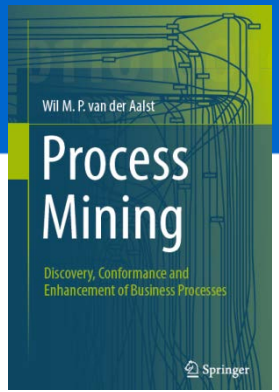
Process Mining: Data Science in Action

Introducing ProM and Disco

prof.dr.ir. Wil van der Aalst
www.processmining.org



TU/e Technische Universiteit Eindhoven University of Technology

Where innovation starts

Process Mining Tools

TU/e

ProM: 600+ plug-ins

dozens of model types

XES, MXML, CSV files

TU/e

Disco: Simple, fast, and easy

fuzzy models

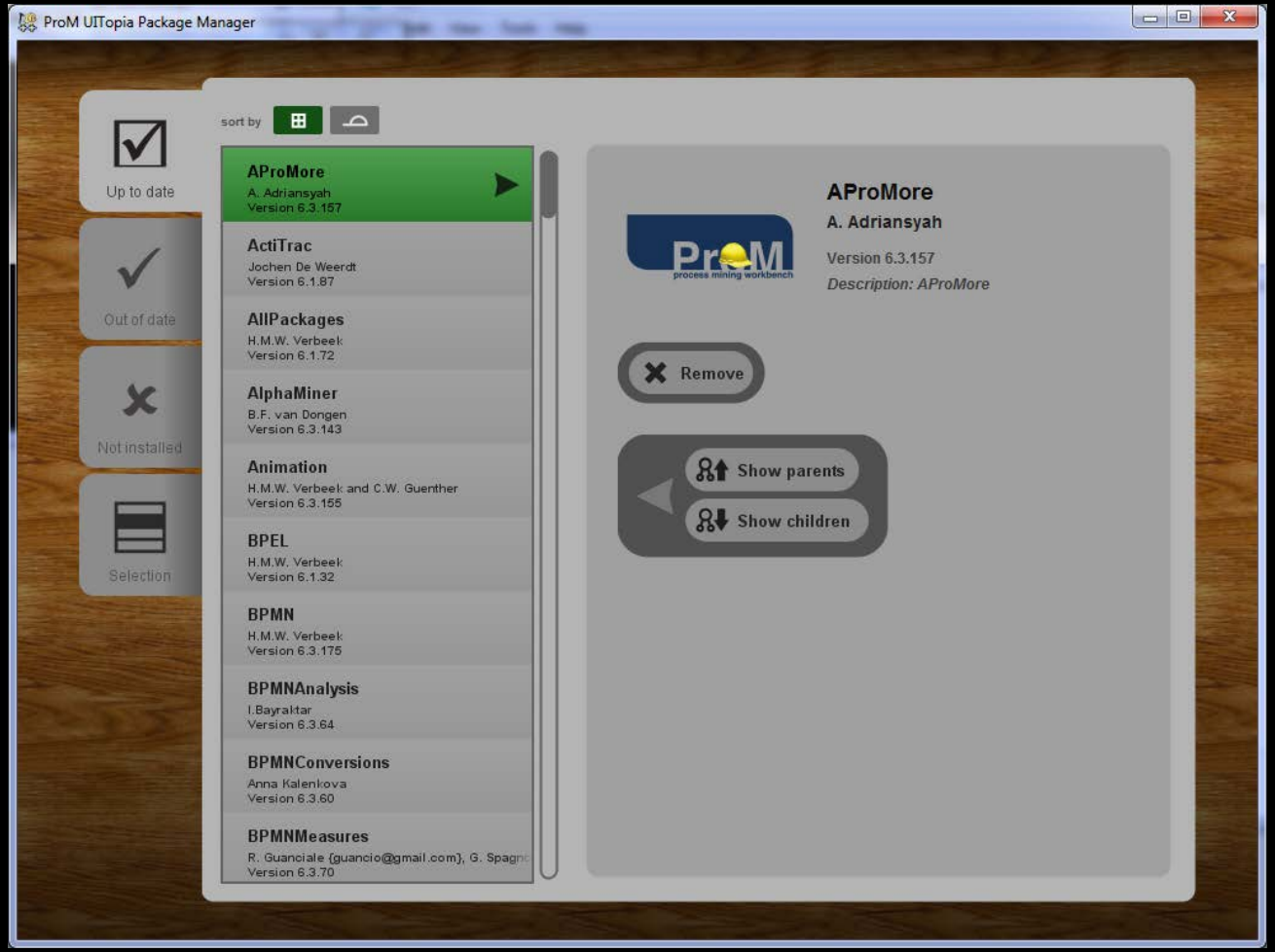
XES, MXML, CSV files

If you did not install Disco and ProM yet, please do now.

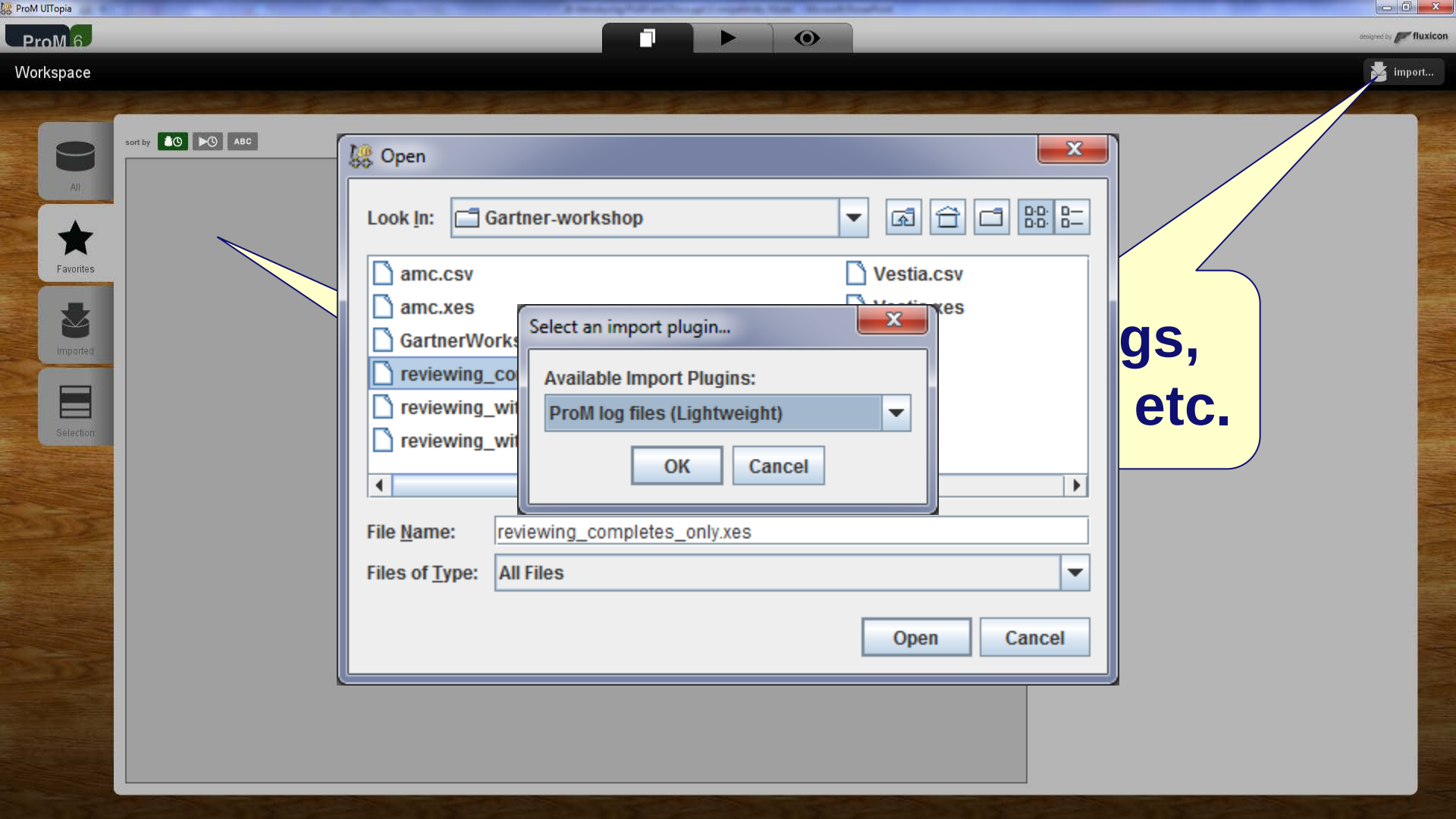
See the written instructions for installation details.

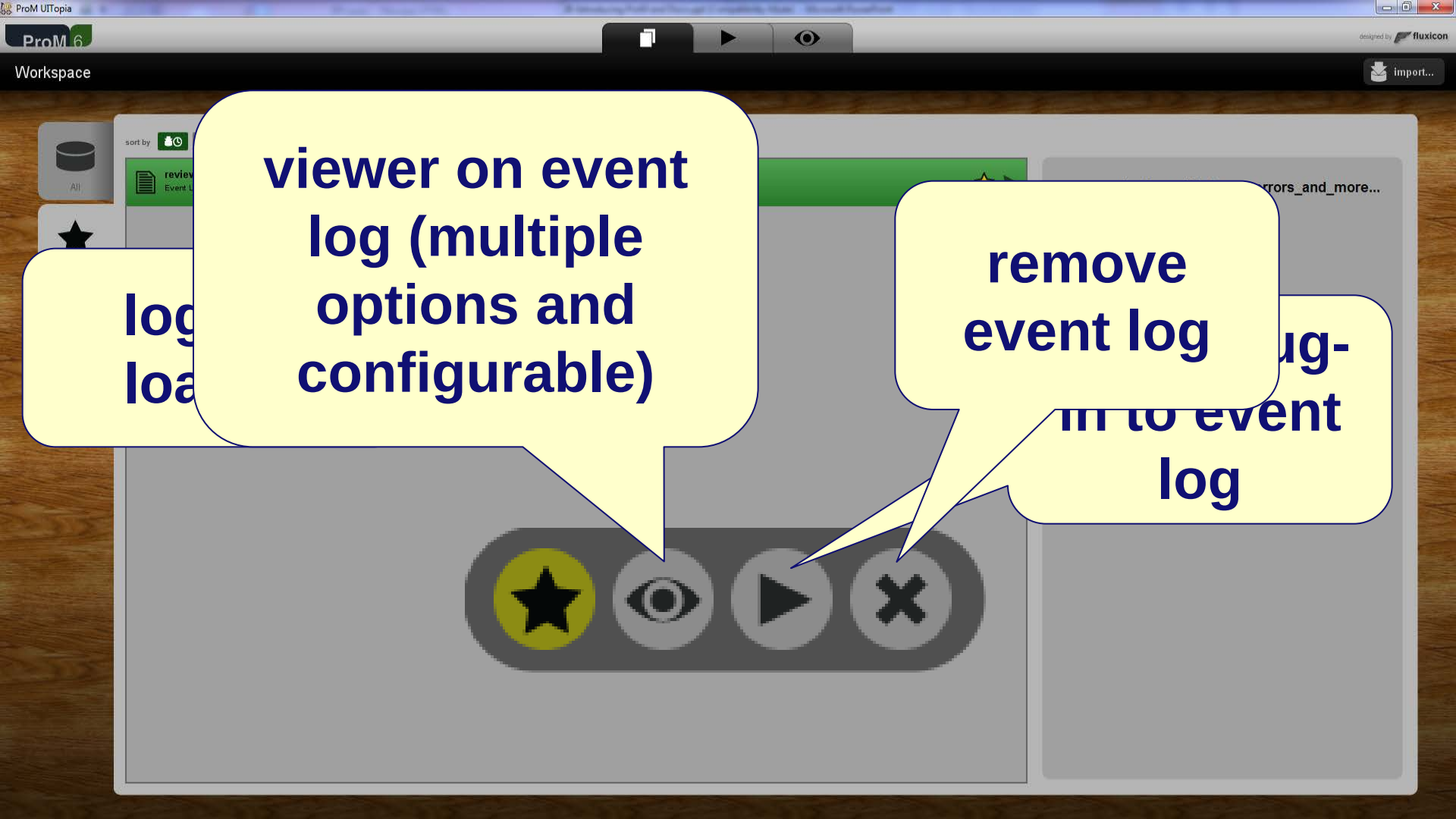
ProM

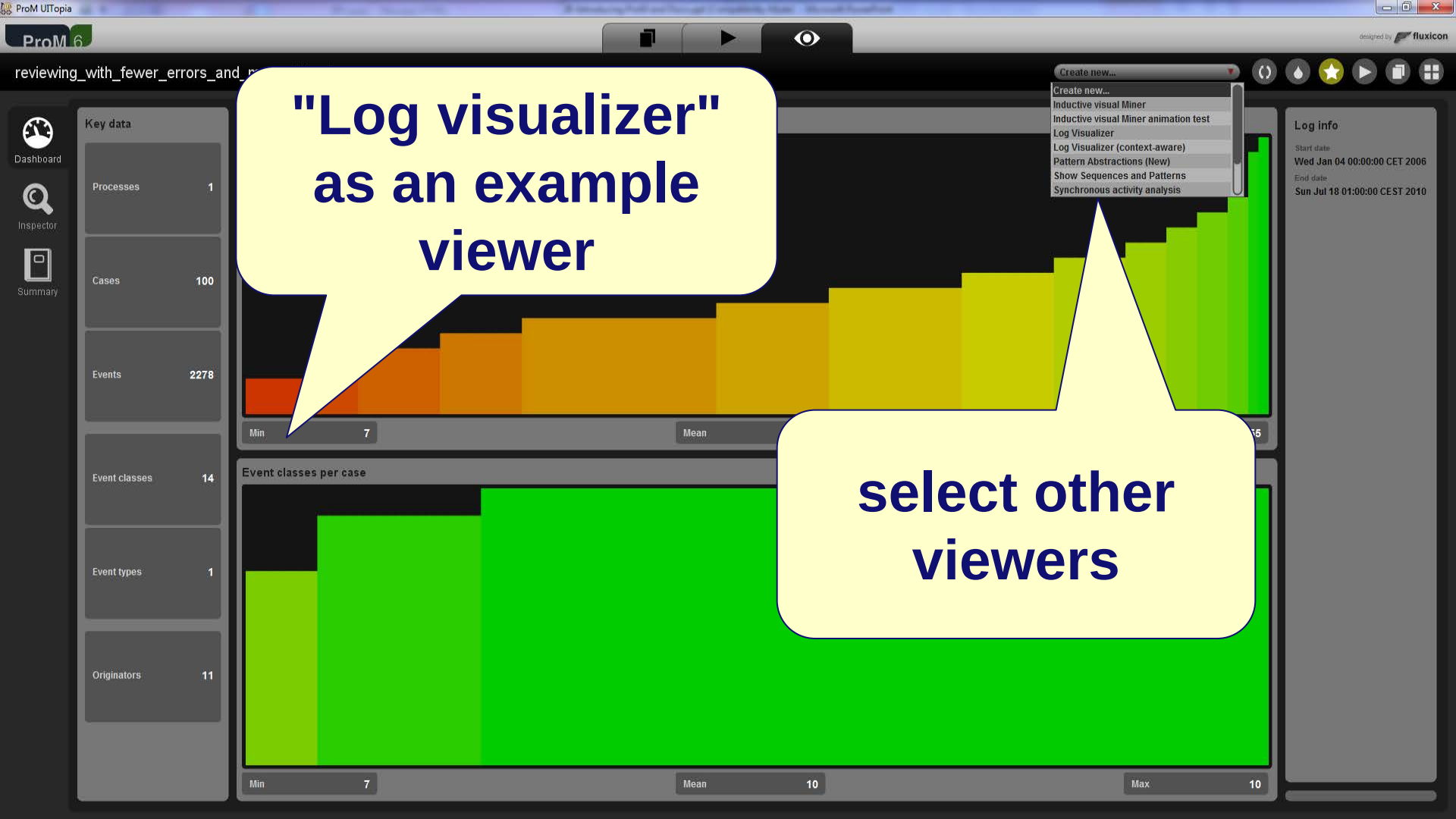
www.processmining.org
www.promtools.org/prom6/

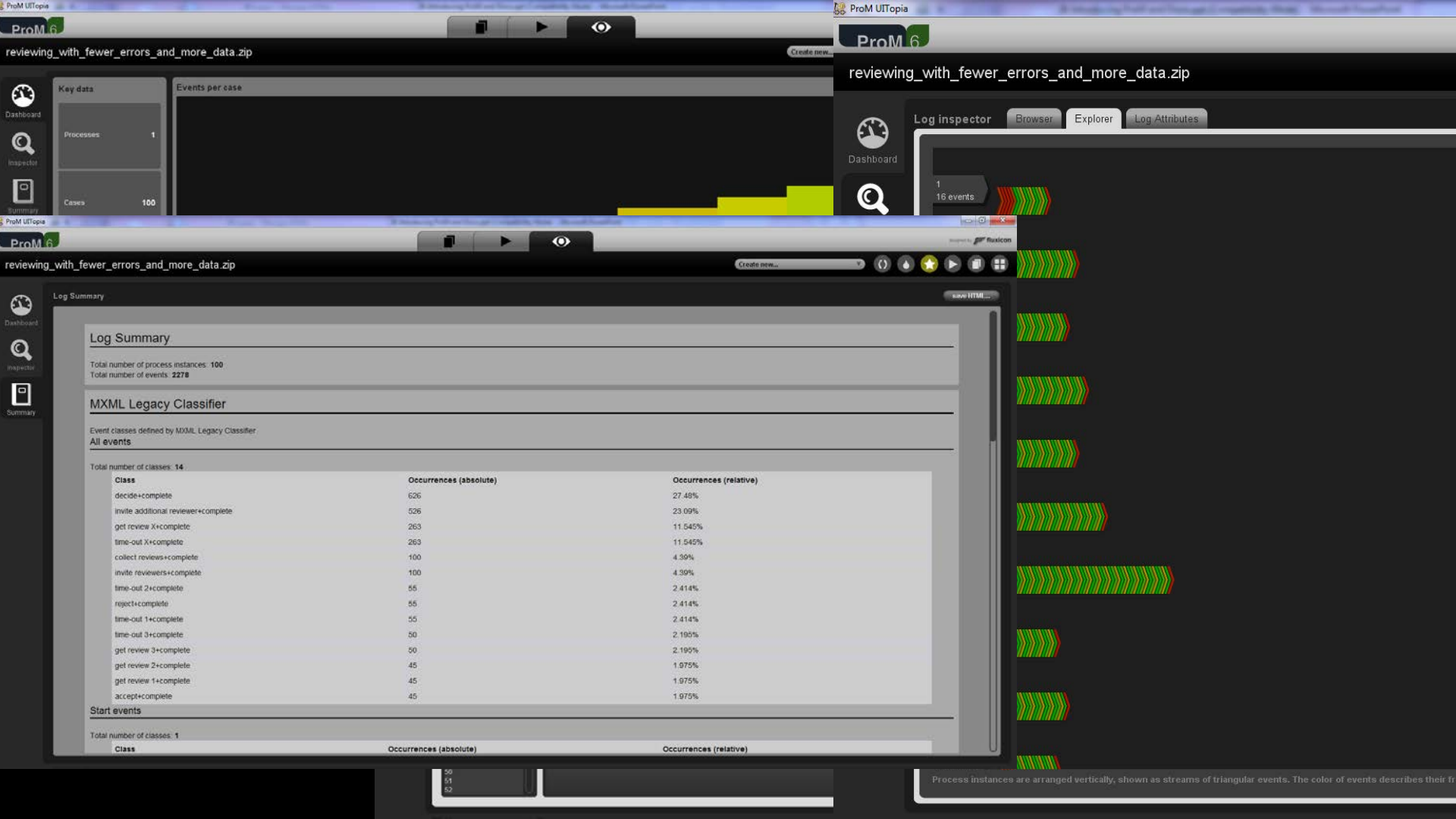


Run package manager to decide what packages/ plug-ins to use …

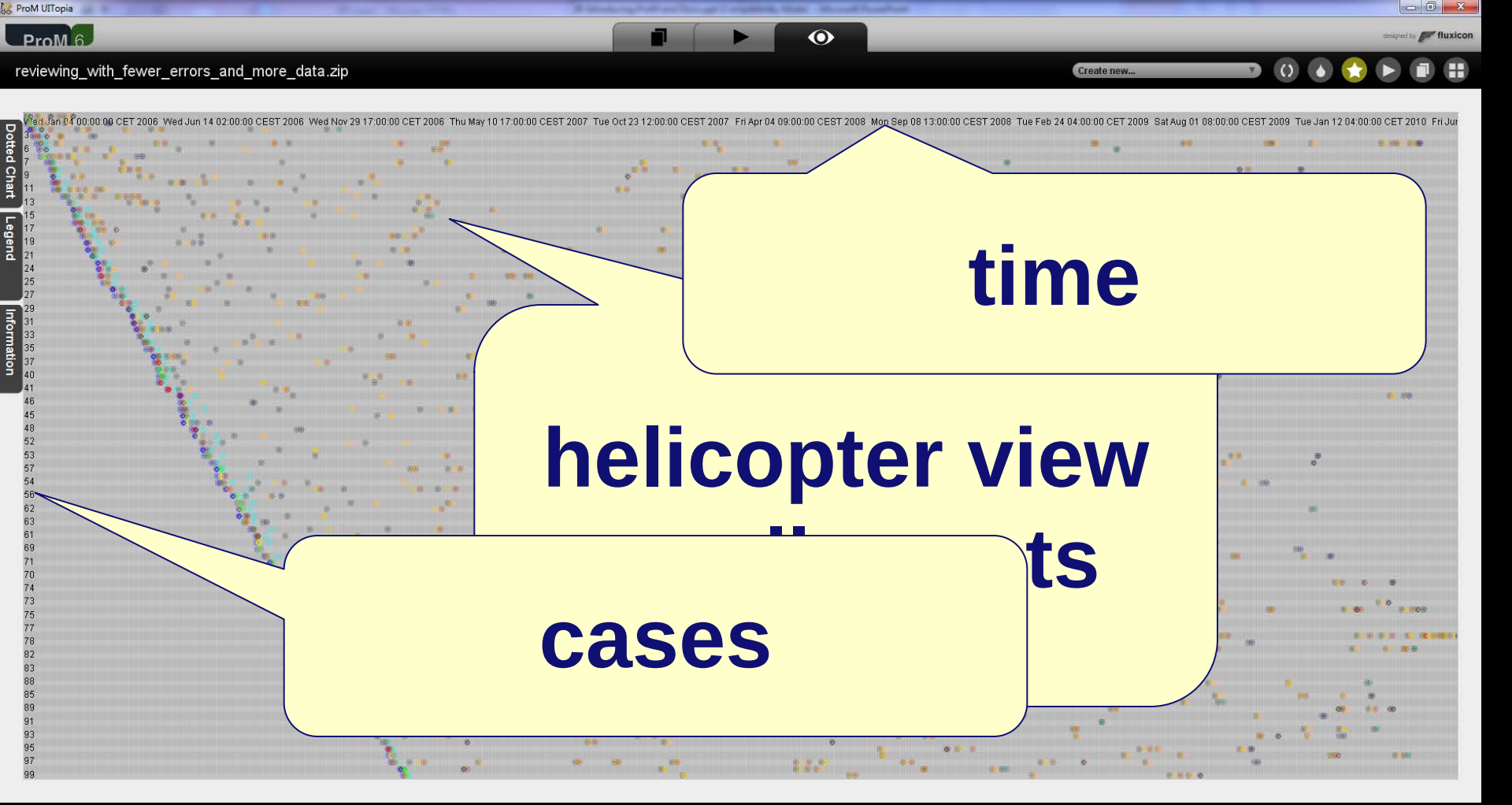

ProM UITopia
ProM 6
designed by fluxicon
Workspace
import...
sort by
ABC
All
Favorites
Imported
Selection
Open
Look In:
Gartner-workshop
amc.csv
amc.xes
GartnerWorks
reviewing_co
reviewing_wit
reviewing_wit
Vestia.csv
Select an import plugin...
Available Import Plugins:
ProM log files (Lightweight)
OK
Cancel
File Name:
reviewing_completes_only.xes
Files of Type:
All Files
Open
Cancel
gs,
etc.

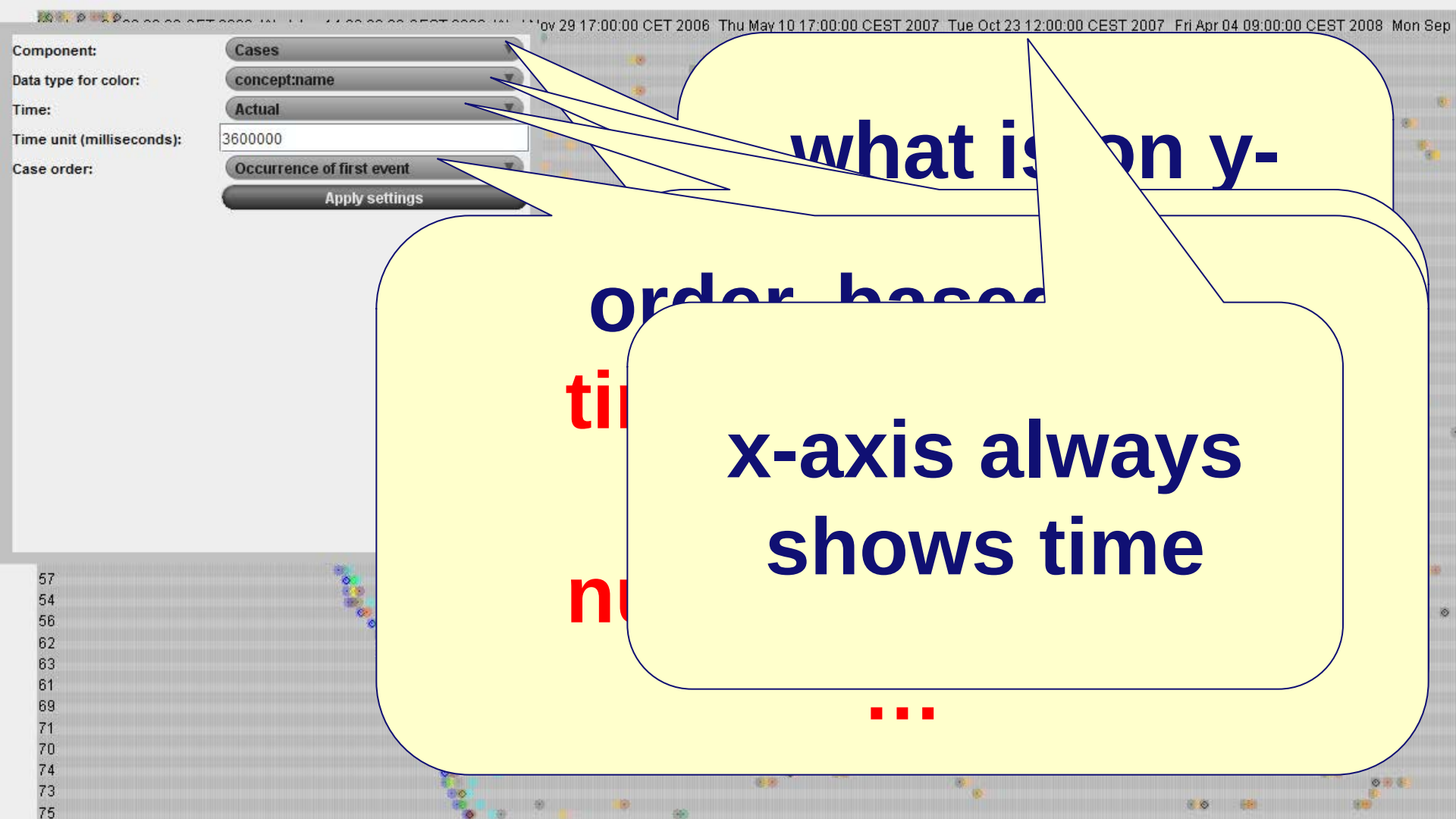

ProM UITopia
ProM 6
Workspace
import...
viewer on event log (multiple options and configurable)
remove event log
log
load
log-in to event log

