TECHNISCHE UNIVERSITÄT DRESDEN

DRESDEN concept

Komplexpraktikum: Tool Support for Systematic Literature Reviews

SLR-Toolkit

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Dresden, 9.10.2017

- Goal: get an overview of a research area
  - Identify relevant literature
  - Organize literature (i.e., determining classes/a taxonomy)
  - Classify relevant literature
  - Analyze classified literature to identify „open spots“

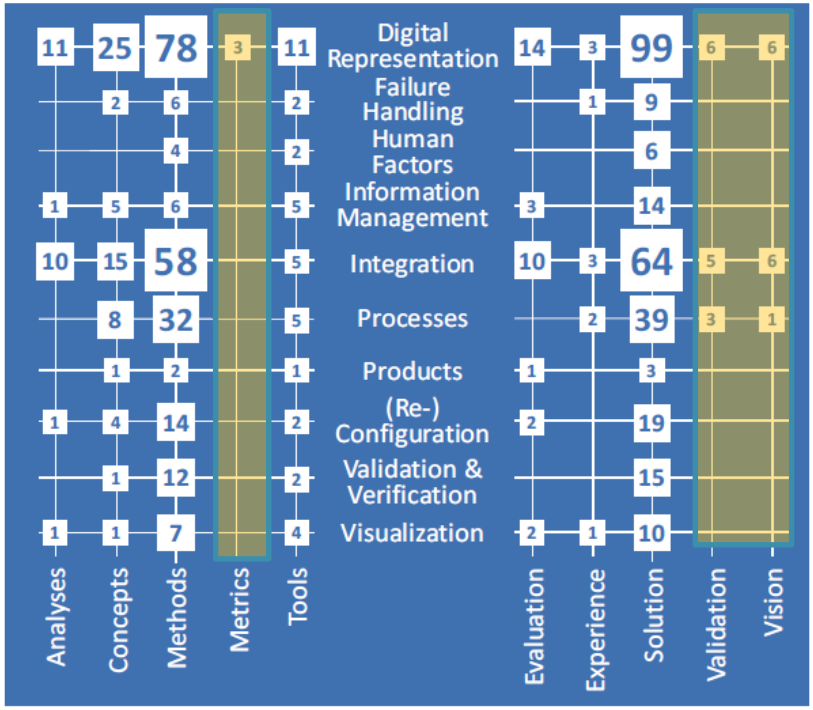


Fig. 2. Industry 4.0 concerns by research type and contribution type.

[Andreas Wortmann, Benoit Combemale, Olivier Barais: A Systematic Mapping Study on Modeling for Industry 4.0. In: Proceedings of 2017 ACM/IEEE 20th International Conference on Model Driven Engineering Languages and Systems.]

1. Set topic (e.g., bi-directional model-transformations)
2. Read into the topic, to identify characteristic keywords
   - E.g., „transformation“, „trafo“, etc.
3. Specify in- and exclusion criteria
   - E.g., „exclude non-peer reviewed literature“
4. Use keywords to search standard libraries
   - Google Scholar, DBLP, ACM DL, SpringerLink, IEEE Express, etc.
5. Often you‘ll get a high number of papers (#initial)
   - Apply in-/exclusion criteria to filter this list (#filtered)
6. Extend #filtered list by for- and backward snowballing
   - Look for papers cited by those you found
   - Look for papers, which cite the papers you found
7. Now you have your literature corpus

8. While reading the literature corpus, identify classes and build a taxonomy
   - In the example below, three dimensions are shown: contribution type, research type, domain-specific concerns
9. Classify all found papers according to the taxonomy

