

Supplemental Modelling: Version Control

Software Systems – Design – L5T2

Dr. Vadim Zaytsev aka @grammarware, 2020

Source Code Management



Designers' Life



asdasda.psd



new.psd



newfinal.psd



newfinal (1).psd



newfinalfinal.psd



newfinalfinal
forshure.psd



newnowits
reallyfinal.psd



newpleaseletthis
reallybefinal.psd

Software Engineer's Life

refactor code heavily by using C# 8.0 features and accepting some of ...

grammarware committed on Jul 17

switch from VS.NET to Rider and add project configs

grammarware committed on Jul 17

move the parser to its separate folder

grammarware committed on Jul 17

Commits on Jul 16, 2020

add some minimal documentation

grammarware committed on Jul 16

merged with the parser & lexer from @samiz/engage-fork

grammarware committed on Jul 16

fix AB again: now tests are runnable

grammarware committed on Jul 16

fish out more explicit slashes/backslashes to make it portable

grammarware committed on Jul 16

use slashes and backslashes depending on the platform

grammarware committed on Jul 16

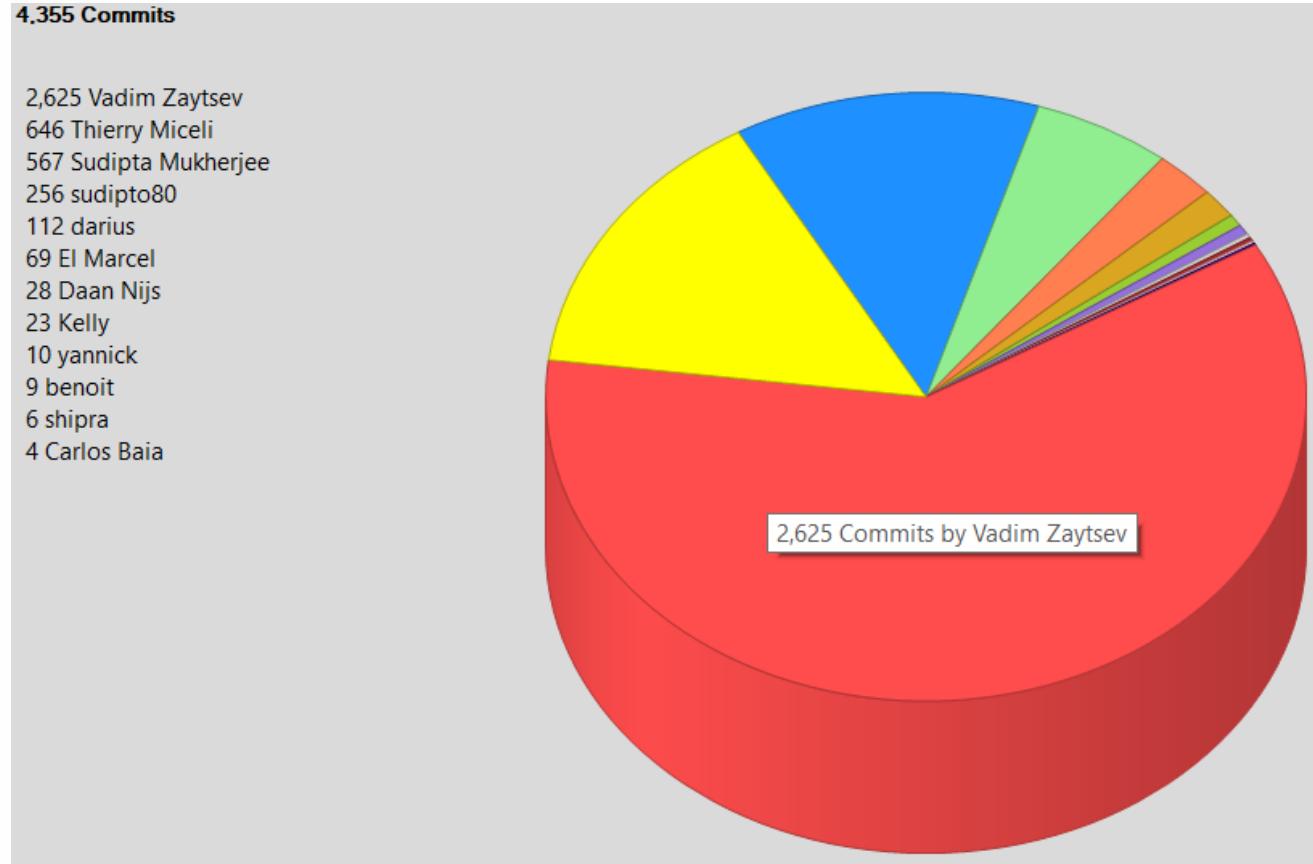
update to .NET Core 3.1

<https://github.com/raincodeLabs/engage/commits/master>



```
... ... @@ -1,28 +1,25 @@
1   1     using System;
2   2     using System.Collections.Generic;
3 + 3     + using System.Linq;
4
5   5     namespace Engage.A
6   6     {
7 - 6     -     public partial class HandlerDecl
8 + 7     +     public class HandlerDecl
9
