

**Z**

—  
hdk

—  
Zürcher Hochschule der Künste  
Zurich University of the Arts

## **leihs, the leading free equipment booking system**

It took us eight years to get it right. What we learned about being a FOSS project.

Ramón Cahenzli

[ramon.cahenzli@zhdk.ch](mailto:ramon.cahenzli@zhdk.ch)

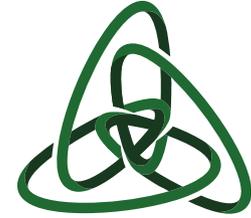
**Z**

hdk

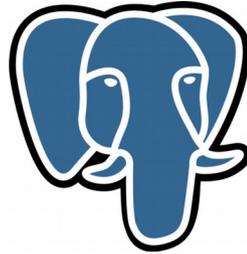
Zürcher Hochschule der Künste  
Zurich University of the Arts



**debian**



**OpenVZ**  
Linux Containers



 **TYP03**



**WORDPRESS**



**MariaDB**



**HighAvailability**



**POSTFIX**

 **OTRS**

**DR:BD<sup>®</sup>**

 **Pacemaker**

leihs

# Multilingual recursive acronym

leihs is an **e**asy **i**nventory **h**andling **s**ystem

leihs ist ein **e**infaches  
**i**nventar**h**andhabung**s**ystem

leihs permet d'**e**mprunter votre **i**nventaire  
**h**abilement et **s**ystématiquement

leihs är ett **e**nkelt **i**nventar**h**antering**s**system

leihs – **e**i inventaarioita **h**elpommaksi **s**aa

Ausleihsystem

What does leihs do?

## Main building



## Lending managers



## Film student

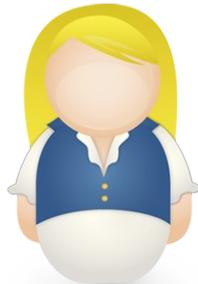


## Theater department

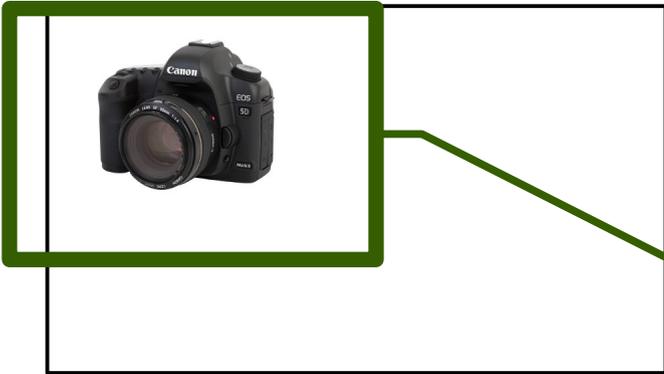


## Fine arts student

## Film department



# Main building



Lending managers



Film student



max. quantity = 1

# Theater department

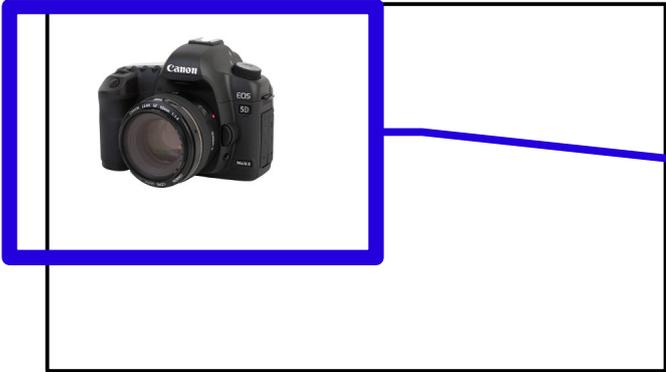


Fine arts student

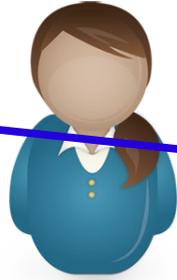
# Film department



# Main building



Lending managers



Film student



max. quantity = 2

# Theater department



Fine arts student

# Film department



Why?

**HKB**  
Hochschule der Künste Bern

Lucerne University of  
Applied Sciences and Arts

**HOCHSCHULE  
LUZERN**

**FHV**   
Vorarlberg University  
of Applied Sciences

**MIDDLE  
TENNESSEE**  
  
STATE UNIVERSITY

**Z**  **hdK**

Zürcher Hochschule der Künste  
Zurich University of the Arts

**btk** 

berliner technische kunsthochschule  
hochschule für gestaltung

 **HTW** Chur  
 Hochschule für Technik und Wirtschaft  
University of Applied Sciences



**University of Brighton**

 **University  
of Worcester**

Some mistakes

# Mistake № 1

To have non-English code

**CODE**

```
def status_zahlen
  @reservationen_anzahl = Reservation.count_fuer_berechtigung( session[ :aktiver_geraetepark ] )
  @pakete_anzahl = Paket.count_fuer_berechtigung( session[ :aktiver_geraetepark ] )
  @user_anzahl = User.count
  @user_online_anzahl = User.count_online
  @gegenstaende_anzahl = Gegenstand.count_fuer_berechtigung( session[ :aktiver_geraetepark ] )
end
```

What might the “show” method be called?

```
def zeig
  @reservation = Reservation.find( params[ :id ] )
end
```

```
def 进入预订
  准备预订
  @预订.状态 = 9 # 借
  @预订.开始日期 = Time.now
  @预订.贷款人 = session[:用户]
  @预订.更新人 = session[:用户]

  if @预订.save
    # 标记保留为保留
    日志条目.新条目( session[:用户], '执行借款',
                     "预订 #{@预订.id}" )
    session[:直接交接] = nil
    flash[:notice] = '进入预约成功'
    redirect_to :controller => 'admin', :action => 'status'

  else
    # 不能保存预订
    flash[ :notice ] = "错误更新数据库 \r #{@预订.errors.to_yaml}"
    render :action => '确认预订'
  end
end
```

```
def kirjoita_varaus
  valmistella_varaus
  @varaus.tila = 9 # lainaksi
  @varaus.aloituspäiväys = Time.now
  @varaus.vastuunalainen = session[:käyttäjä]
  @varaus.päivittäjä = session[:käyttäjä]

  if @varaus.save
    # Määritä varauman lainaksi
    Lokimerkintä.uusi_merkintä( session[:käyttäjä], 'säästää varaus',
                               "varaus #{@varaus.id}" )
    session[:suora_varaus] = nil
    flash[:notice] = 'Olen merkitty varaus tallennetuksi'
    redirect_to :controller => 'admin', :action => 'status'

  else
    # Ei voinut pelastaa varaus
    flash[ :notice ] = "Virhe päivitettäessä tietokanta \r #{@varaus.errors.to_yaml}"
    render :action => 'vahvista_varaus'
  end
end
```

```
def ausleihe_eintragen
  reservation_vorbereiten
  @reservation.status = 9 # ausgeliehen
  @reservation.startdatum = Time.now
  @reservation.herausgeber = session[ :user ]
  @reservation.updater = session[ :user ]

  if @reservation.save
    # Reservierung als ausgeliehen kennzeichnen
    Logeintrag.neuer_eintrag( session[ :user ], 'trägt Ausleihe ein',
                             "Reservation #{@reservation.id}" )
    session[ :direkte_herausgabe_modus ] = nil
    flash[ :notice ] = 'Reservation erfolgreich als ausgeliehen eingetragen'
    redirect_to :controller => 'admin', :action => 'status'

  else
    # Reservation konnte nicht gesichert werden
    flash[ :notice ] = "Fehler beim DB Update \r #{@reservation.errors.to_yaml}"
    render :action => 'ausleihe_pruefen'
  end
end
```

[http://localhost:3000/\*\*gegenstands\*\*/list](http://localhost:3000/gegenstands/list)

