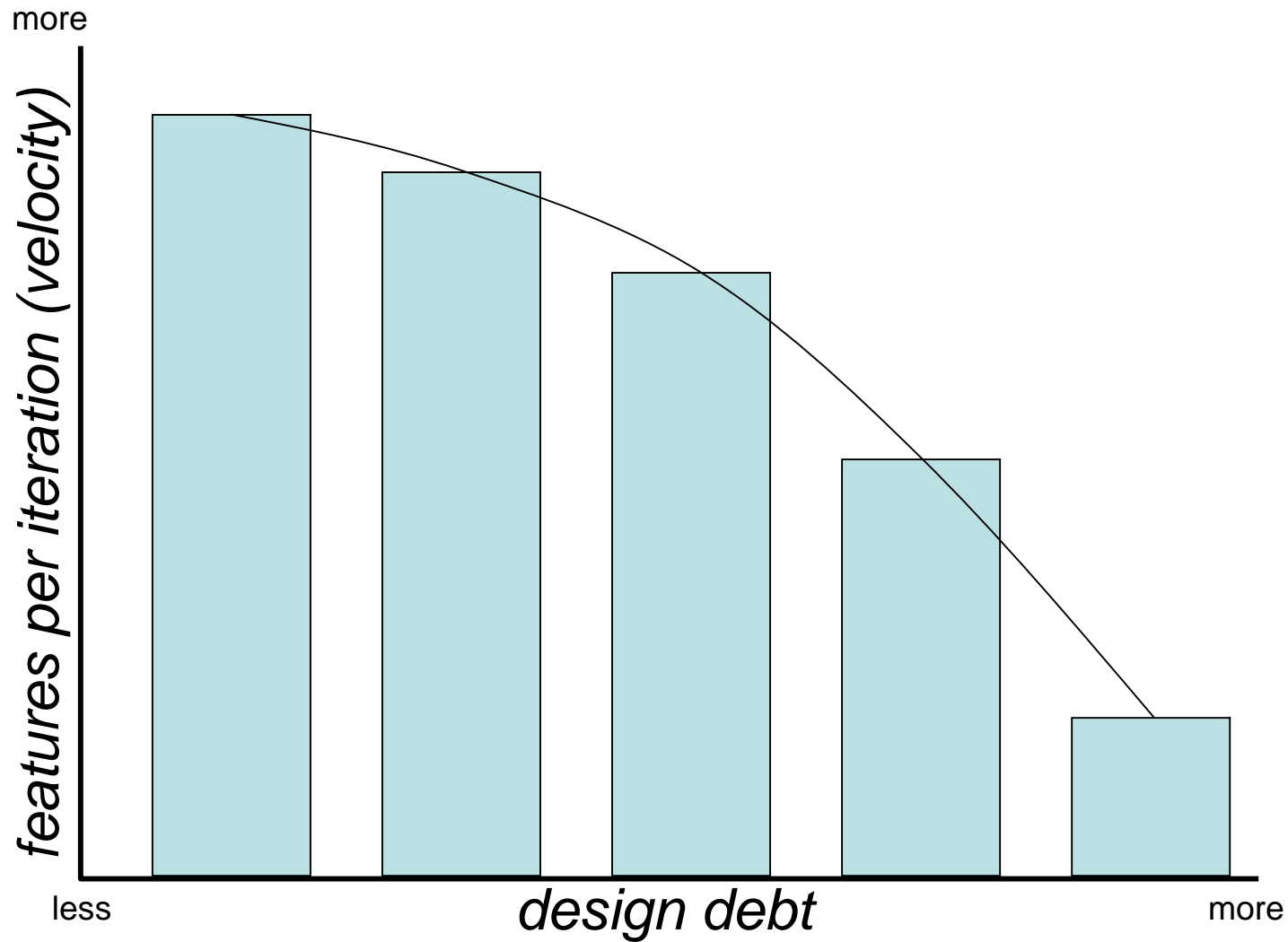Changes implemented
Cost of change: C + n