10  8     {
11
12  9         public Trigger LHS;
13 10         public Reaction RHS;
14 11         public List<Assignment> Context = new List<Assignment>();
15
16 12
17 13         internal Reaction GetContext(string name)
18
19 14     {
20 20         foreach (var a in Context)
21 21             if (a.LHS == name)
22 22                 return a.RHS;
23 23             return null;
24 24     }
25
26 14     => (from a in Context where a.LHS == name select a.RHS)
27 15     .FirstOrDefault();
28
29 16
30 17         internal B.HandlerPlan MakePlan()
31 18     {
32
33 22     -     B.HandlerPlan hp = new B.HandlerPlan();
34 19     +     var hp = new B.HandlerPlan();
35
36 20         if (LHS.EOF)
37
38 21             hp.ReactOn = B.TokenPlan.EOF();
39
40 25     -     else if (!(String.IsNullOrEmpty(LHS.NonTerminal)))
41 22     +     else if (!String.IsNullOrEmpty(LHS.NonTerminal))
```

Realistic Industrial Projects

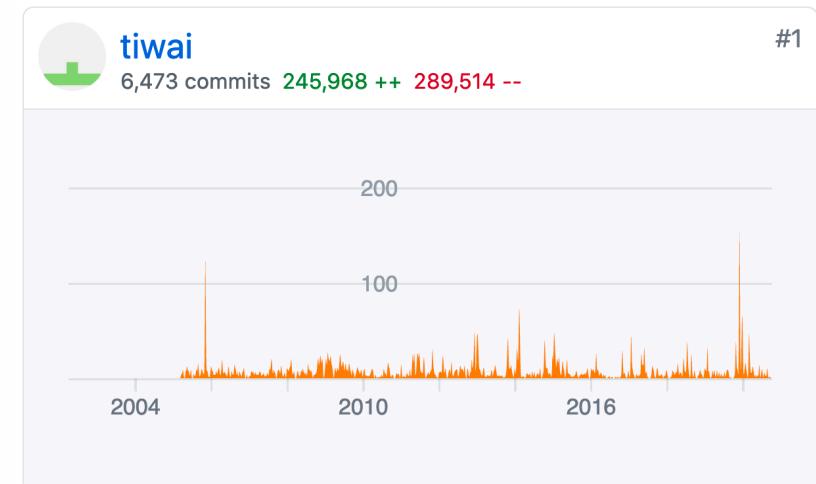


Realistic Open Source Projects

<https://github.com/torvalds/linux>



The screenshot shows the GitHub repository page for the Linux kernel. The repository has 99.3k stars and 33.9k forks. The 'Code' dropdown menu is highlighted with a large blue arrow. The main area displays a list of recent commits from the 'master' branch, including merges from 'net-next-5.10' and various kernel subsystems like Documentation, LICENSES, arch, block, certs, crypto, drivers, fs, include, init, ipc, kernel, and lib.