# Mistake № 2

To be on the bleeding edge



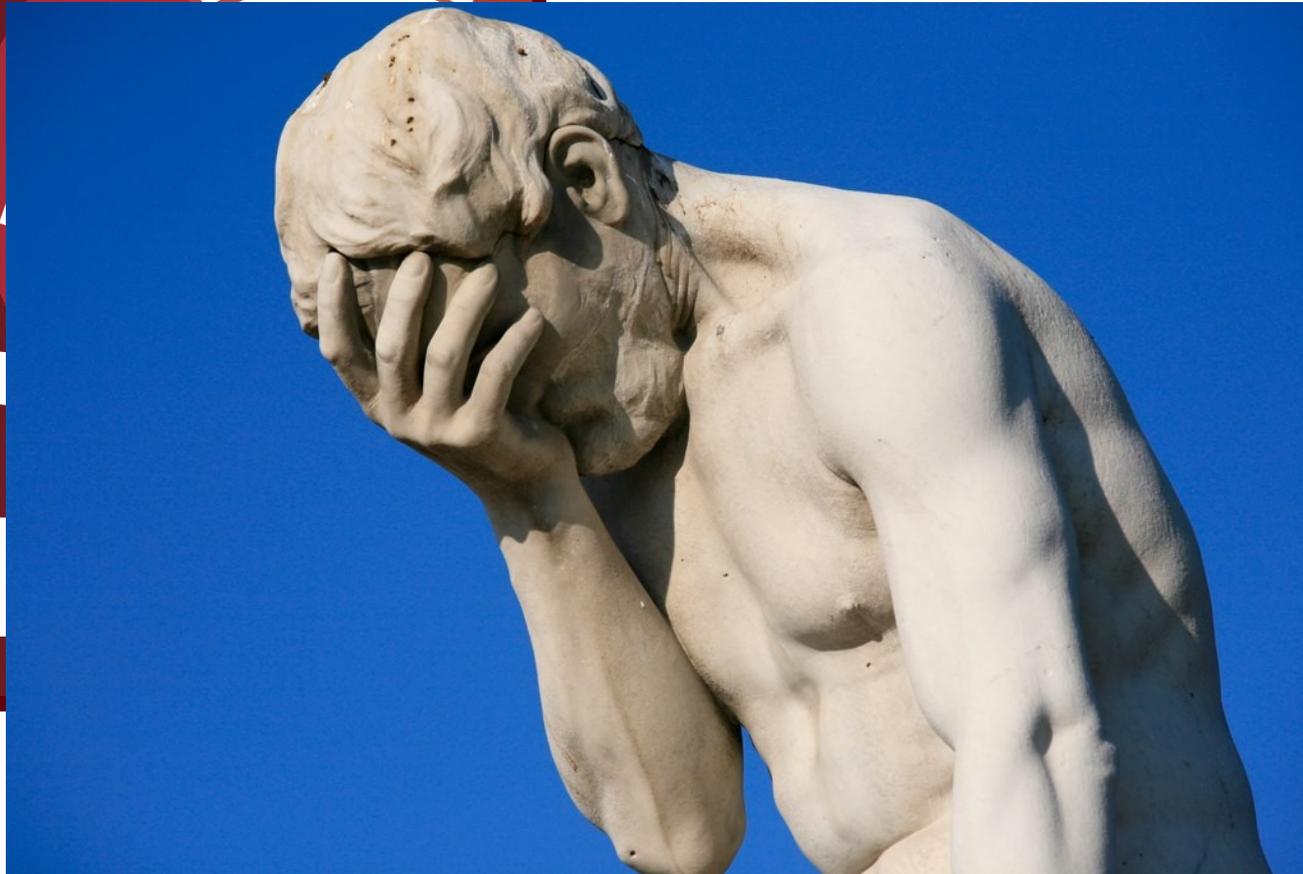
2004



2004

leihS

2005

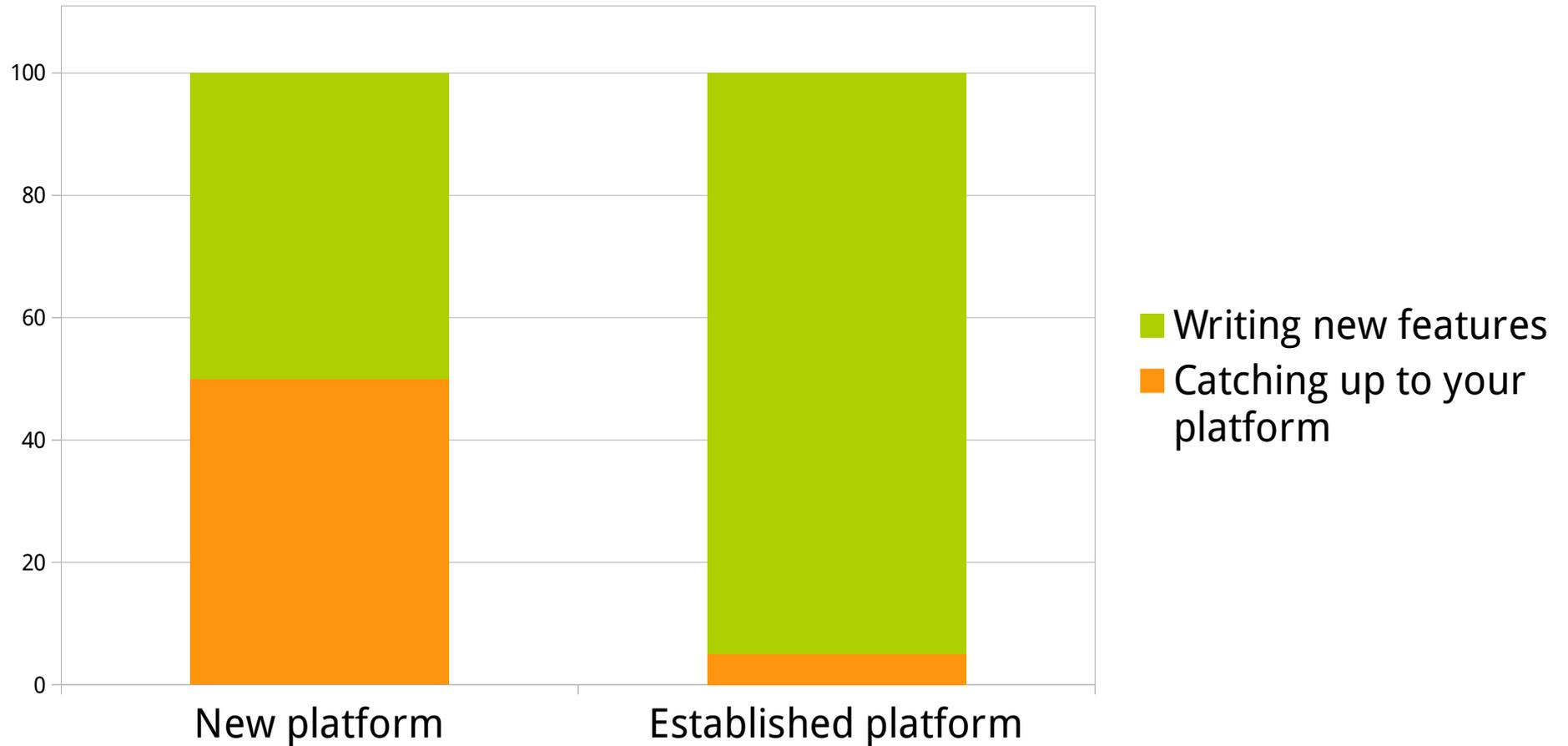


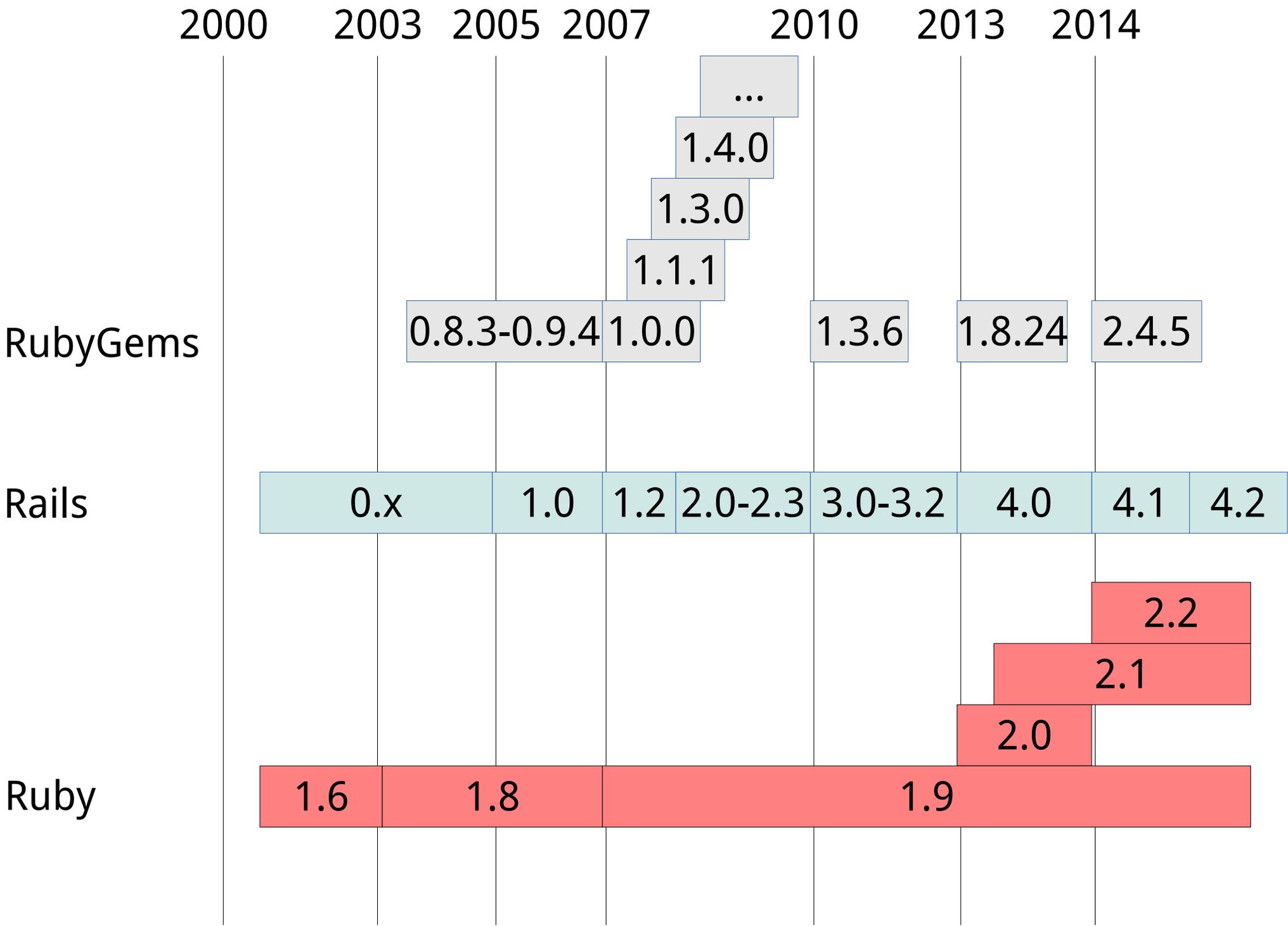
2004

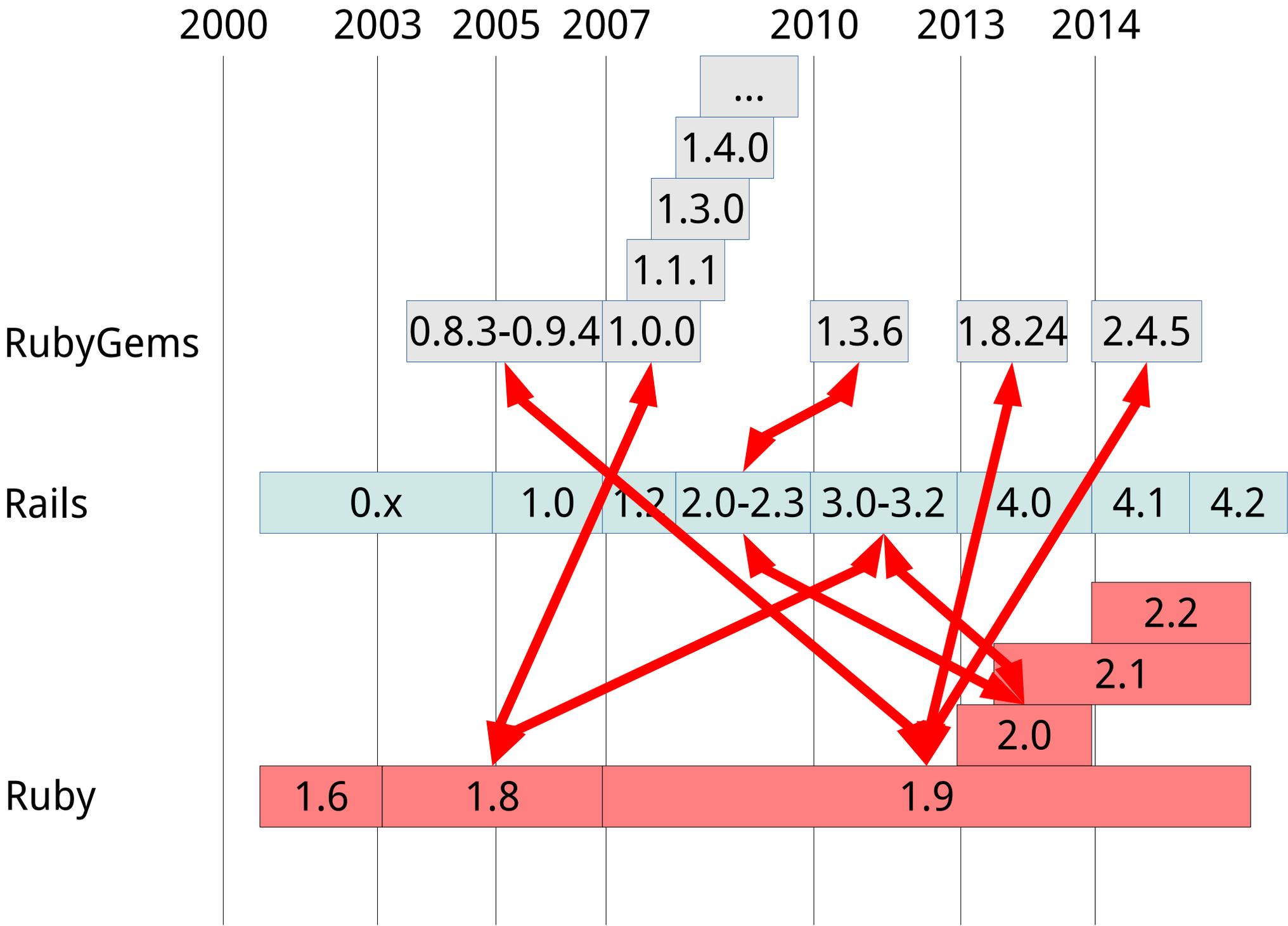
2005

S

# Very scientific chart







# Mistake № 3

Internationalization? We'll add that later!

```
<%= "Order number %d" % @order.number %>
```

```
<%= _("Order number %d") % @order.number %>
```

```
<%= "Order number %d" % @order.number %>
```

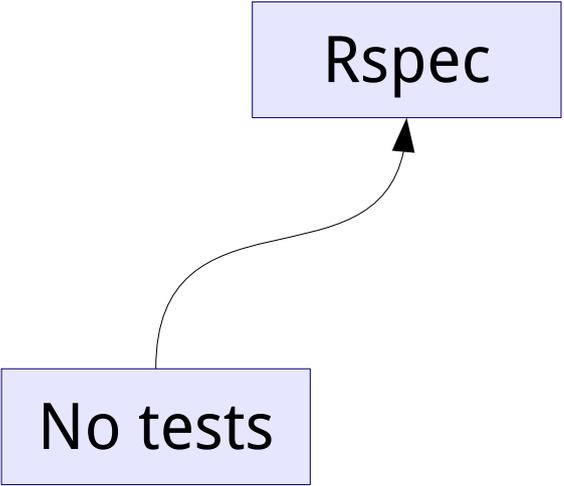
```
<%= _("Order number %d") % @order.number %>
```