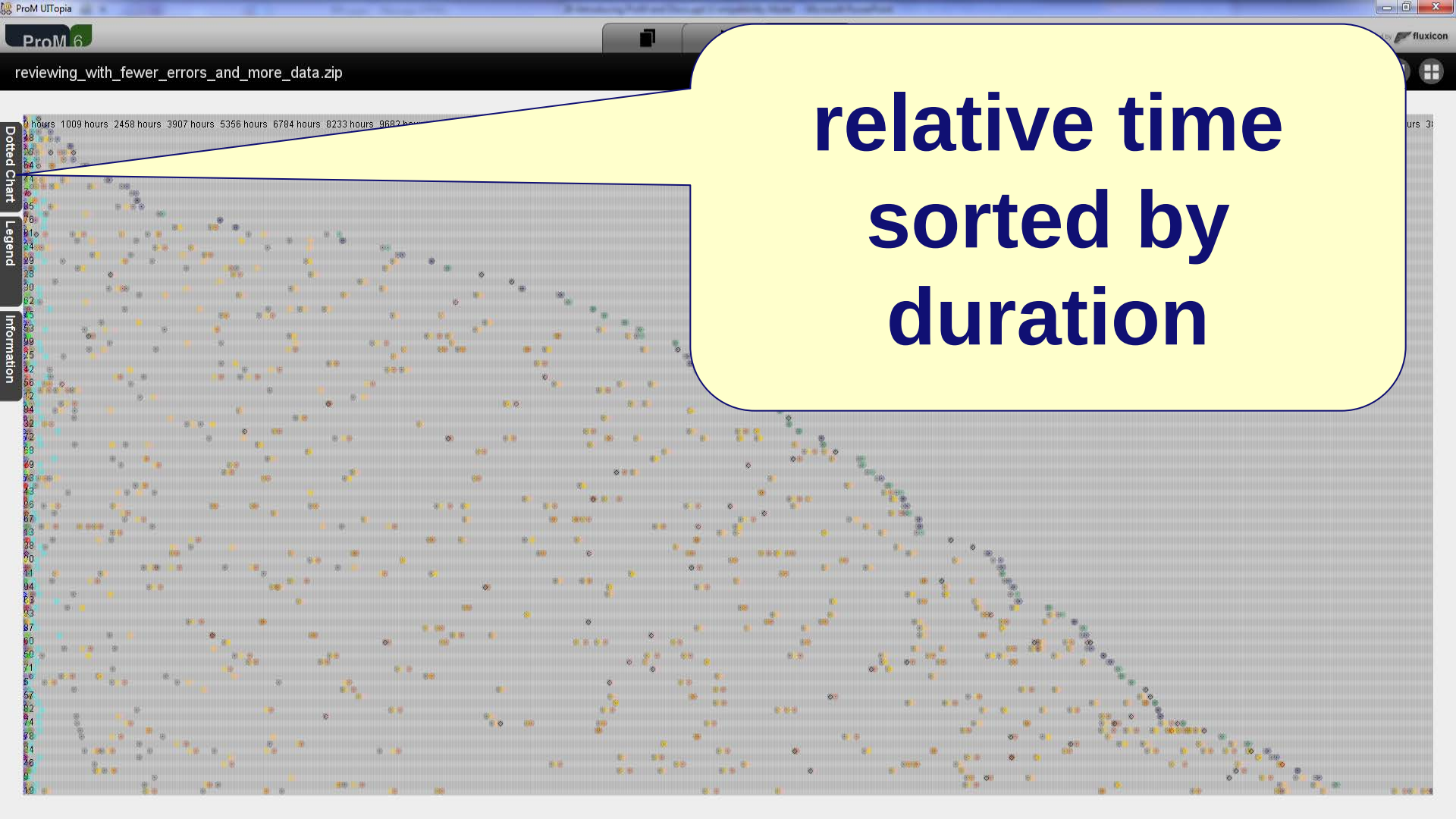

"Log visualizer" as an example viewer
select other viewers
Create new...
Inductive visual Miner
Inductive visual Miner animation test
Log Visualizer
Log Visualizer (context-aware)
Pattern Abstractions (New)
Show Sequences and Patterns
Synchronous activity analysis
Key data
Processes 1
Cases 100
Events 2278
Event classes 14
Event types 1
Originators 11
Log info
Start date
Wed Jan 04 00:00:00 CET 2006
End date
Sun Jul 18 01:00:00 CEST 2010
Min 7
Mean
Event classes per case
Min 7
Mean 10
Max 10


ProM UITopia
ProM 6
reviewing_with_fewer_errors_and_more_data.zip
Create new...
Key data
Events per case
Processes 1
Cases 100
Dashboard
Inspector
Summary
Log inspector
Browser
Explorer
Log Attributes
1
16 events
Log Summary
save HTML...
Log Summary
Total number of process instances: 100
Total number of events: 2278
MXML Legacy Classifier
Event classes defined by MXML Legacy Classifier
All events
Total number of classes: 14
Class | Occurrences (absolute) | Occurrences (relative)
decide+complete | 626 | 27.48%
invite additional reviewer+complete | 526 | 23.09%
get review X+complete | 263 | 11.545%
time-out X+complete | 263 | 11.545%
collect reviews+complete | 100 | 4.39%
invite reviewers+complete | 100 | 4.39%
time-out 2+complete | 55 | 2.414%
reject+complete | 55 | 2.414%
time-out 1+complete | 55 | 2.414%
time-out 3+complete | 50 | 2.195%
get review 3+complete | 50 | 2.195%
get review 2+complete | 45 | 1.975%
get review 1+complete | 45 | 1.975%
accept+complete | 45 | 1.975%
Start events
Total number of classes: 1
Class | Occurrences (absolute) | Occurrences (relative)
Process instances are arranged vertically, shown as streams of triangular events. The color of events describes their fr

Selecting another visualizer: Xdotted Chart (comparable to the Dotted Chart plug-in)

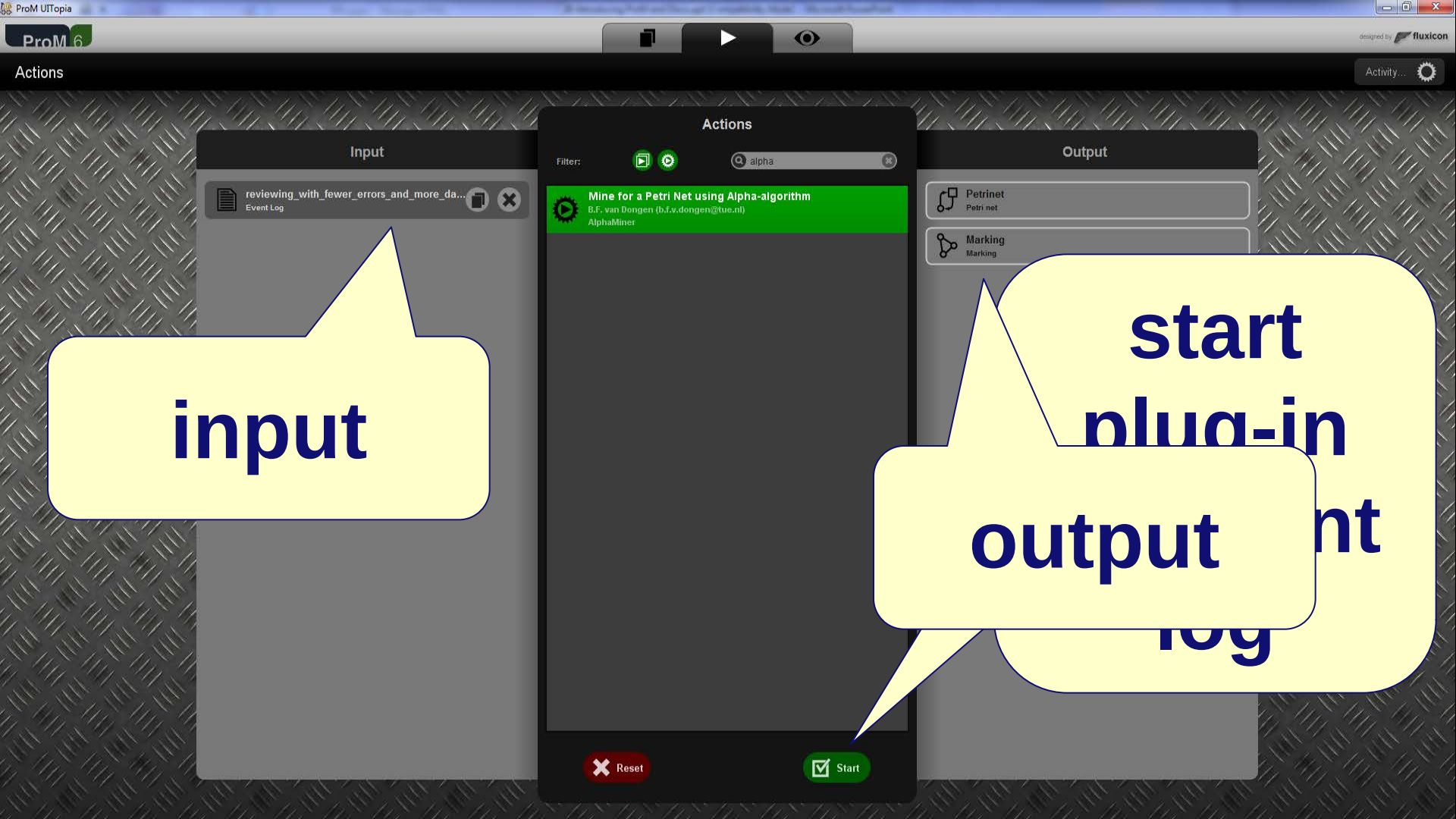

ProM UITopia
ProM 6
reviewing_with_fewer_errors_and_more_data.zip
Create new...
Dotted Chart
Legend
Information
Wed Jan 04 00:00:00 CET 2006
Wed Jun 14 02:00:00 CEST 2006
Wed Nov 29 17:00:00 CET 2006
Thu May 10 17:00:00 CEST 2007
Tue Oct 23 12:00:00 CEST 2007
Fri Apr 04 09:00:00 CEST 2008
Mon Sep 08 13:00:00 CEST 2008
Tue Feb 24 04:00:00 CET 2009
Sat Aug 01 08:00:00 CEST 2009
Tue Jan 12 04:00:00 CET 2010
time
helicopter view
ts
cases

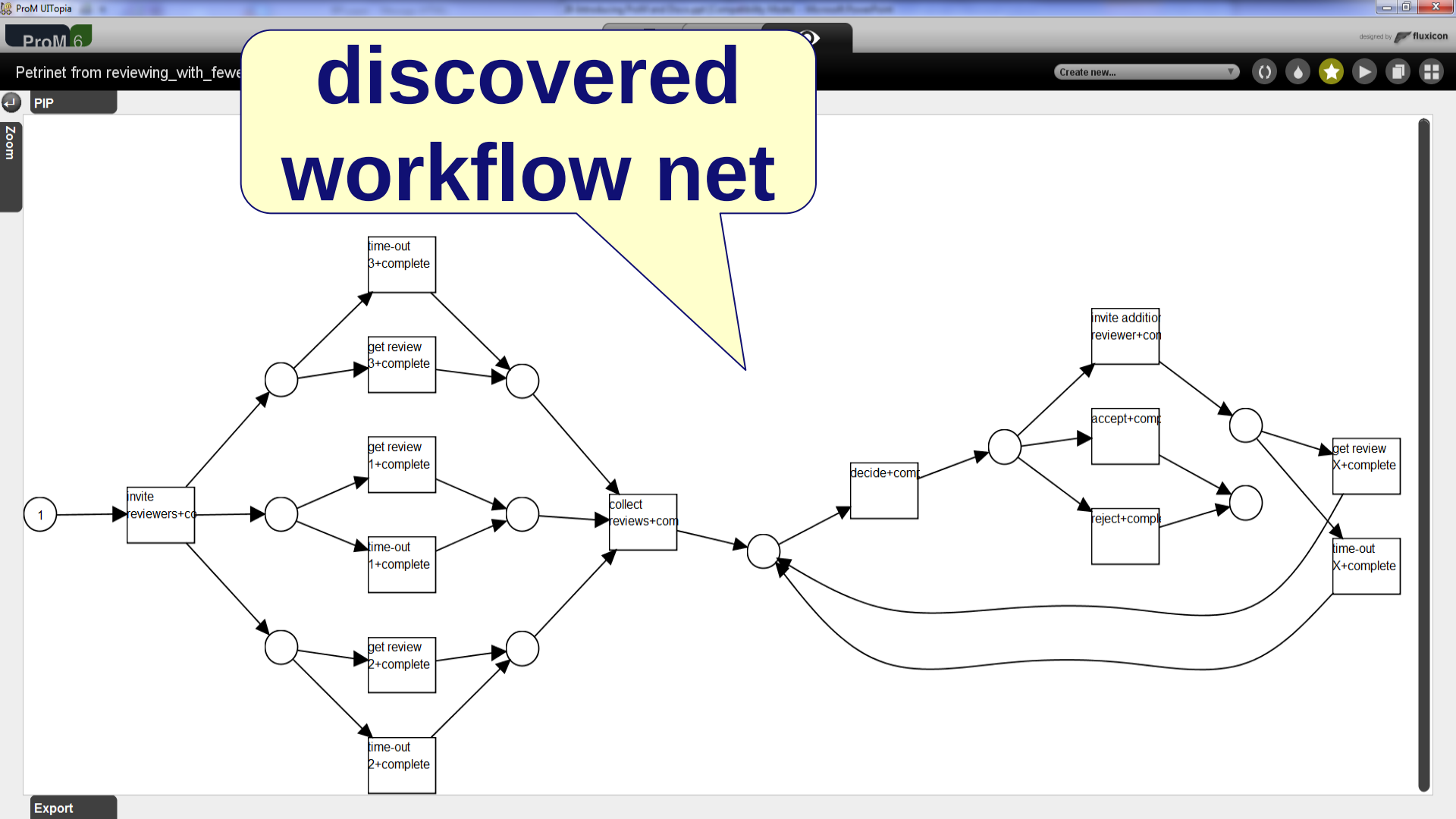

Component:
Cases
Data type for color:
concept:name
Time:
Actual
Time unit (milliseconds):
3600000
Case order:
Occurrence of first event
Apply settings
what is on y-
order based
time
number
x-axis always shows time
...

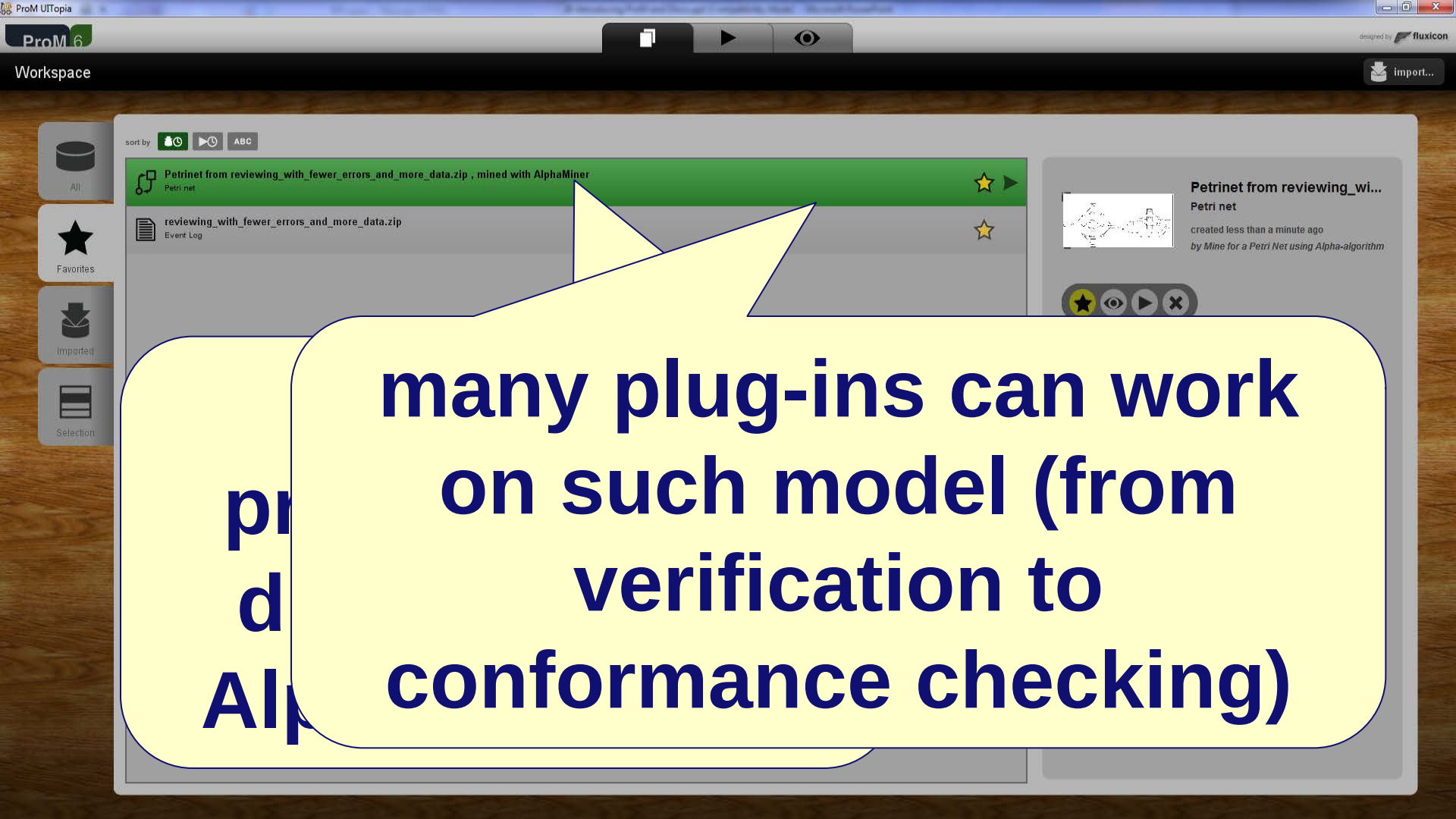

ProM UITopia
ProM 6
fluxicon
reviewing_with_fewer_errors_and_more_data.zip
Dotted Chart
Legend
Information
0 hours 1009 hours 2458 hours 3907 hours 5356 hours 6784 hours 8233 hours
relative time
sorted by
duration

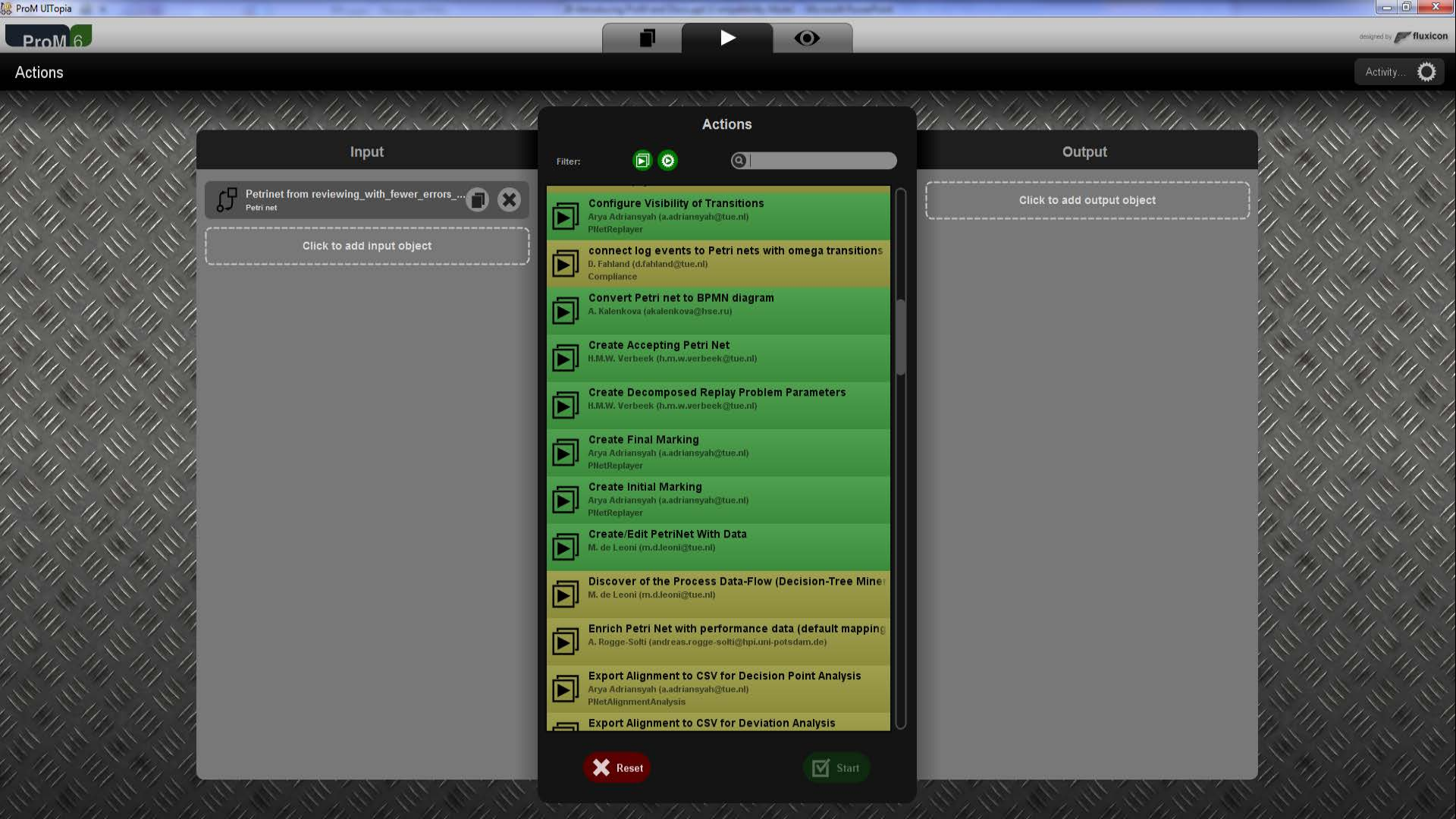

ProM UITopia
ProM 6
designed by fluxicon
Workspace
import...
All
Favorites
Imported
Selection
sort by
ABC
reviewing_with_fewer_errors_and_more_data.zip
Event Log
reviewing_with_fewer_errors_and_more...
Event Log
just created
imported
Show parents
Show children
Export to disk
let us apply the Alpha algorithm to this event log


ProM UITopia
ProM 6
designed by fluxicon
Actions
Activity...
Input
reviewing_with_fewer_errors_and_more_da...
Event Log
Click to add input object
Actions
Filter:
00JB Comparison Visualization with Tree from String
J.C.A.M.Buijs (j.c.a.m.buijs@tue.nl)
JoosBuijs
Abstract Log for Compliance Checking
D. Fahland (d.fahland@tue.nl)
Compliance
ActiTraC
Jochen De Weerdt (Jochen.DeWeerdt@econ.kuleuven.be)
Add Artificial Events
J. Claes (jan.claes@ugent.be)
Add Missing Events
J. Ilakatumba (jnakatum@tue.nl)
Add Noise to Log Filter
R.S. Mans (r.s.mans@tue.nl)
Add Passages Info
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Align Log And Model for Repair (find loops)
D. Fahland (d.fahland@tue.nl)
Uma
Align Log And Model for Repair (global costs)
D. Fahland (d.fahland@tue.nl)
Uma
Align Log to Model
D. Fahland (d.fahland@tue.nl)
Uma
Analyze Transition System
M. Pesic (m.pesic@tue.nl)
Animate Event Log in Fuzzy Instance
Reset
Start
Output
Click to add output object
select plug-in

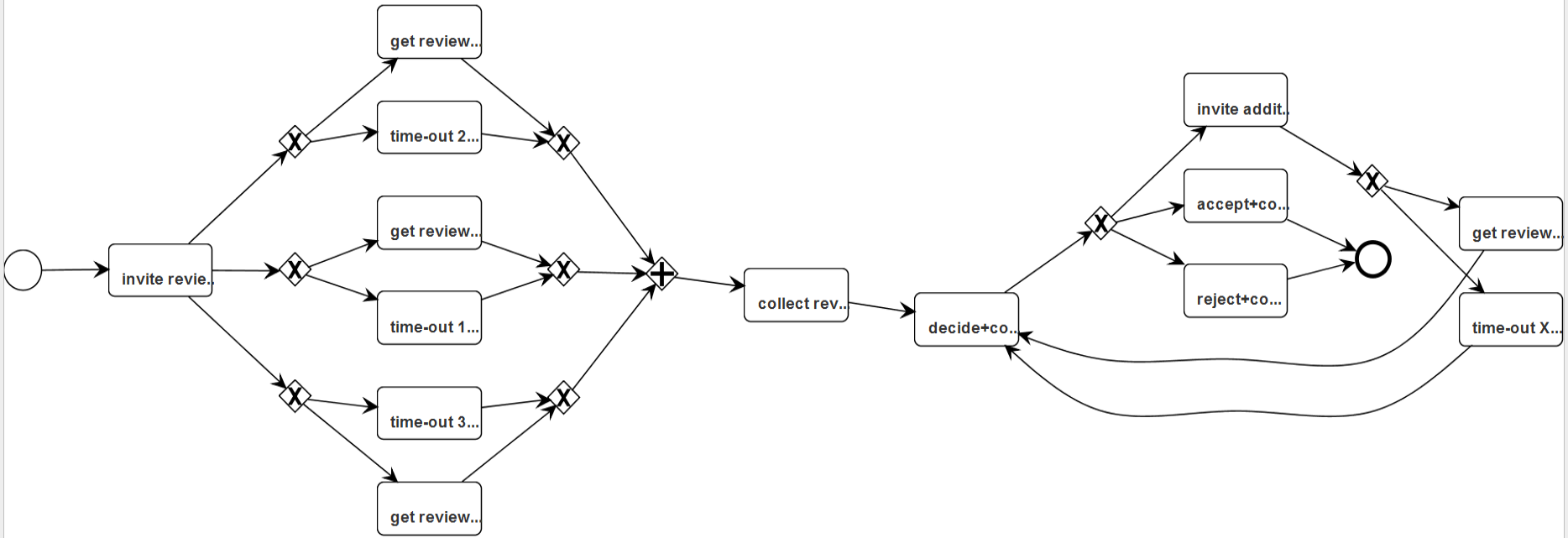

ProM UITopia
ProM 6
designed by fluxicon
Actions
Activity...
Input
reviewing_with_fewer_errors_and_more_da...
Event Log
Actions
Filter:
alpha
Mine for a Petri Net using Alpha-algorithm
B.F. van Dongen (b.f.v.dongen@tue.nl)
AlphaMiner
Reset
Start
Output
Petrinet
Petri net
Marking
Marking
input
output
start
plug-in


discovered
workflow net
ProM UITopia
ProM 6
designed by fluxicon
Petrinet from reviewing_with_fewe
Create new...
PIP
Zoom
Export
1
invite
reviewers+co
time-out
3+complete
get review
3+complete
get review
1+complete
time-out
1+complete
get review
2+complete
time-out
2+complete
collect
reviews+com
decide+comp
invite additio
reviewer+com
accept+comp
reject+compl
get review
X+complete
time-out
X+complete

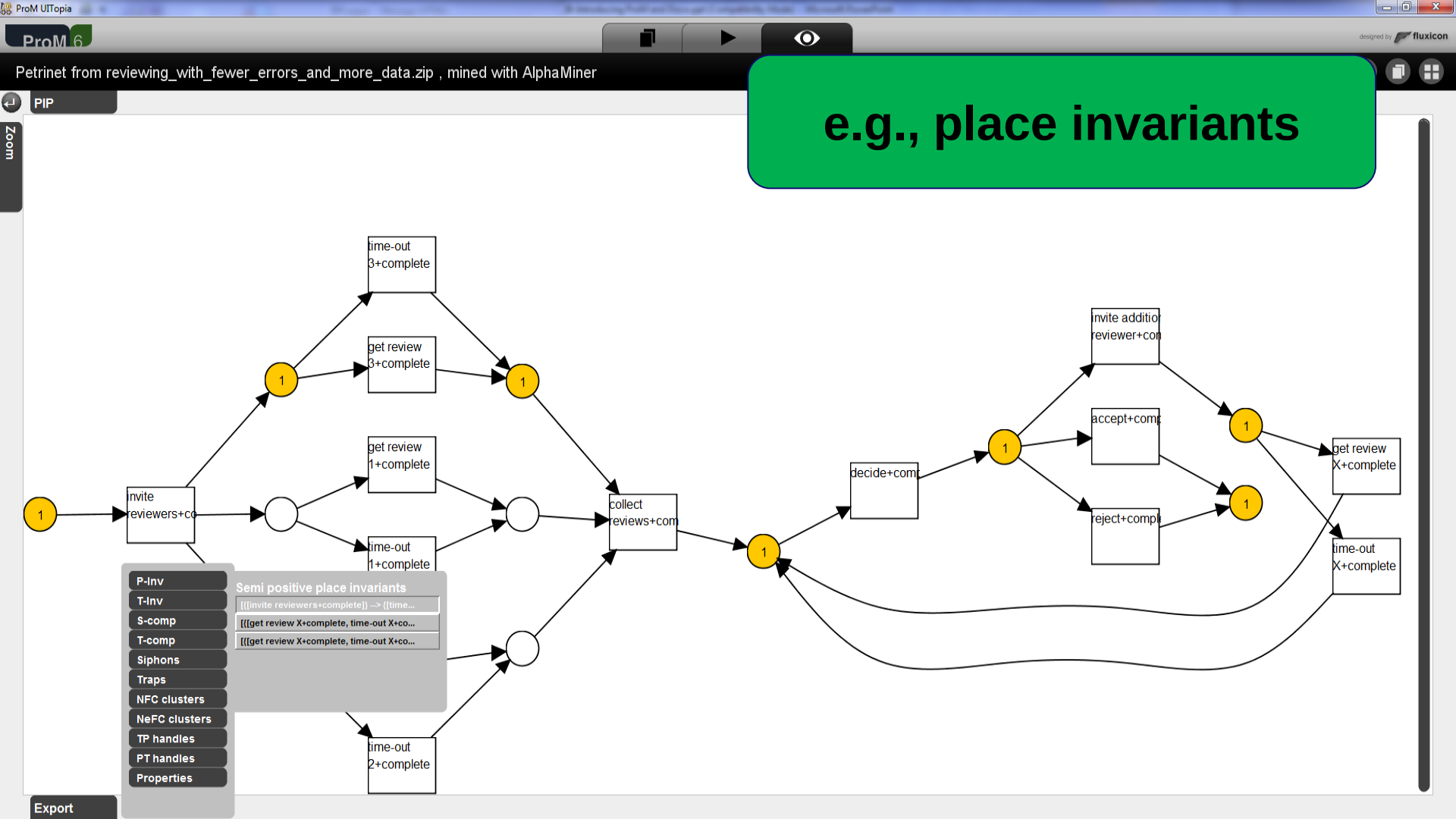

ProM UITopia
ProM 6
designed by fluxicon
Workspace
import...
All
Favorites
Imported
Selection
sort by
ABC
Petrinet from reviewing_with_fewer_errors_and_more_data.zip , mined with AlphaMiner
Petri net
reviewing_with_fewer_errors_and_more_data.zip
Event Log
Petrinet from reviewing_wi...
Petri net
created less than a minute ago
by Mine for a Petri Net using Alpha-algorithm
many plug-ins can work on such model (from verification to conformance checking)