Conclusion on Motivation

- Revert **wrong** decisions
- **Decouple** right from wrong
- Edit code in **parallel**
- Dev machine **crashed**
- **Server** is down
- Track each line to **author**
- Visualise **statistics**

Models of Revision Control

- Centralised
 - the truth is on the server
- Immediate
 - each keystroke is visibly synchronised
- Distributed
 - peer to peer change sets

e.g. SVN/MediaWiki; Overleaf/GoogleDocs; git/hg

Changes

`git status`

- **Modified** `git diff`

- only your local copy of the file has changed

- **Staged** `git add`

- local changes are added to the vcs

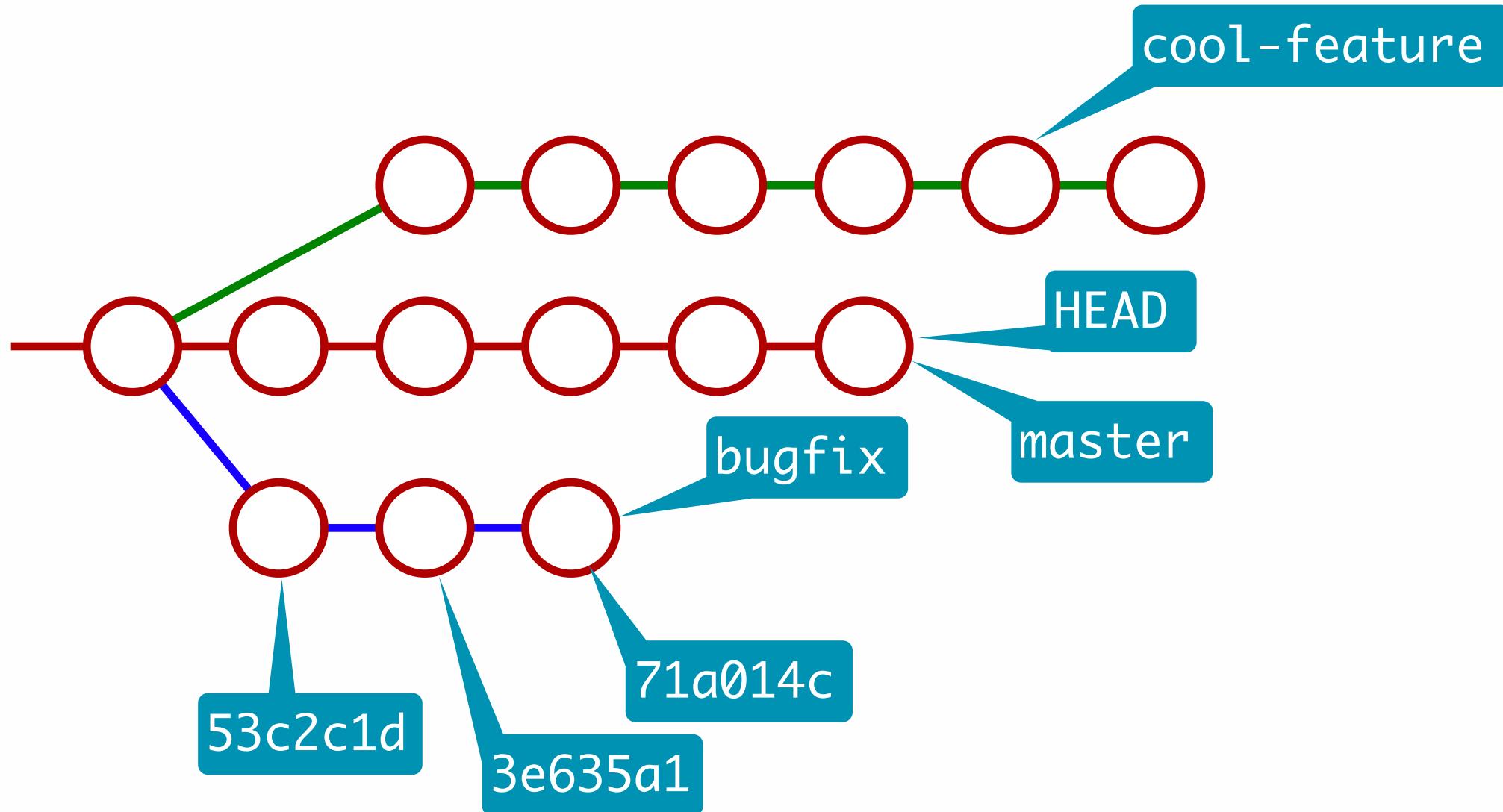
- **Committed** `git commit`

- changes packaged and documented

- **Pushed** `git push`

- local commits synced upstream

Commits Form Branches



RASCAL Stage rascal (branch: master)

All Local "master"

Subject: [switch tests to separate module](#)