Code cleaned up
Cost of change: C

Effect of design debt on development cost during a project

more

cost per feature

C^{n^n}

C^n

$C \times n$

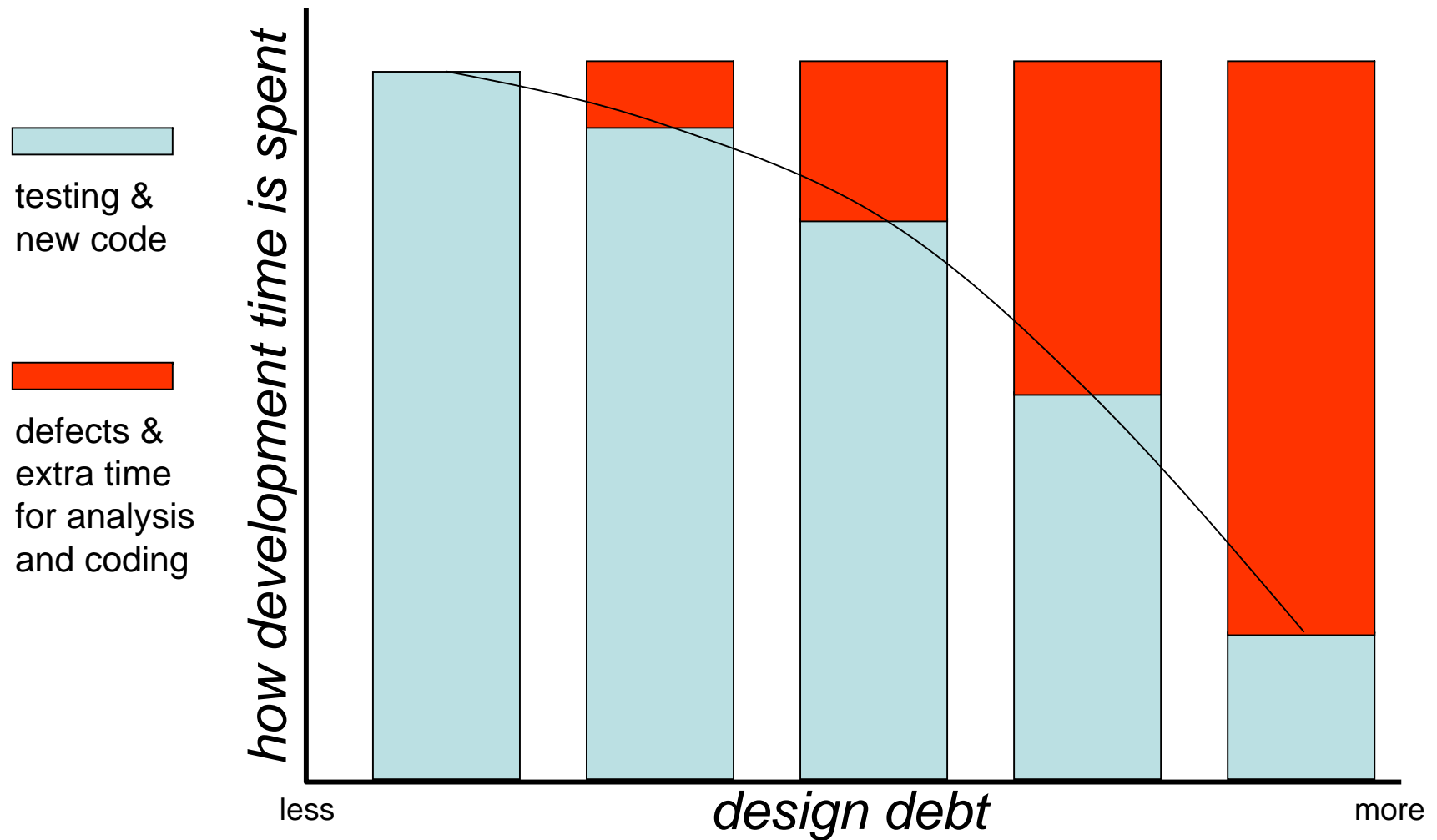$C + n$

C

less · *design debt* · more

acceptable

Effect of design debt on team productivity during a project
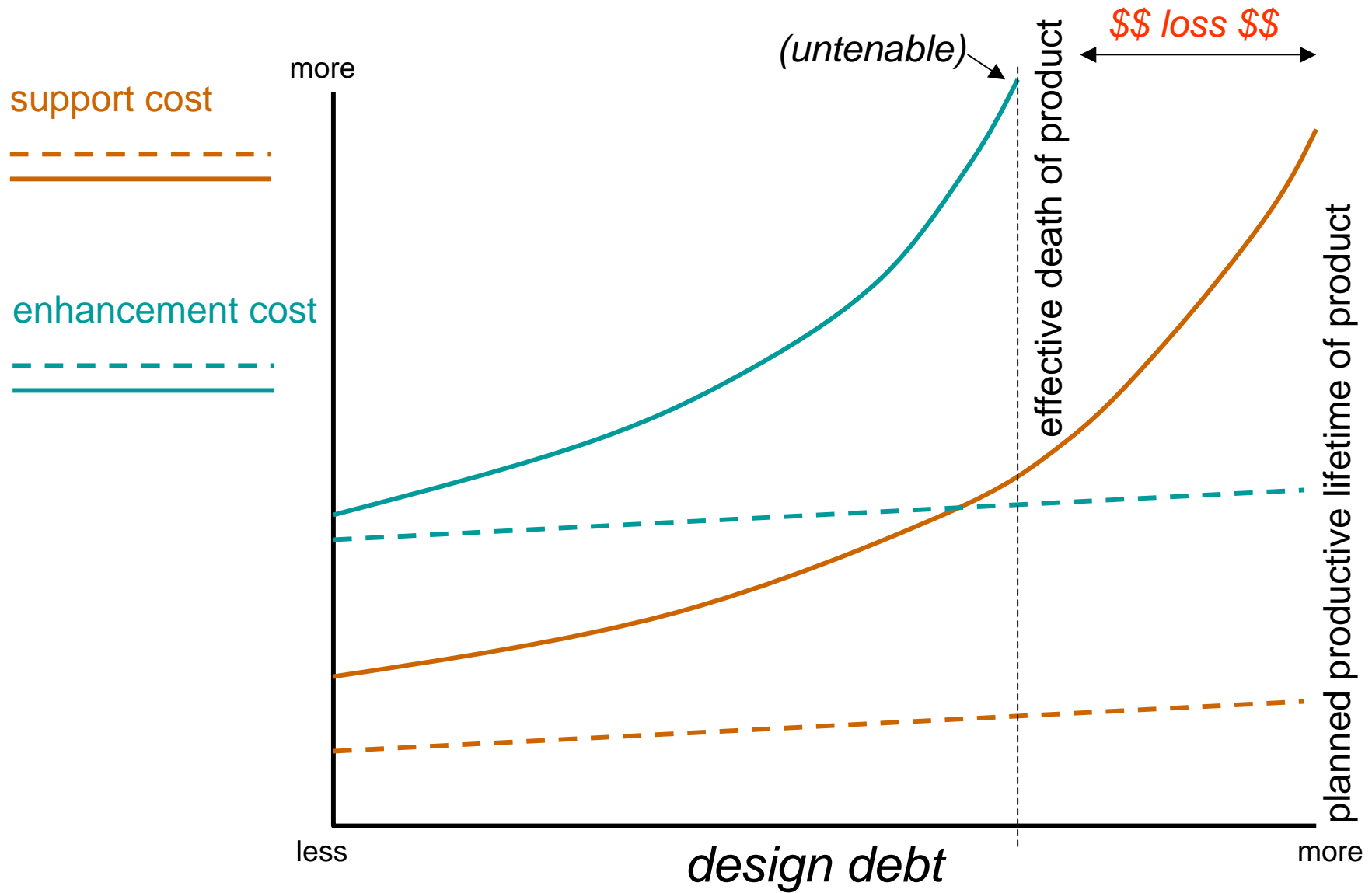
Effect of design debt on the defect rate during a project
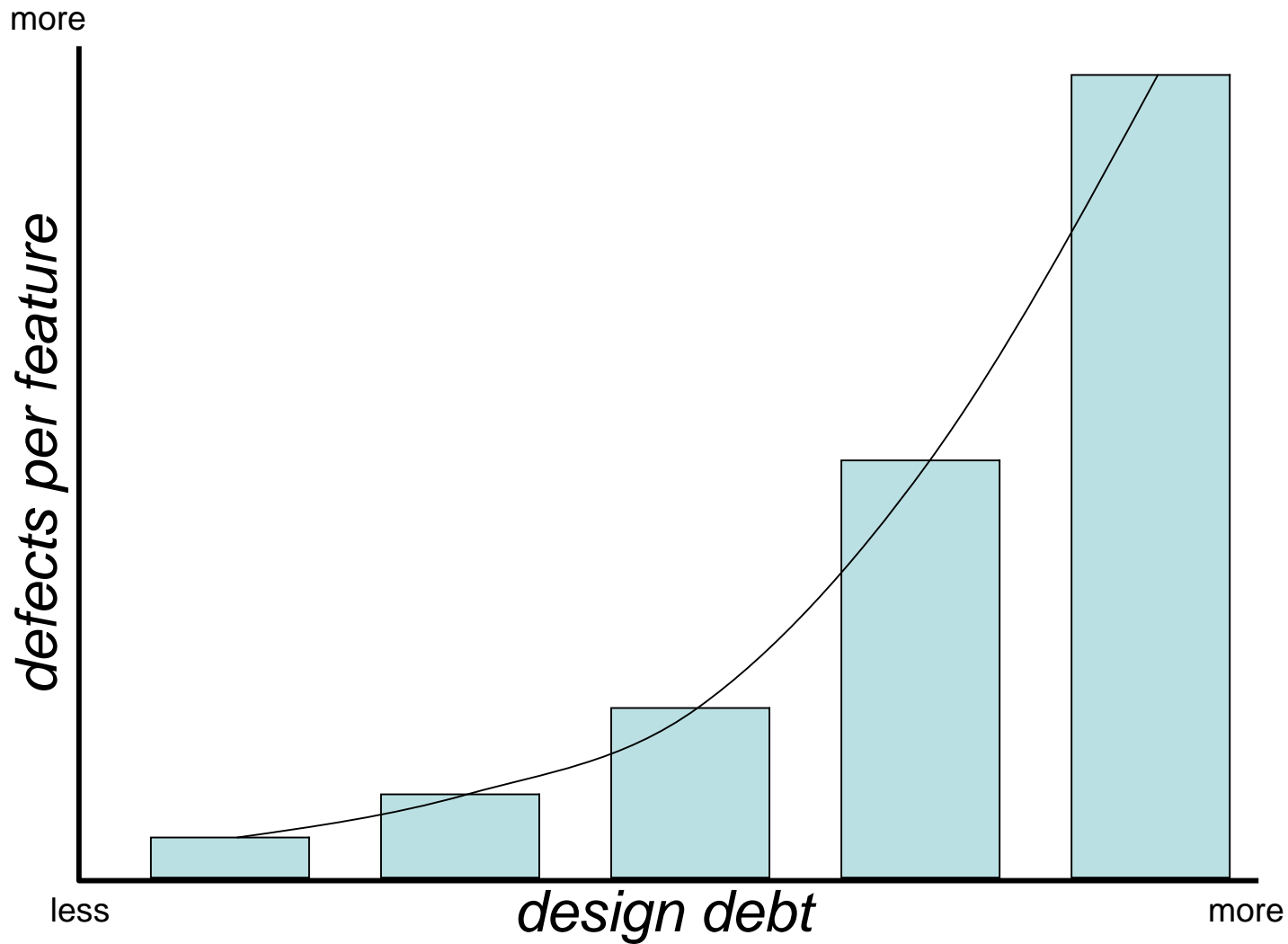