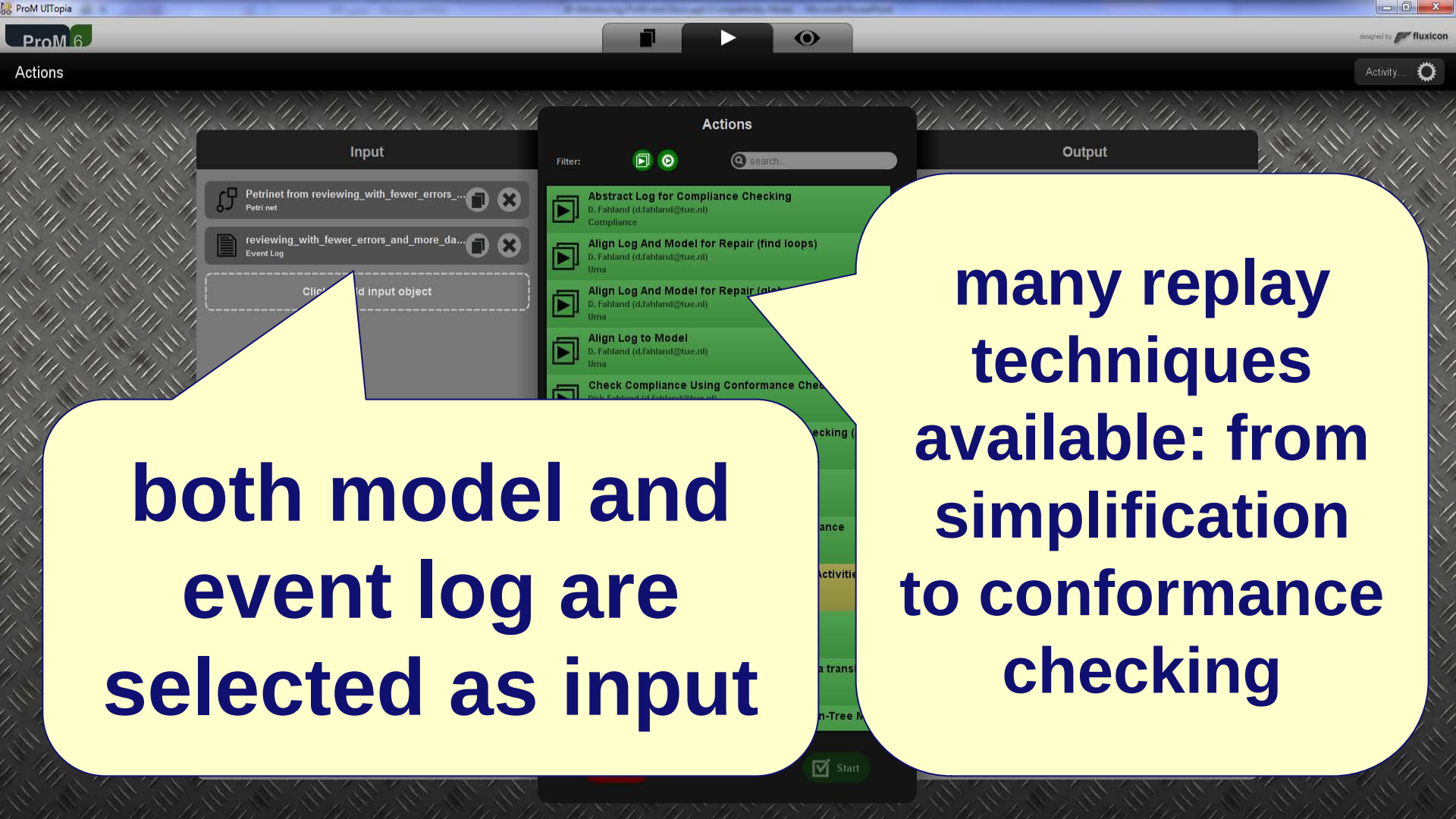

ProM UITopia
ProM 6
designed by fluxicon
Actions
Activity...
Input
Petrinet from reviewing_with_fewer_errors_...
Petri net
Click to add input object
Actions
Filter:
Configure Visibility of Transitions
Arya Adriansyah (a.adriansyah@tue.nl)
PNetReplayer
connect log events to Petri nets with omega transitions
D. Fahland (d.fahland@tue.nl)
Compliance
Convert Petri net to BPMN diagram
A. Kalenkova (akalenkova@hse.ru)
Create Accepting Petri Net
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Create Decomposed Replay Problem Parameters
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Create Final Marking
Arya Adriansyah (a.adriansyah@tue.nl)
PNetReplayer
Create Initial Marking
Arya Adriansyah (a.adriansyah@tue.nl)
PNetReplayer
Create/Edit PetriNet With Data
M. de Leoni (m.d.leoni@tue.nl)
Discover of the Process Data-Flow (Decision-Tree Mine
M. de Leoni (m.d.leoni@tue.nl)
Enrich Petri Net with performance data (default mapping
A. Rogge-Solti (andreas.rogge-solti@hpi.uni-potsdam.de)
Export Alignment to CSV for Decision Point Analysis
Arya Adriansyah (a.adriansyah@tue.nl)
PNetAlignmentAnalysis
Export Alignment to CSV for Deviation Analysis
Reset
Start
Output
Click to add output object

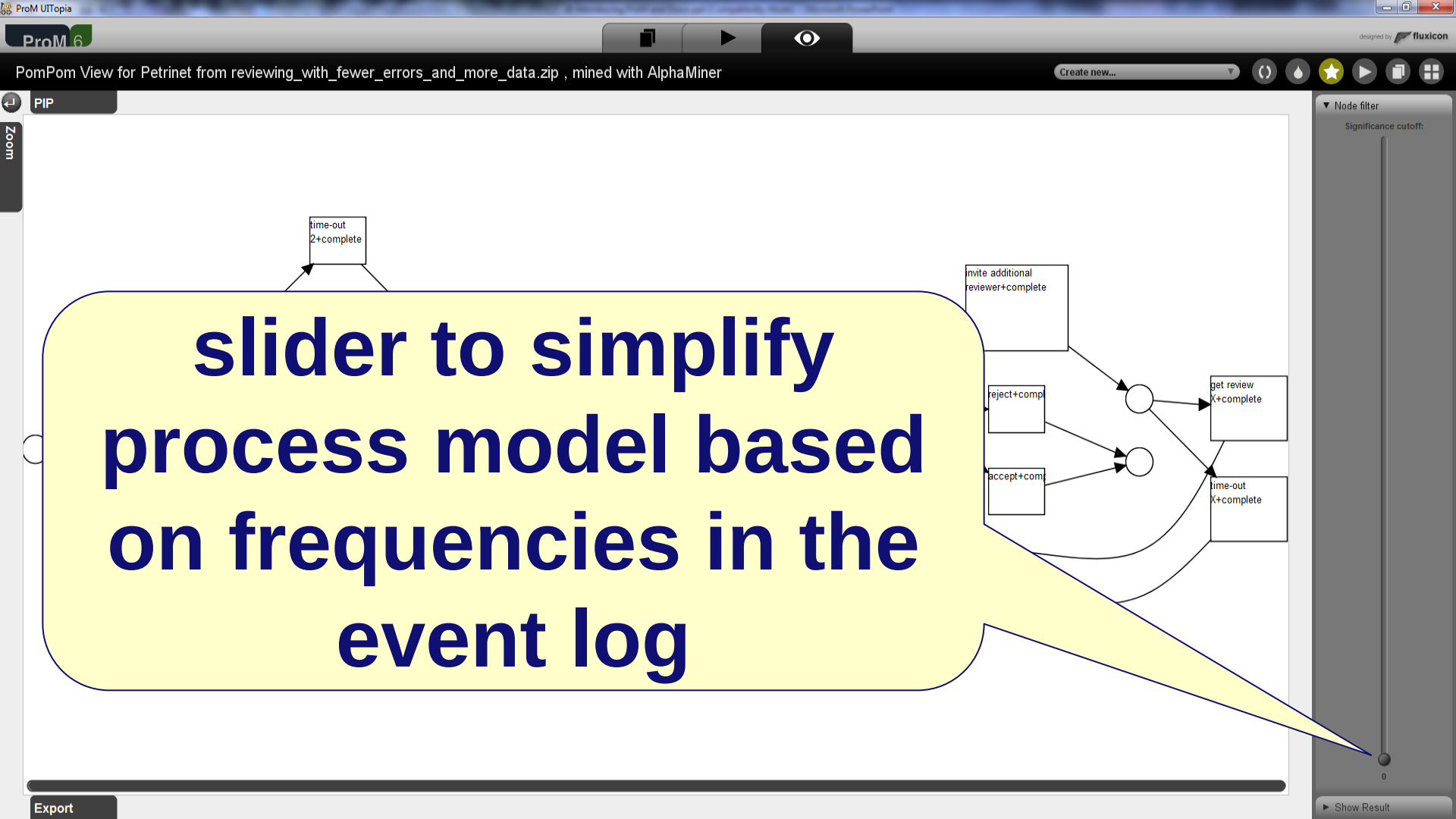
Convert Petri net to BPMN diagram



Analyze structural properties Petri net


ProM UITopia
ProM 6
designed by fluxicon
Petrinet from reviewing_with_fewer_errors_and_more_data.zip , mined with AlphaMiner
PIP
Zoom
e.g., place invariants
time-out 3+complete
get review 3+complete
get review 1+complete
time-out 1+complete
time-out 2+complete
invite reviewers+co
collect reviews+com
decide+comp
invite additio reviewer+com
accept+comp
reject+compl
get review X+complete
time-out X+complete
P-Inv
T-Inv
S-comp
T-comp
Siphons
Traps
NFC clusters
NeFC clusters
TP handles
PT handles
Properties
Semi positive place invariants
[{{invite reviewers+complete}} --> {{time...
[{{get review X+complete, time-out X+co...
[{{get review X+complete, time-out X+co...
Export


ProM UITopia
ProM 6
designed by fluxicon
Actions
Activity...
Input
Petrinet from reviewing_with_fewer_errors_...
Petri net
reviewing_with_fewer_errors_and_more_da...
Event Log
Actions
Filter:
search...
Abstract Log for Compliance Checking
D. Fahland (d.fahland@tue.nl)
Compliance
Align Log And Model for Repair (find loops)
D. Fahland (d.fahland@tue.nl)
Uma
Align Log And Model for Repair
D. Fahland (d.fahland@tue.nl)
Uma
Align Log to Model
D. Fahland (d.fahland@tue.nl)
Uma
Check Compliance Using Conformance
Output
Start
both model and event log are selected as input
many replay techniques available: from simplification to conformance checking


ProM UITopia
ProM 6
designed by fluxicon
PomPom View for Petrinet from reviewing_with_fewer_errors_and_more_data.zip , mined with AlphaMiner
Create new...
PIP
Zoom
Node filter
Significance cutoff:
time-out
2+complete
invite additional
reviewer+complete
reject+compl
accept+comp
get review
X+complete
time-out
X+complete
slider to simplify process model based on frequencies in the event log
0
Export
Show Result

ProM UITopia

ProM 6

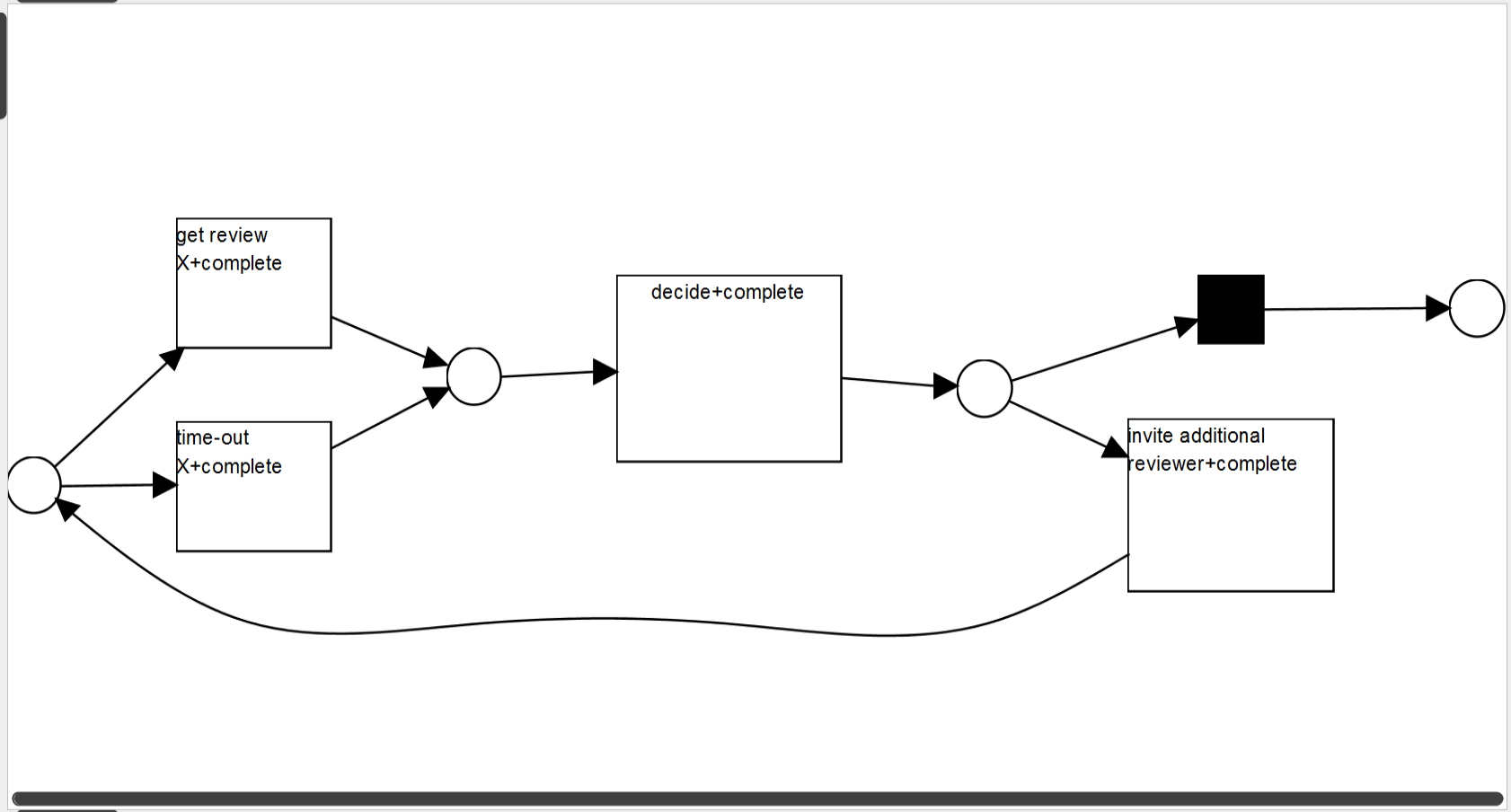
designed by fluxicon

PomPom View for Petrinet from reviewing_with_fewer_errors_and_more_data.zip , mined with AlphaMiner

Create new...

PIP

Zoom



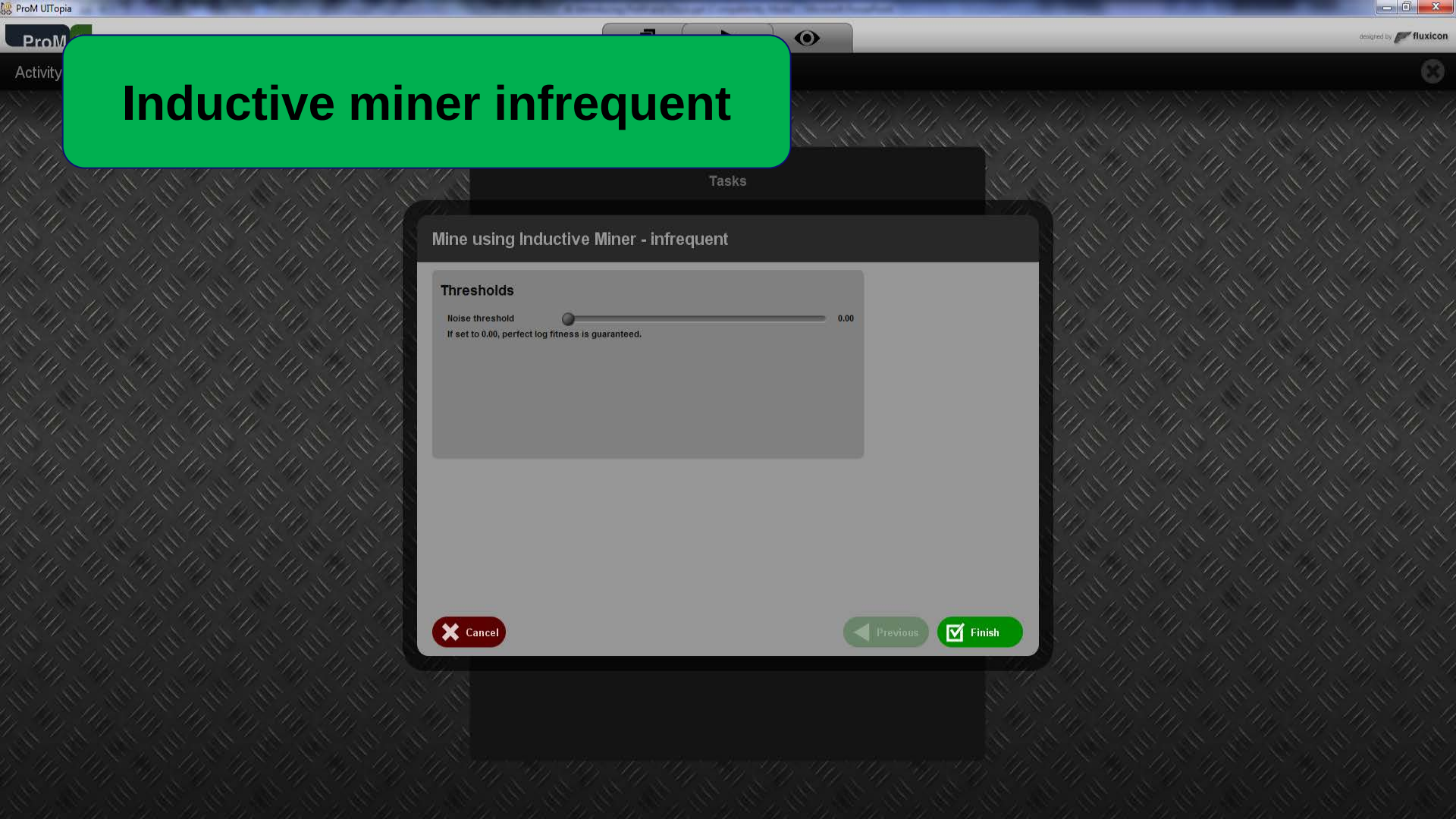
Node filter

Significance cutoff:

33

Show Result

Export


ProM UITopia
designed by fluxicon
Activity
Inductive miner infrequent
Tasks
Mine using Inductive Miner - infrequent
Thresholds
Noise threshold
0.00
If set to 0.00, perfect log fitness is guaranteed.
Cancel
Previous
Finish

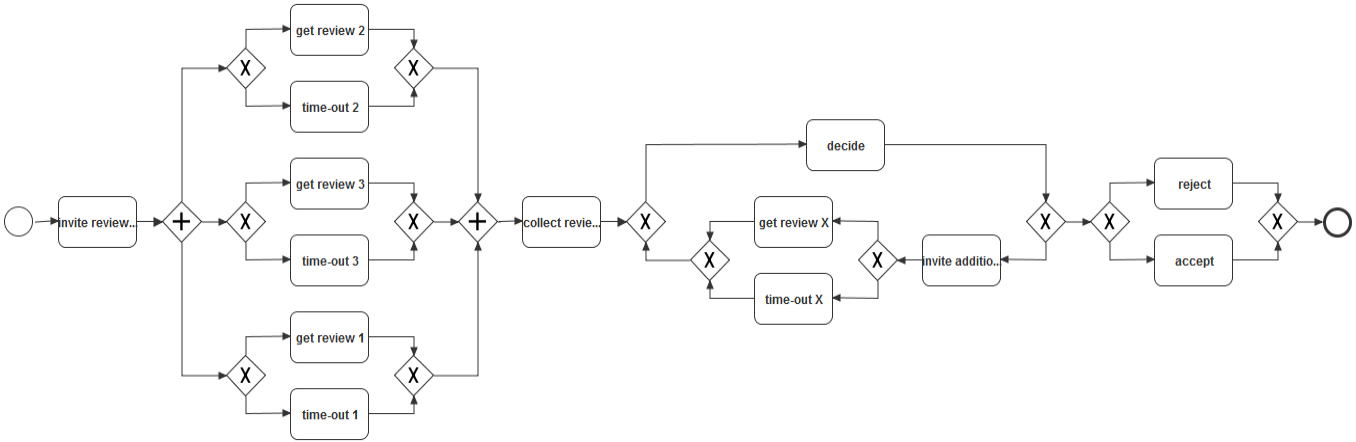
ProM UITopia

ProM 6

designed by fluxicon

Process Tree

Create new...



Input

Process Tree
ProcessTree

Actions

Filter:

search...

Apply Context
D.M.M. Schunselaar (D.M.M.Schunselaar@tue.nl)

Combine a number of Process Trees using an activity P
D.M.M. Schunselaar (D.M.M.Schunselaar@tue.nl)

Convert Process Tree to CPN Model
D.M.M. Schunselaar (D.M.M.Schunselaar@tue.nl)

Convert Process Tree to Petri Net
S.J.J. Leemans (s.j.j.leemans@tue.nl)

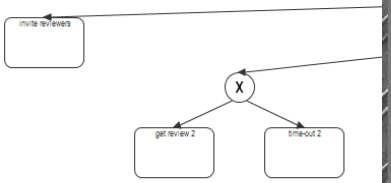
Convert Process Tree to Petri Net - keep structure
S.J.J. Leemans (s.j.j.leemans@tue.nl)

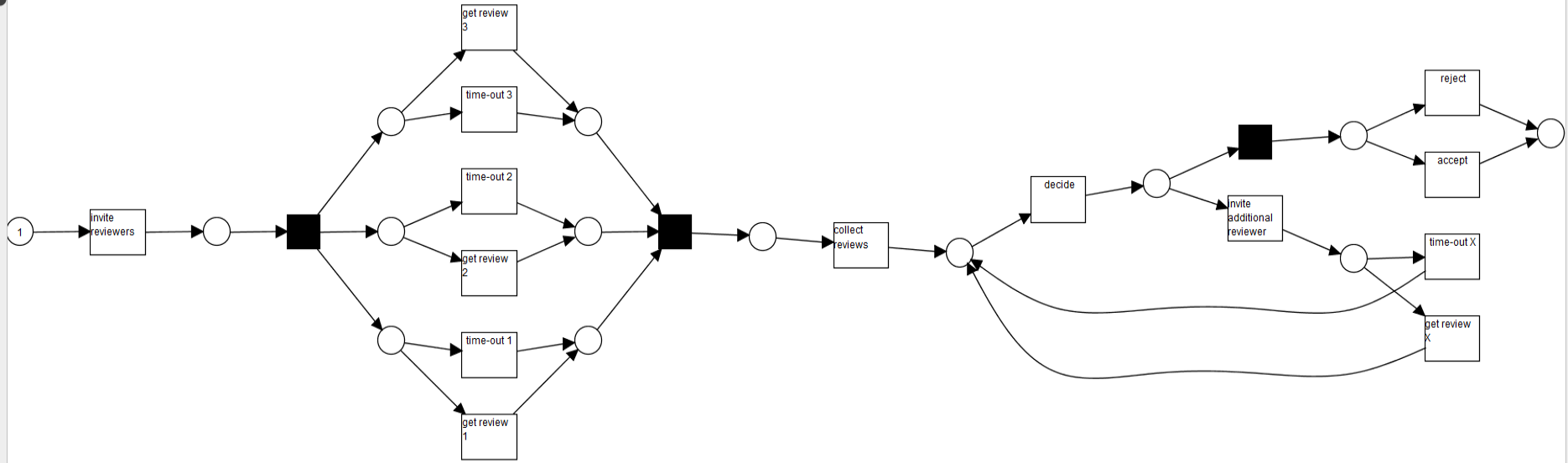
Output

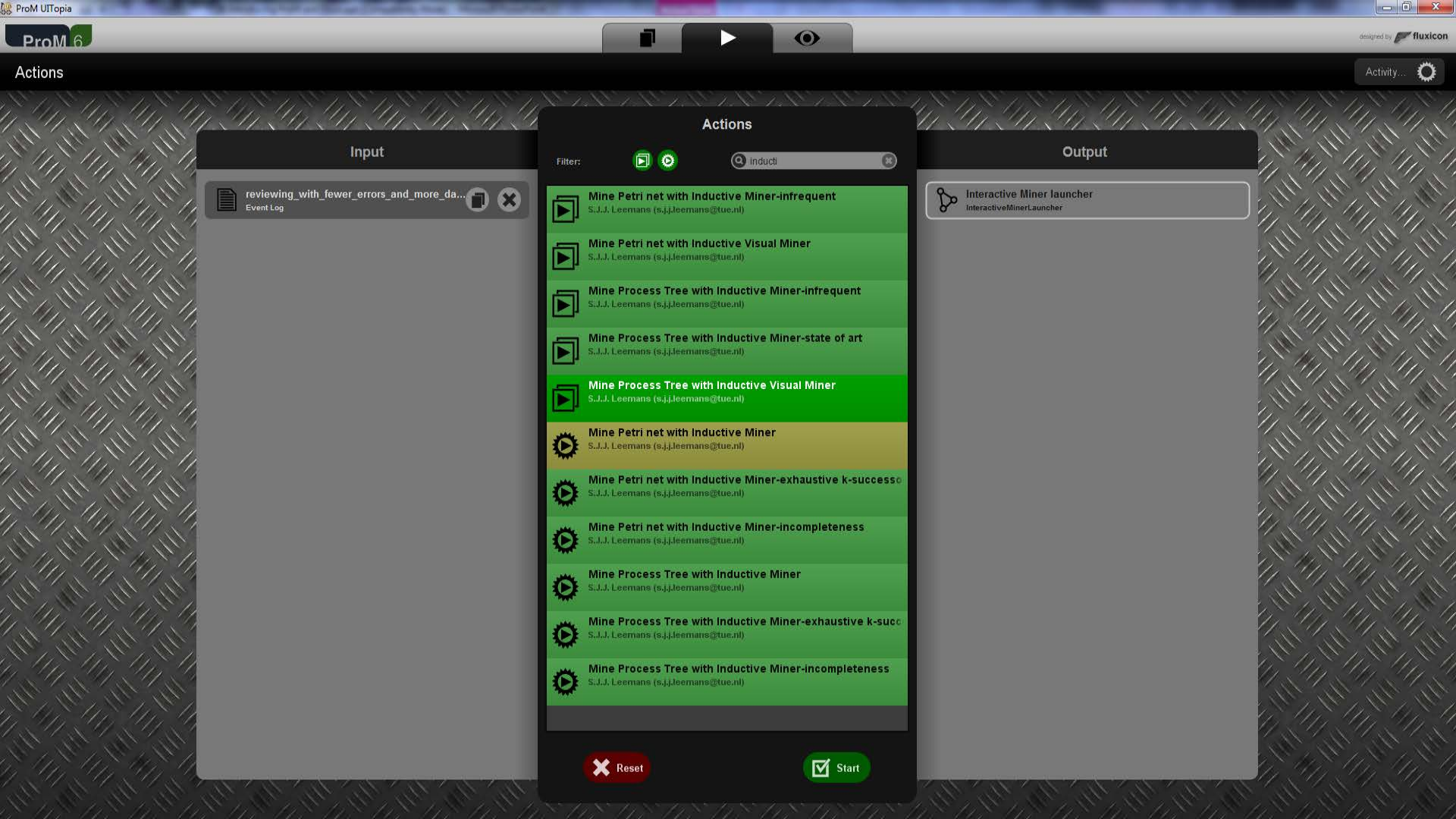
Petri net
Petri net

Initial Marking
Marking

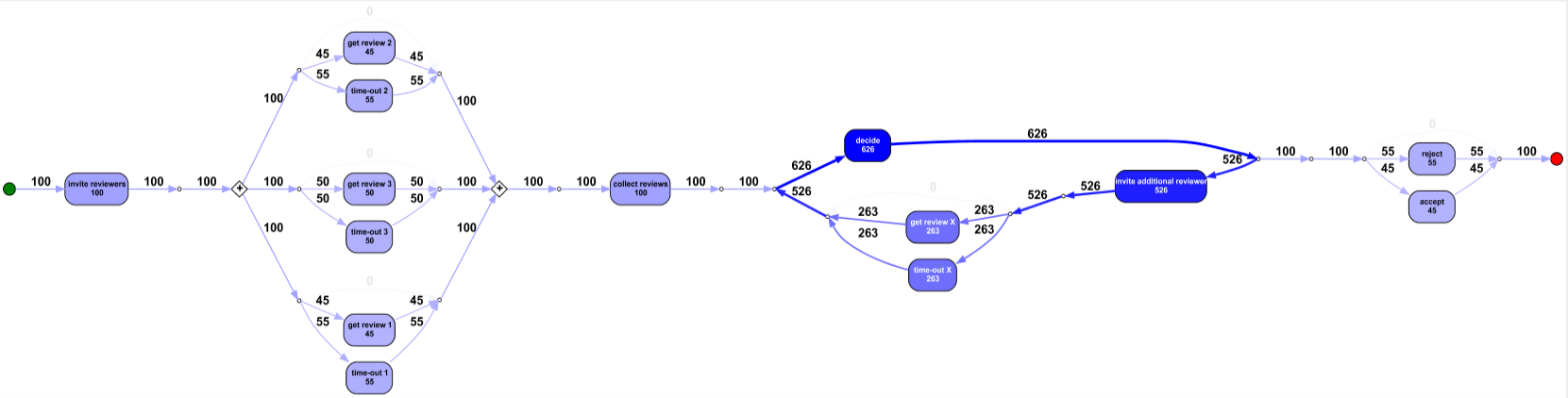
Final Marking
Marking




1
invite reviewers
get review 3
time-out 3
time-out 2
get review 2
time-out 1
get review 1
collect reviews
decide
invite additional reviewer
reject
accept
time-out X
get review X