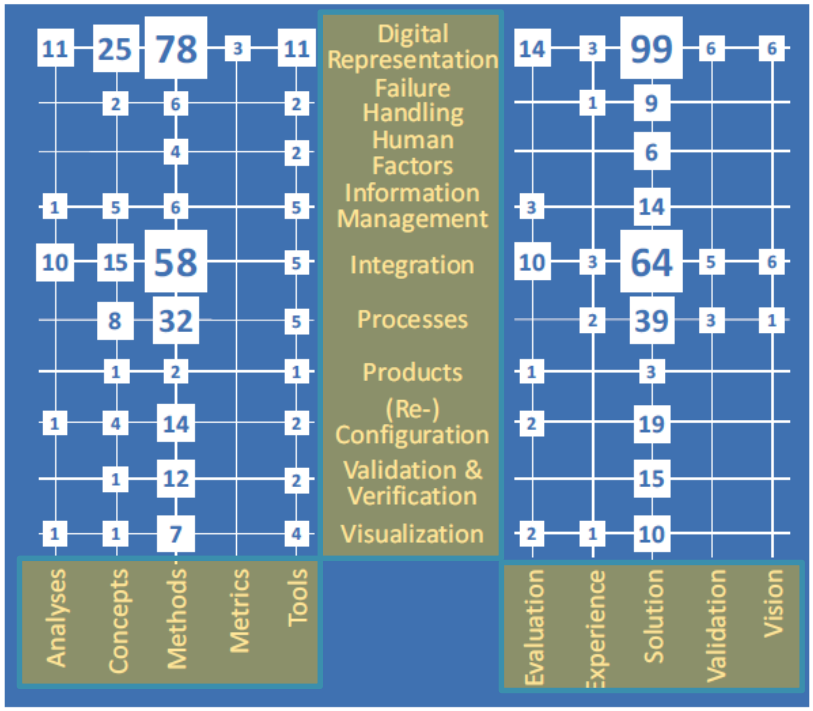


Fig. 2. Industry 4.0 concerns by research type and contribution type.

10. Compare the classes with each other to find „open spots“

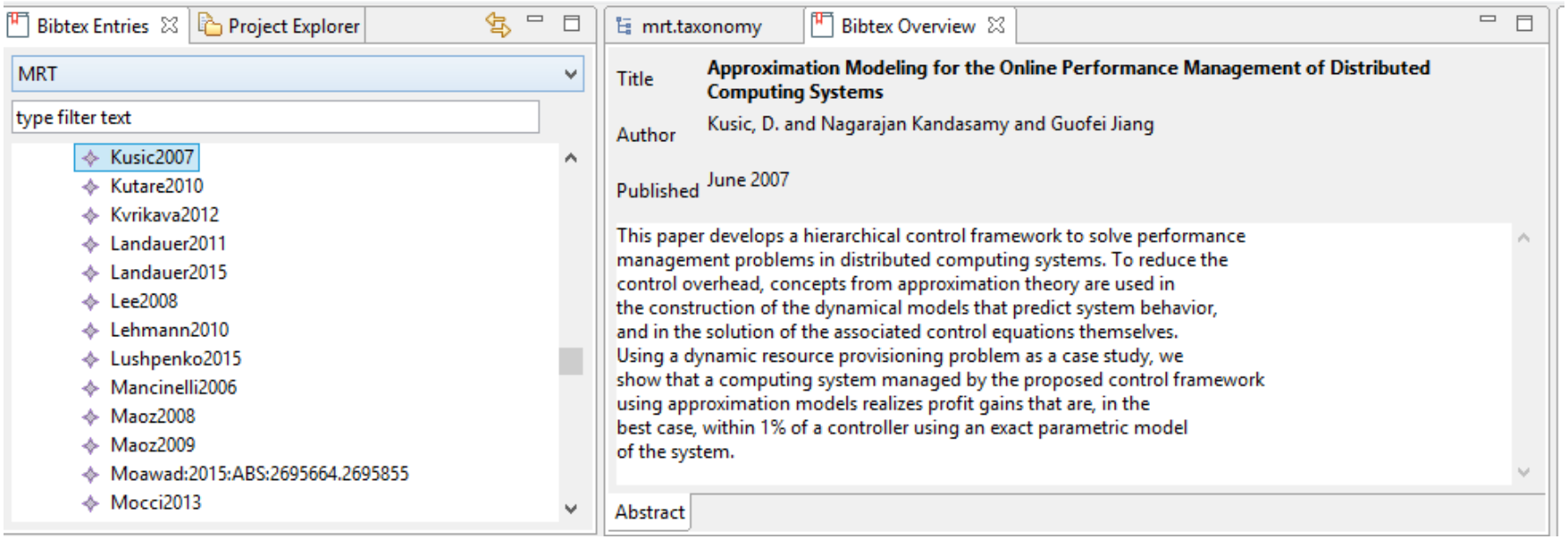
[Andreas Wortmann, Benoit Combemale, Olivier Barais: A Systematic Mapping Study on Modeling for Industry 4.0. In: Proceedings of 2017 ACM/IEEE 20th International Conference on Model Driven Engineering Languages and Systems.]