**1,037 times!**

# Mistake № 4

No tests

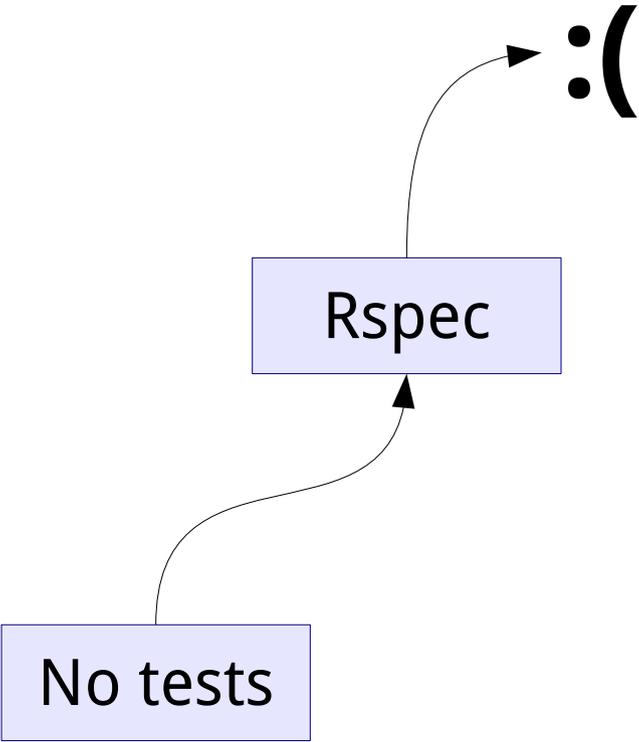
t



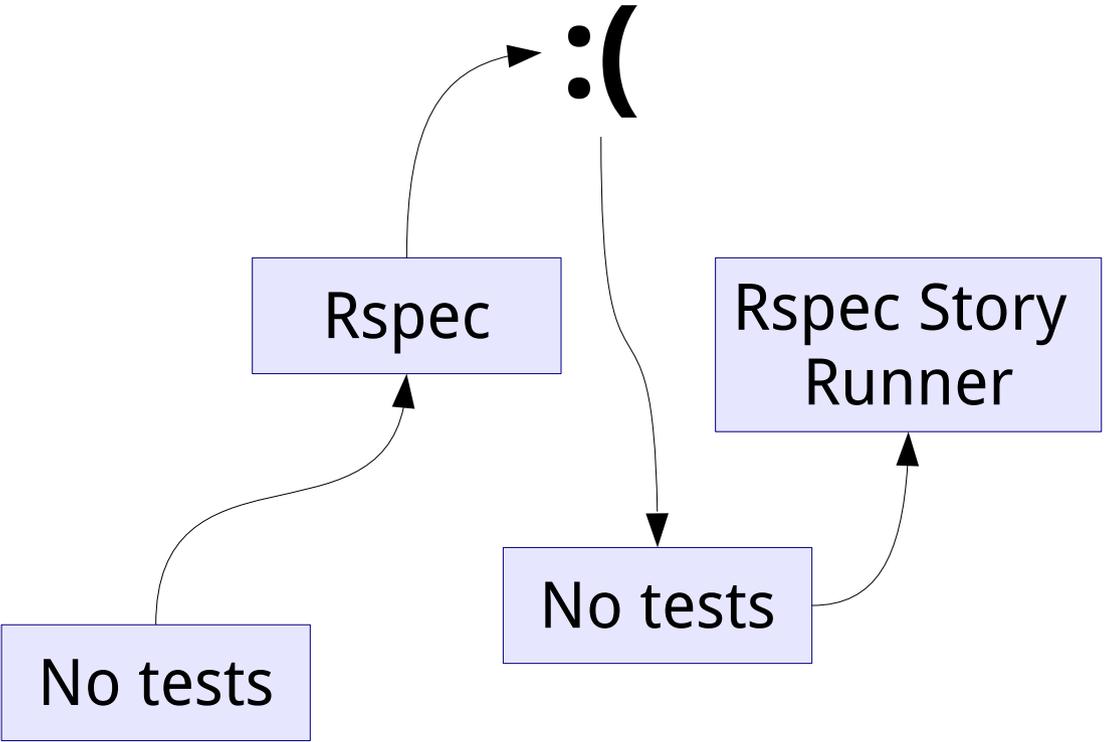
Rspec

No tests

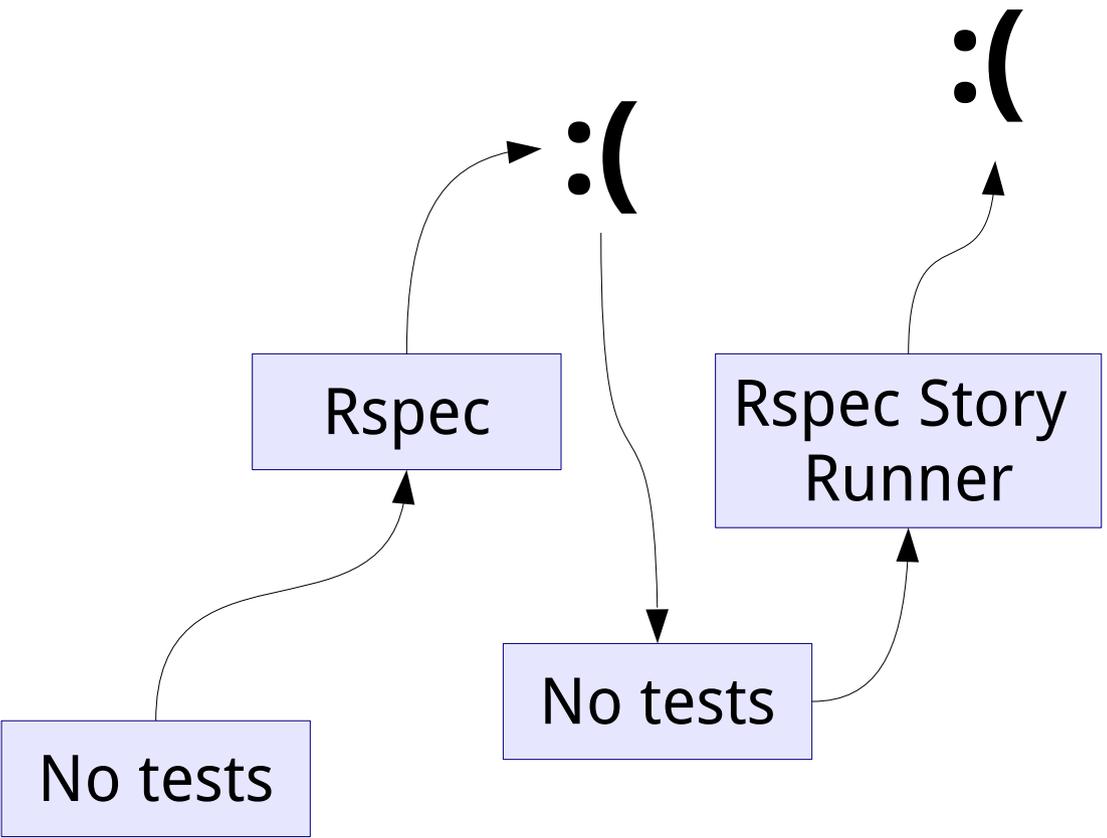
t



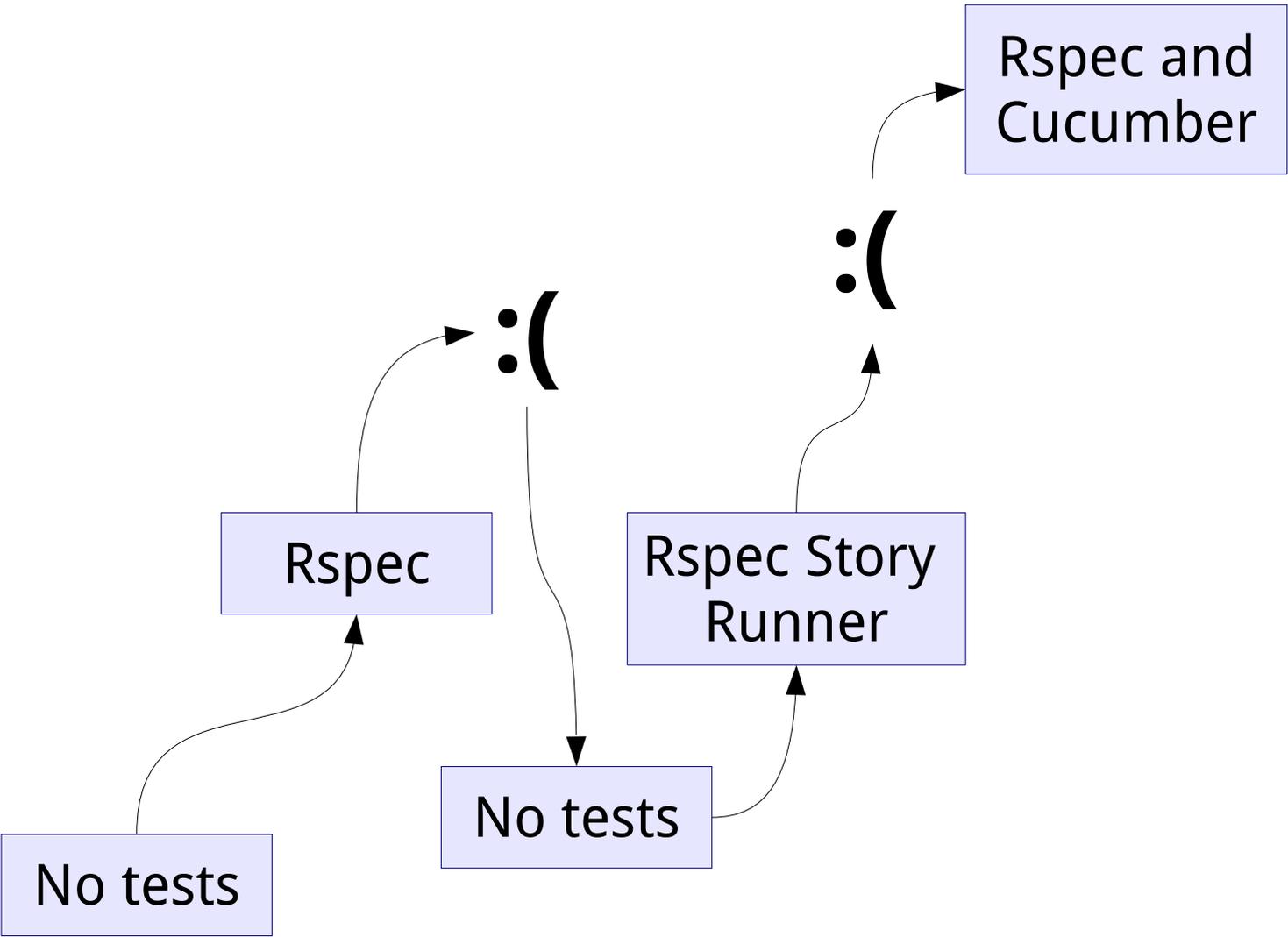
t



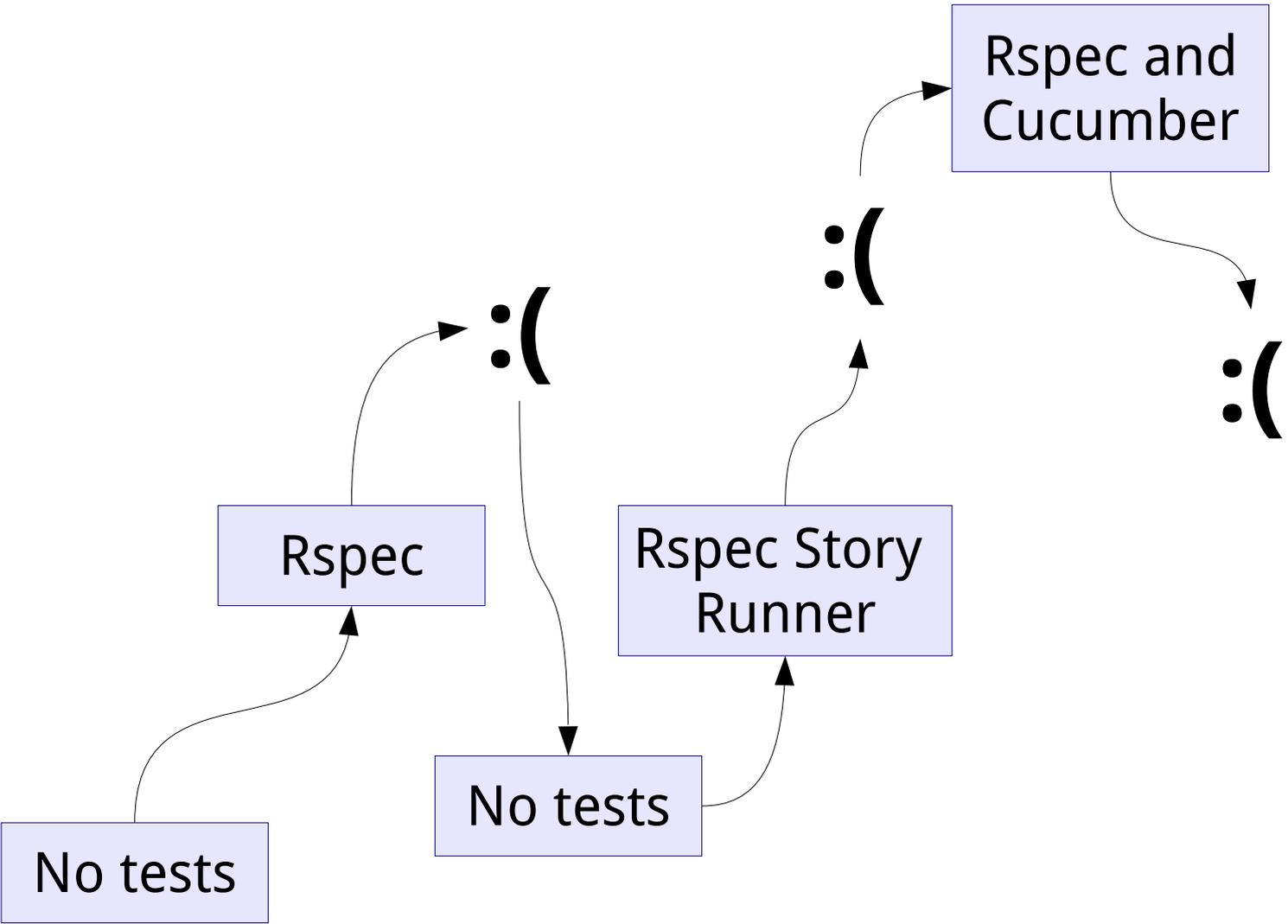
t



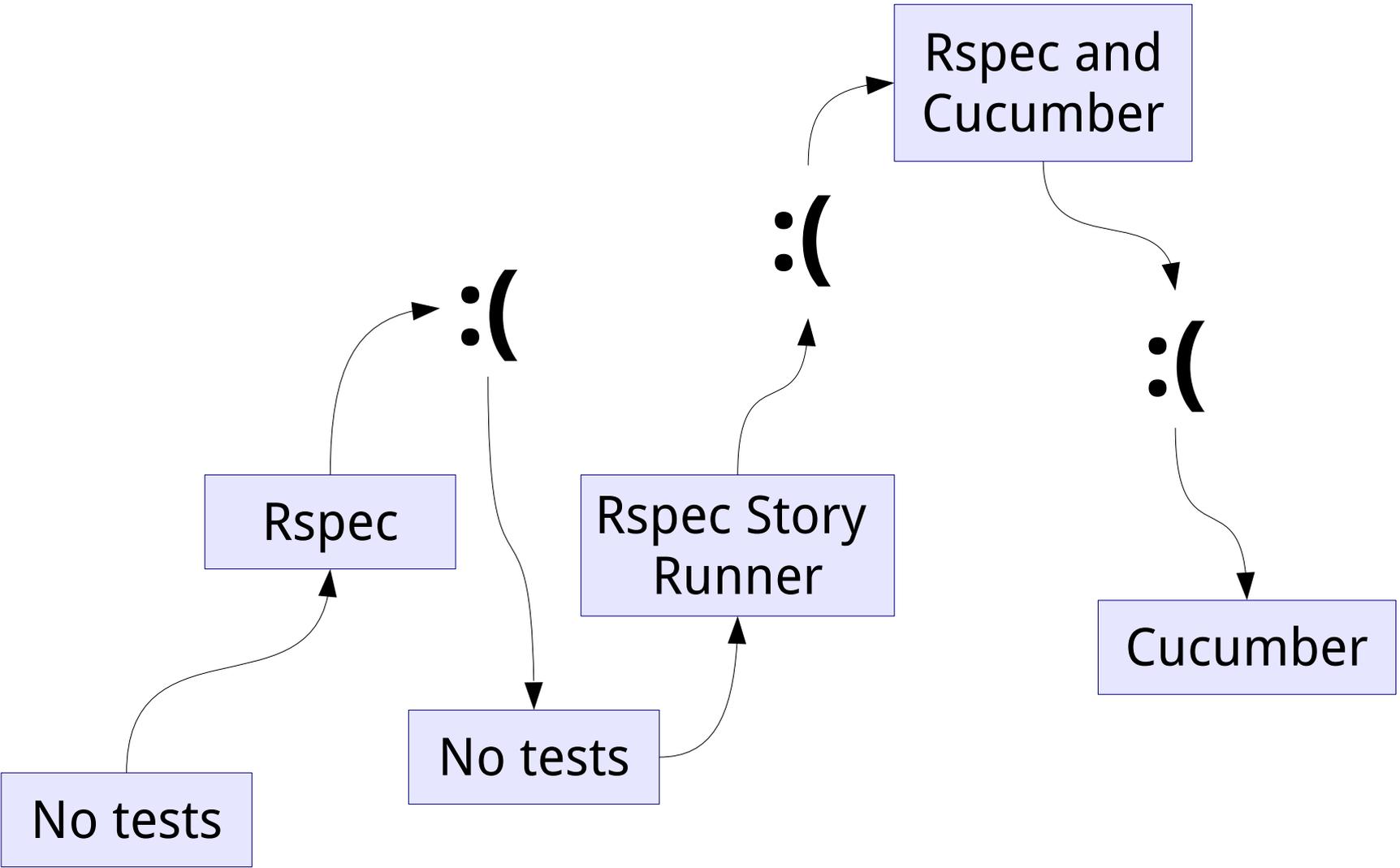
t



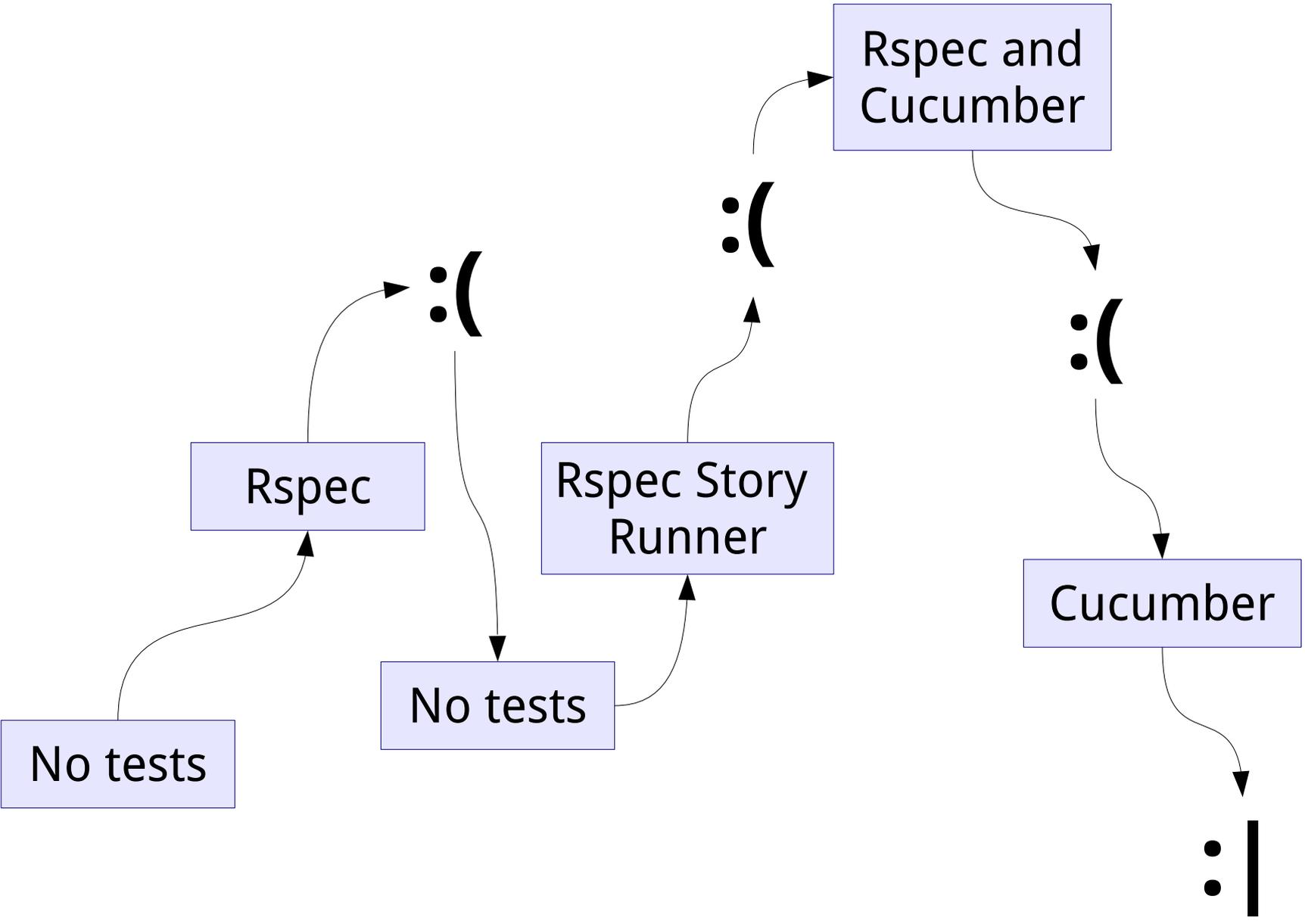
t



t



t



9 hours test execution



# Execution "Tests"

Delete
Edit
Retry failed

Speedup: 24.34 Duration: about 23 minutes Processing time: about 9 hours

rca leihs rca-translate-features



## Commit

ab3bd0 *Small comment.* Ramón Cahenzli a day ago on Monday **leihs** rca\_translate\_features\_3 Tests Execute

## Tasks

Unpassed  12 Per page Reset Filter

	Leihs » Completness of CI tasks » All features are tested?		<span>Retry</span>
	Leihs » Cucumber » features/borrow/bestelluebersicht.feature:29		<span>Retry</span>
	Leihs » Cucumber » features/examples/benutzerverwaltung.feature:188		<span>Retry</span>
	Leihs » Cucumber » features/examples/inventar.feature:126		<span>Retry</span>
	Leihs » Cucumber » features/examples/inventar.feature:136		<span>Retry</span>



# Execution "Tests"

Speedup: 24.34   Duration: about 23 minutes   Processing time: about 9 hours

54 ☹️

## Commit

ab3bd0

*Small comment.*

Ramón Cahenzli

a day ago on Monday

## Tasks

Unpassed

# Cider CI

<http://cider-ci.info/>

CI system/framework for parallelized  
and resilient integration testing

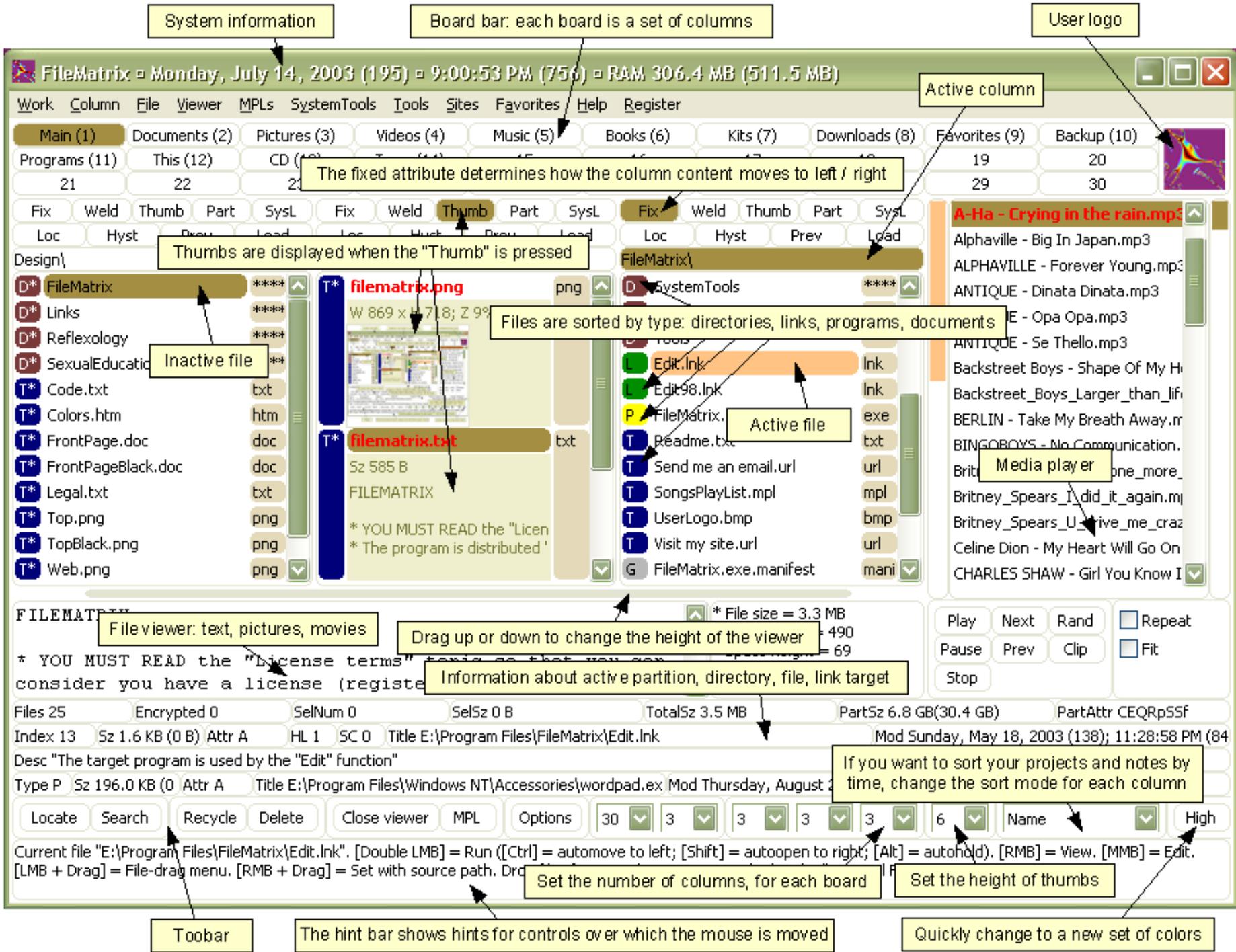
(not created by the ZHdK  
but by our teammate Thomas Schank)

∴

:)

# Mistake № 5

Starting without a user interface person



Cinelerra: Tape 1 - Clip 008.avi

0:00:10:200

File Edit Keyframes Audio Video Tracks Settings View Window

Cinelerra: Compositor

0:00:10:200

0:00:01:026

0:00:00.000 0:00:02.000 0:00:04.000 0:00:06.000 0:00:08.000 0:00:10.000

Video 1

Tape 1 - Clip 008.avi #1

Sharpen

Frames to fields

Brightness/Contrast

0:00:10.602 64 64 Audio Fade: -80.0 to 6.0

Rendering took 0:01:52 0%

Cinelerra: Resources

1080 to 540

BurningT

AgingTV

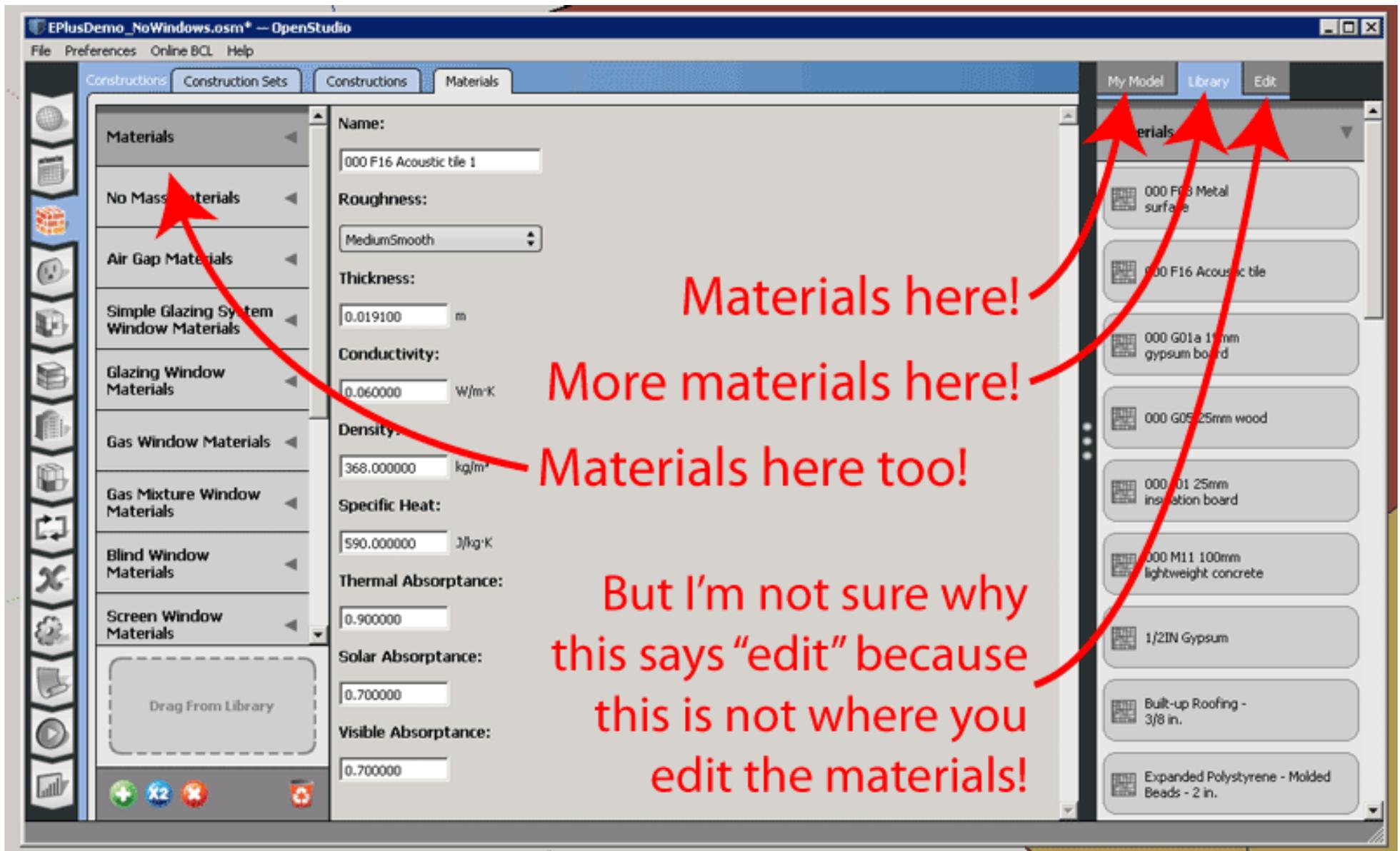
Blur

Brightness/Contrast

Chroma k

Chroma k

Color Bal



calibre - || library2 ||

Add books
 Edit metadata
 Convert books
 View
 Get books
 Fetch news
 Help
 Remove books

Restrict to: (all books)
 Search (For Advanced Search click the button to t...
 Go!
 Saved Searches

Find item i... Find

	Title	Author(s)
1	ABC News	calibre
2	Adventures of Huckleberry Fin...	Mark Twain
3	Alices Adventures in Wonderland	Lewis Carroll
4	Arms and the Man	George Bernard Shaw
5	The Brothers Karamazov - Vol I ...	Fyodor Dostoyevsky
6	The Collection of Antiquities	Honoré de Balzac
7	The Columbus Dispatch	calibre
8	The Dallas Morning News	calibre
9	Delver Magic Book II: Throne of...	Jeff Inlo
10	Don Quixote	Miguel de Cervantes Sa
11	The Gambler	Fyodor Dostoyevsky
12	The Grand Inquisitor	Fyodor Dostoyevsky

Authors [12]  
 Languages [2]  
 Series [0]  
 Formats [4]  
 Publishers [19]  
 Ratings [4]  
 News [5]  
 Tags [42]

Sort by average rating  
 Match any  
 Manage authors, tags, etc

Youth [Illustrated]

**Youth**

★★★★★

Youth [Illustrated]

**Authors:** [Isaac Asimov](#)  
**Formats:** EPUB, MOBI  
**Path:** [Click to open](#)  
**Read:** Yes

### Product Description

Youth [Illustrated] by Isaac Asimov, 1952. "Red and Slim found the two strange little animals the morning after they heard the thunder sounds. They knew that they could never show their new pets to their parents..."