Short SHA	Subject	Author	Date
6dc2ced	Merge pull request #1424 from usethesource/experiencing-memo	Davy Landman	12 June 2020 at 21:00
1baeef0	origin/simulate-annotations-with-keyword-fields-ci Merge branch 'master' into simulate-annotations-with-keyword-fields-ci	Jurgen J. Vinju	4 July 2020 at 16:16
c37297a	Ignored test for compiler	paulklink	5 June 2020 at 15:53
c8475c1	Added antipattern tests (uncovers several interpreter errors)	paulklink	5 June 2020 at 15:51
25d8893	fixed import/extend to allow TypeStore used in AST converter access to all necessary constructors	Jurgen J. Vinju	19 June 2020 at 20:30
79e25b0	tabs2spaces	Jurgen J. Vinju	19 June 2020 at 20:05
5c077da	fixed all rascal compiler warnings and errors due to the last merge	Jurgen J. Vinju	19 June 2020 at 09:22
c0496a6	Merge branch 'master' into simulate-annotations-with-keyword-fields-ci	Jurgen J. Vinju	14 May 2020 at 09:07
482be35	fixed merge issues	Jurgen J. Vinju	7 April 2020 at 09:50
1c26866	fixed issues	Jurgen J. Vinju	1 April 2020 at 13:26
650a679	Merge branch 'master' into simulate-annotations-with-keyword-fields-ci	Jurgen J. Vinju	1 April 2020 at 12:39
2a5d7d8	Merge branch 'master' into simulate-annotations-with-keyword-fields-ci: added new test for character classes to document #1335	Jurgen J. Vinju	11 March 2020 at 14:01
52ec940	set vallang dependency to 0.12.0-SNAPSHOT	Jurgen J. Vinju	20 February 2020 at 14:57
072b168	removed dead and broken link function	Jurgen J. Vinju	19 February 2020 at 15:11
b2a84e4	Merge branch 'master' into simulate-annotations-with-keyword-fields-ci	Jurgen J. Vinju	6 February 2020 at 15:39
7a2f356	Merge branch 'master' into simulate-annotations-with-keyword-fields-ci	Jurgen J. Vinju	5 February 2020 at 20:13
74a592c	Merge branch 'master' into simulate-annotations-with-keyword-fields-ci	Jurgen J. Vinju	12 December 2019 at 14:32
c9f13d4	fixed more merge issues	Jurgen J. Vinju	22 November 2019 at 09:49
c9ff0eb	fixed merge problems	Jurgen J. Vinju	22 November 2019 at 09:46
87d077a	depend on the right vallang version	Jurgen J. Vinju	22 November 2019 at 09:41
7b07829	Merge branch 'master' into simulate-annotations-with-keyword-fields-ci	Jurgen J. Vinju	22 November 2019 at 09:09
5fe36ff	added test and fixed bug in lub of function types	Jurgen J. Vinju	7 October 2019 at 20:10
0eaf434	renamed versions for easy checking of this branch with other projects	Jurgen J. Vinju	7 October 2019 at 18:55
53c2c1d	added debug print	Jurgen J. Vinju	7 October 2019 at 13:58
3e635a1	made JDT library independent of Rascal interpreter and does not use IEvaluatorC...	Jurgen J. Vinju	7 October 2019 at 13:11