ProM UITopia
ProM 6
designed by fluxicon
Actions
Activity...
Input
reviewing_with_fewer_errors_and_more_da...
Event Log
Actions
Filter:
inducti
Mine Petri net with Inductive Miner-infrequent
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Petri net with Inductive Visual Miner
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Process Tree with Inductive Miner-infrequent
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Process Tree with Inductive Miner-state of art
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Process Tree with Inductive Visual Miner
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Petri net with Inductive Miner
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Petri net with Inductive Miner-exhaustive k-successo
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Petri net with Inductive Miner-incompleteness
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Process Tree with Inductive Miner
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Process Tree with Inductive Miner-exhaustive k-succ
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Mine Process Tree with Inductive Miner-incompleteness
S.J.J. Leemans (s.j.j.leemans@tue.nl)
Reset
Start
Output
Interactive Miner launcher
InteractiveMinerLauncher

Inductive visual miner



activities:

paths:

1

0.8

Fall back to directly-follows graphs

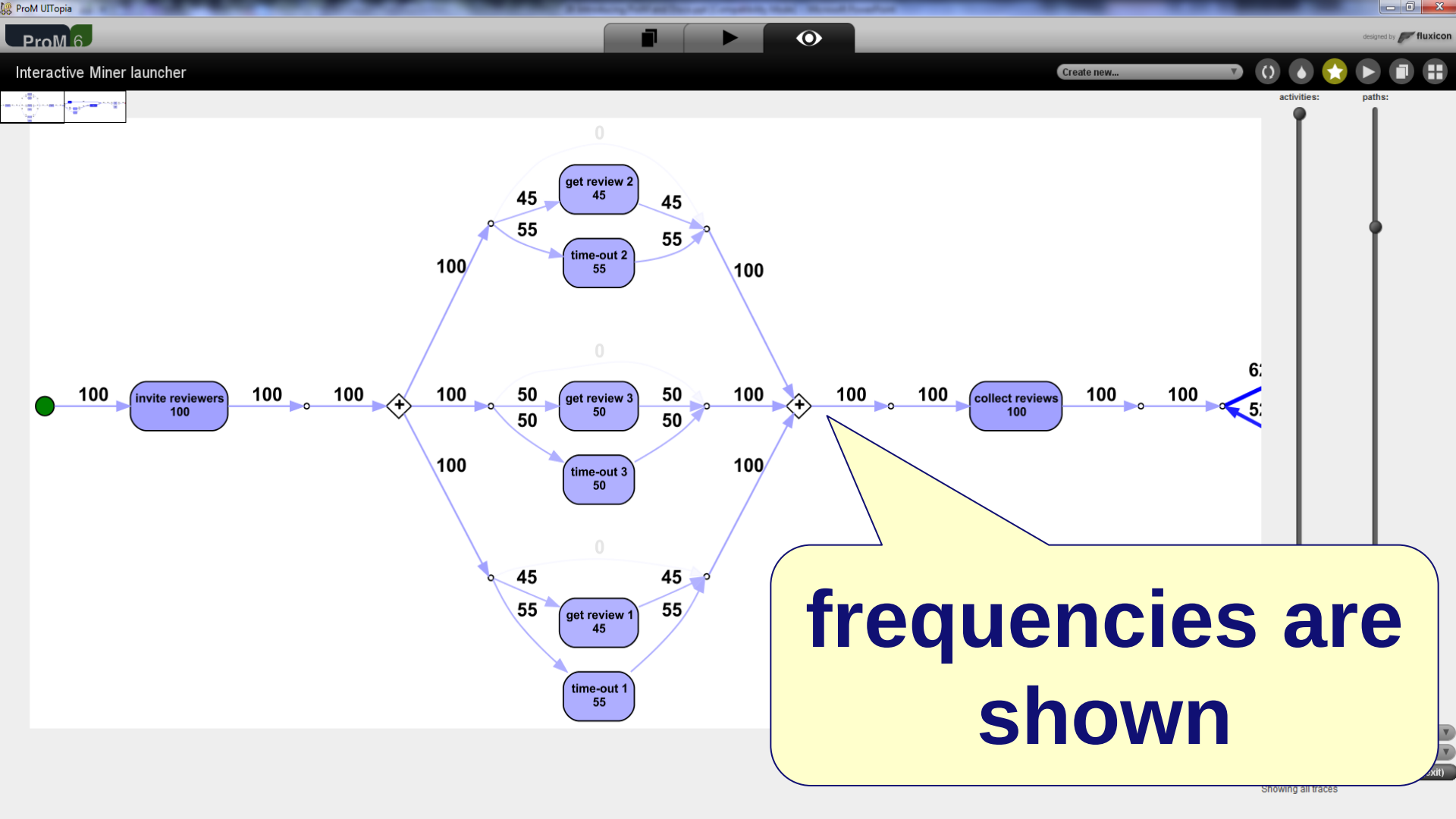
Classifier: Event Name

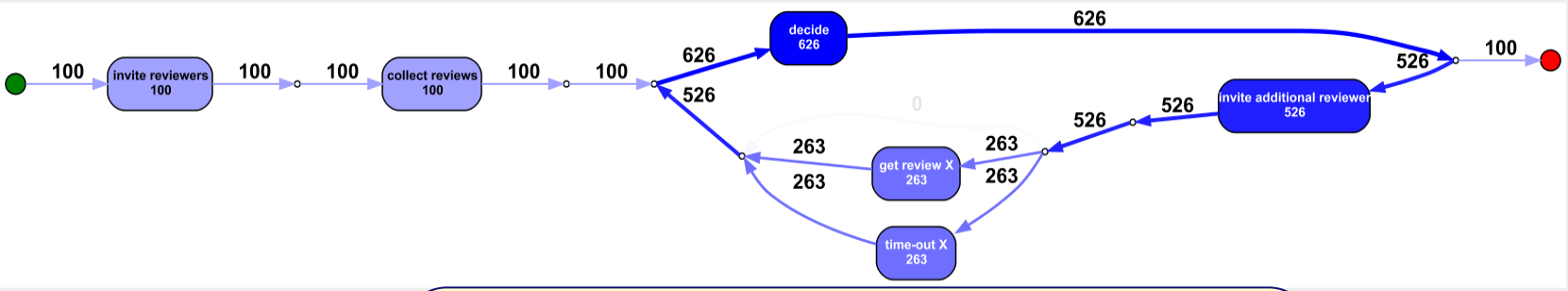
Colour: paths

Mine this model (exit)

Showing all traces

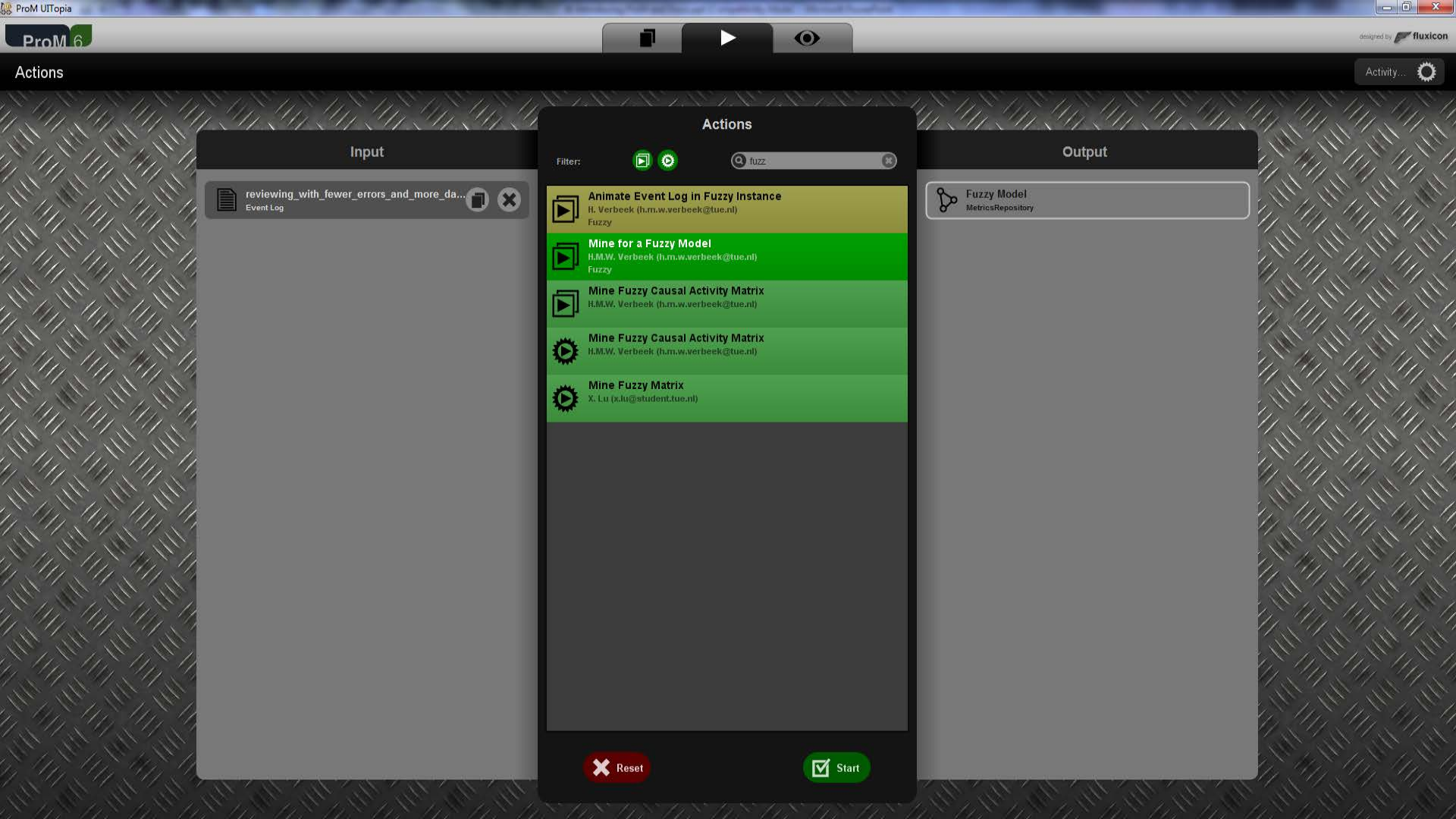
Creating animation..

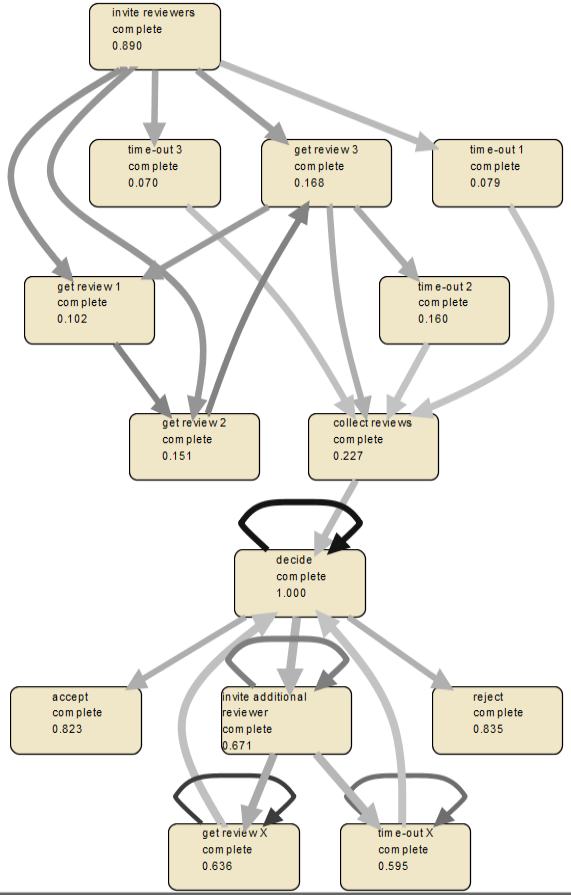

ProM UITopia
ProM 6
Interactive Miner launcher
Create new...
activities:
paths:
invite reviewers
100
get review 2
45
time-out 2
55
get review 3
50
time-out 3
50
get review 1
45
time-out 1
55
collect reviews
100
frequencies are shown
Showing all traces



seamless simplification

<<add animation 1>>

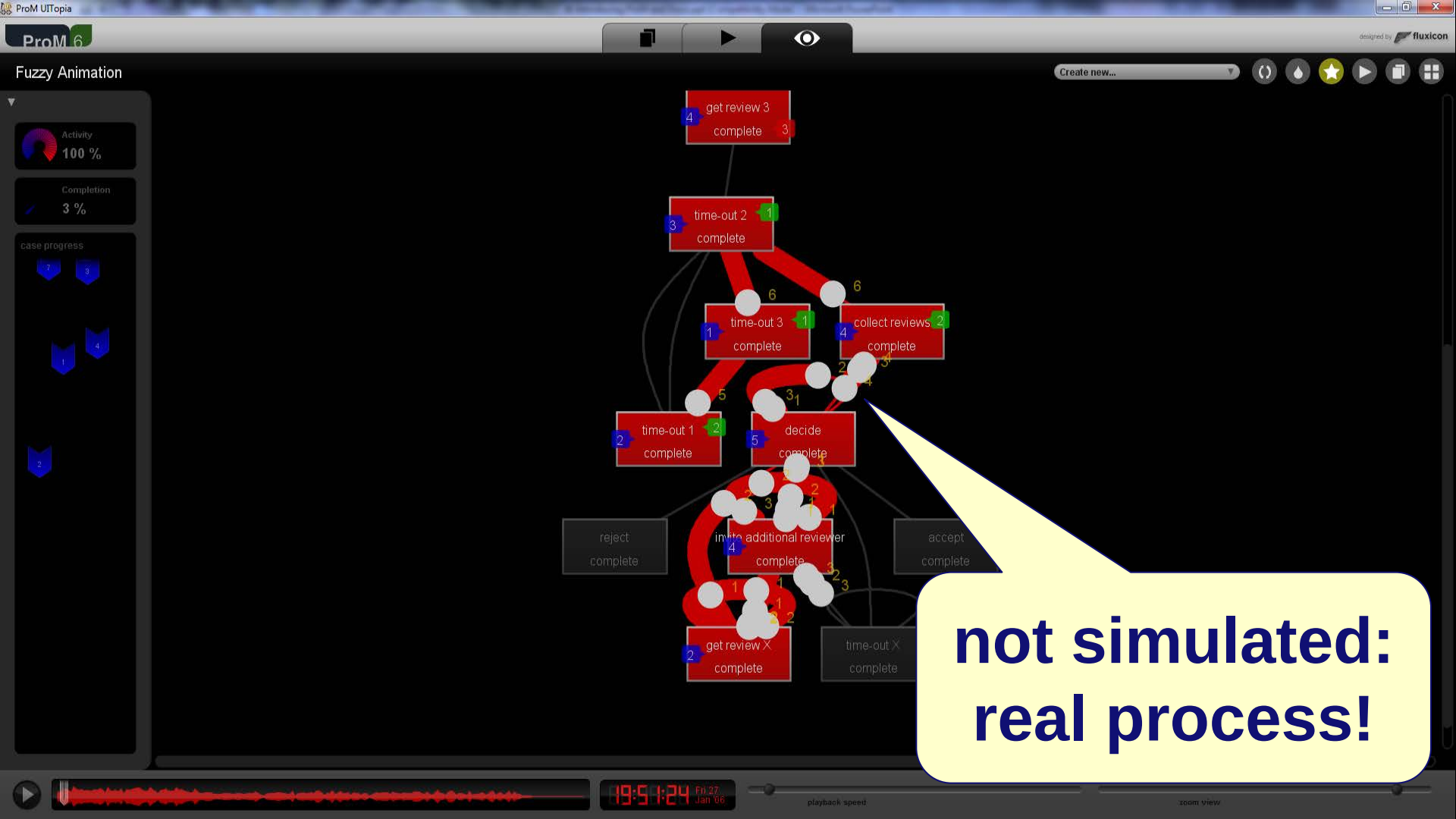

ProM UITopia
ProM 6
designed by fluxicon
Actions
Activity...
Input
reviewing_with_fewer_errors_and_more_da...
Event Log
Actions
Filter:
fuzz
Animate Event Log in Fuzzy Instance
H. Verbeek (h.m.w.verbeek@tue.nl)
Fuzzy
Mine for a Fuzzy Model
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Fuzzy
Mine Fuzzy Causal Activity Matrix
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Mine Fuzzy Causal Activity Matrix
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Mine Fuzzy Matrix
X. Lu (x.lu@student.tue.nl)
Reset
Start
Output
Fuzzy Model
MetricsRepository



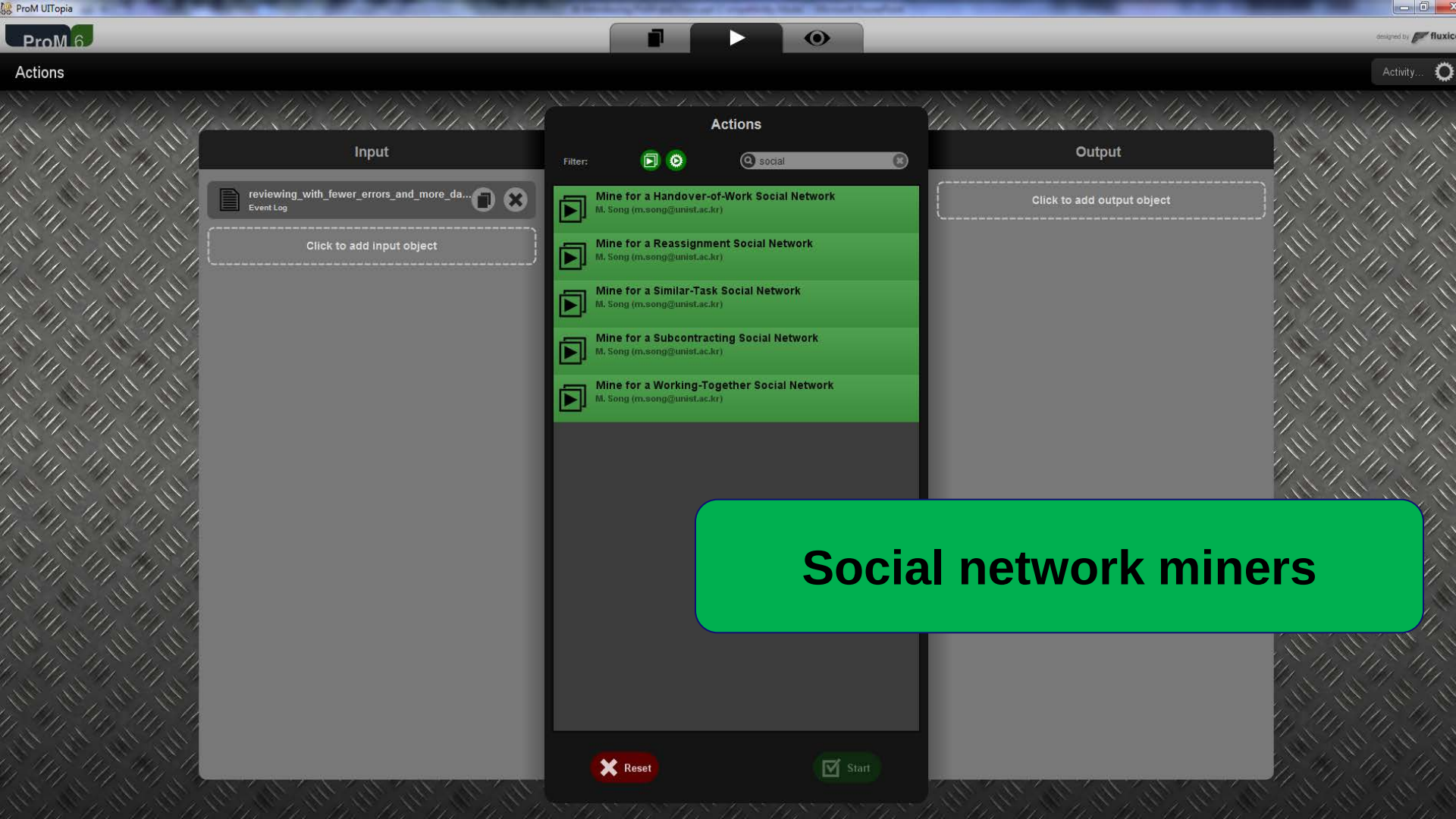
Fuzzy miner

seamless simplification


ProM UITopia
ProM 6
designed by fluxicon
Actions
Activity...
Input
Fuzzy Instance
MutableFuzzyGraph
reviewing_with_fewer_errors_and_more_da...
Event Log
Actions
Filter:
search...
Animate Event Log in Fuzzy Instance
H. Verbeek (h.m.w.verbeek@tue.nl)
Fuzzy
Get M From Pair
D.M.M. S aar (D.M.M.Schunselaar@tue.nl)
Unpac e Type
M. West tergaard@tue.nl)
Reset
Start
Output
Fuzzy Animation
FuzzyAnimation
replay log on model


ProM UITopia
ProM 6
Fuzzy Animation
Create new...
Activity
100 %
Completion
3 %
case progress
get review 3
complete
time-out 2
complete
time-out 3
complete
collect reviews
complete
time-out 1
complete
decide
complete
reject
complete
invite additional reviewer
complete
accept
complete
get review X
complete
time-out X
complete
not simulated:
real process!
playback speed
zoom view

<<add animation 2>>


ProM UITopia
ProM 6
Actions
Activity...
Input
reviewing_with_fewer_errors_and_more_da...
Event Log
Click to add input object
Actions
Filter:
social
Mine for a Handover-of-Work Social Network
M. Song (m.song@unist.ac.kr)
Mine for a Reassignment Social Network
M. Song (m.song@unist.ac.kr)
Mine for a Similar-Task Social Network
M. Song (m.song@unist.ac.kr)
Mine for a Subcontracting Social Network
M. Song (m.song@unist.ac.kr)
Mine for a Working-Together Social Network
M. Song (m.song@unist.ac.kr)
Reset
Start
Output
Click to add output object
Social network miners

ProM UITopia

ProM 6

designed by fluxicon

Social Network (HoW)

Create new...

Layout
SpringLayout

Ranking
Betweenness

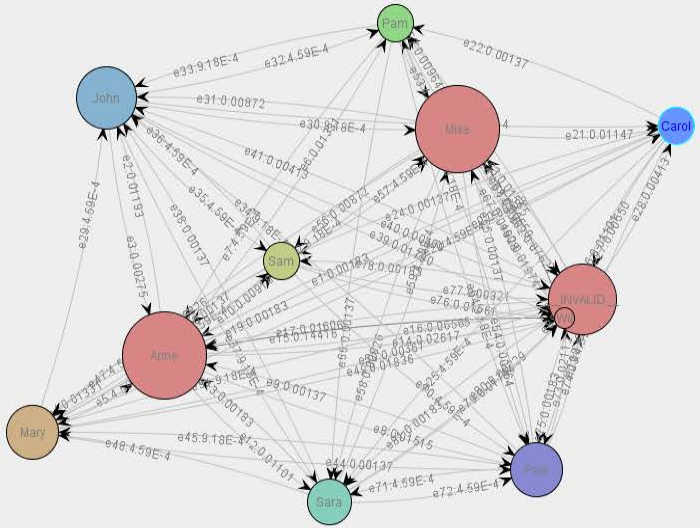
Mouse Mode
PICKING

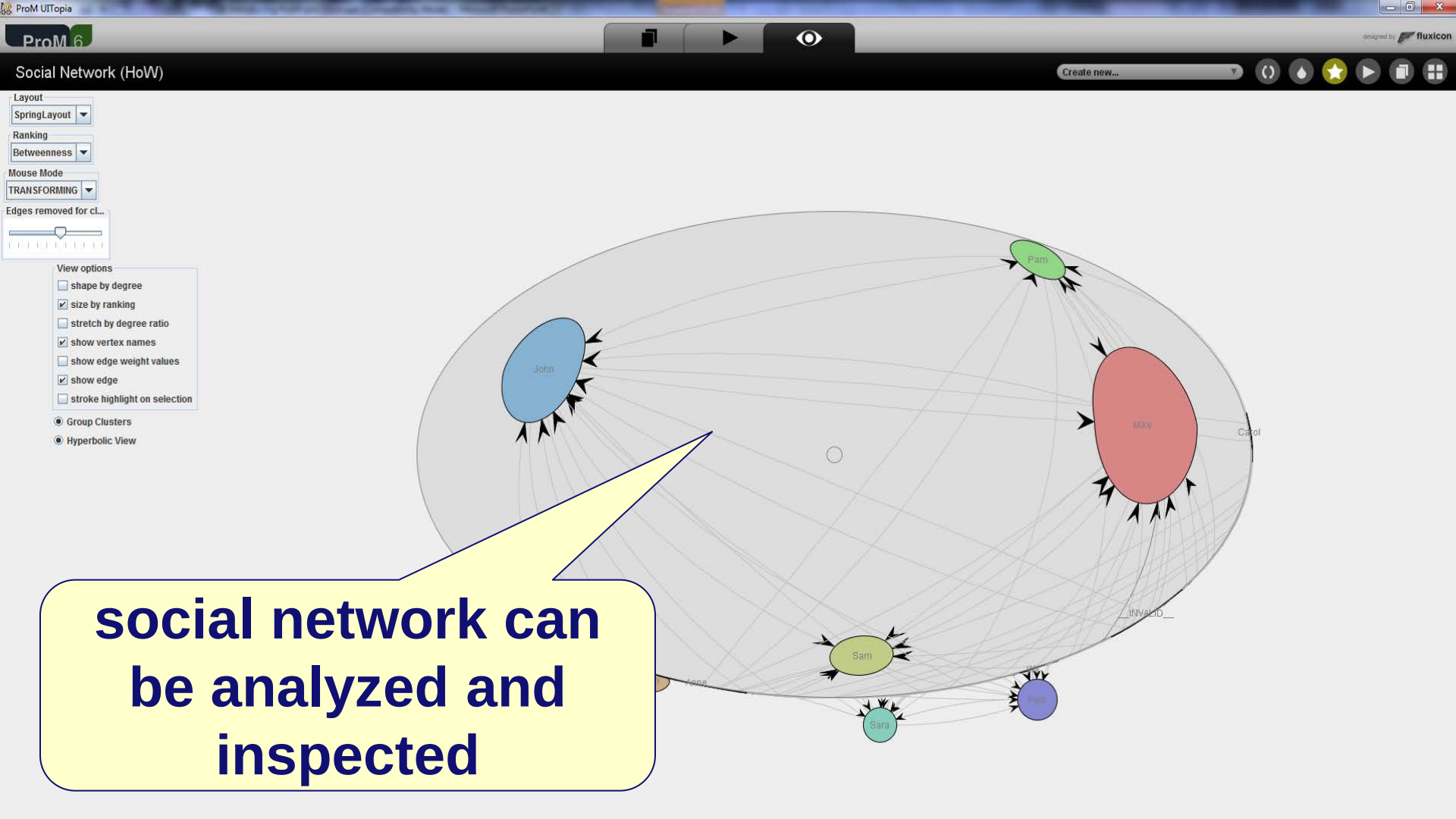
Edges removed for cl...