Similar books

calibre version 0.8.28 created by Kovid Goyal

[1 updated plugins](#)



 Jobs: 0

Categories

- All
- AV Produktionshilfsmittel
- Audio
- Beleuchtungstechnik
- Effektgeräte Veranstaltungen
- Elektromaterial
- Film / DCI
- Foto
- IT & Elektronik**
  - Zubehör
  - Anzeige
  - Computer
  - Drucker
  - Eingabegeräte
  - Scanner/Lesegerät
  - Elektronische Anzeige, E...
  - Interface
  - Massenspeicher
  - Mikrocontroller
  - Kameras
  - Mobile Computing
  - Netzwerk
  - Sensoren
  - Server
  - Software und Dongles
  - Spielkonsolen
  - Telefonie
  - Videoschnitt
  - In-Ear Monitoring
- Kabel & Verteiler
- Mikroskopie
- Musikinstrumente
- Präsentationstechnik
- Rig & Bühnentechnik
- Schlüssel
- Stative
- Theater-Fundus
- Tonangeln - Perche
- Video

Models Order

Category: **IT & Elektronik** Search:

Name	Manufacturer	Inventory Pool	
2.5" Harddisk ATA 80 GB Samsung MP0804H		Vertiefung Medi...	+
2.5" HD-Gehäuse USB & FW, Sarotech Cutie DX		Vertiefung Medi...	+
4fach-Verteiler		Vertiefung Medi...	+
512 MB PC2700 SO-DIMM zu IBM T-Series		Vertiefung Medi...	+
 AD-/DA-Wandler Behringer Ultragain Pro 8 digital ADA8000	Behringer	Vertiefung Medi...	+
Adapter 2.5" EIDE/ATA -> 3.5" EIDE/ATA		Vertiefung Medi...	+
Adapter SCSI, DB68/m -> mini-IDC50/m		Vertiefung Medi...	+
Adapterkabel Linksys WRT54G -> Planar-Antenne		Vertiefung Medi...	+
Adapterkabel USB zu RS232, no-name		Vertiefung Medi...	+
Akku (High-Capacity) zu IBM T42		Vertiefung Medi...	+
Akku zu Dell Latitude C400		Vertiefung Medi...	+
 Apple Cinema Display 23 Zoll	Apple	AV-Technik, De...	+
Arduino Fio	Sparkfun	Vertiefung Medi...	+
 Arduino Mega	Arduino	Vertiefung Medi...	+
 Arduino USB-Controller	Arduino	Master Fine Art...	+
Aspire1830T	Acer	Vertiefung Medi...	+
 Audio Interface RME ADI-648	RME	Institute for Co...	+
 Audio-Interface MOTU Audio Express DAW-Hardware	Motu	AV-Ausleihe	+

Basket

- Model
- Inventory Pool: AV-Ausleihe**
  -  HD Sarotech 120GB 

Templates

Inventory Pools (37/37)

[Continue with Order](#)

Start

Order

Nothing selected



Audio



AV Produktionshilfsmittel



Beleuchtungstechnik



Campus Card



Effektgeräte Veranstalt...



Elektromaterial



Film / DCI



Fotografie



IT & Elektronik



Start IT & Elektronik

Einlesegeräte / Scanner

Speicherkartenleser

Eingabegeräte

Touchscreen

Smartboard

Grafiktablett

Drucker

Andere Hardware

Kabel

Netzteil /Ladegerät

Interface

Audio Interface

Video Interface

Splitters/Switches

IT-Interface

Software und Dongles

AVID Dongles

Max MSP Dongle

Videoschnitt

Mini Kameras

Webcam

Minikameras portabel

Computer

In list

Start date

End date

All inventory pools Model

	2.5" Harddisk ATA 80 GB Samsung MP0804H		+
	2.5" HD-Gehäuse USB & FW, Sarotech Cutie DX		+
	4fach-Verteiler		+
	512 MB PC2700 SO-DIMM zu IBM T-Series		+
	AD-/DA-Wandler Behringer Ultragain Pro 8 digital ADA8000	Behringer	+
	Adapter 2.5" EIDE/ATA -> 3.5" EIDE/ATA		+
	Adapter SCSI, DB68/m -> mini-IDC50/m		+
	Adapterkabel Linksys WRT54G -> Planar-Antenne		+
	Adapterkabel USB zu RS232, no-name		+
	Akku (High-Capacity) zu IBM T42		+
	Akku zu Dell Latitude C400		+
	Arduino Fio	Sparkfun	+
	Arduino Mega	Arduino	+
	Arduino USB-Controller	Arduino	+

Order

Nothing selected

# leihs 2.9

Inventory Pool: AV-Ausleihe. (Change?)

Frontend

Backend

Ramon Cahenzli

Logout

English

Acknowledge

Hand Over

Take Back

Remind

New model

New Item

## Booking

Availability

Orders

Contracts

Items (2092)  
In Stock (1071)  
Unallocated (1)  
Broken (31)  
Incomplete (13)  
Unborrowable (240)

Models in this pool (441)

Packages (24)

Templates (7)

Options (470)

Workdays

## Inventory

Items (377)  
Unallocated (1)  
Inventory Relevant (217)  
Not Inventory Relevant (160)  
Retired (46)

New Item

377 results filtering own\_items

Previous

1

2

3

4

5

6

7

8

Next

CSV export

Model ↓	Inventory Code	Location	Status	In stock?	Action
Kopfhörer German Maestro GMP 250	AVA27480	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	✓	Show Retire
Kopfhörer German Maestro GMP 250	AVA27481	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	✓	Show Retire
Kopfhörer German Maestro GMP 250	AVA27482	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	✓	Show Retire
Kopfhörer German Maestro GMP 250	AVA27483	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	Museum AU 60 Halle until 28.05.2013	Show Retire
Kopfhörer German Maestro GMP 250	AVA27484	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	Museum AU 60 Halle until 28.05.2013	Show Retire
Kopfhörer German Maestro GMP 250	AVA27485	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	Museum AU 60 Halle until 28.05.2013	Show Retire
Kopfhörer German Maestro GMP 250	AVA27486	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	✓	Show Retire
Kopfhörer German	AVA27487	Ausstellungsstrasse, 60 (SQ)	✓	✓	Show Retire

Inventory

Helper

Categories

Templates

ZHdK-Inventar

## List of Inventory

CSV export

Add inventory

Alle

Models

Options

Software

not retired

used & not used

borrowable & unborrowable

Ausleihe Toni-Areal



Search...

Owned

In Stock

Incomplete

Broken

»1

16mm Abtaster ELMO TRV-16G

0 / 0

Edit Model

»1



3D LCD Monitor Marshall OR-901XDI 9"

0 / 0

Edit Model

»1



3D Studio Monitor JVC DT-3D24G1

0 / 0

Edit Model

»1



3D XD-Camera Sony PMW-TD300

0 / 0

Edit Model

»1



3D-HD-Kamera Panasonic HDC-SDT750

0 / 0

Edit Model

»3



8Ch.-Digital Recorder Tascam DA-88

0 / 0

Edit Model

»1



A-Net Distributor Aviom A-16D Pro

0 / 0

Edit Model

»3

A/D-Converter Behringer ADA-800

0 / 0

Edit Model

»1



AD-/DA-Wandler Behringer Ultragain Pro 8 digital ADA8000

0 / 0

Edit Model

»1



AV-Converter Miranda DV-Bridge Pro

0 / 0

Edit Model

»1



AVCHD Micro 4/3 Kamera Panasonic AG-AE101

0 / 0

Edit Model

**Booking**

Availability

Orders

Contracts

Items (2092)

Models in this pool (441)

Packages (24)

Templates (7)

Options (470)

Workdays

**Inventory**

Items (377)

All Models (5337)

Own Packages (16)

**Administration**

Users (5359)

Groups (7)

Locations (78)

Categories

Inventory Pool

**Contract Nr. 42035**

Purpose:

Hand Over

Value list

Back to list

Mark

 All From today

Change Timeframe for selection

Swap Reserver

Delete selection

Model

Timeframe

Barcode

Action

Add Model

Add Option

for 22.12.2014 - 22.12.2014

<input type="checkbox"/> 1	Beamer Acer H7531D Full-HD	05.04.2013 - 10.04.2013 6 Days	<input type="text"/>	Swap  Delete
<input type="checkbox"/> 1	Schnittset Avid Mediacomposer mit HD ■ Dongle Avid MC ■ HD Mobil 320GB	05.04.2013 - 15.05.2013 41 Days	<input type="text"/>	Swap  Delete
<input type="checkbox"/> 1	Schnittset Avid Mediacomposer mit HD ■ Dongle Avid MC ■ HD Mobil 320GB	05.04.2013 - 15.05.2013 41 Days	<input type="text"/>	Swap  Delete
<input type="checkbox"/> 1	Schnittset Avid Mediacomposer mit HD ■ Dongle Avid MC ■ HD Mobil 320GB	05.04.2013 - 15.05.2013 41 Days	<input type="text"/>	Swap  Delete
<input type="checkbox"/> 1	Schnittset Avid Mediacomposer mit HD ■ Dongle Avid MC ■ HD Mobil 320GB	05.04.2013 - 15.05.2013 41 Days	<input type="text"/>	Swap  Delete

Daily View

Orders

Visits

Contracts

Ausleihe Toni-Areal

### Hand Over to

1 visit overdue

✓ Availability loaded

Start Date

22/12/2014

End Date

09/01/2015

Add/Assign

Inventory code, model name, search term

Hand Over Selection 0

Thursday 18/12/2014

Thursday 18/12/2014 - Friday 09/01/2015

23 Days

<input type="checkbox"/>		Fotostativ Manfrotto 055XPROB/804RC2 Neigekopf		1	Change entry
<input type="checkbox"/>		Kopfhörer MB Quart		1	Change entry
<input type="checkbox"/>		Kopfhörer MB Quart		1	Change entry
<input type="checkbox"/>		Kopfhörer MB Quart		1	Change entry
<input type="checkbox"/>		Kopfhörer MB Quart		1	Change entry
<input type="checkbox"/>		Objektiv Nikon AF Nikkor 24-85mm f/2.8-4.0D		1	Change entry
<input type="checkbox"/>		Objektiv Nikon AF-S Nikkor 12-24mm f/4.0G (DX ED)		1	Change entry
<input type="checkbox"/>		iPad3		1	Change entry
<input type="checkbox"/>		iPad3		1	Change entry

Time Period

Close

Start: Friday

End: Wednesday

5 April 2013

10 April 2013

You can't have a Start Date before today

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
December 2014																															
January 2015																															
February 2015																															
March 2015																															
April 2015																															
May 2015																															
June 2015																															
July 2015																															
August 2015																															
September 2015																															
October 2015																															
November 2015																															

Quantity: 1 - Model: Beamer Acer H7531D Full-HD  
05.04.2013 - 10.04.2013  
6 Days

Database Backup

Daily View

Orders

Visits

Contracts

Ausleihe Toni-Areal

Hand Over

1 visit over

Available

Start Date

22/12/2014

Thursday 18

Thursday

### Edit reservation

Cancel

Save

January 2015

< >

Startdate

22/12/2014

Enddate

09/01/2015

Quantity

1

Availability

Borrower

Mo	Tu	We	Th	Fr	Sa	Su
Dec 29 Weihnachtsferien 7 / 7	Dec 30 Weihnachtsferien 7 / 7	Dec 31 Weihnachtsferien 7 / 7	1 Weihnachtsferien 7 / 7	2 Weihnachtsferien 7 / 7	3 Weihnachtsferien 7 / 7	4 Weihnachtsferien 7 / 7
5 Nur bewilligte Ab... 7 / 7	6 7	7 8	8 8	9 9	10 13	11 13
12 13	13 13	14 13	15 13	16 13	17 13	18 13
19 13	20 13	21 13	22 14	23 14	24 14	25 14
26 14	27 14	28 15	29 15	30 15	31 15	Feb 1 15
Feb 2 15	Feb 3 15	Feb 4 15	Feb 5 15	Feb 6 15	Feb 7 15	Feb 8 15

iPad3

1

Change entry





Java

JavaScript

HTML5

CSS3

JSON



Java

JavaScript

HTML5

ERB

CoffeeScript

CSS3

JSON

Asset pipeline

XML

REST

Ruby

ActiveRecord

bash



Java

JavaScript

HTML5

ERB

CoffeeScript

CSS3

JSON

Asset pipeline

XML

REST

Ruby

PostgreSQL

ActiveRecord

SQL

MSSQL

MySQL

HAML

bash

YAML

Gherkin

zsh

Ansible

Capistrano



Typography

Layout

Scalability

Java

JavaScript

HTML5

ERB

CoffeeScript

CSS3

JSON

Asset pipeline

XML

REST

Ruby

PostgreSQL

ActiveRecord

SQL

MSSQL

MySQL

HAML

bash

YAML

Gherkin

zsh

Ansible

Capistrano



Usability testing

Typography

Color theory

Layout

Style guides

Scalability

Java

JavaScript

HTML5

ERB

CoffeeScript

CSS3

Asset pipeline

JSON

REST

Ruby

XML

PostgreSQL

ActiveRecord

SQL

MSSQL

MySQL

HAML

bash

YAML

Gherkin

zsh

Ansible

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Usability testing

Typography

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Style guides

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Graphic design

Information architecture

Data visualization

Usability inspection

Java

JavaScript

HTML5

ERB

CoffeeScript

CSS3

JSON

Asset pipeline

XML

REST

Ruby

PostgreSQL

SQL

ActiveRecord

MSSQL

MySQL

HAML

bash

YAML

Gherkin

zsh

Ansible

Capistrano



Usability testing

Typography

Color theory

Layout

Style guides

Scalability

Graphic design

Information architecture

Data visualization

Usability inspection

Discoverability

Interface design

GIMP

Inkscape

Java

JavaScript

HTML5

ERB

CoffeeScript

CSS3

JSON

Asset pipeline

XML

REST

Ruby

PostgreSQL

SQL

ActiveRecord

MSSQL

MySQL

HAML

bash

YAML

Gherkin

zsh

Ansible

Capistrano



Usability testing

Typography

Java

JavaScript

Color theory

HTML5

ERB

CoffeeScript

Layout

CSS3

Style guides

Scalability

JSON

Asset pipeline

Graphic design

Information architecture

XML

REST

Ruby

PostgreSQL

ActiveRecord

Data visualization

Usability inspection

SQL

MSSQL

MySQL

HAML

bash

Discoverability

Interface design

YAML

Gherkin

zsh

GIMP

Inkscape

Ansible

Capistrano



Usability  
testing

Typogra

Java

JavaScript

HTML5

ERB

CoffeeScript

CSS3

JSON

Asset pipeline

REST

Ruby

Graph  
design

Data  
visualization

Usabi  
inspection

Discoverability

Interface  
design

GIMP

Inkscape

Ansible

rekt

# Mistake № 6

Implementing  
organization-specific features

## Toni Ankunftskontrolle

**Check-In Date**

22/08/2014

**Check-In State**

transportschaden

**Check-In Note**

**Toni** Ankunftskontrolle

**Check-In Date**

22/08/2014

**Check-In State**

transportschaden

**Check-In Note**







Emmi+

Toni  
JOGURT

MoCCA

Enough about  
mistakes already!

:(

# Hints and observations

# **BDD is hard**

Create a glossary

Use boring, idiom-free, colorless language

## **Bad (but fun) BDD scenario:**

When shit's all fucked up  
And there ain't no hustlas that still have the goods, yo  
Then holler out to all yo brothas, for real

## **Better (and boring) BDD scenario:**

When at least one crucial configuration setting is missing  
And no inventory pool has any more items available  
Then display a warning in the global warning section

## **Bad (but fun) BDD scenario:**

When shit's all fucked up  
And there ain't no hustlas that still have the goods, yo  
Then holler out to all yo brothas, for real

## **Better (and boring) BDD scenario:**

When at least one crucial configuration setting is missing  
And no inventory pool has any more items available  
Then display a warning in the global warning section

# Management

Make sure management **understands** what Free Software is. Let them give you a **good product owner** that understands, too.

Get authorization to spend hours **working with the community**.

You **will spend more time** developing than if you were doing this only for your own organization.

# **If you are gov't**

You are using taxpayer money to make software.  
Give the taxpayers the software they paid for.

# Definitely a hint

Learn to say no.

# Definitely a hint

Learn to say no.

(But first, have a good idea of where the journey goes, otherwise you're just being a jerk.)