The SLR-Toolkit

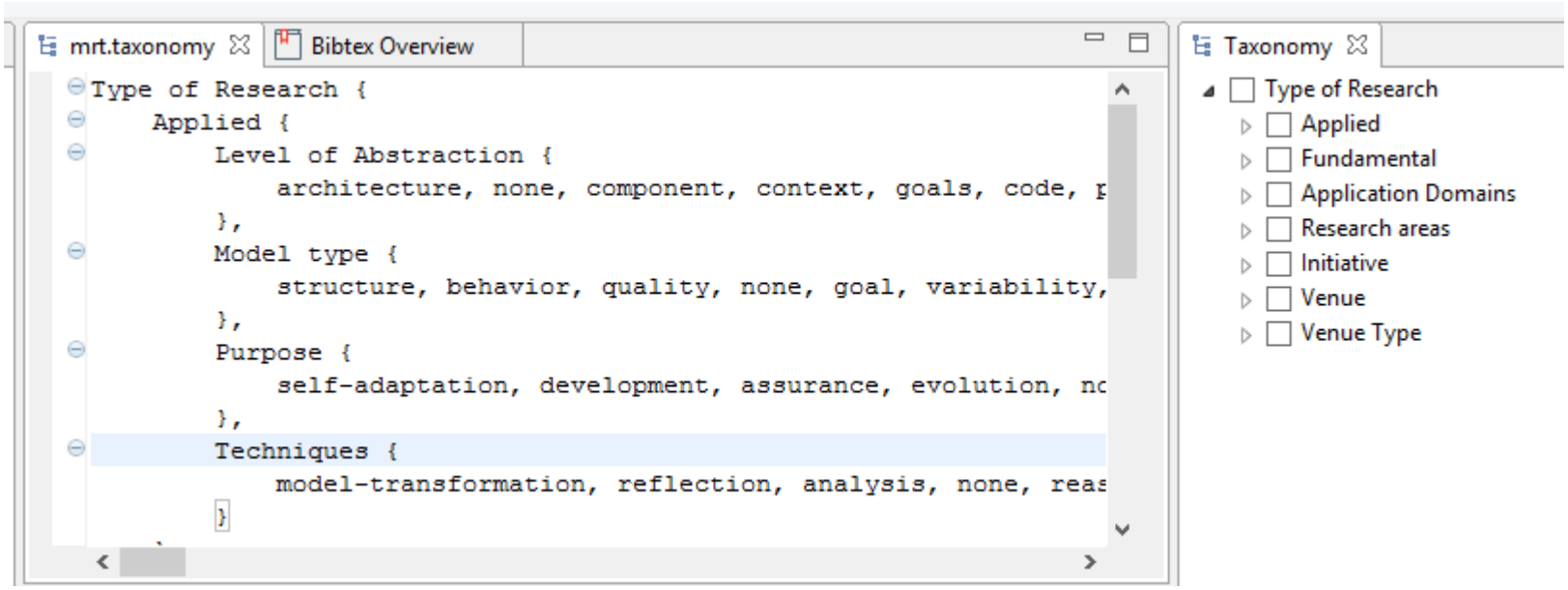
- Open source project mainly implemented by students
- https://github.com/sebastiangoetz/slr-toolkit

- Supports full process, except for searching literature
- All other steps supported
  - Import Bibtex File
  - Filtering
  - Creating a taxonomy
  - Classifying Literature
  - Analyzing Literature
  - Refactoring the taxonomy