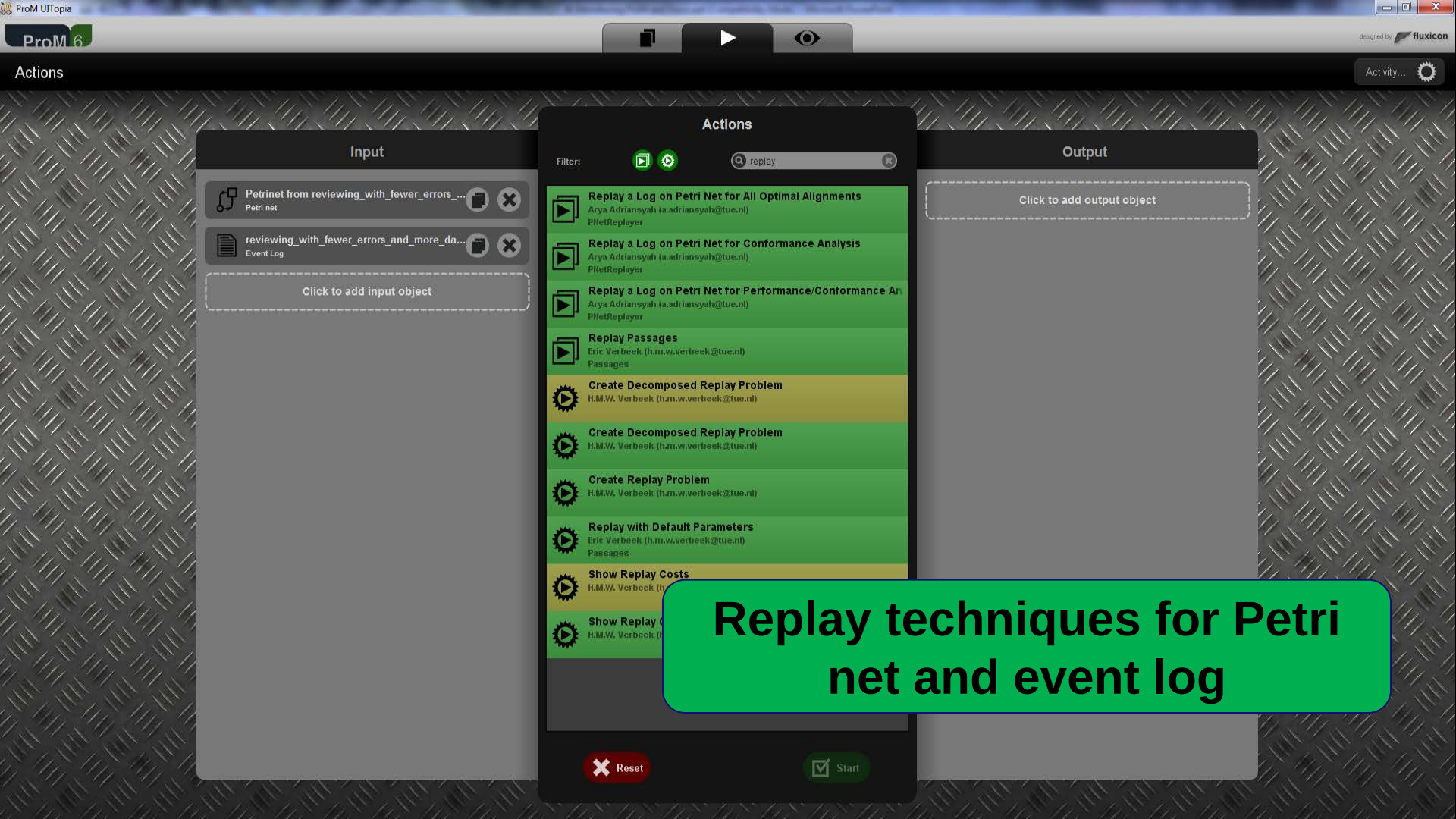
View options
- shape by degree
- size by ranking
- stretch by degree ratio
- show vertex names
- show edge weight values
- show edge
- stroke highlight on selection

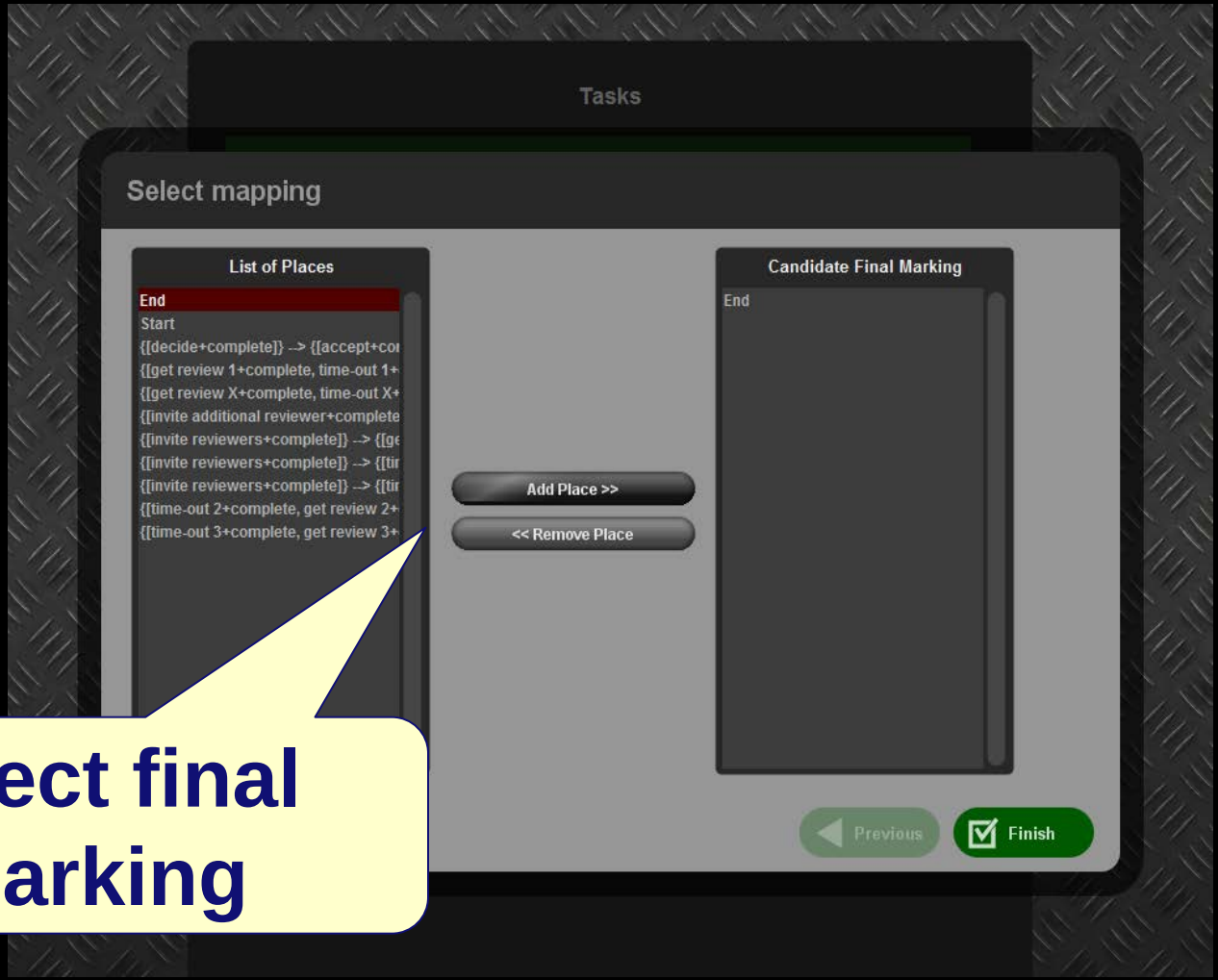
Group Clusters
Hyperbolic View

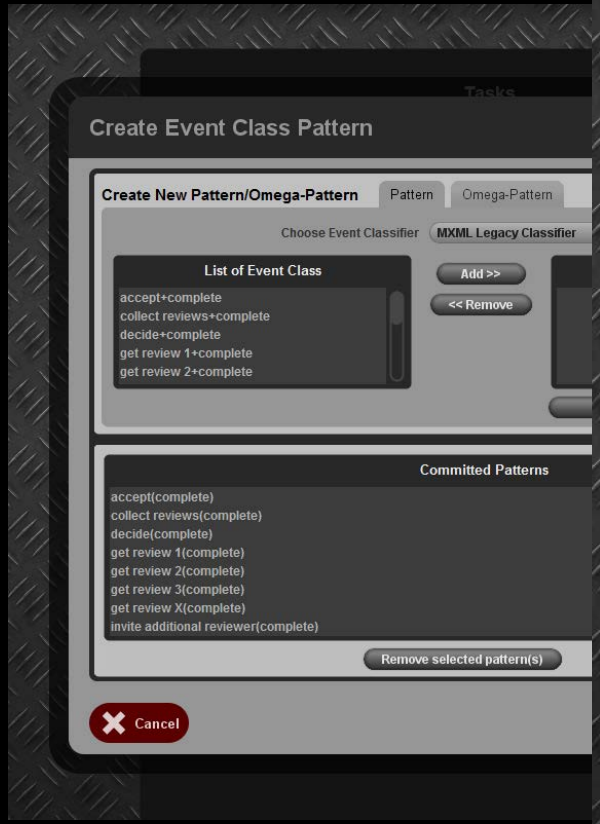
Social network based on handover of work




ProM UITopia
ProM 6
designed by fluxicon
Social Network (HoW)
Create new...
Layout
SpringLayout
Ranking
Betweenness
Mouse Mode
TRANSFORMING
Edges removed for cl...
View options
shape by degree
size by ranking
stretch by degree ratio
show vertex names
show edge weight values
show edge
stroke highlight on selection
Group Clusters
Hyperbolic View
Pam
John
Mike
Carol
__INVALID__
Sam
Sara
social network can be analyzed and inspected


ProM UITopia
ProM 6
designed by fluxicon
Actions
Activity...
Input
Petrinet from reviewing_with_fewer_errors_...
Petri net
reviewing_with_fewer_errors_and_more_da...
Event Log
Click to add input object
Actions
Filter:
replay
Replay a Log on Petri Net for All Optimal Alignments
Arya Adriansyah (a.adriansyah@tue.nl)
PNetReplayer
Replay a Log on Petri Net for Conformance Analysis
Arya Adriansyah (a.adriansyah@tue.nl)
PNetReplayer
Replay a Log on Petri Net for Performance/Conformance An
Arya Adriansyah (a.adriansyah@tue.nl)
PNetReplayer
Replay Passages
Eric Verbeek (h.m.w.verbeek@tue.nl)
Passages
Create Decomposed Replay Problem
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Create Decomposed Replay Problem
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Create Replay Problem
H.M.W. Verbeek (h.m.w.verbeek@tue.nl)
Replay with Default Parameters
Eric Verbeek (h.m.w.verbeek@tue.nl)
Passages
Show Replay Costs
Reset
Start
Output
Click to add output object
Replay techniques for Petri net and event log


Tasks
Select mapping
List of Places
End
Start
{[decide+complete]} --> {[accept+co
{[get review 1+complete, time-out 1+
{[get review X+complete, time-out X+
{[invite additional reviewer+complete
{[invite reviewers+complete]} --> {[g
{[invite reviewers+complete]} --> {[ti
{[invite reviewers+complete]} --> {[ti
{[time-out 2+complete, get review 2+
{[time-out 3+complete, get review 3+
Add Place >>
<< Remove Place
Candidate Final Marking
End
Previous
Finish
select final marking



Set Cost for Movements

Maximum explored states (in hundreds). Set max for unlimited. 2000

Transition Class	Move on Model Cost
accept+complete	1
collect reviews+complete	1
decide+complete	1
get review 1+complete	1
get review 2+complete	1
get review 3+complete	1
get review X+complete	1
invite additional reviewer+complete	0
invite reviewers+complete	0

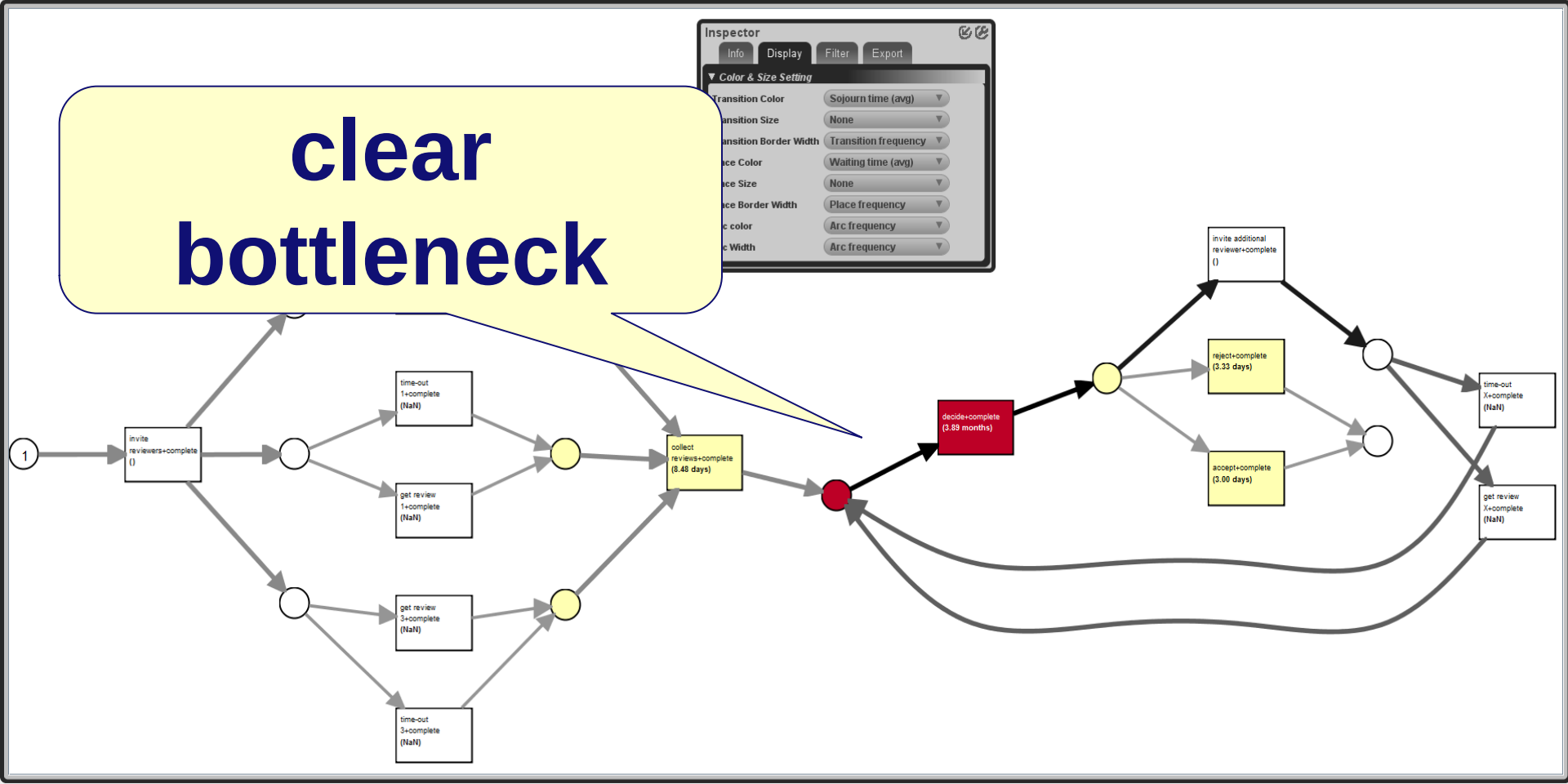
Set all costs above to 1 Set

Event Class	Move on Log Cost
accept+complete	1
collect reviews+complete	1
decide+complete	1
get review 1+complete	1
get review 2+complete	1
get review 3+complete	1
get review X+complete	1
invite additional reviewer+complete	1
invite reviewers+complete	1

Set all costs above to 1 Set

Transition Class	Move Synchronous Cost
accept+complete	0
collect reviews+complete	0
decide+complete	0

Cancel Previous Finish


Inspector
Info
Display
Filter
Export
Color & Size Setting
Transition Color
Sojourn time (avg)
Transition Size
None
Transition Border Width
Transition frequency
Place Color
Waiting time (avg)
Place Size
None
Place Border Width
Place frequency
Arc color
Arc frequency
Arc Width
Arc frequency
clear bottleneck
1
invite reviewers+complete ()
time-out 1+complete (NaN)
get review 1+complete (NaN)
get review 3+complete (NaN)
time-out 3+complete (NaN)
collect reviews+complete (8.48 days)
decide+complete (3.89 months)
invite additional reviewer+complete ()
reject+complete (3.33 days)
accept+complete (3.00 days)
time-out X+complete (NaN)
get review X+complete (NaN)


ProM
process mining workbench
changing ecosystem
600 plug-ins
new functionality every day
extremely powerful but for some confusing …

Disco

www.fluxicon.com

Disco - New project

Academic
w.m.p.v.d.aalst@tue.nl

Disco

Project: New project

New

Export

Time to get started!

Your project is currently empty, so there is nothing to see here yet.
If you want to get to know Disco first, you can play around with our sandbox project.
You can also get started right away by loading your own event log.

Play in the sandbox

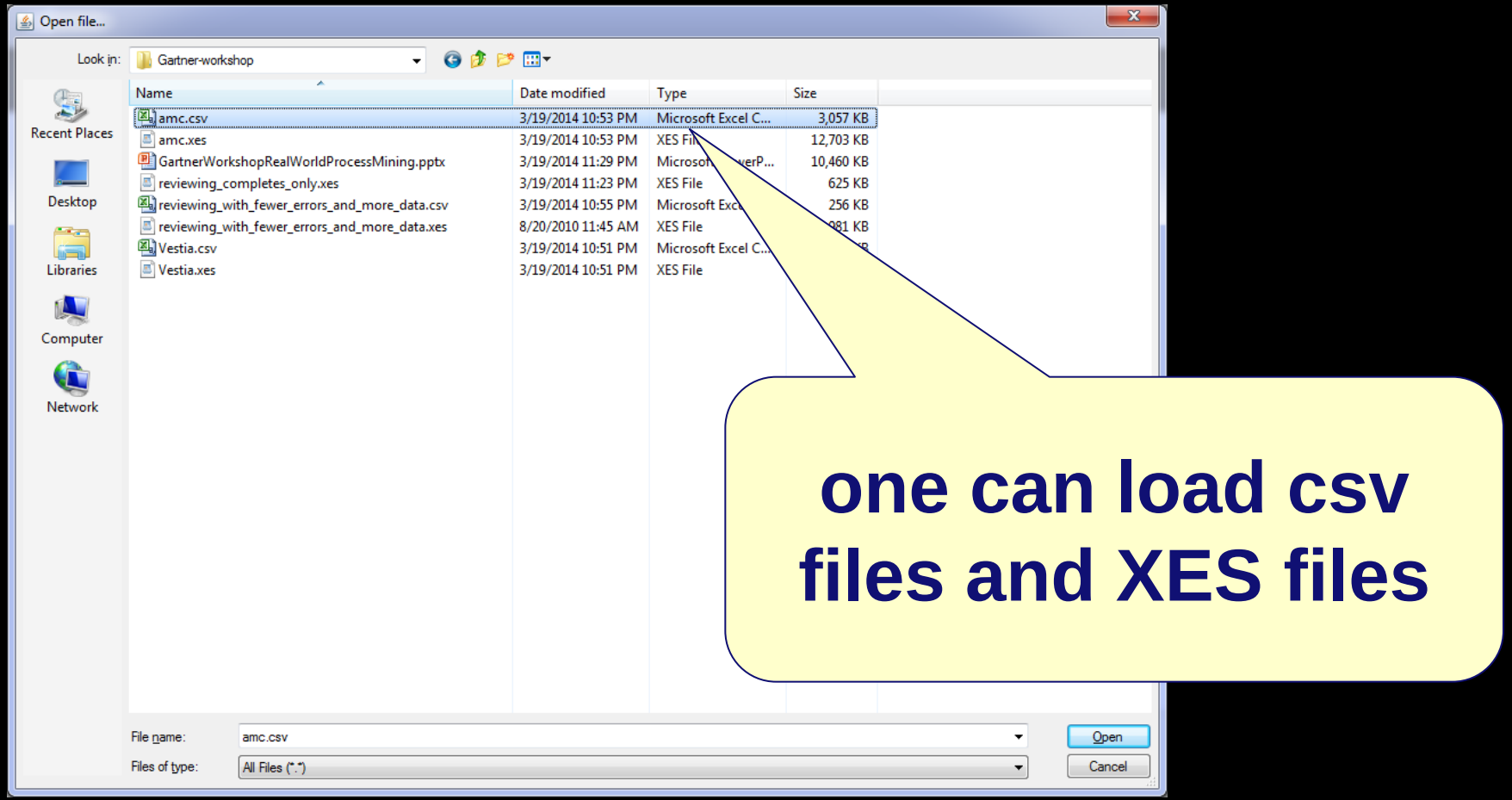
Are you new to Disco, or do you want to play around but you don't have any data at hand? Our sandbox project includes everything you need to start experimenting with Disco safely.

Sandbox...

Load your own data

Load your event logs from CSV, XLS, MXML, XES, and FXL files, or import complete projects from DSC archives. You can add event logs at any time by using the leftmost toolbar button on top.

Open file...


Open file...
Look in:
Gartner-workshop
Recent Places
Desktop
Libraries
Computer
Network
Name
Date modified
Type
Size
amc.csv
3/19/2014 10:53 PM
Microsoft Excel C...
3,057 KB
amc.xes
3/19/2014 10:53 PM
XES File
12,703 KB
GartnerWorkshopRealWorldProcessMining.pptx
3/19/2014 11:29 PM
10,460 KB
reviewing_completes_only.xes
3/19/2014 11:23 PM
XES File
625 KB
reviewing_with_fewer_errors_and_more_data.csv
3/19/2014 10:55 PM
256 KB
reviewing_with_fewer_errors_and_more_data.xes
8/20/2010 11:45 AM
XES File
Vestia.csv
3/19/2014 10:51 PM
Vestia.xes
3/19/2014 10:51 PM
XES File
File name:
amc.csv
Files of type:
All Files (*.*)
Open
Cancel
one can load csv files and XES files

Disco - New project

Disco

Activity

column is used

Activity

Name: Activity

	Case ID	Activity	Resource		DBCSPEC
1	PROCINST.0	THORAX 2R 386002	Radiologie		YN
2	PROCINST.0	1E CONSULT 410100	Polikliniek Verlosk.-Gyn.		YN
3	PROCINST.0	TARIEF CONS. 419100	Polikliniek Verlosk.-Gyn.		YN
4	PROCINST.1	THORAX 2R 386002	Radiologie		
5	PROCINST.1	ALBUMINE 378453A	Algemeen Lab Klinische Chemie		
6	PROCINST.1	GYN.-KORT-KO 10107	Polikliniek Verlosk.-Gyn.		
7	PROCINST.1	ALK.FOSFAT. 370423	Algemeen Lab Klinische Chemie		
8	PROCINST.1	1E CONSULT 410100	Polikliniek Verlosk.-Gyn.		
9	PROCINST.1	BILI. GECON. 370401	Algemeen Lab Klinische Chemie		
10	PROCINST.1	HB FOTOELEKT 370407D	Algemeen Lab Klinische Chemie		
11	PROCINST.1	BILI TOTAAL 370401C	Algemeen Lab Klinische Chemie		
12	PROCINST.1	LEUKO TELLEN 370712B	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
13	PROCINST.1	CALCIUM 377498A	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
14	PROCINST.1	TROMB TELLEN 370715A	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
15	PROCINST.1	G-GLUT-TRANS 372417	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
16	PROCINST.1	AANNAME LAB 370000	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
17	PROCINST.1	GLUCOSE 370402	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
18	PROCINST.1	TARIEF CONS. 419100	Polikliniek Verlosk.-Gyn.	2005/04/14 01:00:00.000	
19	PROCINST.1	KALIUM POTEN 370443	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
20	PROCINST.1	CA-125 MEIA 378619A	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
21	PROCINST.1	CREATININE 370419	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
22	PROCINST.1	CEA MEIA BL 376400D	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
23	PROCINST.1	LDH KINET. 370488J	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
24	PROCINST.1	ORDERTARIEF 379999	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
25	PROCINST.1	NATRIUM VLAM 370442	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
26	PROCINST.1	SGOT-ASAT 370488E	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
27	PROCINST.1	SGPT-ALAT 370488G	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
28	PROCINST.1	UREUM 370403	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
29	PROCINST.1	AANNAME LAB 370000	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
30	PROCINST.1	AS-ERY. SCR. 378607	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
31	PROCINST.1	ABO RH 370604	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
32	PROCINST.1	RH-D CENTRIF 370606	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
33	PROCINST.1	SCC EIA 376480A	Apotheek Laboratorium	2005/04/14 01:00:00.000	
34	PROCINST.1	AANNAME LAB 370000	Algemeen Lab Klinische Chemie	2005/04/14 01:00:00.000	
35	PROCINST.1	CT ABDOM.MC 387042A	Radiologie	2005/04/21 01:00:00.000	
36	PROCINST.1	VERV.CONSULT 411100	Polikliniek Verlosk.-Gyn.	2005/04/28 01:00:00.000	
37	PROCINST.1	AS-ERY. SCR. 378607	Algemeen Lab Klinische Chemie	2005/05/05 01:00:00.000	
38	PROCINST.1	ELEKTROCARD. 330001B	Hart- en Vaat poliklinieken	2005/05/05 01:00:00.000	
39	PROCINST.1	ABO RH 370604	Algemeen Lab Klinische Chemie	2005/05/05 01:00:00.000	
40	PROCINST.1	ELEKTROCARD. 330001B	Hart- en Vaat poliklinieken	2005/05/05 01:00:00.000	
41	PROCINST.1	RH-D CENTRIF 370606	Algemeen Lab Klinische Chemie	2005/05/05 01:00:00.000	
42	PROCINST.1	KLASSE 3B 613000	GYNAECOLOGIE H5Z	2005/05/05 01:00:00.000	
43	PROCINST.1	AANNAME LAB 370000	Algemeen Lab Klinische Chemie	2005/05/05 01:00:00.000	
44	PROCINST.1	LIGDAGTARIEF 40014	GYNAECOLOGIE H5Z	2005/05/05 01:00:00.000	
45	PROCINST.1	HAEMOGLOB. S 370701S	Algemeen Lab Klinische Chemie	2005/05/05 01:00:00.000	
46	PROCINST.1	KLIN.OPNAME 610001	GYNAECOLOGIE H5Z	2005/05/05 01:00:00.000	