# Mad bullet points, yo

- Solid vision
- Stable platform
- Internationalization from day one
- Interaction designers
- Tests
- Good community work
- Educated management
- Know when to say no

# Mad bullet points, yo

- Solid vision
  - Stable platform
  - Internationalization from day one
  - Interaction designers
  - Tests
  - Good community work
  - Educated management
  - Know when to say no
- = great success**



# Thank you!

**z**

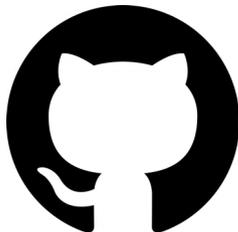
hdk

Zürcher Hochschule der Künste  
Zurich University of the Arts

**Zürich University of the Arts**

zhdk.ch

ramon.cahenzli@zhdk.ch



**leihs**

github.com/zhdk/leihs

**Z**

—  
hdk

—  
Zürcher Hochschule der Künste  
Zurich University of the Arts

**leihs, the leading free equipment booking system**

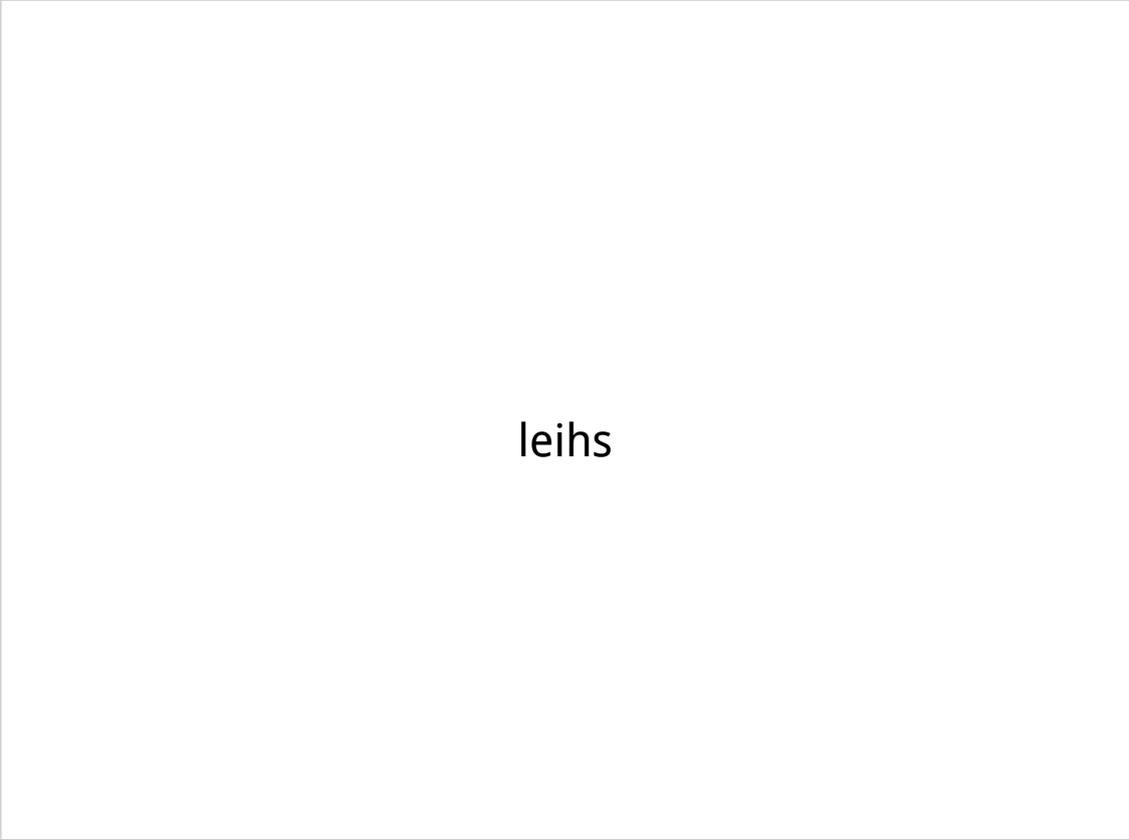
It took us eight years to get it right. What we learned  
about being a FOSS project.

Ramón Cahenzli

[ramon.cahenzli@zhdk.ch](mailto:ramon.cahenzli@zhdk.ch)



We are what I hope is a typical university, using the usual Free and Open Source suspects.



leibs

But we also develop our own Free Software, and one of those is leibs.

## Multilingual recursive acronym

leihs is an **e**asy **i**nventory **h**andling **s**ystem

leihs ist ein **e**infaches  
**i**nventar**h**andhabung**s**ystem

leihs permet d'**e**mprunter votre **i**nventaire  
**h**abilement et **s**ystématiquement

leihs är ett **e**nkelt **i**nventar**h**antering**s**system

leihs – **e**i inventaarioita **h**elpommaksi **s**aa

Ausleihsystem

What does leihs do?

**Main building**



**Lending managers**



**Film student**



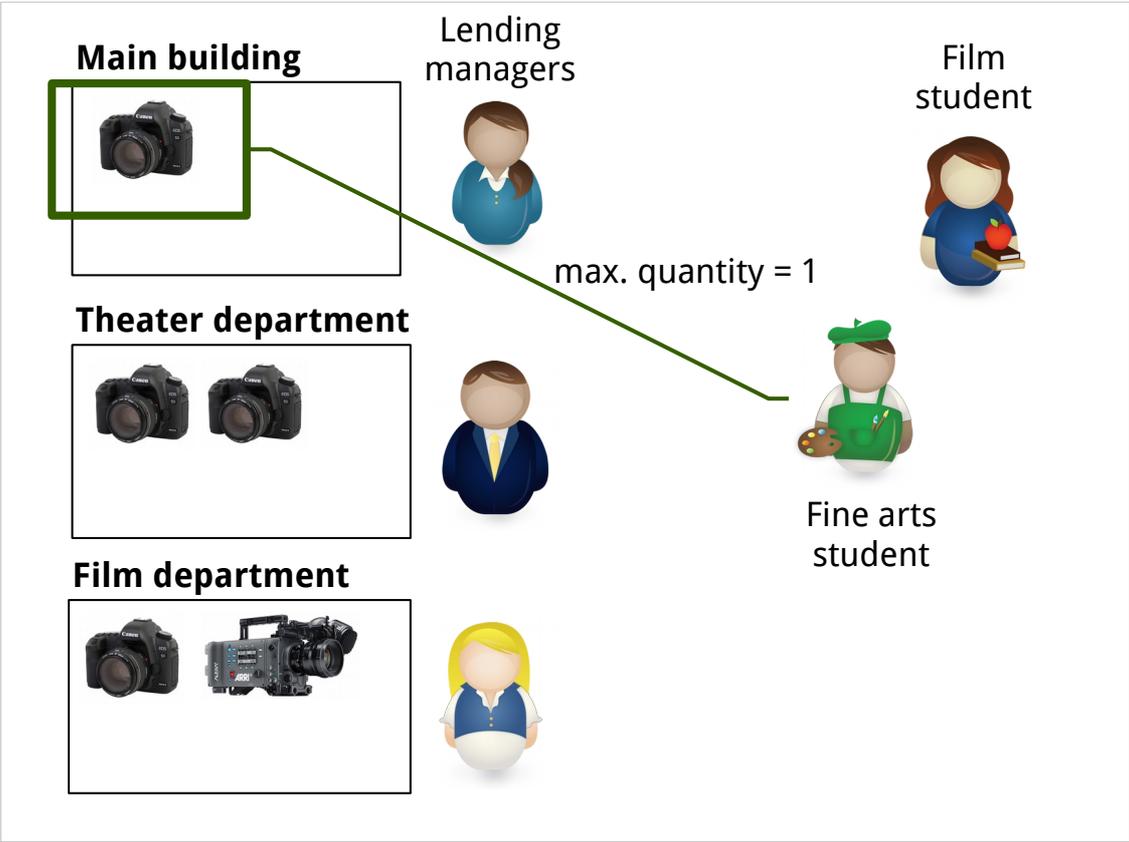
**Theater department**

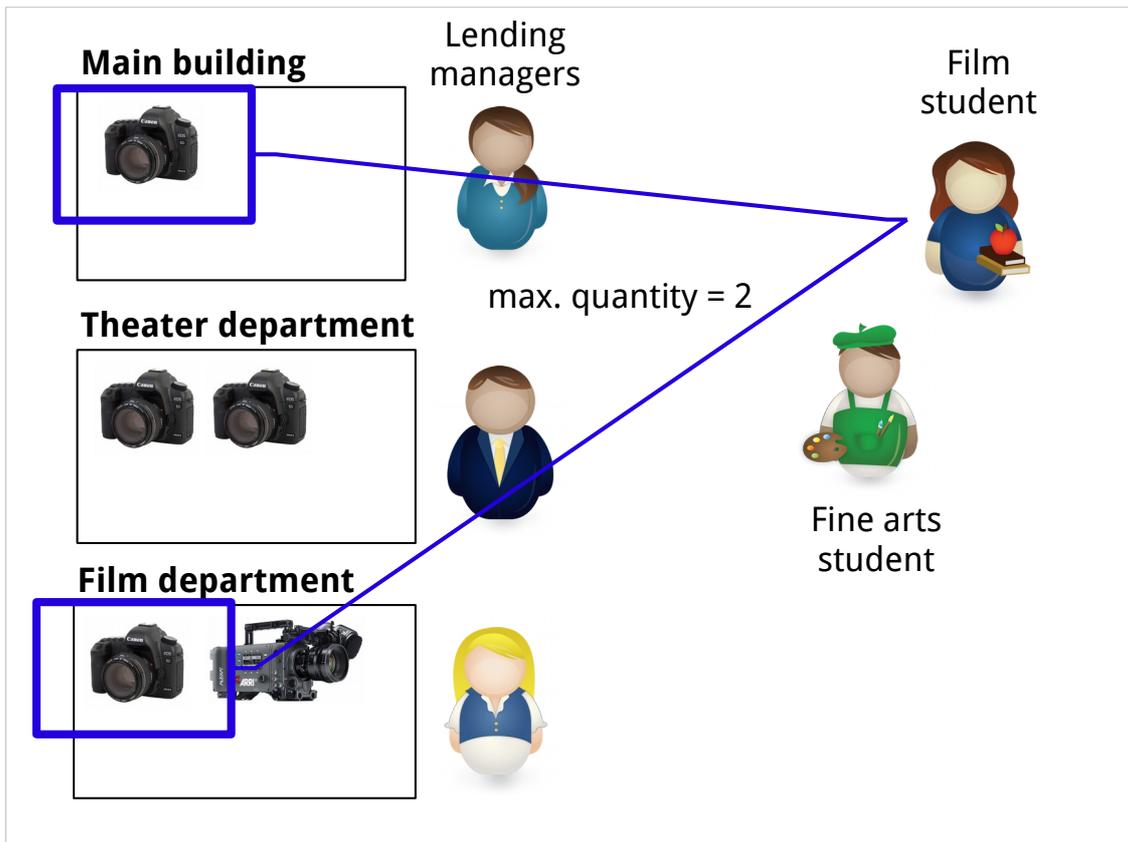


**Fine arts student**

**Film department**







There are ten thousand things that can go wrong here, and leihs tries to minimize the impact and handle things well.

Still total flexibility for the inventory managers with ability to override almost everything and cause their own problems.

Why?

There was nothing like it, even proprietary software didn't quite fit, it was meant for rental companies.

Now it handles more than 15'000 reservations a year at ZHdK alone, we couldn't work without it.

Latest version even handles tracking software licenses. Manual process, but it's there.

**HKB**  
Hochschule der Künste Bern

Lucerne University of  
Applied Sciences and Arts  
**HOCHSCHULE  
LUZERN**

**FHV**   
Vorarlberg University  
of Applied Sciences

**MIDDLE  
TENNESSEE**  
STATE UNIVERSITY

**Z**   
**hdk**  
Zürcher Hochschule der Künste  
Zurich University of the Arts

**btk**   
berliner technische kunsthochschule  
hochschule für gestaltung

 **HTW Chur**  
Hochschule für Technik und Wirtschaft  
University of Applied Sciences

  
**University of Brighton**

 **University  
of Worcester**

Some mistakes

# **Mistake № 1**

To have non-English code

**CODE**

```
def status_zaehlen
  @reservationen_anzahl = Reservation.count_fuer_berechtigung( session[ :aktiver_geraetepark ] )
  @pakete_anzahl = Paket.count_fuer_berechtigung( session[ :aktiver_geraetepark ] )
  @user_anzahl = User.count
  @user_online_anzahl = User.count_online
  @gegenstaende_anzahl = Gegenstand.count_fuer_berechtigung( session[ :aktiver_geraetepark ] )
end
```

What might the “show” method be called?

```
def zeig
  @reservation = Reservation.find( params[ :id ] )
end
```

```
def 进入预订
  准备预订
  @预订.状态 = 9 # 借
  @预订.开始日期 = Time.now
  @预订.贷款人 = session[:用户]
  @预订.更新人 = session[:用户]

  if @预订.save
    # 标记保留为保留
    日志条目.新条目( session[:用户], '执行借款',
                      "预订 #{@预订.id}" )
    session[:直接交接] = nil
    flash[:notice] = '进入预约成功'
    redirect_to :controller => 'admin', :action => 'status'

  else
    # 不能保存预订
    flash[:notice] = "错误更新数据库 \r #{@预订.errors.to_yaml}"
    render :action => '确认预订'
  end
end
```

```
def kirjoita_varaus
  valmistella_varaus
  @varaus.tila = 9 # lainaksi
  @varaus.aloituspäiväys = Time.now
  @varaus.vastuunalainen = session[:käyttäjä]
  @varaus.päivittäjä = session[:käyttäjä]

  if @varaus.save
    # Määritä varauman lainaksi
    Lokimerkintä.uusi_merkintä( session[:käyttäjä], 'säästää varaus',
      "varaus #{@varaus.id}" )
    session[:suora_varaus] = nil
    flash[:notice] = 'Olen merkitty varaus tallennetuksi'
    redirect_to :controller => 'admin', :action => 'status'

  else
    # Ei voinut pelastaa varaus
    flash[ :notice ] = "Virhe päivitettäessä tietokanta \r #{@varaus.errors.to_yaml}"
    render :action => 'vahvista_varaus'
  end
end
```

```
def ausleihe_eintragen
  reservation_vorbereiten
  @reservation.status = 9 # ausgeliehen
  @reservation.startdatum = Time.now
  @reservation.herausgeber = session[ :user ]
  @reservation.updater = session[ :user ]

  if @reservation.save
    # Reservierung als ausgeliehen kennzeichnen
    Logeintrag.neuer_eintrag( session[ :user ], 'trägt Ausleihe ein',
                             "Reservation #{@reservation.id}" )
    session[ :direkte_herausgabe_modus ] = nil
    flash[ :notice ] = 'Reservation erfolgreich als ausgeliehen eingetragen'
    redirect_to :controller => 'admin', :action => 'status'
  else
    # Reservation konnte nicht gesichert werden
    flash[ :notice ] = "Fehler beim DB Update \r #{@reservation.errors.to_yaml}"
    render :action => 'ausleihe_pruefen'
  end
end
```