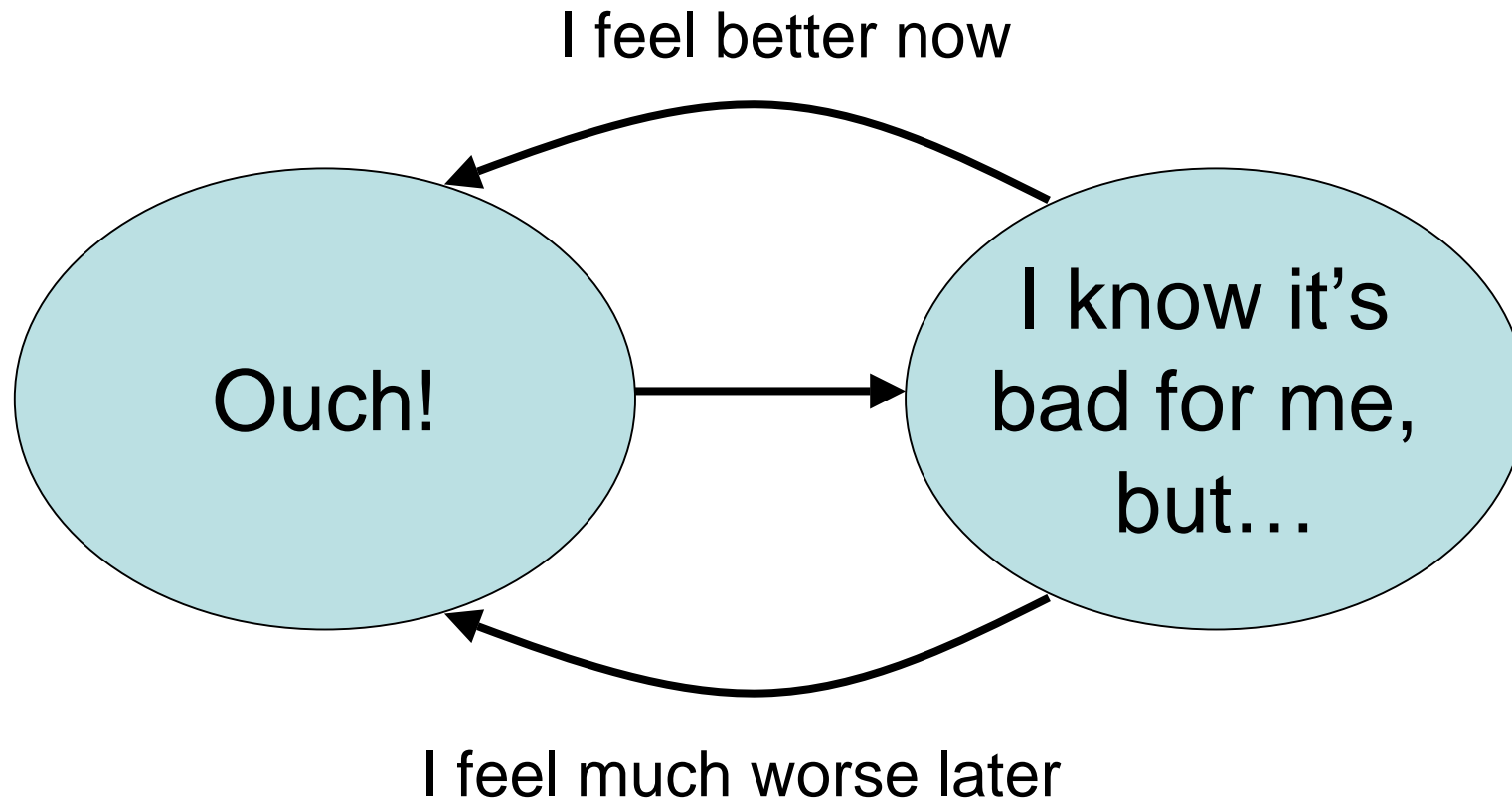# Effect of design debt on time available for testing during a project

Effect of design debt over the life of a product

support cost

enhancement cost

$$ loss $$

(untenable)

effective death of product

planned productive lifetime of product

design debt

less   more

Why people continue to incur design debt

I feel better now

Ouch!

I know it's bad for me, but…

I feel much worse later

What can **I** do about it?

As a manager, I…

…barely understand this myself

…can't tell technical professionals how to do their jobs

…don't have an answer for their technical rationalizations

…need to give them "space" to work effectively

How can I influence things at this level without damaging morale?

As a manager, I can…

…attend daily stand-up meetings and ask questions

…visit the work area and observe the process

…ask team members about TDD and how they use it

…track the defect curve closely and raise issues

Design debt and test-driven development

$ Design debt compounds interest just like financial debt

$ It's easier to pay off interest in small installments
than to let it accumulate

$ TDD pays design debt as it is incurred,
like paying off a credit card account in full every month

$ You care because it's your money

$ You can influence the team indirectly