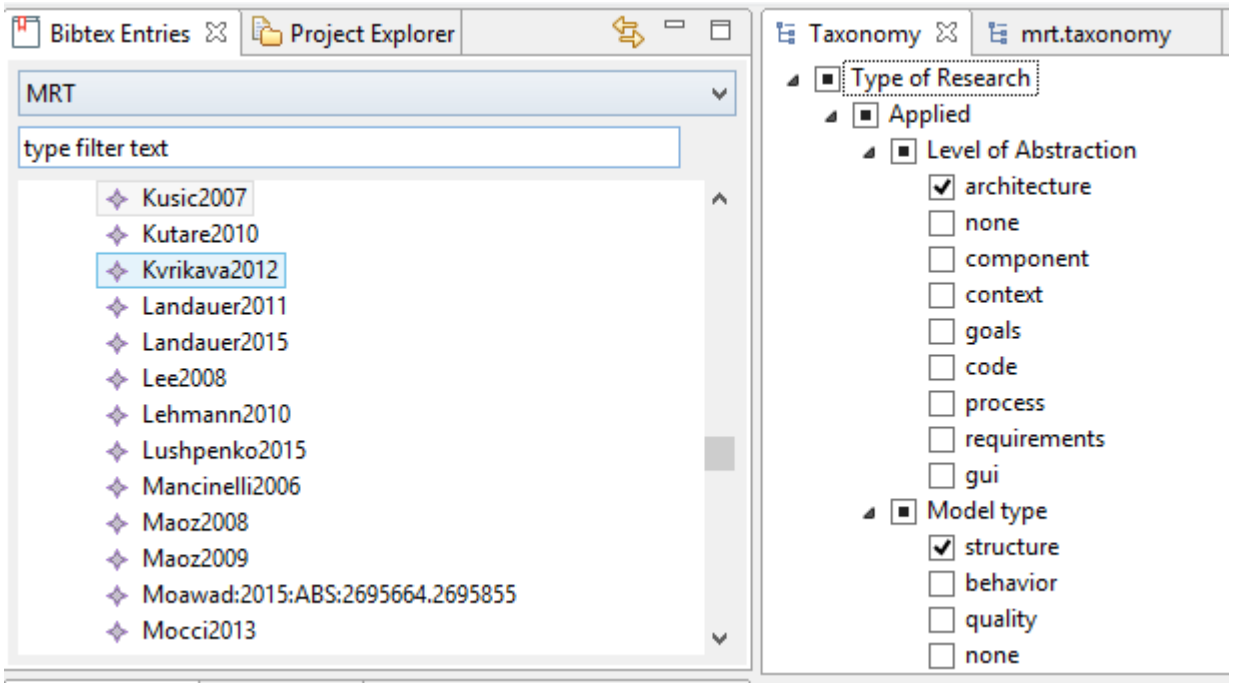
Filtering (using Del-Key)