<http://localhost:3000/gegenstands/list>

## **Mistake № 2**

To be on the bleeding edge



2004



2004

leihs

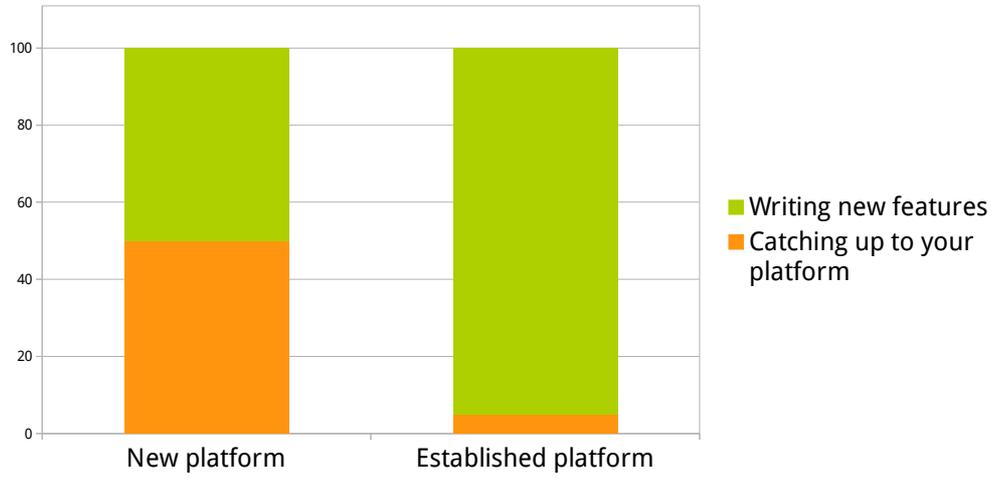
2005

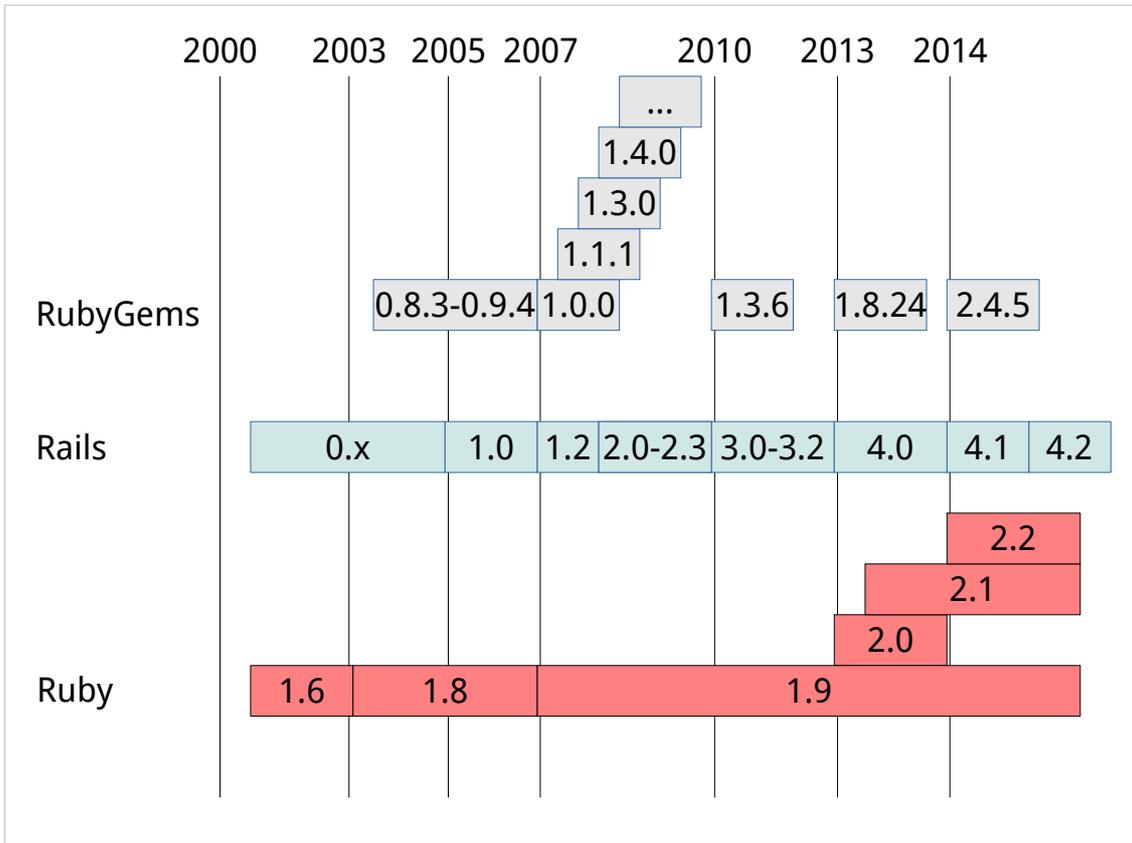


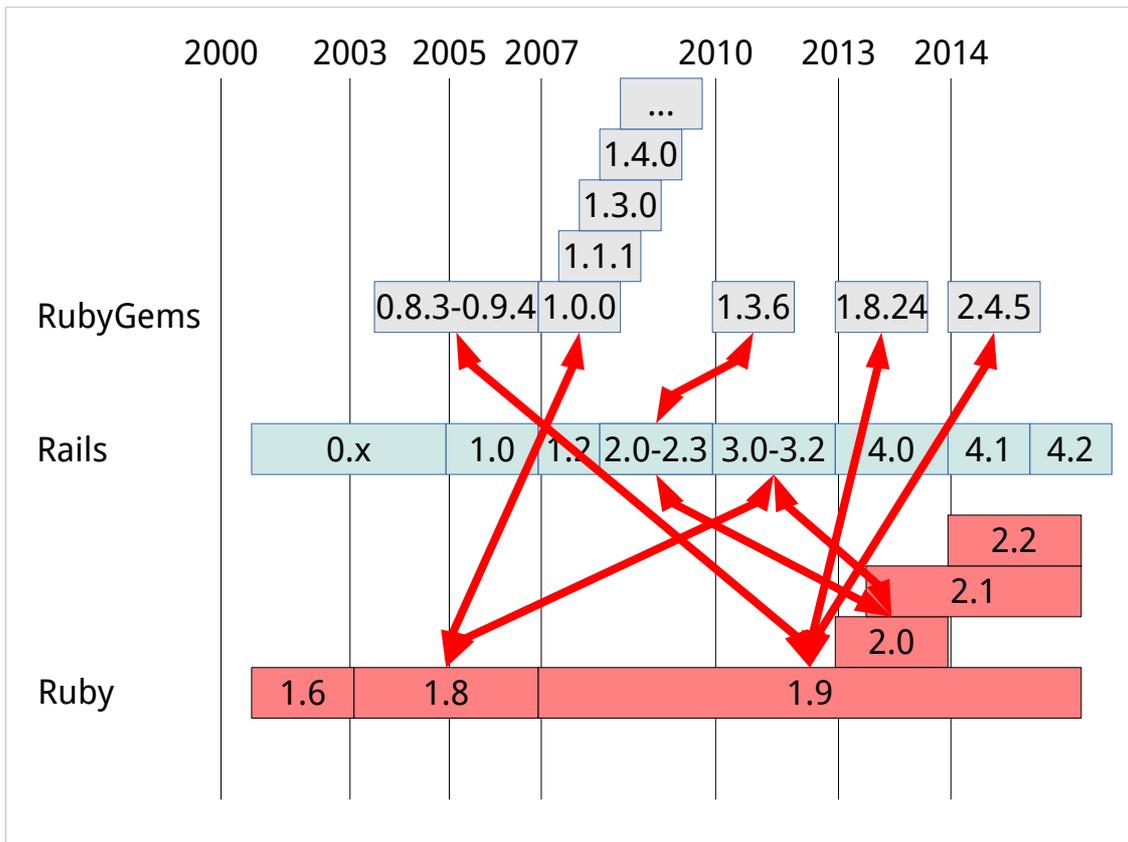
Photo credit:  
(CC) By-NC Alex Proimos  
<https://www.flickr.com/photos/proimos/>

Rails logo © David Heinemeier Hansson

# Very scientific chart







incompatibilities between contemporary versions of things, some of which we would be supposed to support at the same time, but which isn't possible.

downgrade instructions necessary.

## **Mistake № 3**

Internationalization? We'll add that later!

```
<%= "Order number %d" % @order.number %>
```

```
<%= _("Order number %d") % @order.number %>
```

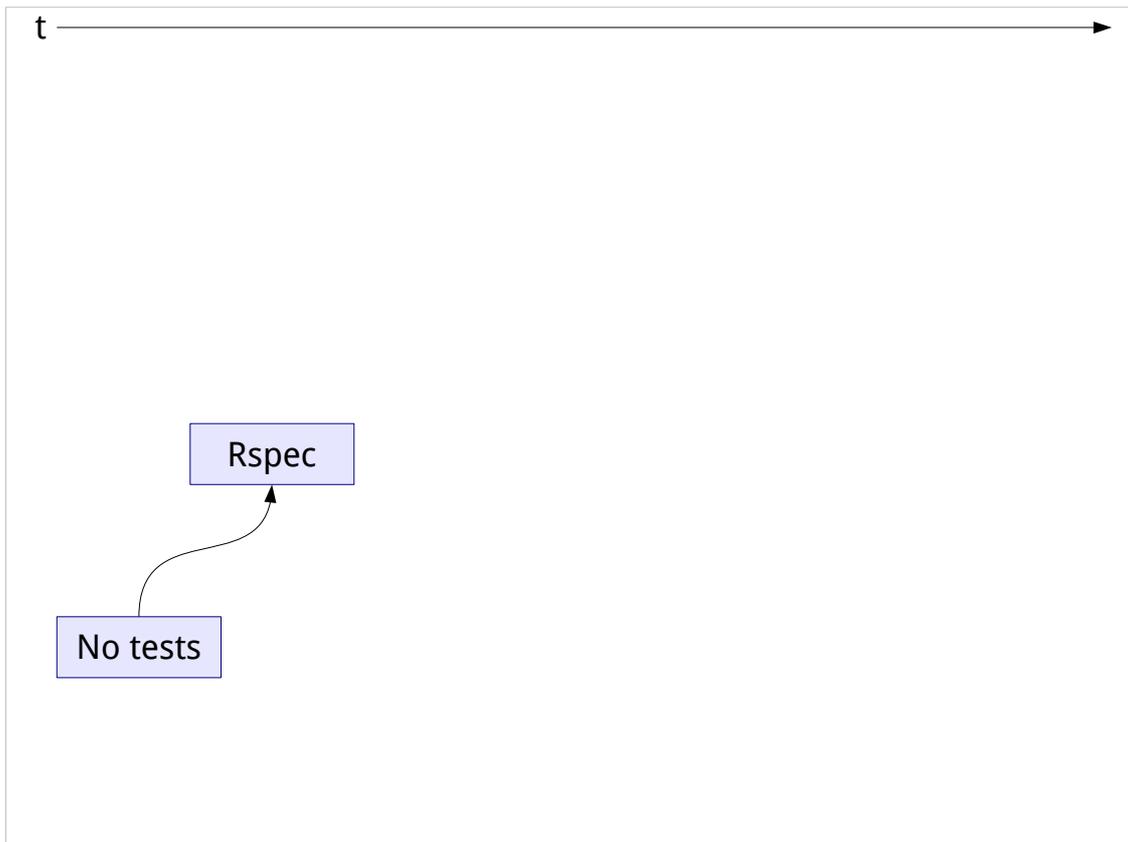
```
<%= "Order number %d" % @order.number %>
```

```
<%= _("Order number %d") % @order.number %>
```

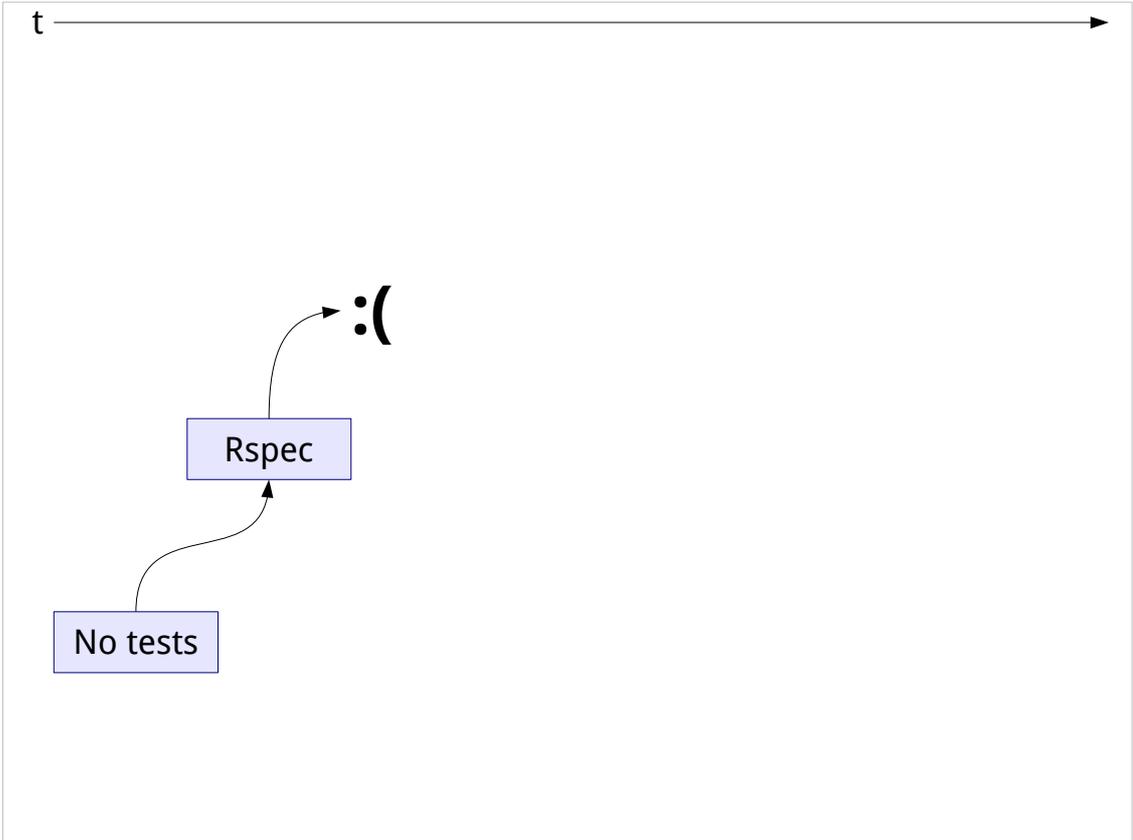
**1,037 times!**

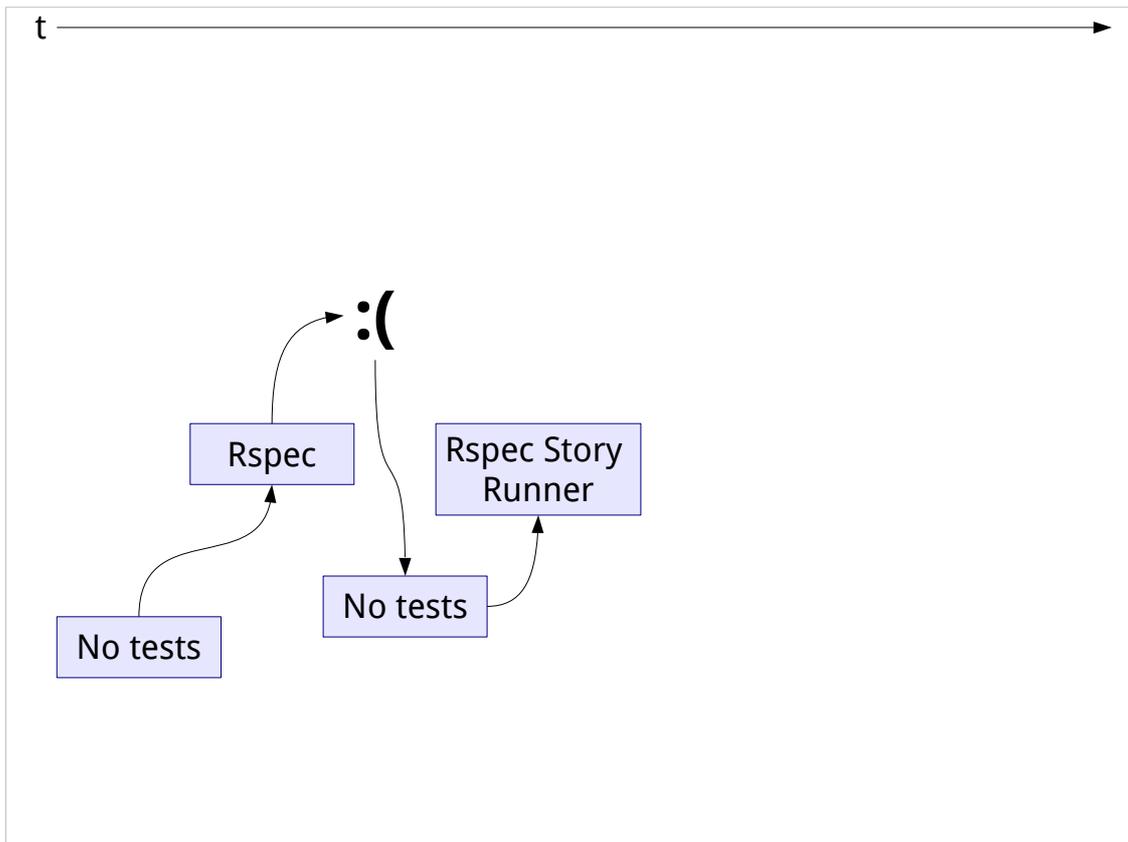
## **Mistake № 4**

No tests

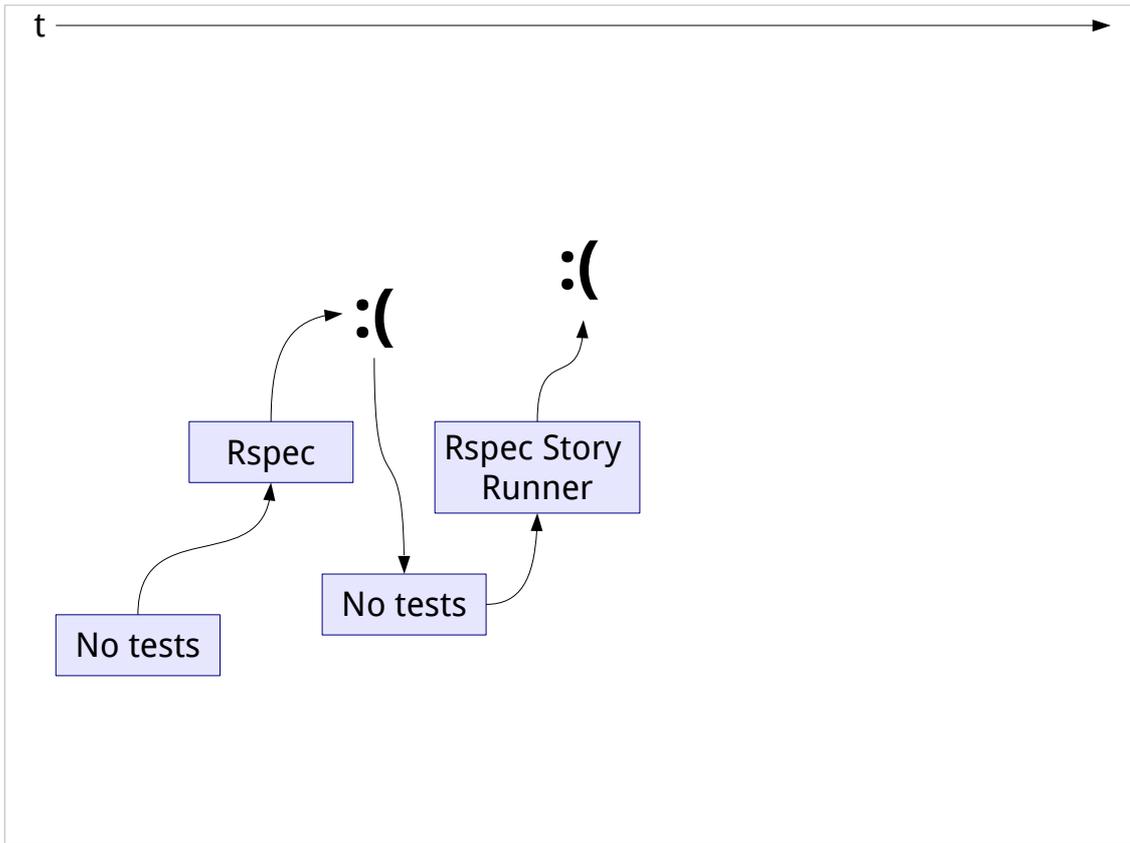


When we got frustrated about not having tests and constantly running into regressions, we thought we'd try rspec.