cas

timest

other data

acti

resource

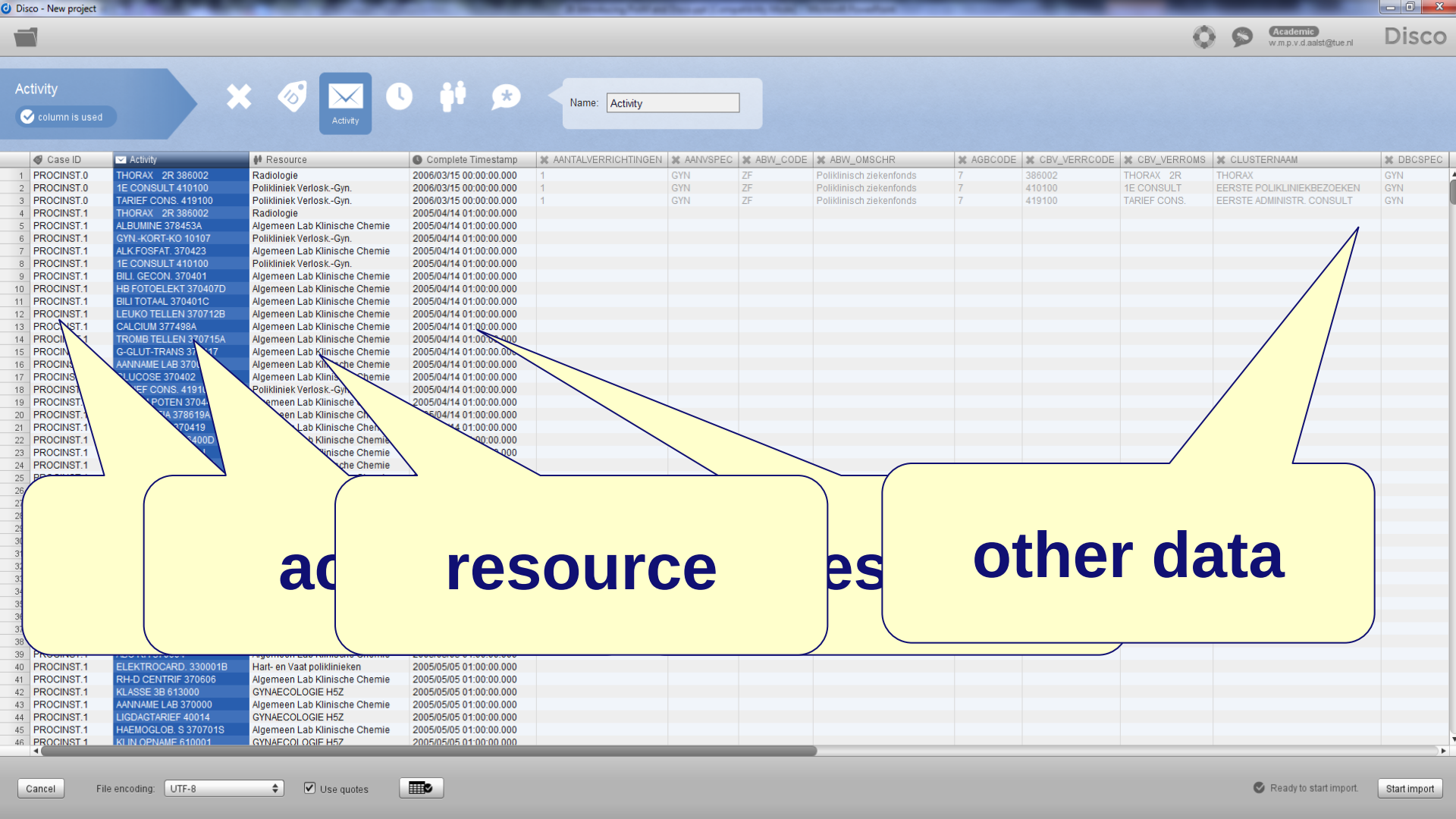
Cancel

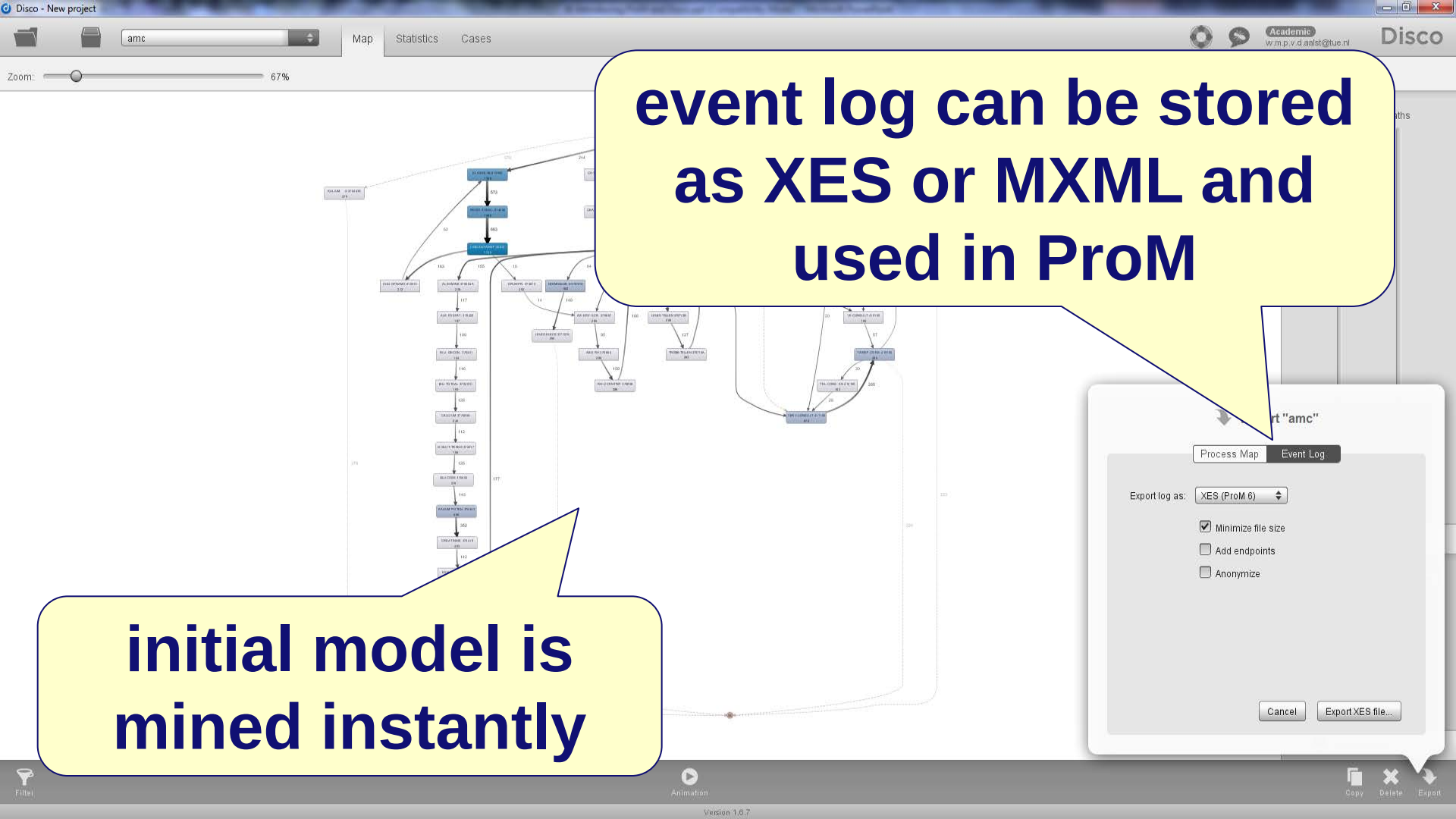
File encoding: UTF-8

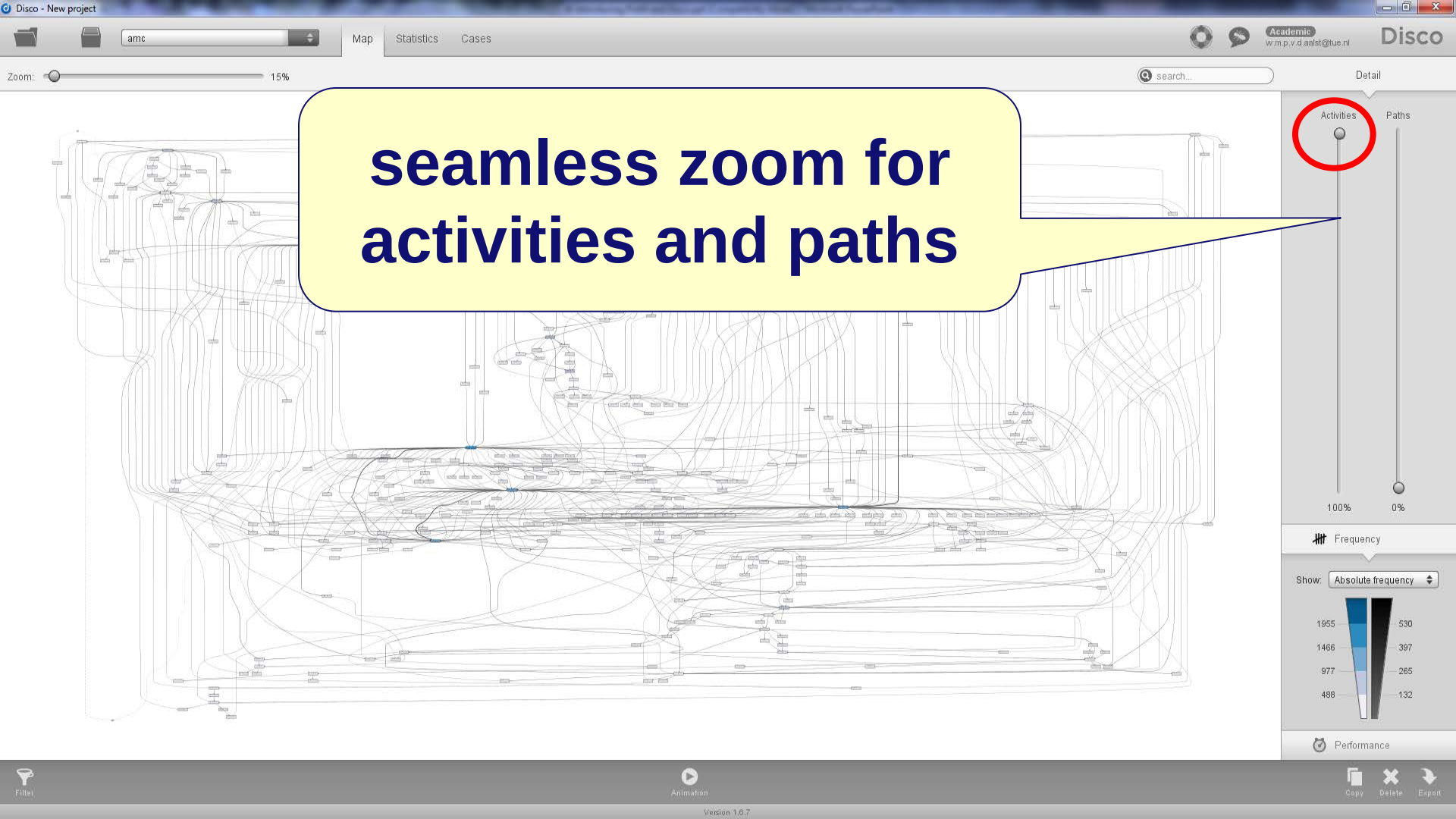
Use quotes

Ready to start import.

Start import


Disco - New project
Academic
w.m.p.v.d.aalst@tue.nl
Disco
Activity
column is used
Activity
Name: Activity
Case ID
Activity
Resource
Complete Timestamp
AANTALVERRICHTINGEN
AANVSPEC
ABW_CODE
ABW_OMSCHR
AGBCODE
CBV_VERRCODE
CBV_VERROMS
CLUSTERNAAM
DBCSPEC
1 PROCINST.0 THORAX 2R 386002 Radiologie 2006/03/15 00:00:00.000 1 GYN ZF Poliklinisch ziekenfonds 7 386002 THORAX 2R THORAX GYN
2 PROCINST.0 1E CONSULT 410100 Polikliniek Verlosk.-Gyn. 2006/03/15 00:00:00.000 1 GYN ZF Poliklinisch ziekenfonds 7 410100 1E CONSULT EERSTE POLIKLINIEKBEZOEKEN GYN
3 PROCINST.0 TARIEF CONS. 419100 Polikliniek Verlosk.-Gyn. 2006/03/15 00:00:00.000 1 GYN ZF Poliklinisch ziekenfonds 7 419100 TARIEF CONS. EERSTE ADMINISTR. CONSULT GYN
4 PROCINST.1 THORAX 2R 386002 Radiologie 2005/04/14 01:00:00.000
5 PROCINST.1 ALBUMINE 378453A Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
6 PROCINST.1 GYN.-KORT-KO 10107 Polikliniek Verlosk.-Gyn. 2005/04/14 01:00:00.000
7 PROCINST.1 ALK.FOSFAT. 370423 Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
8 PROCINST.1 1E CONSULT 410100 Polikliniek Verlosk.-Gyn. 2005/04/14 01:00:00.000
9 PROCINST.1 BILI. GECON. 370401 Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
10 PROCINST.1 HB FOTOELEKT 370407D Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
11 PROCINST.1 BILI TOTAAL 370401C Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
12 PROCINST.1 LEUKO TELLEN 370712B Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
13 PROCINST.1 CALCIUM 377498A Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
14 PROCINST.1 TROMB TELLEN 370715A Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
15 PROCINST.1 G-GLUT-TRANS 37 17 Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
16 PROCINST.1 AANNAME LAB 370 Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
17 PROCINST.1 LUCOSE 370402 Algemeen Lab Klinische Chemie 2005/04/14 01:00:00.000
18 PROCINST.1 EF CONS. 4191 Polikliniek Verlosk.-Gyn. 2005/04/14 01:00:00.000
19 PROCINST.1 POTEN 3704 emeen Lab Klinische 2005/04/14 01:00:00.000
20 PROCINST.1 A 378619A een Lab Klinische Ch 5/04/14 01:00:00.000
21 PROCINST.1 370419 Lab Klinische Chem 4 01:00:00.000
22 PROCINST.1 400D n Klinische Chemie :00:00.000
23 PROCINST.1 linische Chemie .000
24 PROCINST.1 che Chemie
39 PROCINST.1 ELEKTROCARD. 330001B Hart- en Vaat poliklinieken 2005/05/05 01:00:00.000
40 PROCINST.1 RH-D CENTRIF 370606 Algemeen Lab Klinische Chemie 2005/05/05 01:00:00.000
41 PROCINST.1 KLASSE 3B 613000 GYNAECOLOGIE H5Z 2005/05/05 01:00:00.000
42 PROCINST.1 AANNAME LAB 370000 Algemeen Lab Klinische Chemie 2005/05/05 01:00:00.000
43 PROCINST.1 LIGDAGTARIEF 40014 GYNAECOLOGIE H5Z 2005/05/05 01:00:00.000
44 PROCINST.1 HAEMOGLOB. S 370701S Algemeen Lab Klinische Chemie 2005/05/05 01:00:00.000
45 PROCINST.1 KLIN.OPNAME 610001 GYNAECOLOGIE H5Z 2005/05/05 01:00:00.000
resource
other data
Cancel
File encoding: UTF-8
Use quotes
Ready to start import.
Start import


Disco - New project
amc
Map
Statistics
Cases
Academic
Disco
Zoom:
67%
event log can be stored as XES or MXML and used in ProM
initial model is mined instantly
rt "amc"
Process Map
Event Log
Export log as:
XES (ProM 6)
Minimize file size
Add endpoints
Anonymize
Cancel
Export XES file...
Filter
Animation
Copy
Delete
Export
Version 1.6.7


Disco - New project
amc
Map
Statistics
Cases
Academic
w.m.p.v.d.aalst@tue.nl
Disco
Zoom:
15%
search...
Detail
Activities
Paths
100%
0%
Frequency
Show:
Absolute frequency
1955
1466
977
488
530
397
265
132
Performance
Filter
Animation
Copy
Delete
Export
Version 1.6.7
seamless zoom for activities and paths

Disco - New project

amc

Map | Statistics | Cases

Academic
w.m.p.v.d.aalst@tue.nl

Disco

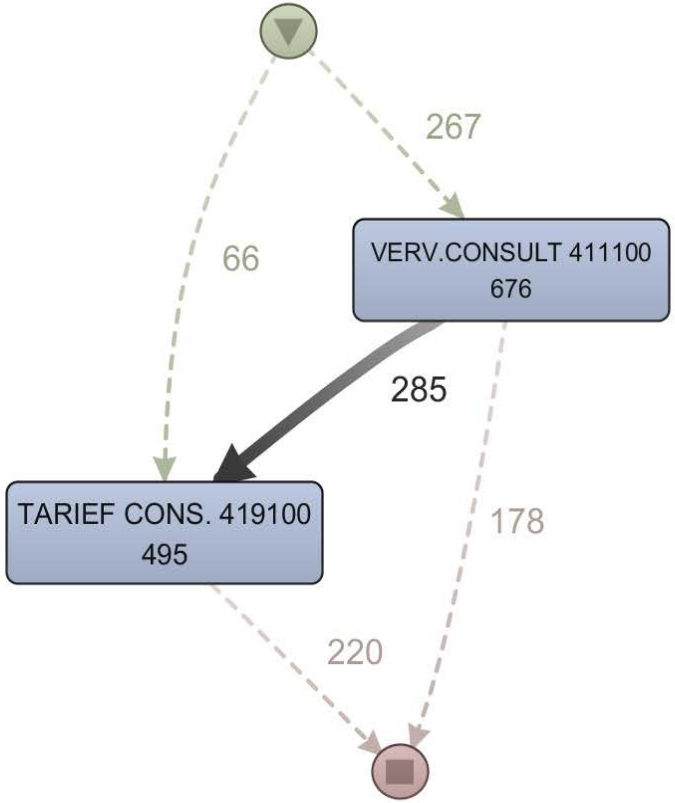
Zoom: 427%

search...

Detail

Activities | Paths

0% | 0%



Frequency

Show: Absolute frequency

1955
1466
977
488

530
397
265
132

Performance

Filter | Animation | Copy | Delete | Export

Version 1.6.7

Disco - New project

amc

Map | Statistics | Cases

Academic
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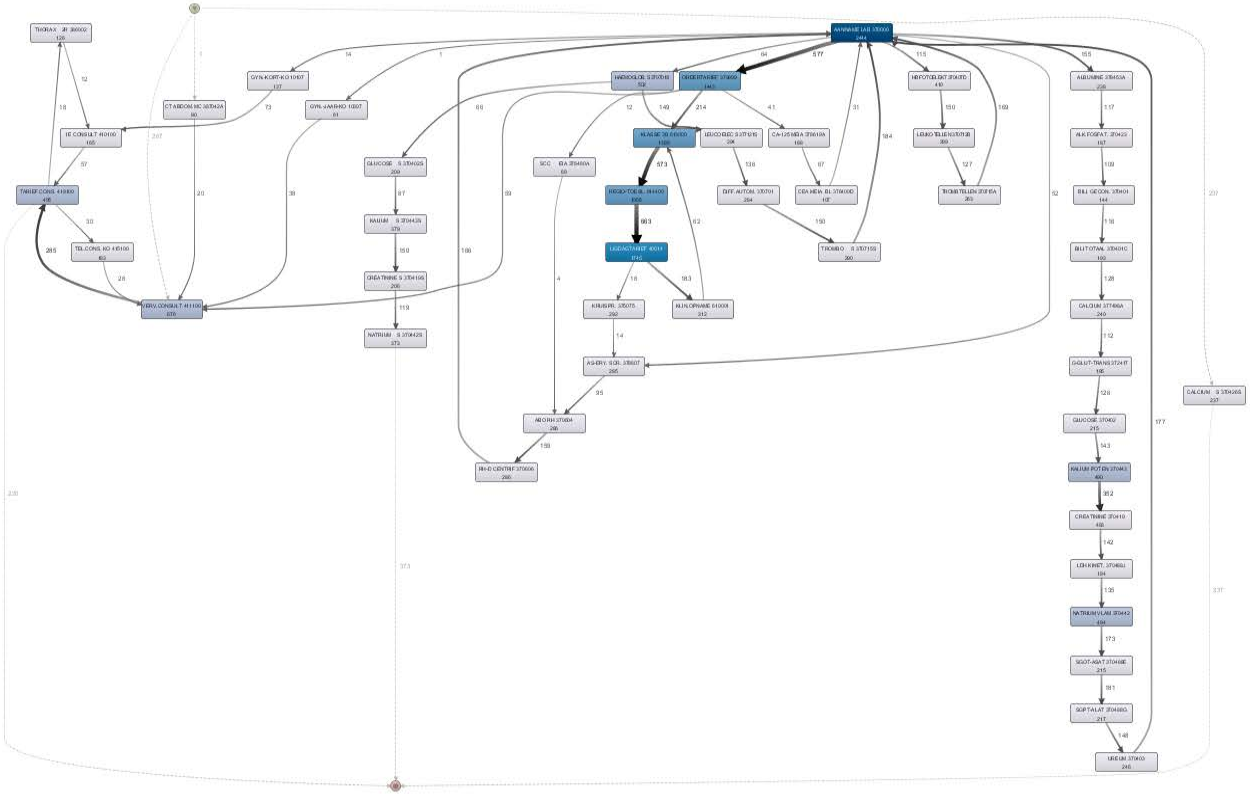
Disco

Zoom: 79%

search...

Detail



Activities | Paths

11.6% | 0%

Frequency

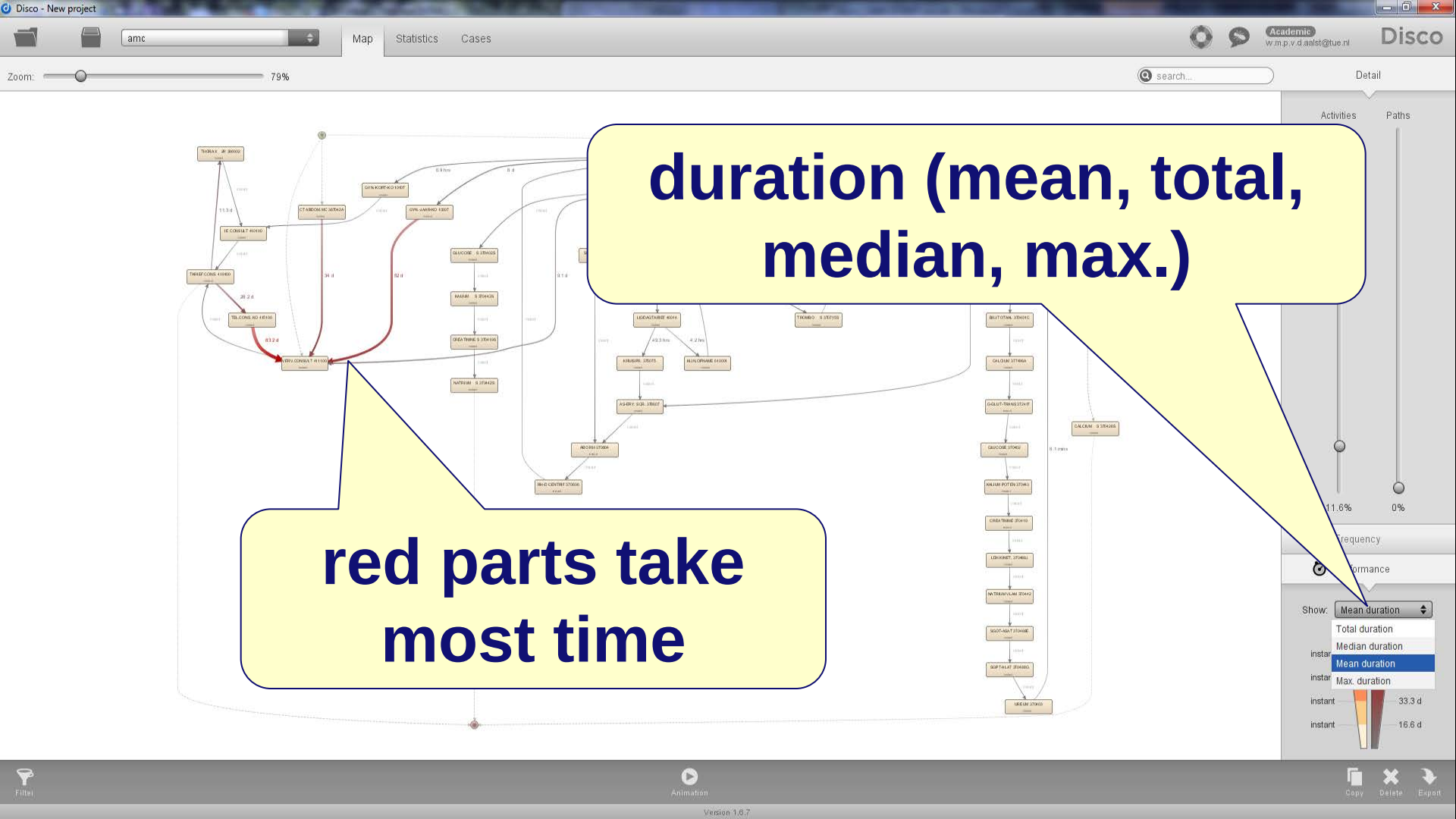
Show: Absolute frequency

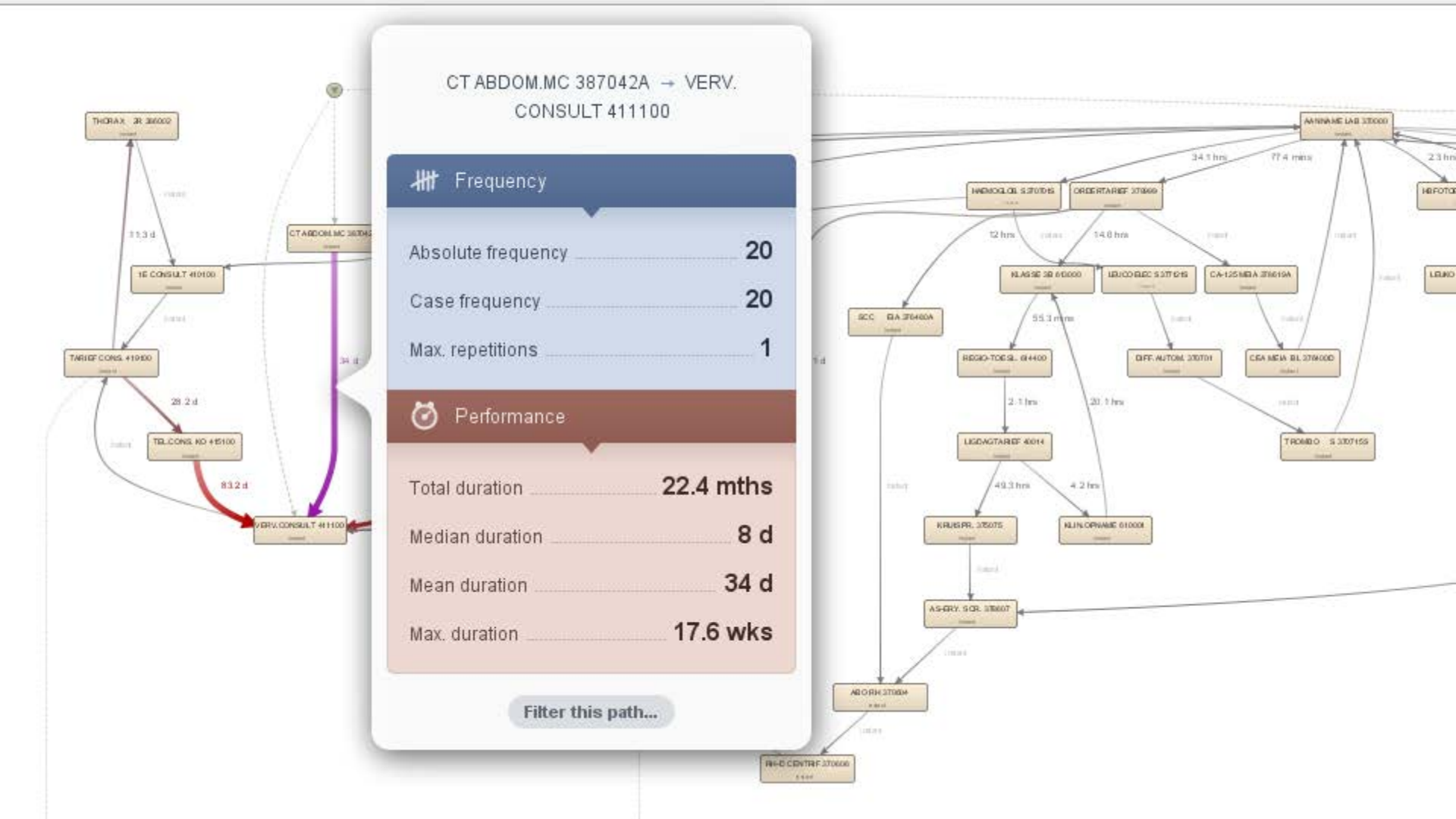
1955 | 530
1466 | 397
977 | 265
488 | 132

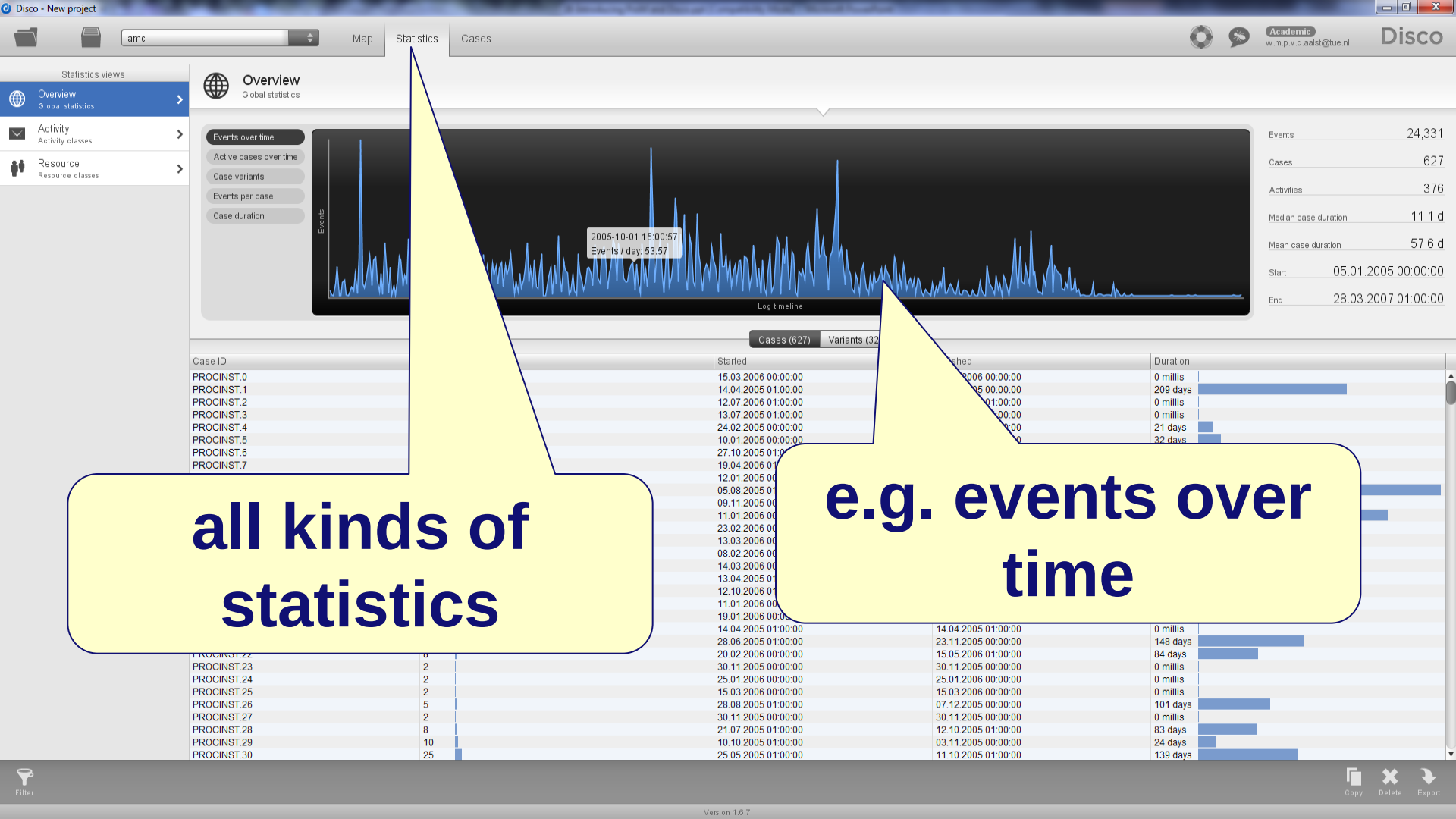
Performance

Filter | Animation | Copy | Delete | Export

Version 1.6.7


Disco - New project
amc
Map
Statistics
Cases
Academic
w.m.p.v.d.aalst@tue.nl
Disco
Zoom:
79%
search...
Detail
Activities
Paths
11.6%
0%
Frequency
Performance
Show:
Mean duration
Total duration
Median duration
Mean duration
Max. duration
instant
33.3 d
instant
16.6 d
duration (mean, total, median, max.)
red parts take most time
Filter
Animation
Copy
Delete
Export
Version 1.6.7


CT ABDOM.MC 387042A → VERV. CONSULT 411100
Frequency
Absolute frequency 20
Case frequency 20
Max. repetitions 1
Performance
Total duration 22.4 mths
Median duration 8 d
Mean duration 34 d
Max. duration 17.6 wks
Filter this path...