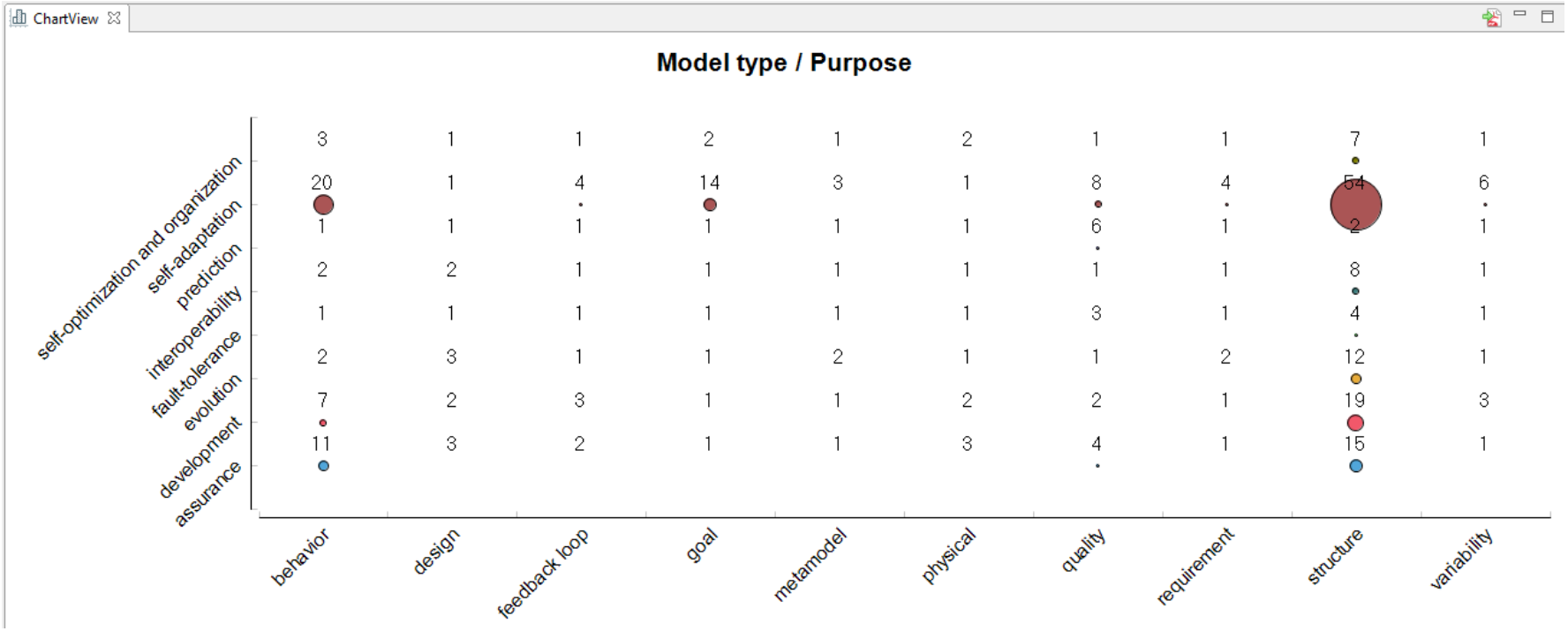
Specifying a Taxonomy



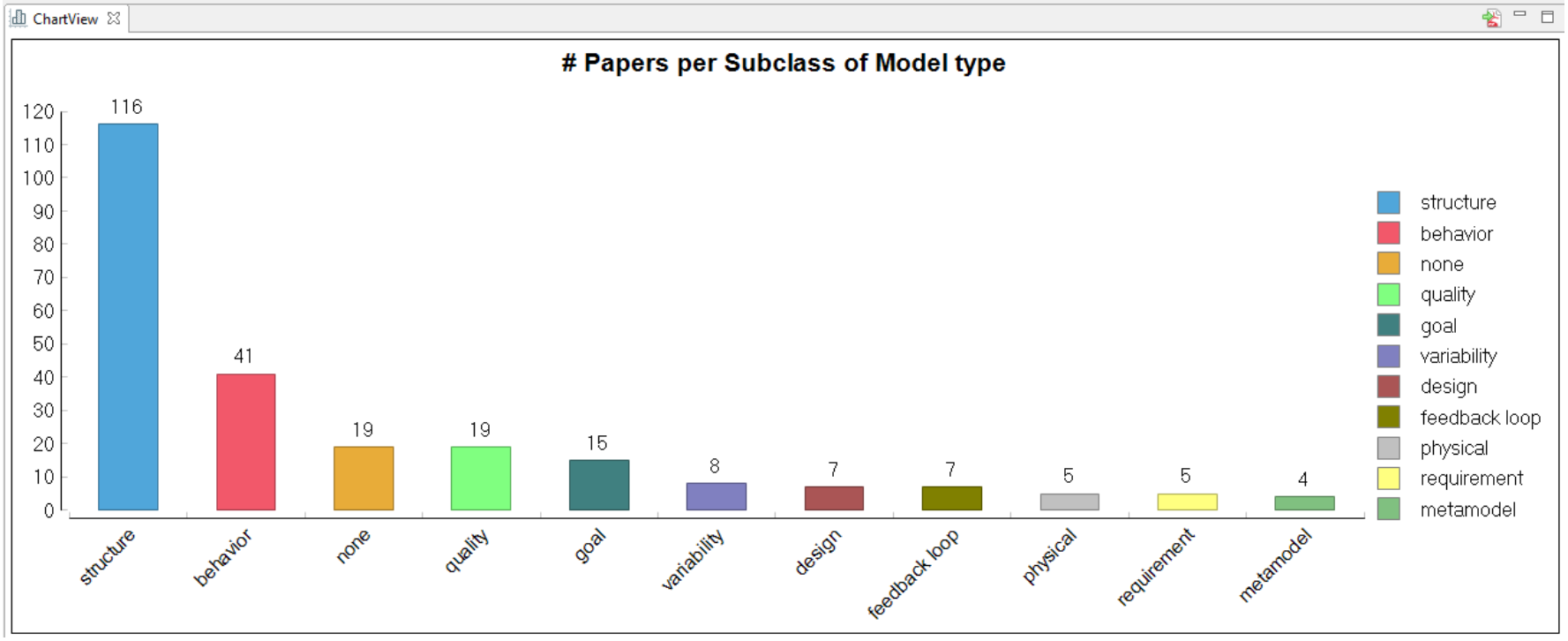
Classifying Literature



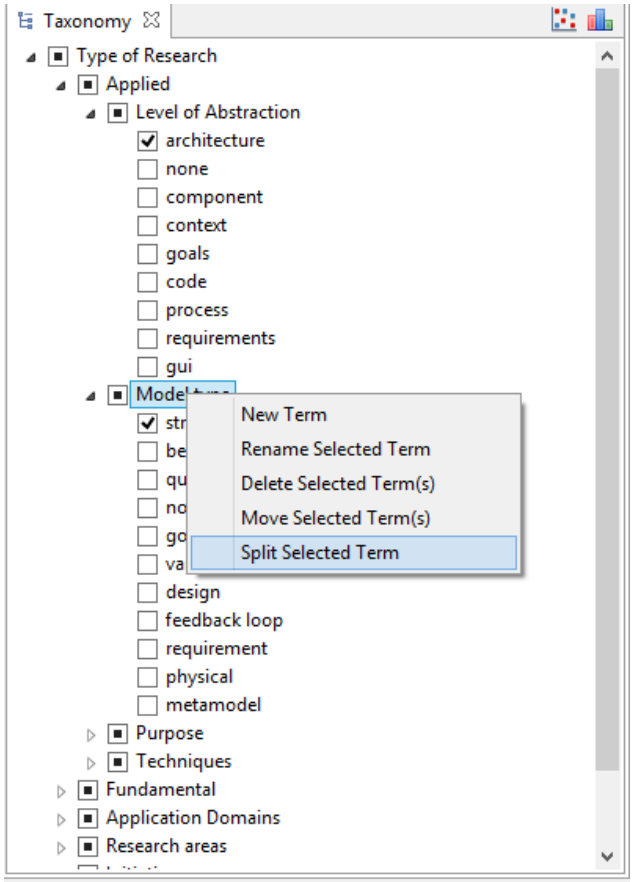
Analysis


ChartView
Model type / Purpose
self-optimization and organization
self-adaptation
prediction
interoperability
fault-tolerance
evolution
development
assurance
behavior
design
feedback loop
goal
metamodel
physical
quality
requirement
structure
variability
3 1 1 2 1 2 1 1 7 1
20 1 4 14 3 1 8 4 64 6
1 1 1 1 1 1 6 1 2 1
2 2 1 1 1 1 1 1 8 1
1 1 1 1 1 1 3 1 4 1
2 3 1 1 2 1 1 2 12 1
7 2 3 1 1 2 2 1 19 3
11 3 2 1 1 3 4 1 15 1

Analysis


ChartView
Papers per Subclass of Model type
120
110
100
90
80
70
60
50
40
30
20
10
0
116
41
19
19
15
8
7
7
5
5
4
structure
behavior
none
quality
goal
variability
design
feedback loop
physical
requirement
metamodel
structure
behavior
none
quality
goal
variability
design
feedback loop
physical
requirement
metamodel

Refactoring the taxonomy



- Build process based on Maven
- Continuous Delivery using Travis CI

README.md

Latest release

0.0.8

07104e7

gitter join chat | issues 28 open | license EPL | build passing

slr-toolkit

A Toolkit for Systematic Literature Reviews

Releases

Latest release: here

SLR-Toolkit v0.0.8

StephanPirnbaum released this on 20 Mar

Made default term field in split term dialog required to prevent failures

Downloads

- slr-toolkit.201703200847-linux.gtk.x86.tar.gz
- slr-toolkit.201703200847-linux.gtk.x86_64.tar.gz
- slr-toolkit.201703200847-macosx.cocoa.x86_64.tar.gz
- slr-toolkit.201703200847-win32.win32.x86.zip
- slr-toolkit.201703200847-win32.win32.x86_64.zip
- Source code (zip)
- Source code (tar.gz)

- What's left todo?
  - Better and more types of analysis
  - Integration with search tooling (gsresearch)
    - https://github.com/Eden-06/gsresearch
  - Integration with literature management tools
    - Zotero
    - Mendeley
    - JabRef
  - User's manual
  - Developer's guide
  - Test suite

Organizational issues

- Get your task today
- Finish your task until 1st week of February 2018
- Presenation in chair‘s student seminar (Thursday 14:50, APB/2101) in 2nd week of February 2018

- Progress meeting every 2 weeks

- Use issue tracker on github to document your progress