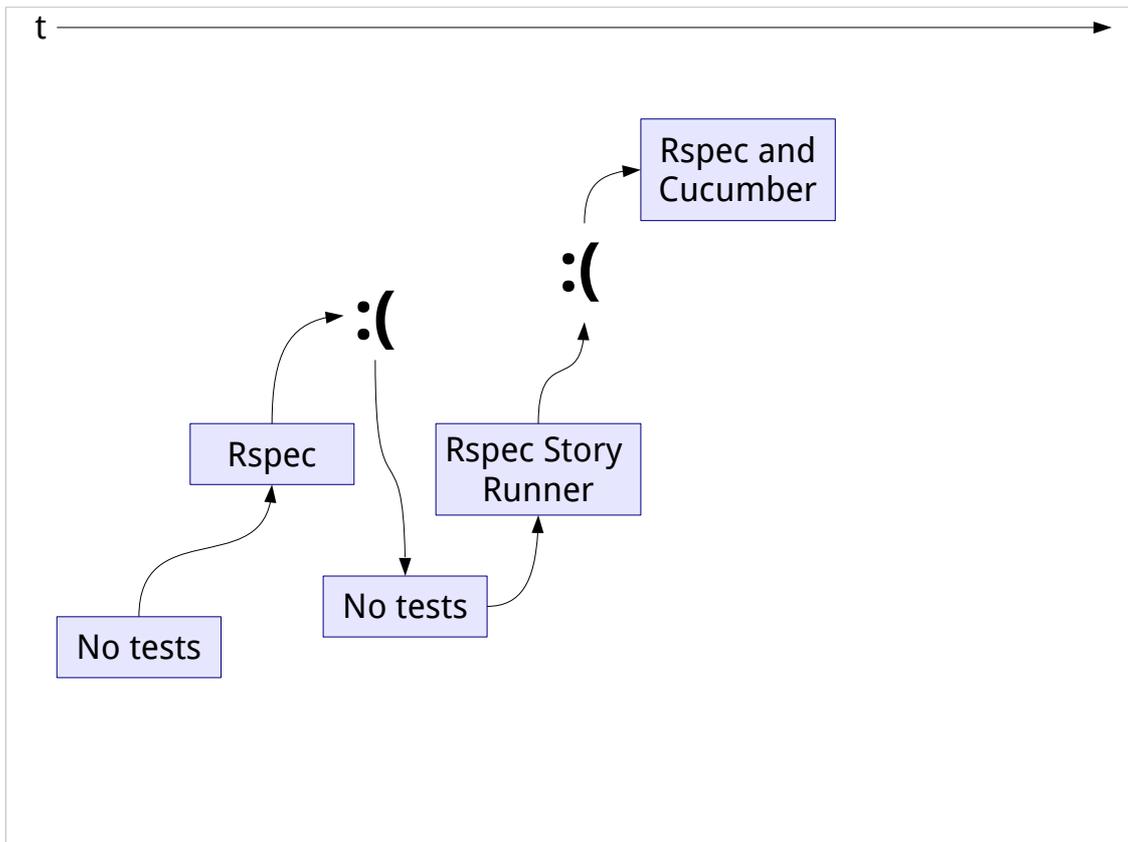




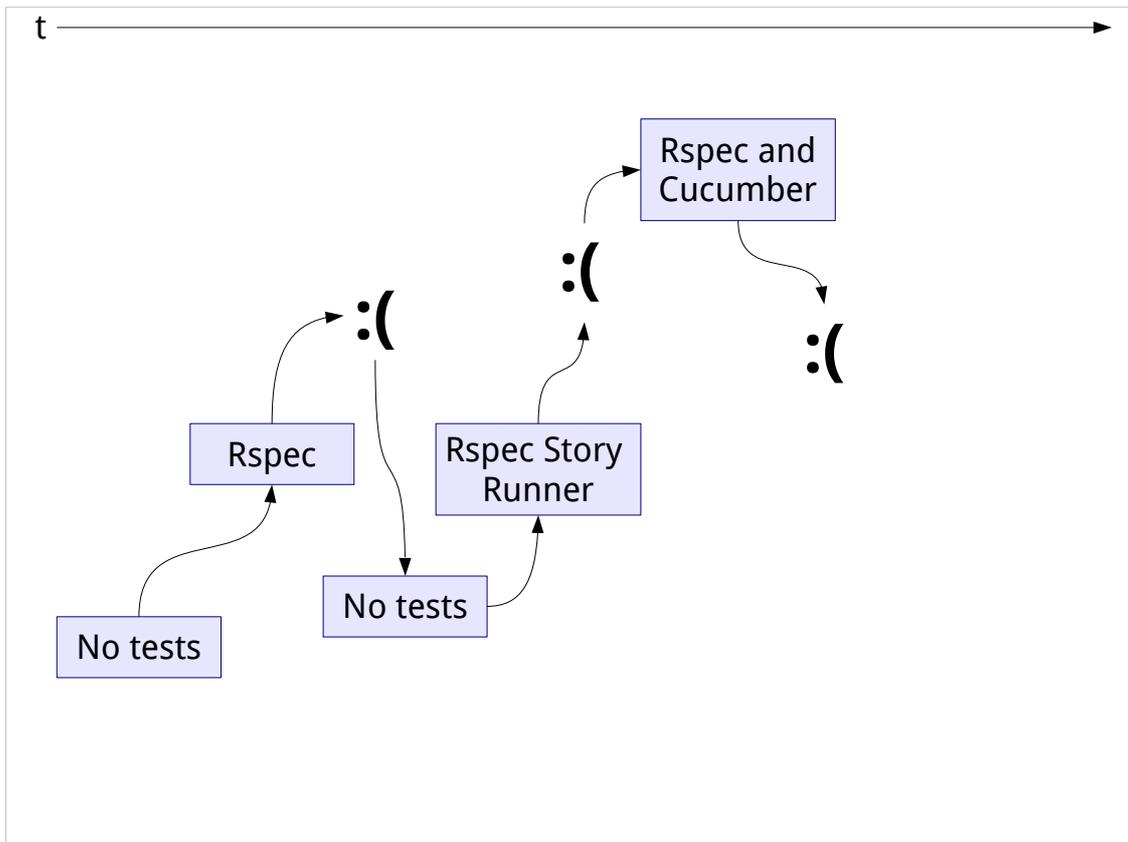
But we couldn't make it work any better than `Test::Unit` did, and besides, we couldn't muster the discipline. When the `Rspec Story Runner` came along, we got curious because that seemed like an interesting new way to write tests.



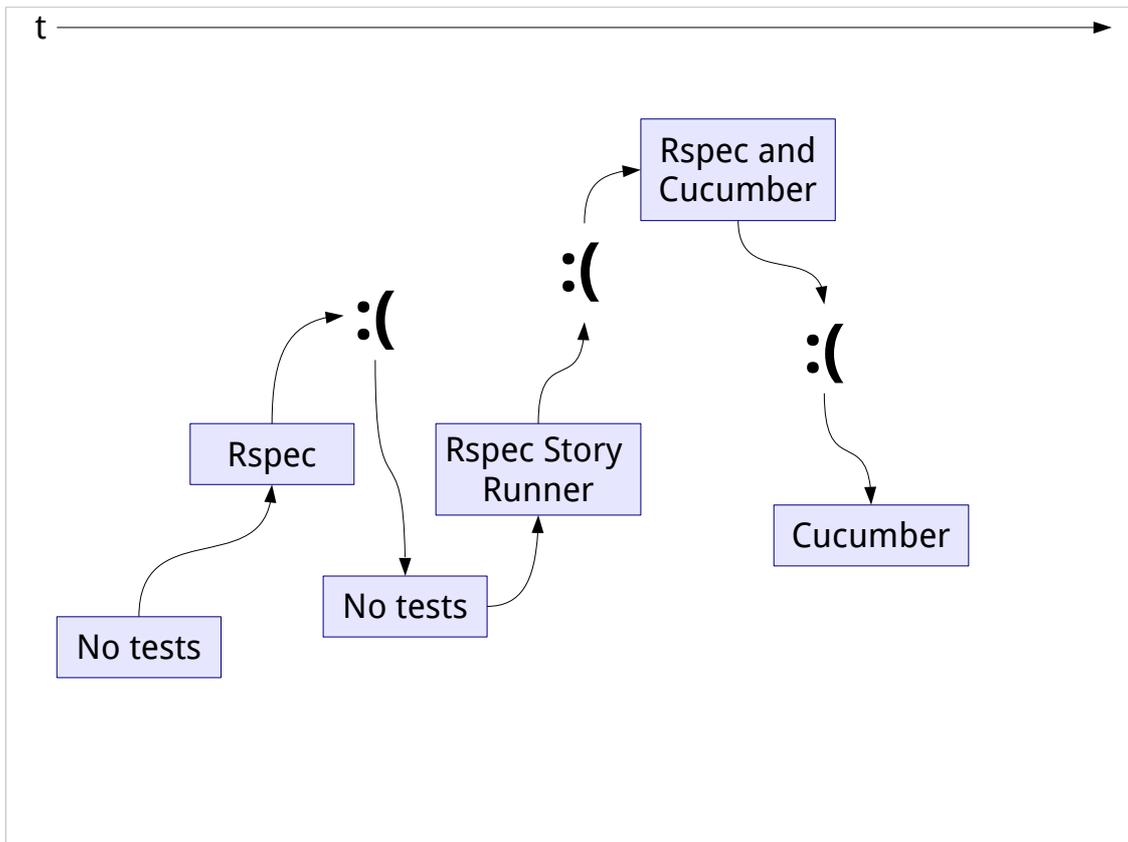
Unfortunately, that was quite buggy at the time.



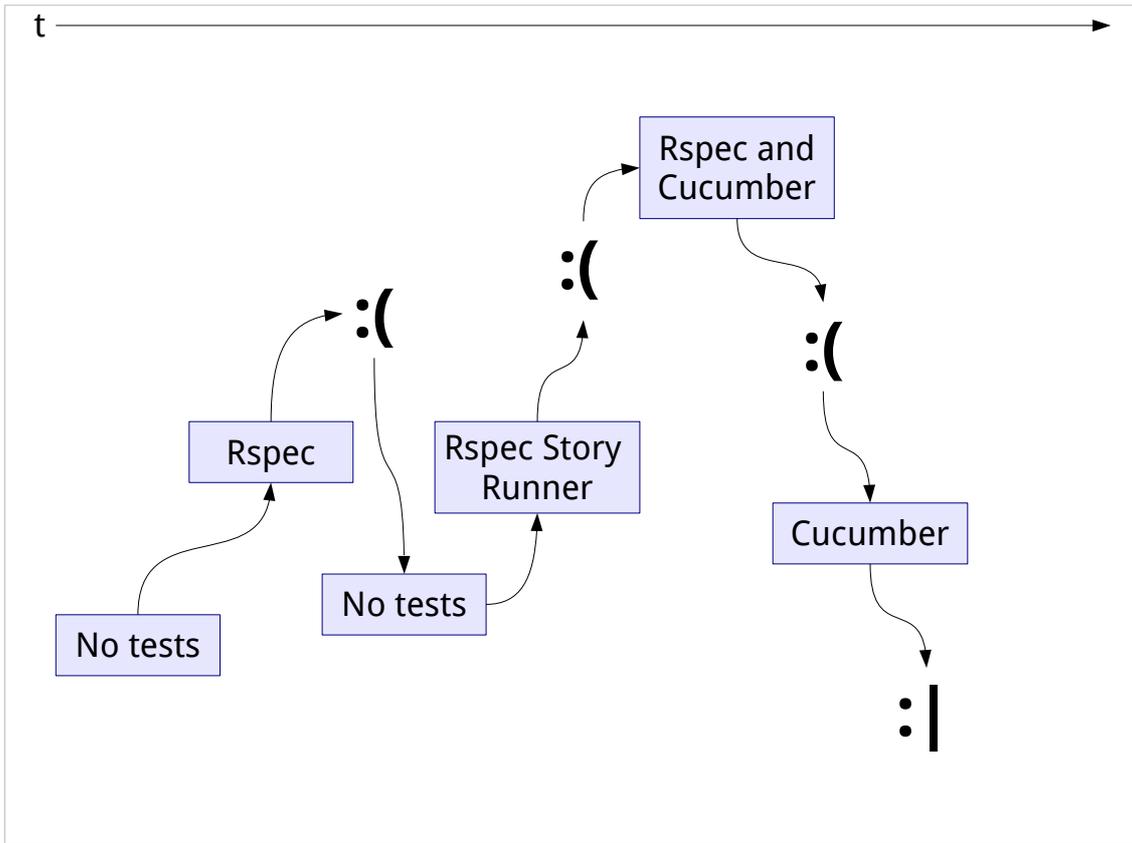
The Story Runner evolved into Cucumber, which had a lot fewer bugs, so we started using that along with whatever we already had, which was in RSpec.



We got confused and unhappy because the distinction of which test would go where was rarely easy and we didn't have time to maintain two test suites.



So we dropped Rspec and went with only Cucumber. Also at this point, our product owner joined in with writing Cucumber scenarios. That makes it a lot more fun to write scenarios, and it makes the result of our programming more accurately reflect what the PO wanted.



Looking good, there!

9 hours test execution

# Execution "Tests"

Speedup: 24.34 Duration: about 23 minutes Processing time: about 9 hours

Delete Edit Retry failed

rca leihs rca-translate-features



## Commit

ab3bd0 Small comment. Ramón Cahenzli a day ago on Monday leihs rca\_translate\_features Tests Execute

### Tasks

Unpassed substr OR substr 12 Per page Reset Filter

Leih » Completeness of CI tasks » All features are tested?	⊗ ⊗ ⊗ ⊗	Retry
Leih » Cucumber » features/borrow/bestelluebersicht.feature:29	⊗ ⊗ ⊗ ⊗	Retry
Leih » Cucumber » features/examples/benutzerverwaltung.feature:188	⊗ ⊗ ⊗ ⊗	Retry
Leih » Cucumber » features/examples/inventar.feature:126	⊗ ⊗ ⊗ ⊗	Retry
Leih » Cucumber » features/examples/inventar.feature:136	⊗ ⊗ ⊗ ⊗	Retry

[Home](#) / [Executions](#) / [Related executions](#) / [Execution](#)



# Execution "Tests"

Speedup: 24.34 Duration: about 23 minutes   Processing time: about 9 hours



## Commit

ab3bd0

*Small comment.*

Ramón Cahenzli

a day ago on Monday

## Tasks

Unpassed

## **Cider CI**

<http://cider-ci.info/>

CI system/framework for parallelized  
and resilient integration testing

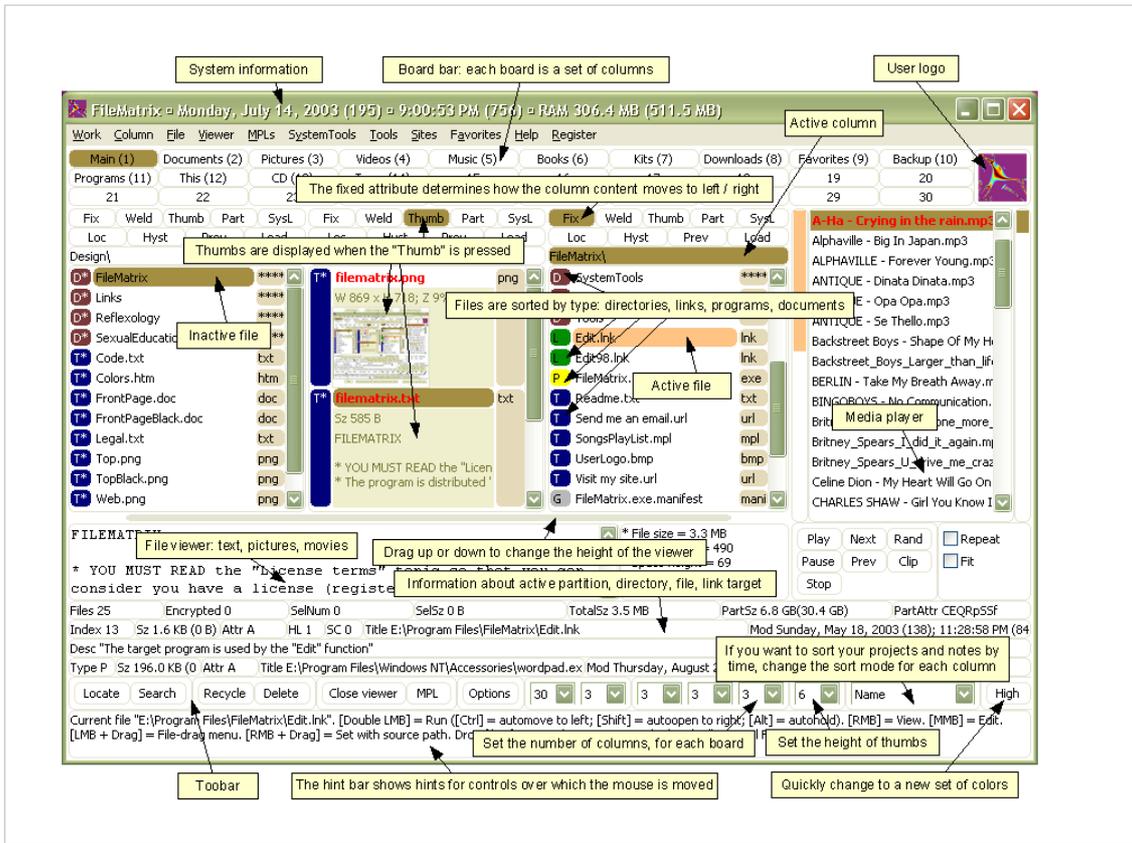
(not created by the ZHdK  
but by our teammate Thomas Schank)