Disco - New project
amc
Map
Statistics
Cases
Academic
w.m.p.v.d.aalst@tue.nl
Disco
Statistics views
Overview
Global statistics
Activity
Activity classes
Resource
Resource classes
Overview
Global statistics
Events over time
Active cases over time
Case variants
Events per case
Case duration
Events
2005-10-01 15:00:57
Events / day: 53.57
Log timeline
Events 24,331
Cases 627
Activities 376
Median case duration 11.1 d
Mean case duration 57.6 d
Start 05.01.2005 00:00:00
End 28.03.2007 01:00:00
Cases (627)
Variants (32
Case ID
Started
Duration
PROCINST.0
PROCINST.1
PROCINST.2
PROCINST.3
PROCINST.4
PROCINST.5
PROCINST.6
PROCINST.7
PROCINST.23
PROCINST.24
PROCINST.25
PROCINST.26
PROCINST.27
PROCINST.28
PROCINST.29
PROCINST.30
all kinds of statistics
e.g. events over time
Filter
Copy
Delete
Export
Version 1.6.7

Disco - New project

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Map | Statistics | Cases

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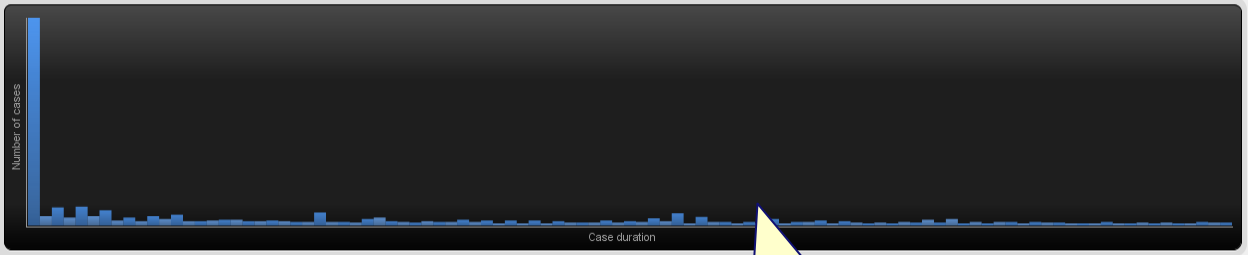
Disco

Statistics views

- Overview — Global statistics
- Activity — Activity classes
- Resource — Resource classes

Overview
Global statistics

Events over time
Active cases over time
Case variants
Events per case
Case duration



Events	24,331
Cases	627
Activities	376
Median case duration	11.1 d
Mean case duration	57.6 d
Start	05.01.2005 00:00:00
End	28.03.2007 01:00:00

Cases (627) | Variants (32

Case ID	Events	Started	Completed	Duration
PROCINST.0	3	15.03.2006 00:00:00	2006 00:00:00	0 millis
PROCINST.1	120	14.04.2005 01:00:00	05 00:00:00	209 days
PROCINST.2	1	12.07.2006 01:00:00	01:00:00	0 millis
PROCINST.3	2	13.07.2005 01:00:00	00:00	0 millis
PROCINST.4	4	24.02.2005 00:00:00	00	21 days
PROCINST.5	109	10.01.2005 00:00:00	0	32 days
PROCINST.6	1	27.10.2005 01:0		
PROCINST.7	7	19.04.2006 01		
PROCINST.8	93	12.01.2005 00		
PROCINST.9	9	05.08.2005 01		
PROCINST.10	158	09.11.2005 00		
PROCINST.11	5	11.01.2006 00		
PROCINST.12	10	23.02.2006 00		
PROCINST.13	360	13.03.2006 00		
PROCINST.14	32	08.02.2006 00		
PROCINST.15	3	14.03.2006 00		
PROCINST.16	119	13.04.2005 01		
PROCINST.17	2	12.10.2006 01		
PROCINST.18	2	11.01.2006 00		
PROCINST.19	2	19.01.2006 00:0		
PROCINST.20	2	14.04.2005 01:00:00	14.04.2005 01:00:00	0 millis
PROCINST.21	3	28.06.2005 01:00:00	23.11.2005 00:00:00	148 days
PROCINST.22	8	20.02.2006 00:00:00	15.05.2006 01:00:00	84 days
PROCINST.23	2	30.11.2005 00:00:00	30.11.2005 00:00:00	0 millis
PROCINST.24	2	25.01.2006 00:00:00	25.01.2006 00:00:00	0 millis
PROCINST.25	2	15.03.2006 00:00:00	15.03.2006 00:00:00	0 millis
PROCINST.26	5	28.08.2005 01:00:00	07.12.2005 00:00:00	101 days
PROCINST.27	2	30.11.2005 00:00:00	30.11.2005 00:00:00	0 millis
PROCINST.28	8	21.07.2005 01:00:00	12.10.2005 01:00:00	83 days
PROCINST.29	10	10.10.2005 01:00:00	03.11.2005 00:00:00	24 days
PROCINST.30	25	25.05.2005 01:00:00	11.10.2005 01:00:00	139 days

case durations

Filter | Copy | Delete | Export

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Disco - New project

amc

Map | Statistics | Cases

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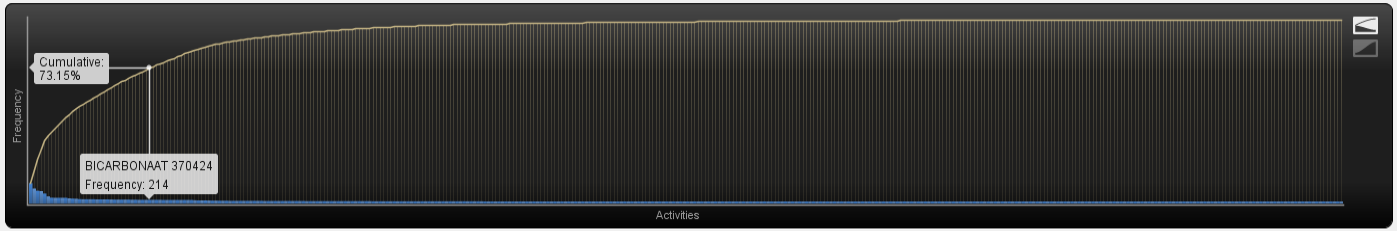
Disco

Statistics views

- Overview — Global statistics
- Activity — Activity classes
- Resource — Resource classes

Activity

Activity event classes



Activities	376
Minimal frequency	1
Median frequency	37
Mean frequency	64.71
Maximal frequency	2,444
Frequency std. deviation	211.82

All activities (376) | First in case (57) | Last in case (35)

Activity	▲ Frequency	Relative frequency
AANNAME LAB 370000	2444	10.04 %
LIGDAGTARIEF 40014	1745	7.17 %
ORDERTARIEF 379999	1443	5.93 %
KLASSE 3B 613000	1388	5.7 %
REGIO-TOESL. 614400	1065	4.38 %
VERV.CONSULT 411100	676	2.78 %
HAEMOGLOB. S 370701S	502	2.06 %
TARIEF CONS. 419100	495	2.03 %
NATRIUM VLAM 370442	494	2.03 %
KALIUM POTEN 370443	490	2.01 %
CREATININE 370419	483	1.99 %
HB FOTOELEKT 370407D	410	1.69 %
KALIUM S 370443S	379	1.56 %
NATRIUM S 370442S	373	1.53 %
KLIN.OPNAME 610001	312	1.28 %
LEUCO ELEC S 377121S	294	1.21 %
KRUISPR. 375075		1.2 %
TROMBO S 370715S		1.19 %
LEUKO TELLEN 370712B		1.19 %
ABO RH 370604		1.18 %
RH-D CENTRIF 370606		1.18 %
AS-ERY. SCR. 378607		1.17 %
DIFF.AUTOM. 370701		1.17 %
TROMB TELLEN 370715A		1.08 %
KLASSE 3A 612000		1.03 %
UREUM 370403		1.01 %
CALCIUM 377498A		0.99 %
ALBUMINE 378453A		0.98 %
CALCIUM S 370426S		0.97 %
O2-SATURATIE 378458		0.94 %
ONDERZ.KWEEK 370504A		0.94 %
SGPT-ALAT 370488G	217	0.89 %
GLUCOSE 370402	215	0.88 %

activity frequencies

Filter | Copy | Delete | Export

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Map | Statistics | Cases

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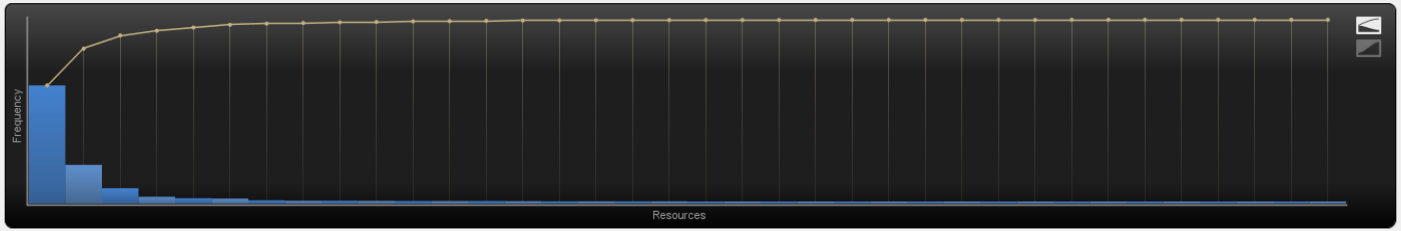
Disco

Statistics views

- Overview — Global statistics
- Activity — Activity classes
- Resource — Resource classes

Resource

Resource event classes



Resources	36
Minimal frequency	1
Median frequency	16.75
Mean frequency	675.86
Maximal frequency	15,540
Frequency std. deviation	2,688.89

All resources (36) | First in case (12) | Last in case (11)

Resource	▲ Frequency	Relative frequency
Algemeen Lab Klinische Chemie	15540	63.87 %
GYNAECOLOGIE H5Z	4909	20.18 %
Polikliniek Verlosk.-Gyn.	1771	7.28 %
Medische Microbiologie	627	2.58 %
Radiologie	433	1.78 %
Pathologie	375	1.54 %
Operatiekamers	152	0.62 %
Verkoever/High Care	89	0.37 %
Apotheek Laboratorium	80	0.33 %
Nucleaire Geneeskunde	61	0.25 %
IC Volwassenen	60	0.25 %
Specieel Lab Endo/Radio		0.19 %
Hart- en Vaat poliklinieken		0.19 %
		0.16 %
		0.07 %
		0.06 %
		0.05 %
		0.04 %
		0.03 %
		0.03 %
		0.02 %
		0.02 %
		0.02 %
		0.01 %
		0.01 %
		0.01 %
		0.01 %
		0.01 %
		0.01 %
		0 %
		0 %
Poli CHI/URO A1-3	1	0 %
Verpleegafdeling G5Z	1	0 %

distribution of work over departments

Filter | Copy | Delete | Export

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Disco - New project

amc

Map | Statistics | Cases

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Disco

search

Variants (328)

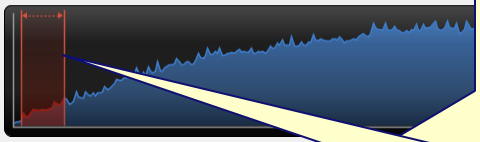
- Complete log — All cases (627)
- Variant 1 — 149 cases (23.76%)
- Variant 2 — 45 cases (7.18%)
- Variant 3 — 19 cases (3.03%)
- Variant 4 — 18 cases (2.87%)
- Variant 5 — 17 cases (2.71%)
- Variant 6 — 8 cases (1.28%)
- Variant 7 — 6 cases (0.96%)
- Variant 8 — 5 cases (0.8%)
- Variant 9 — 5 cases (0.8%)
- Variant 10 — 5 cases (0.8%)
- Variant 11 — 5 cases (0.8%)
- Variant 12 — 4 cases (0.64%)
- Variant 13 — 4 cases (0.64%)
- Variant 14 — 3 cases (0.48%)
- Variant 15 — 3 cases (0.48%)
- Variant 16 — 3 cases (0.48%)
- Variant 17 — 3 cases (0.48%)
- Variant 18 — 2 cases (0.32%)

Cases (627)

- PROCINST.0 — 3 events
- PROCINST.1 — 120 events
- PROCINST.2 — 1 events
- PROCINST.3 — 2 events
- PROCINST.4 — 4 events
- PROCINST.5 — 109 events
- PROCINST.6 — 1 events
- PROCINST.7 — 7 events
- PROCINST.8 — 93 events
- PROCINST.9 — 9 events
- PROCINST.10 — 158 events
- PROCINST.11 — 5 events
- PROCINST.12 — 10 events
- PROCINST.13 — 360 events
- PROCINST.14 — 32 events
- PROCINST.15 — 3 events
- PROCINST.16 — 119 events
- PROCINST.17 — 2 events
- PROCINST.18 — 2 events

PROCINST.5

Case with 109 events



109

00:00

2 days

	Activity	Resource		Time
1	ELEKTROCARD. 330001B	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
2	THORAX 2R 386002	Radiologie	10.01.2005	00:00:00
3	COUPE INZAGE 355111	Pathologie	10.01.2005	00:00:00
4	GYN.-KORT-KO 10107	Polikliniek Verlosk.-Gyn.	10.01.2005	00:00:00
5	CITO HISTOL. 359999	Pathologie	10.01.2005	00:00
6	1E CONSULT 410100	Polikliniek Verlosk.-Gyn.	10.01.2005	00:0
7	TARIEF CONS. 419100	Polikliniek Verlosk.-Gyn.	10.01.2005	00:0
8	AS-ERY. SCR. 378607	Algemeen Lab Klinische Chemie	10.01.2005	00:0
9	ABO RH 370604	Algemeen Lab Klinische Chemie	10.01.2005	00:0
10	RH-D CENTRIF 370606	Algemeen Lab Klinische Chemie	10.01.2005	00:0
11	AANNAME LAB 370000	Algemeen Lab Klinische Chemie	10.01.2005	00:0
12	HAEMOGLOB. S 370701S	Algemeen Lab Klinische Chemie	10.01.2005	00:0
13	LEUCO ELEC S 377121S	Algemeen Lab Klinische Chemie	10.01.2005	00:0
14	TROMBO S 370715S	Algemeen Lab Klinische Chemie	10.01.2005	00:0
15	AANNAME LAB 370000	Algemeen Lab Klinische Chemie	10.01.2005	00:0
16	ALBUMINE 378453A	Algemeen Lab Klinische Chemie	10.01.2005	00:0
17	ALK.FOSFAT. 370423	Algemeen Lab Klinische Chemie	10.01.2005	00:0
18	BILI. GECON. 370401	Algemeen Lab Klinische Chemie	10.01.2005	00:0
19	BILI TOTAAL 370401C	Algemeen Lab Klinische Chemie	10.01.2005	00:0
20	CALCIUM 377498A	Algemeen Lab Klinische Chemie	10.01.2005	00:0
21	G-GLUT-TRANS 372417	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
22	GLUCOSE 370402	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
23	KALIUM POTEN 370443	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
24	CREATININE S 370419S	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
25	LDH KINET. 370488J	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
26	NATRIUM VLAM 370442	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
27	SGOT-ASAT 370488E	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
28	SGPT-ALAT 370488G	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
29	UREUM 370403	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
30	AANNAME LAB 370000	Algemeen Lab Klinische Chemie	10.01.2005	00:00:00
31	AS-ERY. SCR. 378607	Algemeen Lab Klinische Chemie	02.02.2005	00:00:00
32	KLASSE 3A 612000	GYNAECOLOGIE H5Z	02.02.2005	00:00:00
33	ABO RH 370604	Algemeen Lab Klinische Chemie	02.02.2005	00:00:00
34	RH-D CENTRIF 370606	Algemeen Lab Klinische Chemie	02.02.2005	00:00:00
35	AANNAME LAB 370000	Algemeen Lab Klinische Chemie	02.02.2005	00:00:00
36	HB FOTOELEKT 370407D	Algemeen Lab Klinische Chemie	02.02.2005	00:00:00
37	LEUKO TELLEN 370712B	Algemeen Lab Klinische Chemie	02.02.2005	00:00:00

10.01.2005

all events of a particular case

time window of case

Filter

Copy | Delete | Export

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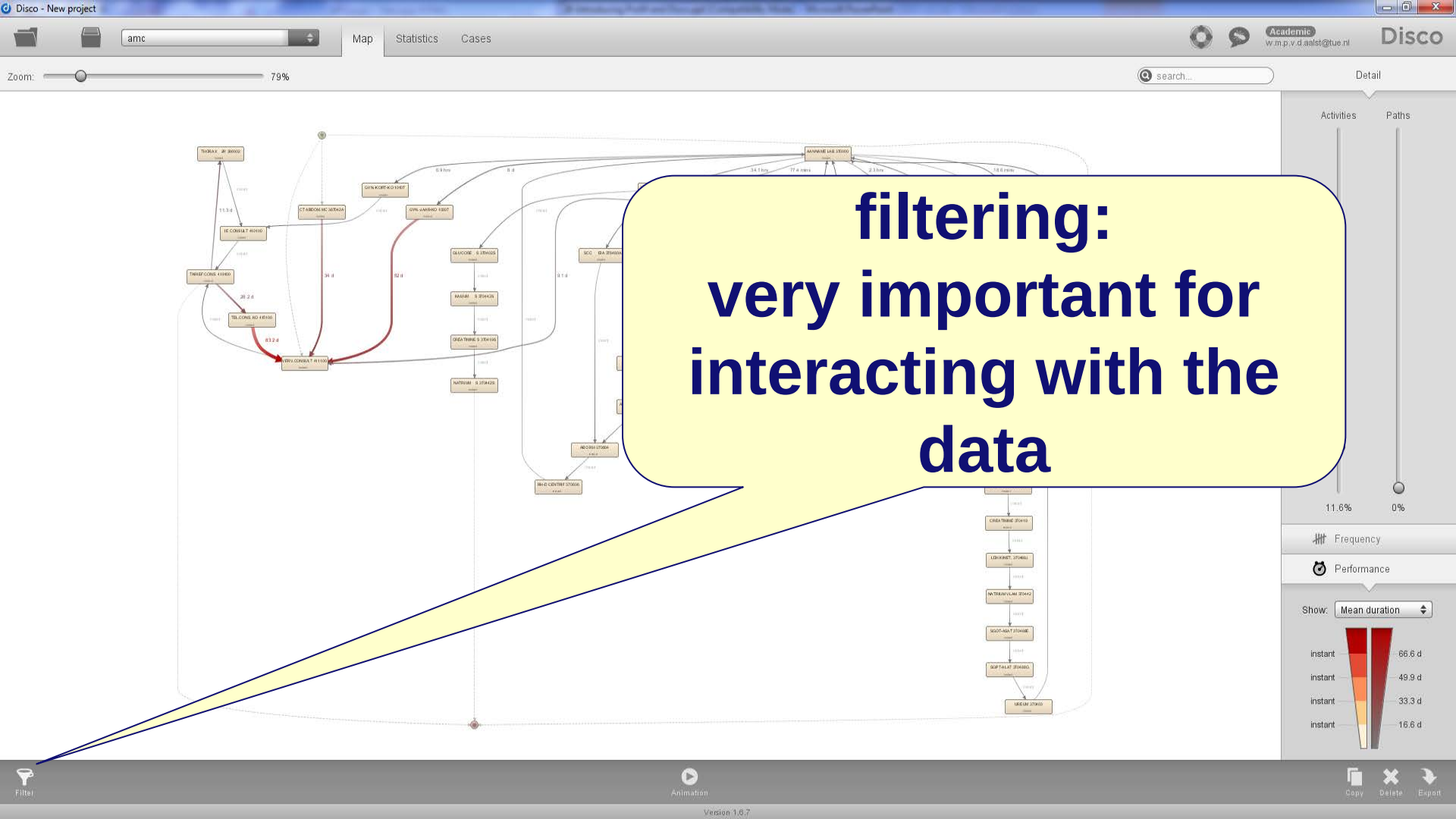
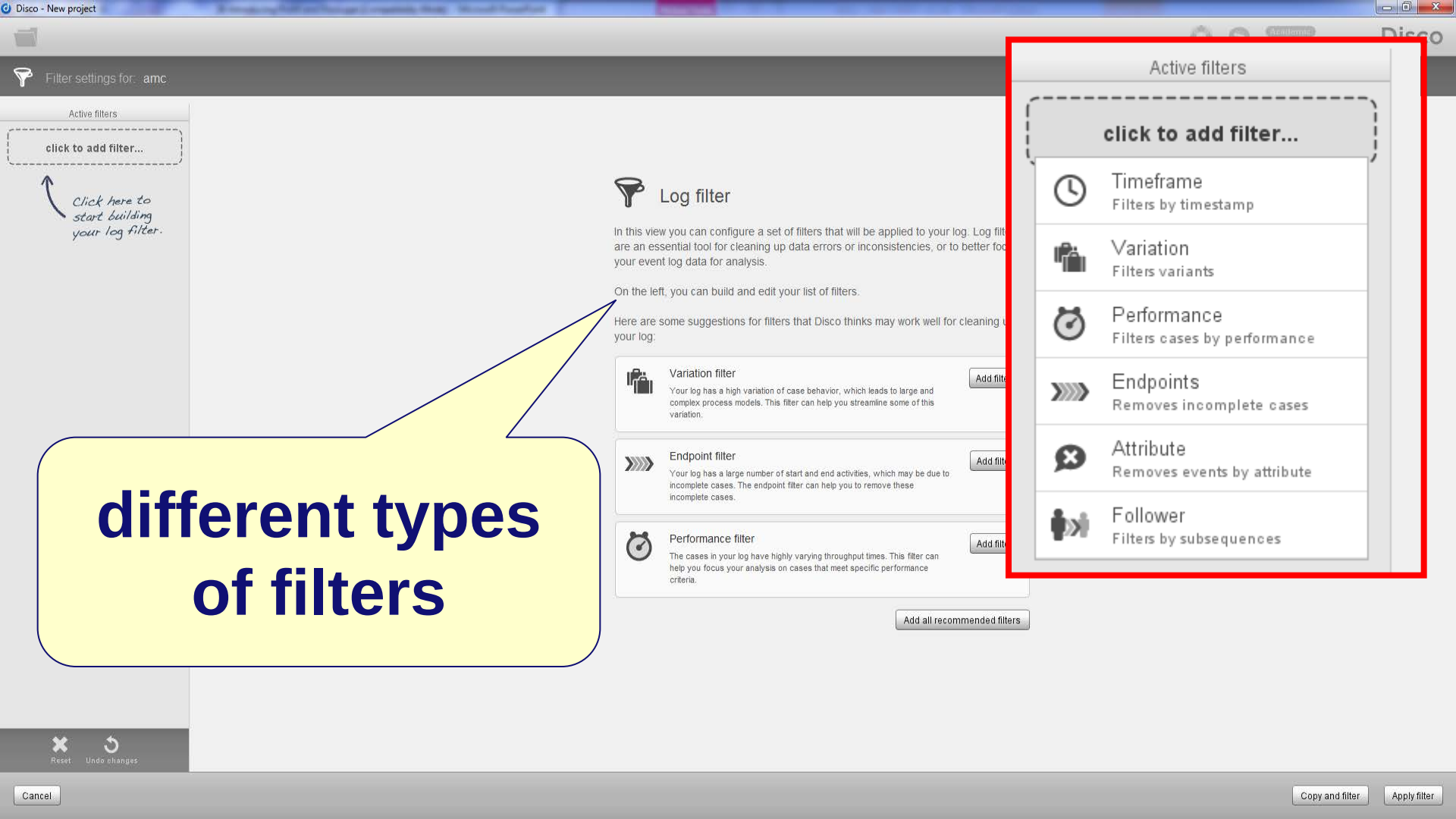

Disco - New project
amc
Map
Statistics
Cases
Academic
w.m.p.v.d.aalst@tue.nl
Disco
Zoom:
79%
search...
Detail
Activities
Paths
11.6%
0%
Frequency
Performance
Show:
Mean duration
instant
66.6 d
instant
49.9 d
instant
33.3 d
instant
16.6 d
filtering:
very important for
interacting with the
data
Filter
Animation
Copy
Delete
Export
Version 1.6.7


Disco - New project
Filter settings for: amc
Active filters
click to add filter...
Click here to start building your log filter.
Log filter
In this view you can configure a set of filters that will be applied to your log. Log filt
are an essential tool for cleaning up data errors or inconsistencies, or to better foc
your event log data for analysis.
On the left, you can build and edit your list of filters.
Here are some suggestions for filters that Disco thinks may work well for cleaning u
your log:
Variation filter
Your log has a high variation of case behavior, which leads to large and complex process models. This filter can help you streamline some of this variation.
Add filt
Endpoint filter
Your log has a large number of start and end activities, which may be due to incomplete cases. The endpoint filter can help you to remove these incomplete cases.
Add filt
Performance filter
The cases in your log have highly varying throughput times. This filter can help you focus your analysis on cases that meet specific performance criteria.
Add filt
Add all recommended filters
different types of filters
Active filters
click to add filter...
Timeframe
Filters by timestamp
Variation
Filters variants
Performance
Filters cases by performance
Endpoints
Removes incomplete cases
Attribute
Removes events by attribute
Follower
Filters by subsequences
Reset
Undo changes
Cancel
Copy and filter
Apply filter

Disco - New project

Disco

Filter settings for: amc

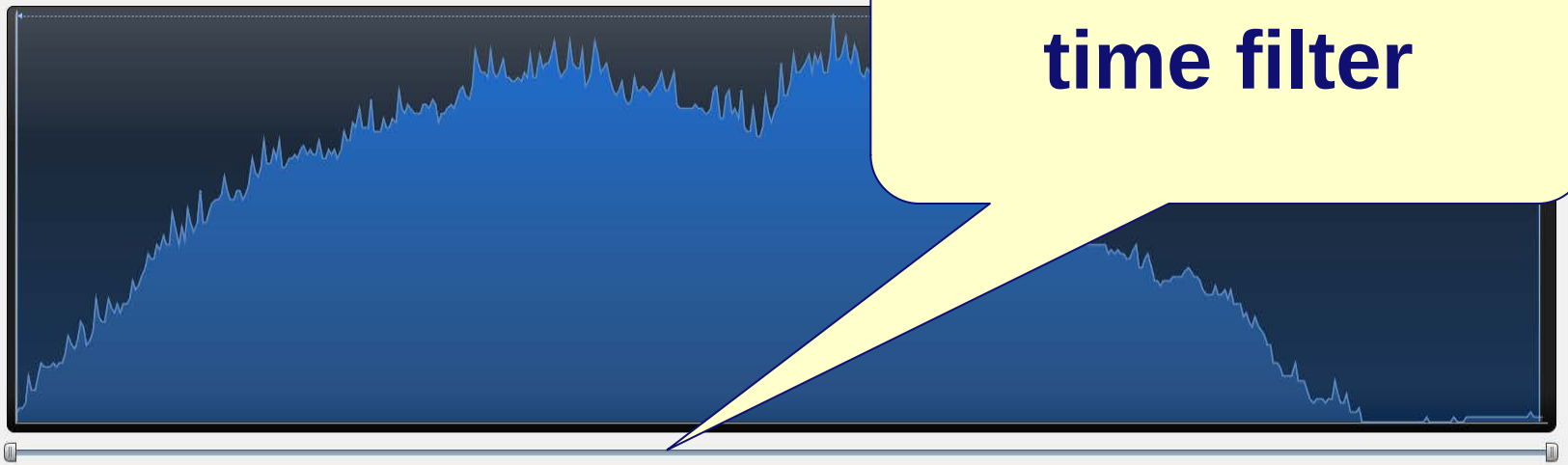
Active filters

Timeframe
Filters by timestamp

click to add filter...