71a014c	JSON can only be read if you provide the expected static reified type	Jurgen J. Vinju	7 October 2019 at 11:02
a3fe6ac	added monitor	Jurgen J. Vinju	7 October 2019 at 10:57
Saabee2	JavaBridge also provides stdout and stderr to constructors of java builtin objects	Jurgen J. Vinju	7 October 2019 at 10:45
6883f69	removed all uses of @reflect, and JavaBridge now provides TypeStore to constructors	Jurgen J. Vinju	7 October 2019 at 10:41
f3fd2f4	removed jvm library which used dead code and its functionality is covered by flybytes	Jurgen J. Vinju	7 October 2019 at 10:33
602c8bd	writeFile is just writeFile...	Jurgen J. Vinju	6 October 2019 at 10:47
b3459a9	updating the CSV IO tests	Jurgen J. Vinju	6 October 2019 at 10:40
10ab215	removed all reflection from CSV library. This means writeCSV has gotten an extra...	Jurgen J. Vinju	5 October 2019 at 18:05
b881858	stacktraces are provided by the run-time system when a java builtin method is called	Jurgen J. Vinju	5 October 2019 at 17:47
c3a68f7	fixed warning	Jurgen J. Vinju	5 October 2019 at 17:43
511bdd0	removed sorting test which can not work because 0 <= 0.0 and 0.0 <= 0 and the...	Jurgen J. Vinju	5 October 2019 at 17:41
cedc743	fixed interaction between varags and type parameters	Jurgen J. Vinju	5 October 2019 at 17:40
30ba50c	added comment	Jurgen J. Vinju	5 October 2019 at 16:02
eeb5039	completed split of static vs dynamic binding of type parameters	Jurgen J. Vinju	5 October 2019 at 16:00
f9912f3	added minimal test case for buggy interaction between generic and < operator	Jurgen J. Vinju	4 October 2019 at 11:52
e128c51	spacing	Jurgen J. Vinju	4 October 2019 at 11:52
d00ed22	spacing	Jurgen J. Vinju	4 October 2019 at 11:52
dbe1d3a	added failing sort test	Jurgen J. Vinju	4 October 2019 at 11:26
adaca1d	fixed a bug in abstract pattern matching to concrete trees	Jurgen J. Vinju	4 October 2019 at 11:25
91478b6	added specific tests to find specific issues with generics and type environment buggies	Jurgen J. Vinju	4 October 2019 at 11:25

Subject: **added debug print**
 Author:  Jurgen J. Vinju <Jurgen.Vinju@cwi.nl>
 Date: Mon Oct 07 2019 13:58:56 GMT+0200 (CEST)

SHA: 53c2c1d9d2b3654eb851c72595557b92706fda6f
 Parent: 3e635a1bfd87b72d8b4a951076b4914515cb1c3a

Gist it

added debug print

19053 commits loaded

Console

Conclusion

- Source code management
 - aka version control
 - aka revision control
- Paradigms
 - centralised
 - immediate
 - distributed
- Next up: git

Topics/slides Disclaimer

- Good ✓

- watch before Q&A
- embrace reality
- try out at labs
- ask for feedback
- apply to project
- dig deeper
- recall from slides

- Bad ✗

- slides over videos
- assumptions
- blanks
- timing