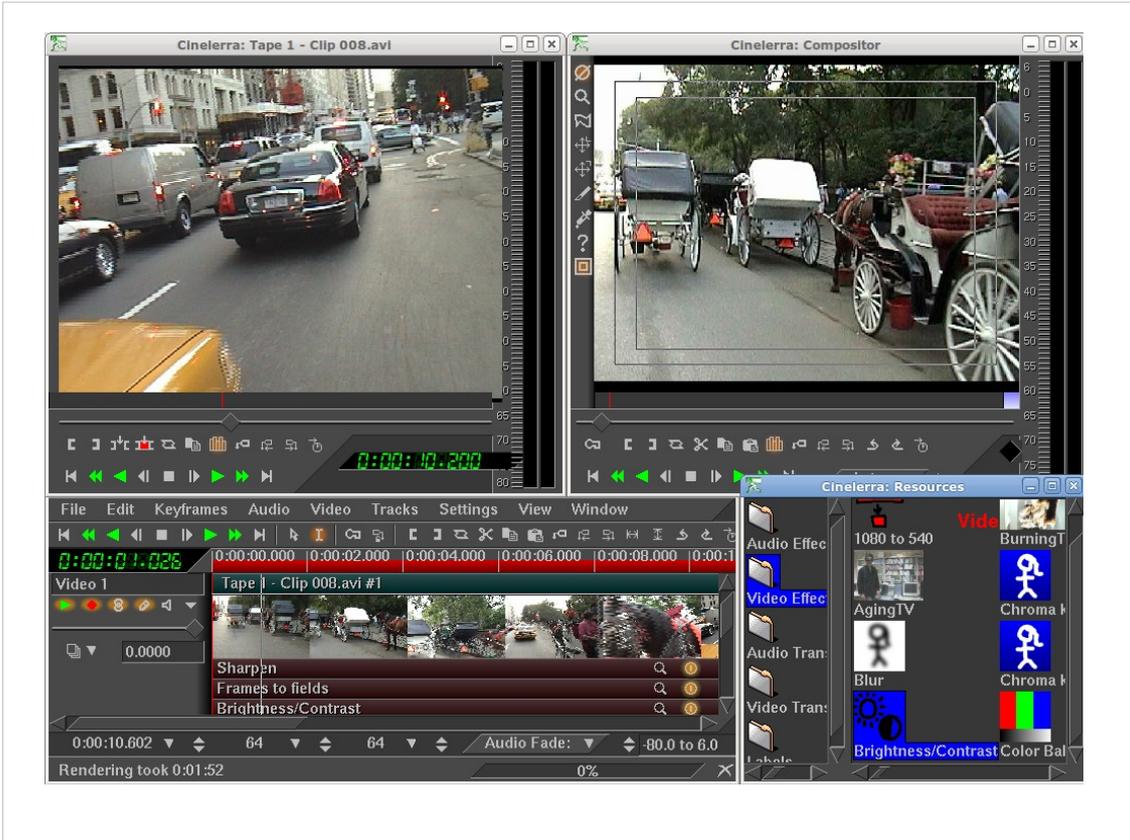
∴

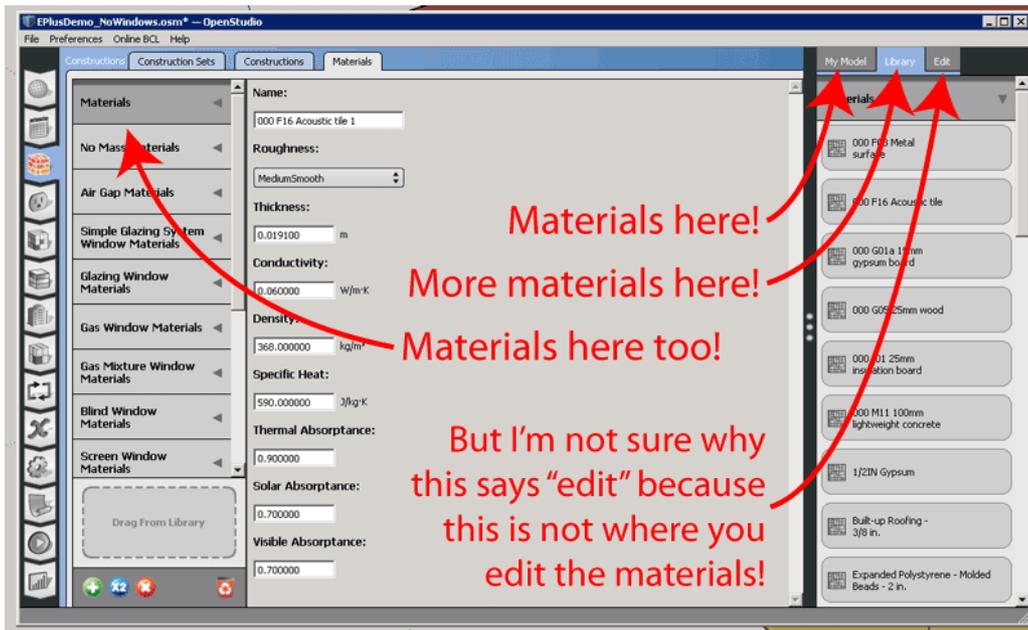
**:)**

## **Mistake № 5**

Starting without a user interface person







calibre - || library2 ||

Add books
 Edit metadata
 Convert books
 View
 Get books
 Fetch news
 Help
 Remove books

Restrict to: (all books) Search (For Advanced Search click the button to t... Go! Saved Searches

	Title	Author(s)
1	ABC News	calibre
2	Adventures of Huckleberry Fin...	Mark Twain
3	Alices Adventures in Wonderland	Lewis Carroll
4	Arms and the Man	George Bernard Shaw
5	The Brothers Karamazov - Vol I ...	Fyodor Dostoyevsky
6	The Collection of Antiquities	Honoré de Balzac
7	The Columbus Dispatch	calibre
8	The Dallas Morning News	calibre
9	Delver Magic Book II: Throne of...	Jeff Inlo
10	Don Quixote	Miguel de Cervantes Sa
11	The Gambler	Fyodor Dostoyevsky
12	The Grand Inquisitor	Fyodor Dostoyevsky

**Authors [12]**  
**Languages [2]**  
**Series [0]**  
**Formats [4]**  
**Publishers [19]**  
**Ratings [4]**  
**News [5]**  
**Tags [42]**

Sort by average rating  
Match any  
Manage authors, tags, etc

**Authors:** [Isaac Asimov](#)  
**Formats:** EPUB, MOBI  
**Path:** [Click to open](#)  
**Read:** Yes

### Product Description

Youth [Illustrated] by Isaac Asimov, 1952. "Red and Slim found the two strange little animals the morning after they heard the thunder sounds. They knew that they could never show their new pets to their parents..."

Similar books

calibre version 0.8.28 created by Kovid Goyal 1 updated plugins

- Categories
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- Audio
- Beleuchtungstechnik
- Effektgeräte / Veranstaltungen
- Elektromaterial
- Film / DCI
- Foto
- IT & Elektronik
  - Zubehör
  - Anzeige
  - Computer
  - Drucker
  - Eingabegeräte
  - Scanner/Lesegerät
  - Elektronische Anzeige, E...
  - Interface
  - Massenspeicher
  - Mikrocontroller
  - Kameras
  - Mobile Computing
  - Netzwerk
  - Sensoren
  - Server
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  - Videoschnitt
  - In-Ear Monitoring
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  - Mikroskopie
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  - Präsentationstechnik
  - Rig & Bühnentechnik
  - Schüssel
  - Stative
  - Theater-Fundus
  - Tonangein - Perche
  - Video
- Templates
- Inventory Pools (37/37)

Category IT & Elektronik Search:

Name	Manufacturer	Inventory Pool
2.5" Harddisk ATA 80 GB Samsung MP0804H		Vertiefung Medi...
2.5" HD-Gehäuse USB & FW, Sarotech Cutie DX		Vertiefung Medi...
4fach-Verteiler		Vertiefung Medi...
512 MB PC2700 SO-DIMM zu IBM T-Series		Vertiefung Medi...
AD-DA-Wandler Behringer Ultragain Pro 8 digital ADA8000	Behringer	Vertiefung Medi...
Adapter 2.5" EIDE/ATA -> 3.5" EIDE/ATA		Vertiefung Medi...
Adapter SCSI, DB68In -> mini-DC50In		Vertiefung Medi...
Adapterkabel Linksys WRT54G -> Planar-Antenne		Vertiefung Medi...
Adapterkabel USB zu RS232, no-name		Vertiefung Medi...
Akku (High-Capacity) zu IBM T42		Vertiefung Medi...
Akku zu Dell Latitude C400		Vertiefung Medi...
Apple Cinema Display 23 Zoll	Apple	AV-Technik, De...
Arduino Fio	Sparkfun	Vertiefung Medi...
Arduino Mega	Arduino	Vertiefung Medi...
Arduino USB-Controller	Arduino	Master Fine Art...
Aspire1830T	Acer	Vertiefung Medi...
Audio Interface RME ADI-648	RME	Institute for Co...
Audio-Interface MOTU Audio Express DAW-Hardware	Motu	AV-Ausleihe

Page 9 of 215

Basket

Model

Inventory Pool: AV-Ausleihe

- HD Sarotech 120GB

Continue with Order

Start

Order

Nothing selected



Audio



AV Produktionshilfsmittel



Beleuchtungstechnik



Campus Card



Effektgeräte Veranstalt...



Elektromaterial



Film / DCI



Fotografie



IT & Elektronik



Start IT & Elektronik

Order

Einlesegeräte / Scanner

In list Start date - End date All inventory pools Model

Nothing selected

Speicherkartenleser	2.5" Harddisk ATA 80 GB Samsung MP0804H		+
Eingabegeräte	2.5" HD-Gehäuse USB & FW, Sarotech Cutie DX		+
Touchscreen			+
Smartboard	4fach-Verteiler		+
Grafiktablett			+
Drucker	512 MB PC2700 SO-DIMM zu IBM T-Series		+
Andere Hardware			
Kabel	 AD-JDA-Wandler Behringer Ultragain Pro 8 digital ADA8000	Behringer	+
Netzteil /Ladegerät	Adapter 2.5" EIDE/ATA -> 3.5" EIDE/ATA		+
Interface			
Audio Interface	Adapter SCSI, DB68/m -> mini-HDC50/m		+
Video Interface	Adapterkabel Linksys WRT54G -> Planar-Antenne		+
Splitter/Switches			
IT-Interface	Adapterkabel USB zu RS232, no-name		+
Software und Dongles			
AVID Dongles	Akku (High-Capacity) zu IBM T42		+
Max MSP Dongle	Akku zu Dell Latitude C400		+
Videoschnitt			
Mini Kameras			
Webcam	 Arduino Fio	Sparkfun	+
Minikameras portabel	 Arduino Mega	Arduino	+
Computer	 Arduino USB-Controller	Arduino	+

- Acknowledge
- Hand Over
- Take Back
- Remind
- New model
- New Item

- Booking
- Availability
- Orders
- Contracts
- Items (2092)
  - In Stock (1071)
  - Unallocated (1)
  - Broken (31)
  - Incomplete (13)
  - Unborrowable (240)
- Models in this pool (441)
- Packages (24)
- Templates (7)
- Options (470)
- Workdays
- Inventory
  - Items (377)
  - Unallocated (1)
  - Inventory Relevant (217)
  - Not Inventory Relevant (160)
  - Retired (46)

New Item

377 results filtering own\_items Previous 1 2 3 4 5 6 7 8 Next CSV export

Model	Inventory Code	Location	Status	In stock?	Action
Kopfhörer German Maestro GMP 250	AVA27480	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	✓	Show Retire
Kopfhörer German Maestro GMP 250	AVA27481	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	✓	Show Retire
Kopfhörer German Maestro GMP 250	AVA27482	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	✓	Show Retire
Kopfhörer German Maestro GMP 250	AVA27483	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	Museum AU 60 Halle until 28.05.2013	Show Retire
Kopfhörer German Maestro GMP 250	AVA27484	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	Museum AU 60 Halle until 28.05.2013	Show Retire
Kopfhörer German Maestro GMP 250	AVA27485	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	Museum AU 60 Halle until 28.05.2013	Show Retire
Kopfhörer German Maestro GMP 250	AVA27486	Ausstellungsstrasse, 60 (SQ) K11 17/18	✓	✓	Show Retire
Kopfhörer German	AVA27487	Ausstellungsstrasse, 60 (SQ)	✓	✓	Show Retire

### List of Inventory

CSV export Add inventory

Alle Models Options Software

not retired used & not used borrowable & unborrowable Ausleihe Toni-Areal

Search...  Owned  In Stock  Incomplete  Broken

1		16mm Abtaster ELMO TRV-16G	0 / 0	Edit Model
1		3D LCD Monitor Marshall OR-901XD1 9"	0 / 0	Edit Model
1		3D Studio Monitor JVC DT-3D24G1	0 / 0	Edit Model
1		3D XD-Camera Sony PMW-TD300	0 / 0	Edit Model
1		3D HD-Kamera Panasonic HDC-SDT750	0 / 0	Edit Model
3		8Ch.-Digital Recorder Tascam DA-88	0 / 0	Edit Model
1		A-Net Distributor Aviom A-16D Pro	0 / 0	Edit Model
3		A/D-Converter Behringer ADA-800	0 / 0	Edit Model
1		AD-/DA-Wandler Behringer Ultragain Pro 8 digital ADA8000	0 / 0	Edit Model
1		AV-Converter Miranda DV-Bridge Pro	0 / 0	Edit Model
1		AVCHD Micro 4/3 Kamera Panasonic AG-AF101	0 / 0	Edit Model

- Booking**
- Availability
- Orders
- Contracts
- Items (2092)
- Models in this pool (441)
- Packages (24)
- Templates (7)
- Options (470)
- Workdays
- Inventory**
- Items (377)
- All Models (5337)
- Own Packages (16)
- Administration**
- Users (5359)
- Groups (7)
- Locations (78)
- Categories
- Inventory Pool

Contract Nr. 42035

Purpose:

Mark  
 All  
 From today

Model	Timeframe	Barcode	Action
<input type="button" value="Add Model"/> <input type="button" value="Add Option"/> for <input type="text" value="22.12.2014"/> - <input type="text" value="22.12.2014"/>			
<input type="checkbox"/> <input type="text" value="1"/> Beamer Acer H7531D Full-HD	05.04.2013 - 10.04.2013 6 Days	<input type="text"/>	<input type="button" value="Swap"/> <input type="button" value="Delete"/>
<input type="checkbox"/> <input type="text" value="1"/> Schnittset Avid Mediacomposer mit HD ■ Dongle Avid MC ■ HD Mobil 320GB	05.04.2013 - 15.05.2013 41 Days	<input type="text"/>	<input type="button" value="Swap"/> <input type="button" value="Delete"/>
<input type="checkbox"/> <input type="text" value="1"/> Schnittset Avid Mediacomposer mit HD ■ Dongle Avid MC ■ HD Mobil 320GB	05.04.2013 - 15.05.2013 41 Days	<input type="text"/>	<input type="button" value="Swap"/> <input type="button" value="Delete"/>
<input type="checkbox"/> <input type="text" value="1"/> Schnittset Avid Mediacomposer mit HD ■ Dongle Avid MC ■ HD Mobil 320GB	05.04.2013 - 15.05.2013 41 Days	<input type="text"/>	<input type="button" value="Swap"/> <input type="button" value="Delete"/>
<input type="checkbox"/> <input type="text" value="1"/> Schnittset Avid Mediacomposer mit HD ■ Dongle Avid MC ■ HD Mobil 320GB	05.04.2013 - 15.05.2013 41 Days	<input type="text"/>	<input type="button" value="Swap"/> <input type="button" value="Delete"/>

### Hand Over to

1 visit overdue

Availability loaded

Start Date: 22/12/2014 End Date: 09/01/2015 Add/Assign: inventory code, model name, search term

Hand Over Selection

Thursday 18/12/2014

<input type="checkbox"/>	Thursday 18/12/2014 - Friday 09/01/2015		23 Days
<input type="checkbox"/>	Fotostativ Manfrotto 055XP/PROB/804RC2 Neigekopf	1	Change entry
<input type="checkbox"/>	Kopfhörer MB Quart	1	Change entry
<input type="checkbox"/>	Kopfhörer MB Quart	1	Change entry
<input type="checkbox"/>	Kopfhörer MB Quart	1	Change entry
<input type="checkbox"/>	Kopfhörer MB Quart	1	Change entry
<input type="checkbox"/>	Objektiv Nikon AF Nikkor 24-85mm f/2.8-4.0D	1	Change entry
<input type="checkbox"/>	Objektiv Nikon AF-S Nikkor 12-24mm f/4.0G (DX ED)	1	Change entry
<input type="checkbox"/>	iPad3	1	Change entry
<input type="checkbox"/>	iPad3	1	Change entry

**Time Period** Close

Start: Friday End: Wednesday

5 April 2013 10 April 2013 You can't have a Start Date before today

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
December 2014																															
January 2015																															
February 2015																															
March 2015																															
April 2015																															
May 2015																															
June 2015																															
July 2015																															
August 2015																															
September 2015																															
October 2015																															
November 2015																															

Quantity: 1 - Model: Beamer Acer H7531D Full-HD  
05.04.2013 - 10.04.2013  
6 Days

[Database Backup](#)

hdK Search Lending Inventory Admin Statistics Borrow R. Cahenzli

Daily View Orders Visits Contracts Ausleihe Toni-Areal

### Edit reservation

Cancel Save

Startdate: 22/12/2014    Enddate: 09/01/2015    Quantity: 1    Availability: Borrower

January 2015    <    >

Mo	Tu	We	Th	Fr	Sa	Su
29 Dec Weihnachtsferien	30 Dec Weihnachtsferien	31 Dec Weihnachtsferien	1 Weihnachtsferien	2 Weihnachtsferien	3 Weihnachtsferien	4 Weihnachtsferien
7 7	7 7	7 7	7 7	7 7	7 7	7 7
5 Nur bewilligte Ab...	6 7	7 8	8 8	9 9	10 13	11 13
7 7	7 7	7 7	7 7	7 7	7 7	7 7
12 13	13 13	14 13	15 13	16 13	17 13	18 13
13 /13	13 /13	13 /13	13 /13	13 /13	13 /13	13 /13
19 13	20 13	21 13	22 14	23 14	24 14	25 14
13 /13	13 /13	13 /13	14 /14	14 /14	14 /14	14 /14
26 14	27 14	28 15	29 15	30 15	31 15	1 15
14 /14	14 /14	15 /15	15 /15	15 /15	15 /15	15 /15
Feb 2	Feb 3	Feb 4	Feb 5	Feb 6	Feb 7	Feb 8
15 15	15 15	15 15	15 15	15 15	15 15	15 15

iPad3    1    Change entry

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if you try to stuff all of this into one person, that person will be rekt.

## **Mistake № 6**

Implementing  
organization-specific features

## Toni Ankunftskontrolle

**Check-In Date**

22/08/2014

**Check-In State**

transportschaden

**Check-In Note**

**Toni** Ankunftskontrolle

**Check-In Date**

22/08/2014

**Check-In State**

transportschaden

**Check-In Note**







Enough about  
mistakes already!

:(

## Hints and observations

# **BDD is hard**

Create a glossary

Use boring, idiom-free, colorless language

**Bad (but fun) BDD scenario:**

When shit's all fucked up  
And there ain't no hustlas that still have the goods, yo  
Then holler out to all yo brothas, for real

**Better (and boring) BDD scenario:**

When at least one crucial configuration setting is missing  
And no inventory pool has any more items available  
Then display a warning in the global warning section

**Bad (but fun) BDD scenario:**

When shit's all fucked up  
And there ain't no hustlas that still have the goods, yo  
Then holler out to all yo brothas, for real

**Better (and boring) BDD scenario:**

When at least one crucial configuration setting is missing  
And no inventory pool has any more items available  
Then display a warning in the global warning section

# Management

Make sure management **understands** what Free Software is. Let them give you a **good product owner** that understands, too.

Get authorization to spend hours **working with the community**.

You **will spend more time** developing than if you were doing this only for your own organization.

# **If you are gov't**

You are using taxpayer money to make software.  
Give the taxpayers the software they paid for.

# **Definitely a hint**

Learn to say no.

# **Definitely a hint**

Learn to say no.

(But first, have a good idea of where  
the journey goes, otherwise you're  
just being a jerk.)

## **Mad bullet points, yo**

- Solid vision
- Stable platform
- Internationalization from day one
- Interaction designers
- Tests
- Good community work
- Educated management
- Know when to say no

## Mad bullet points, yo

- Solid vision
- Stable platform
- Internationalization from day one
- Interaction designers
- Tests
- Good community work
- Educated management
- Know when to say no

**= great success**



# Thank you!



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**leihs**

github.com/zhdk/leihs