Reset Undo changes

Timeframe
Filters by timestamp



time filter

January 2005

Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	28	29	30	31	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	1	2	3	4	5	6

00 : 00 : 00

Keep cases:

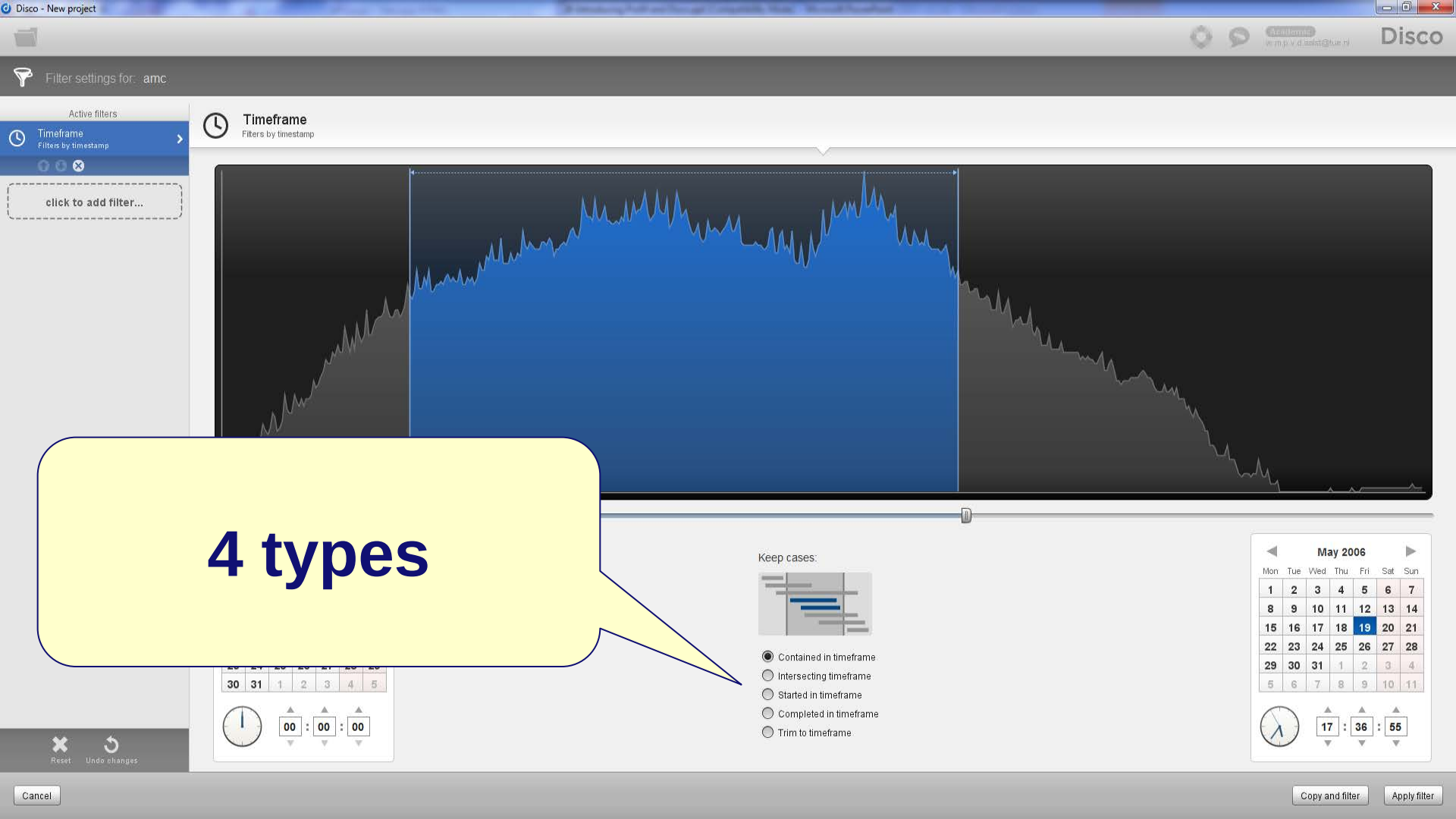
- Contained in timeframe
- Intersecting timeframe
- Started in timeframe
- Completed in timeframe
- Trim to timeframe

March 2007

Mon	Tue	Wed	Thu	Fri	Sat	Sun
26	27	28	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	1
2	3	4	5	6	7	8

01 : 00 : 00

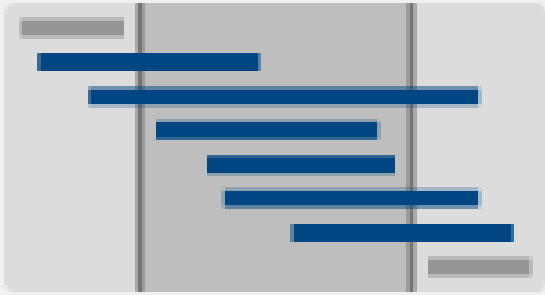
Cancel Copy and filter Apply filter


Disco - New project
Disco
Filter settings for: amc
Active filters
Timeframe
Filters by timestamp
click to add filter...
Timeframe
Filters by timestamp
4 types
Keep cases:
Contained in timeframe
Intersecting timeframe
Started in timeframe
Completed in timeframe
Trim to timeframe
May 2006
Mon Tue Wed Thu Fri Sat Sun
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 1 2 3 4
5 6 7 8 9 10 11
00 : 00 : 00
17 : 36 : 55
Reset
Undo changes
Cancel
Copy and filter
Apply filter

Keep cases:

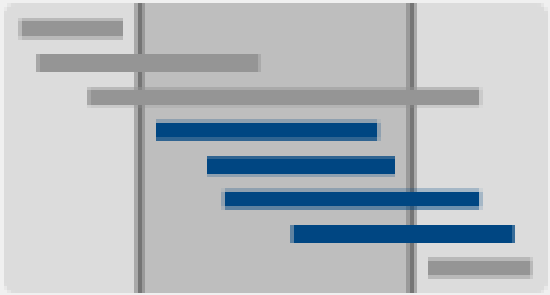
- (●) Contained in timeframe
- ( ) Intersecting timeframe
- ( ) Started in timeframe
- ( ) Completed in timeframe
- ( ) Trim to timeframe

Keep cases:



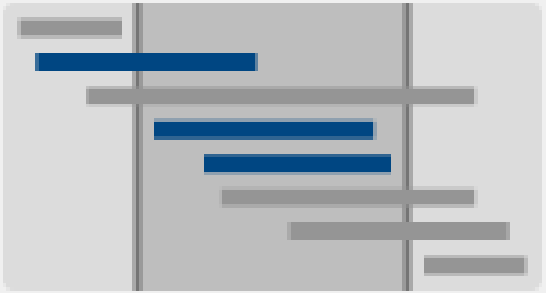
- ( ) Contained in timeframe
- (●) Intersecting timeframe
- ( ) Started in timeframe
- ( ) Completed in timeframe
- ( ) Trim to timeframe

Keep cases:



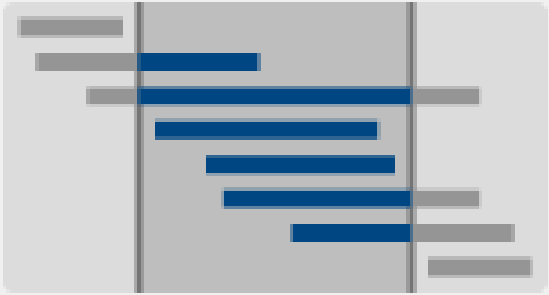
- ○ Contained in timeframe
- ○ Intersecting timeframe
- ◉ Started in timeframe
- ○ Completed in timeframe
- ○ Trim to timeframe

Keep cases:

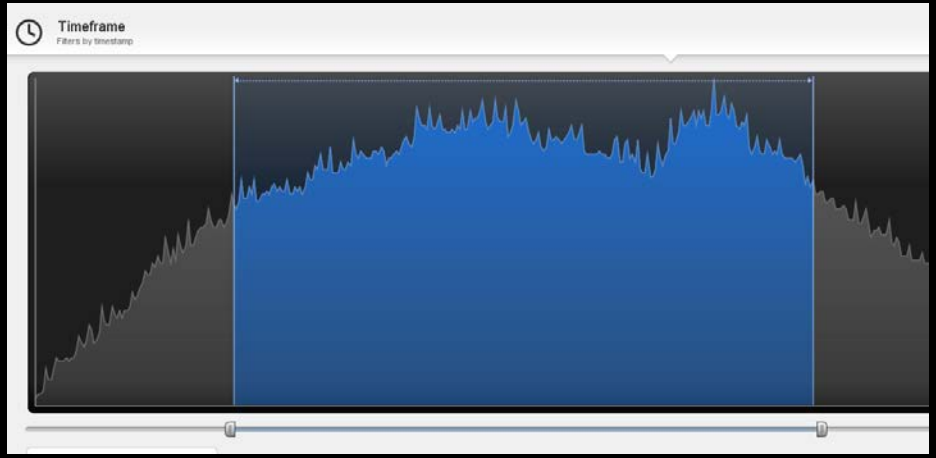


- ○ Contained in timeframe
- ○ Intersecting timeframe
- ○ Started in timeframe
- ◉ Completed in timeframe
- ○ Trim to timeframe

Keep cases:



- ○ Contained in timeframe
- ○ Intersecting timeframe
- ○ Started in timeframe
- ○ Completed in timeframe
- ◉ Trim to timeframe



Disco - New project

Disco

Filter settings for: amc

Active filters

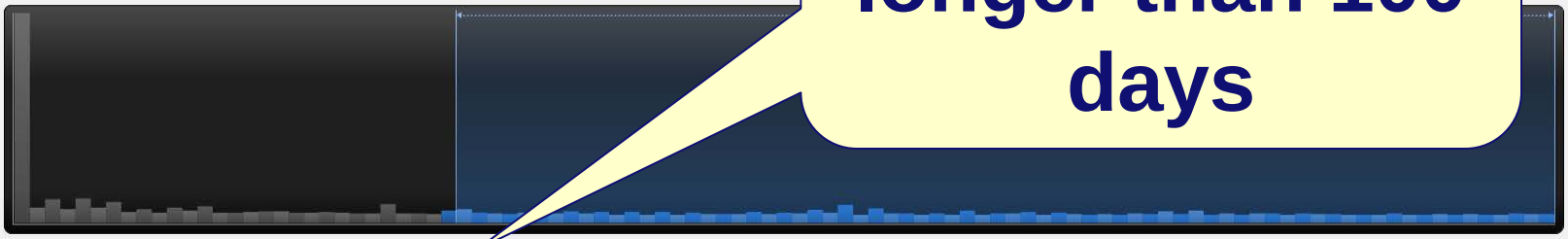
Performance
Filters cases by performance

click to add filter...

Reset Undo changes

Performance
Filters cases by performance

Filter cases by: Case duration



Short cases

Long-running cases

100 days
Minimum duration

23%
of cases

348 days, 9 hours
Maximum duration

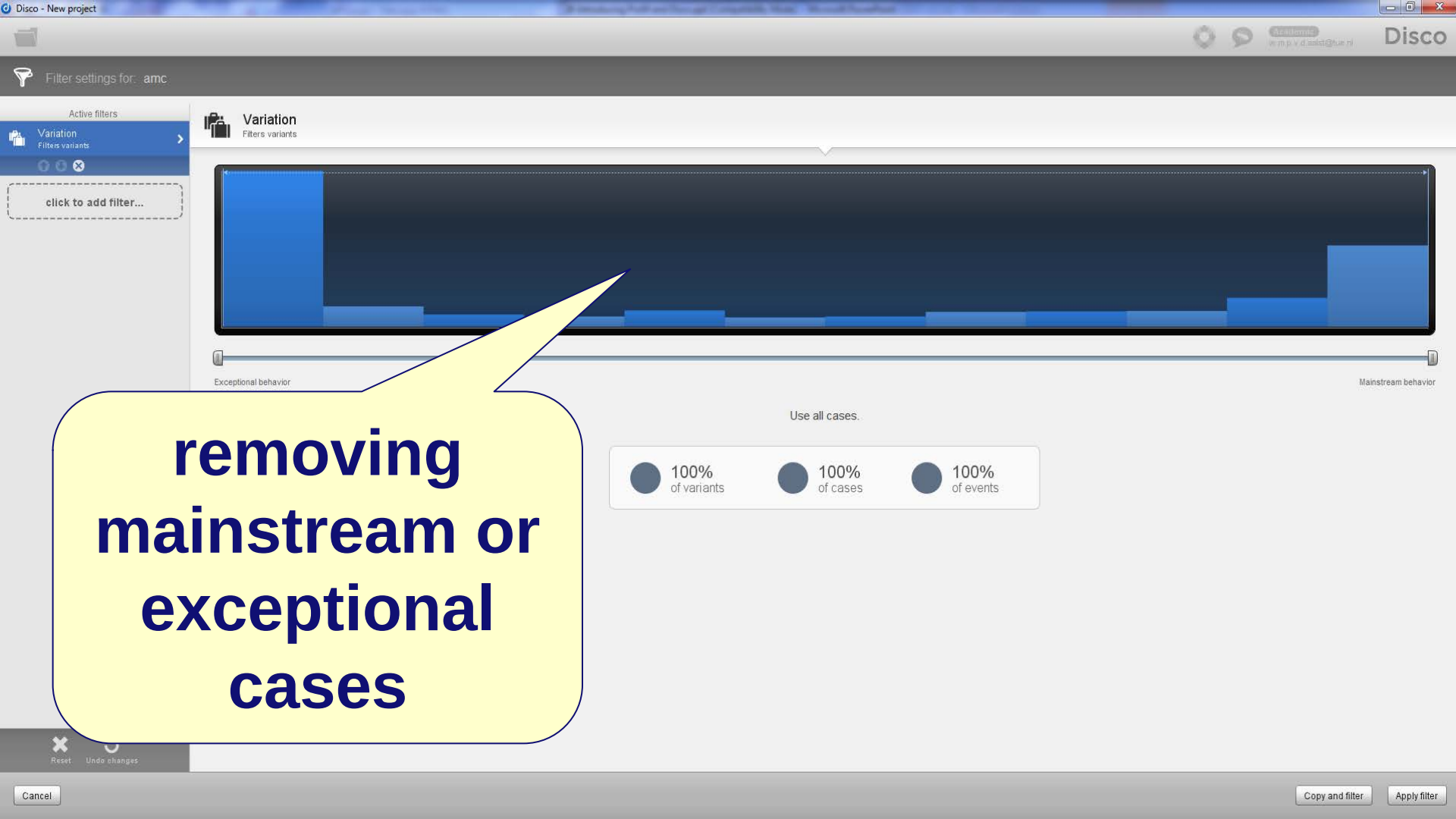
Use cases running longer than 100 days.

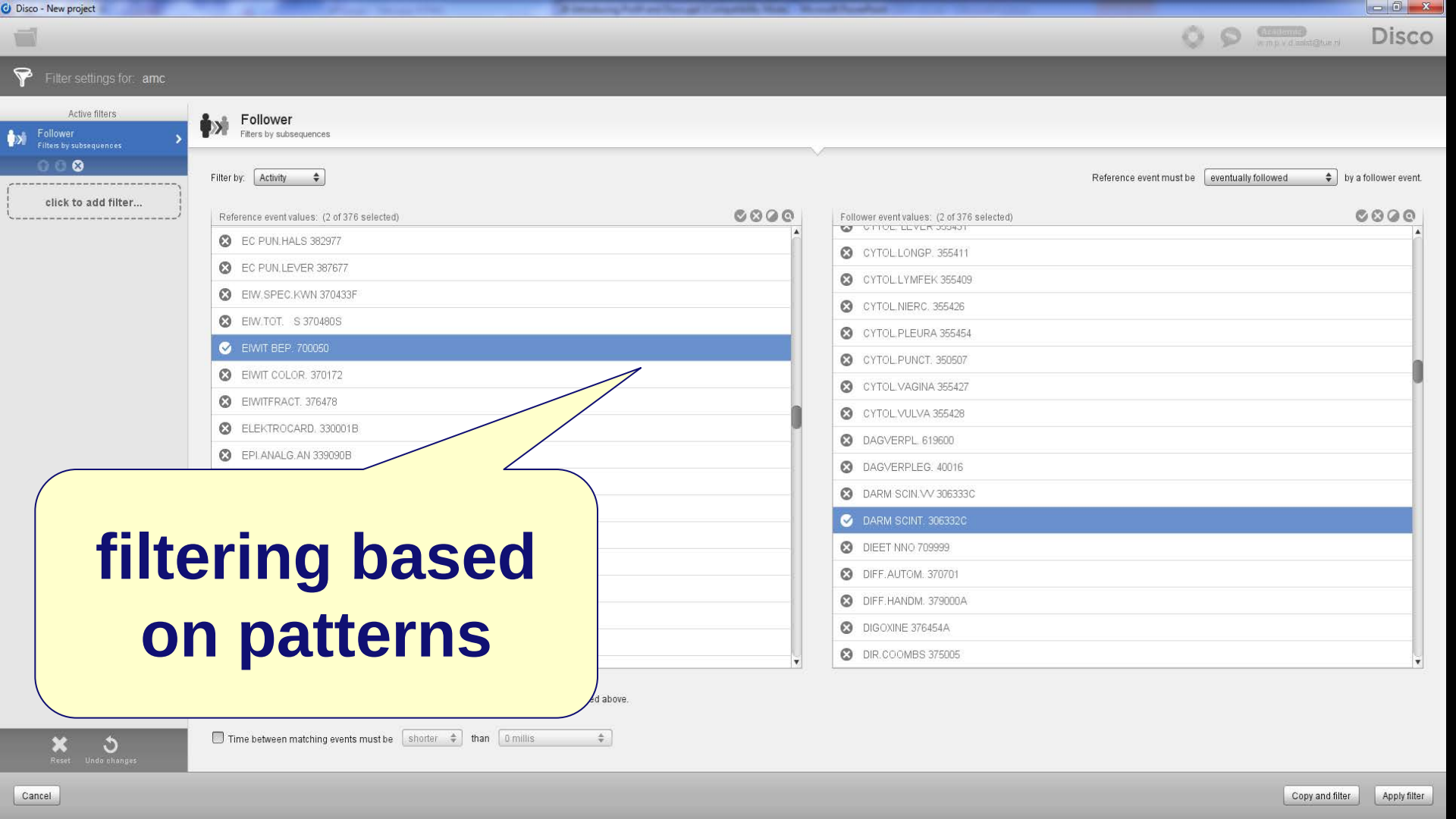
cases that took longer than 100 days

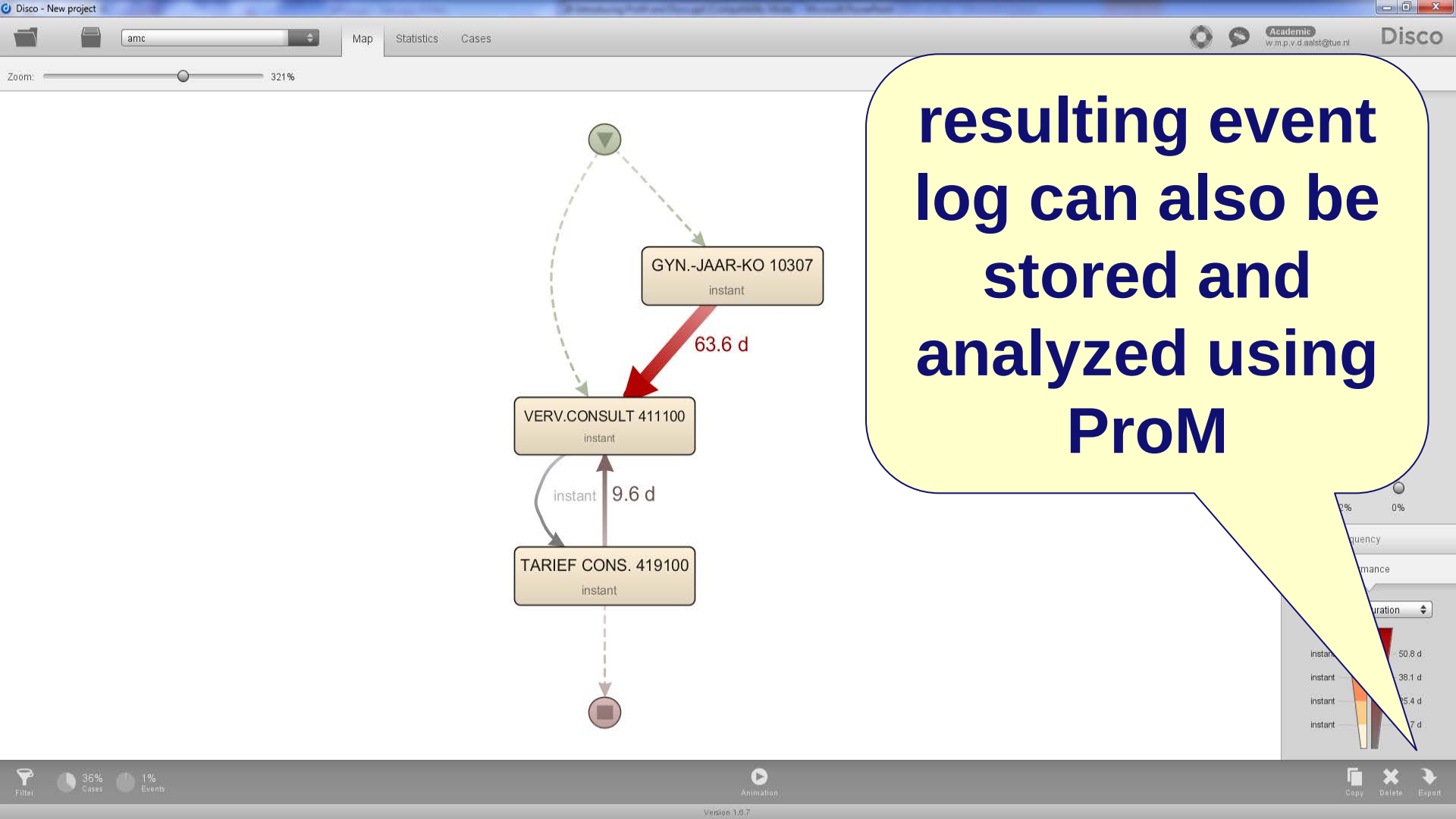
Cancel

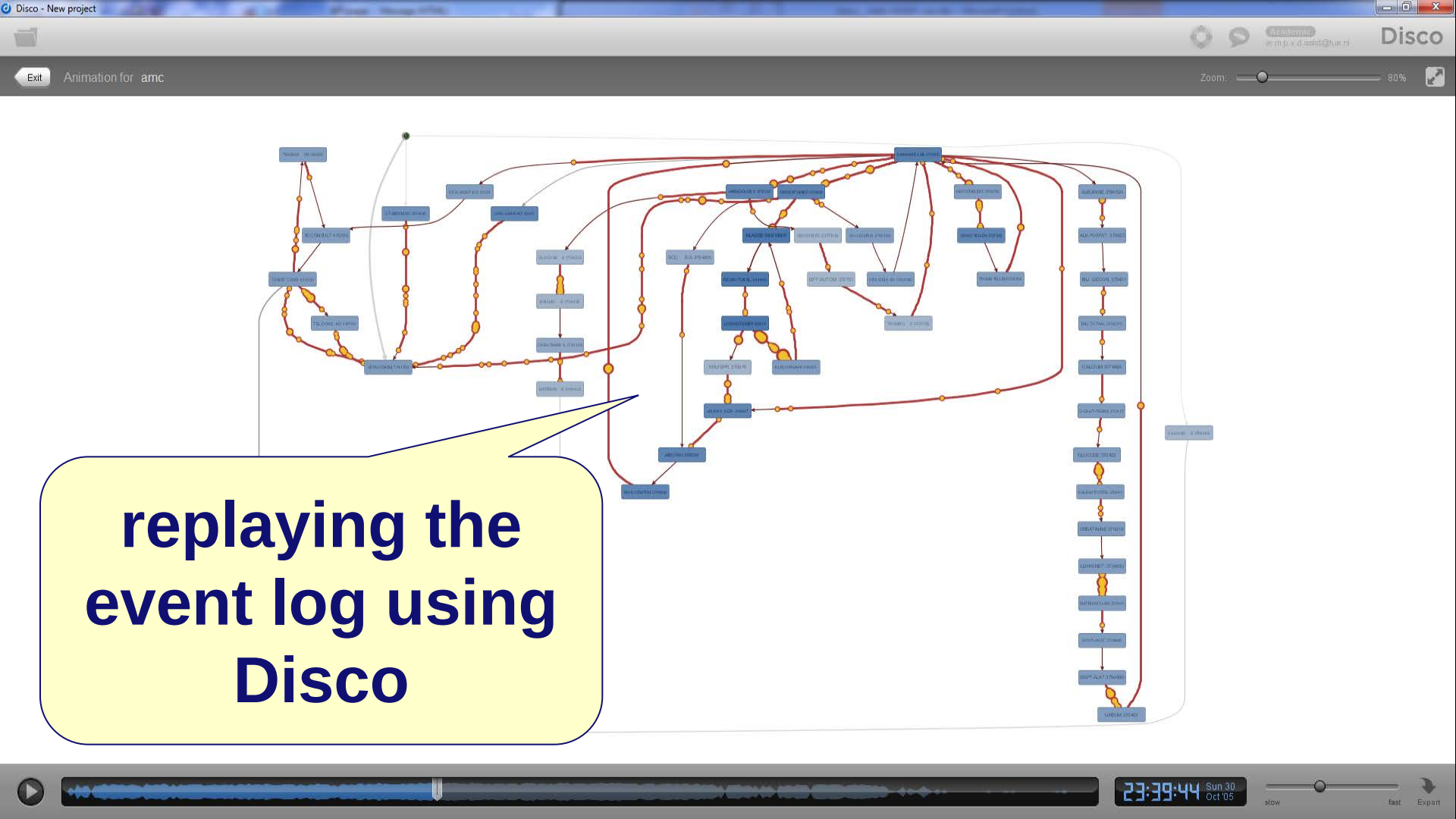
Copy and filter Apply filter


Disco - New project
Disco
Filter settings for: amc
Active filters
Attribute
Removes events by attribute
click to add filter...
Reset
Undo changes
Attribute
Removes events by attribute
Filter by: Activity
Filtering mode:
Keep selected
Mandatory
Forbidden
This filter removes all events that do not have one of the selected values.
Event values: (all selected)
1E CONSULT 410100
A1-FETOPROT. 378449
AANNAME LAB 370000
ABO RH 370604
AFW. VAGINA 337319
AFW. VAGINA 337380
AFW.VRW.ORG. 337180
AFW. VULVA 337419
AFW. VULVA 337419C
AFW. VULVA 337480
AFWEZIGH.DAG 610002
ALBUMINE 378453A
ALBUMINE SP 378453S
ALFA-AMYLASE 370117
ALK.FOSFAT. 370423
ALK.FOSFAT.S 370423T
ALUMINIUM 378437
AMMONIAK 370483
AMMONIAK S 370483S
AMYLASE 370415
AMYLASE S 370415S
cases/events (not) having particular attributes
Cancel
Copy and filter
Apply filter


Disco - New project
Disco
Filter settings for: amc
Active filters
Variation
Filters variants
click to add filter...
Variation
Filters variants
Exceptional behavior
Mainstream behavior
Use all cases.
100% of variants
100% of cases
100% of events
removing mainstream or exceptional cases
Reset
Undo changes
Cancel
Copy and filter
Apply filter


Disco - New project
Disco
Filter settings for: amc
Active filters
Follower
Filters by subsequences
click to add filter...
Follower
Filters by subsequences
Filter by: Activity
Reference event must be eventually followed by a follower event.
Reference event values: (2 of 376 selected)
EC PUN.HALS 382977
EC PUN.LEVER 387677
EIW.SPEC.KWN 370433F
EIW.TOT. S 370480S
EIWIT BEP. 700050
EIWIT COLOR. 370172
EIWITFRACT. 376478
ELEKTROCARD. 330001B
EPI.ANALG.AN 339090B
Follower event values: (2 of 376 selected)
CYTOL.LONGP. 355411
CYTOL.LYMFEK 355409
CYTOL.NIERC. 355426
CYTOL.PLEURA 355454
CYTOL.PUNCT. 350507
CYTOL.VAGINA 355427
CYTOL.VULVA 355428
DAGVERPL. 619600
DAGVERPLEG. 40016
DARM SCIN.VV 306333C
DARM SCINT. 306332C
DIEET NNO 709999
DIFF.AUTOM. 370701
DIFF.HANDM. 379000A
DIGOXINE 376454A
DIR.COOMBS 375005
filtering based on patterns
Time between matching events must be shorter than 0 millis
Reset
Undo changes
Cancel
Copy and filter
Apply filter


Disco - New project
amc
Map
Statistics
Cases
Academic
Disco
Zoom:
321%
GYN.-JAAR-KO 10307
instant
63.6 d
VERV.CONSULT 411100
instant
instant
9.6 d
TARIEF CONS. 419100
instant
resulting event log can also be stored and analyzed using ProM
Filter
36%
Cases
1%
Events
Animation
Copy
Delete
Export
Version 1.6.7


Disco - New project
Disco
Exit
Animation for amc
Zoom:
80%
replaying the event log using Disco
23:39:44
Sun 30 Oct '05
slow
fast
Export

<<add animation 3>>

spectrum of tools
two powerful examples

Part I: Preliminaries

- Chapter 1: Introduction
- Chapter 2: Process Modeling and Analysis
- Chapter 3: Data Mining

Part II: From Event Logs to Process Models

- Chapter 4: Getting the Data
- Chapter 5: Process Discovery: An Introduction
- Chapter 6: Advanced Process Discovery Techniques

Part III: Beyond Process Discovery

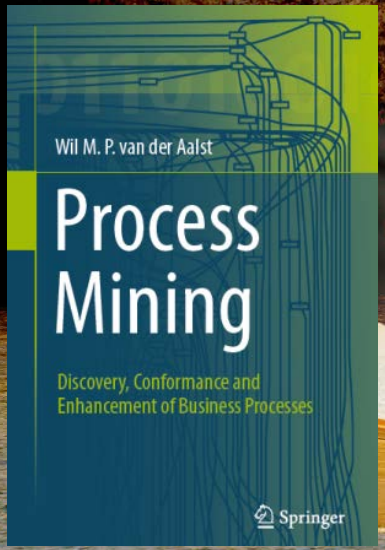
- Chapter 7: Conformance Checking
- Chapter 8: Mining Additional Perspectives
- Chapter 9: Operational Support

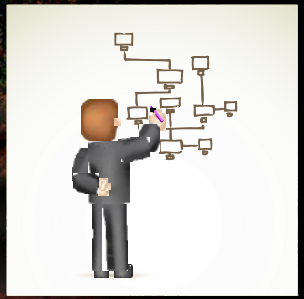
Part IV: Putting Process Mining to Work

- Chapter 10: Tool Support
- Chapter 11: Analyzing "Lasagna Processes"
- Chapter 12: Analyzing "Spaghetti Processes"

Part V: Reflecti

- Chapter 13: Cartography and Navigation
- Chapter 14: Epilogue





TU/e