

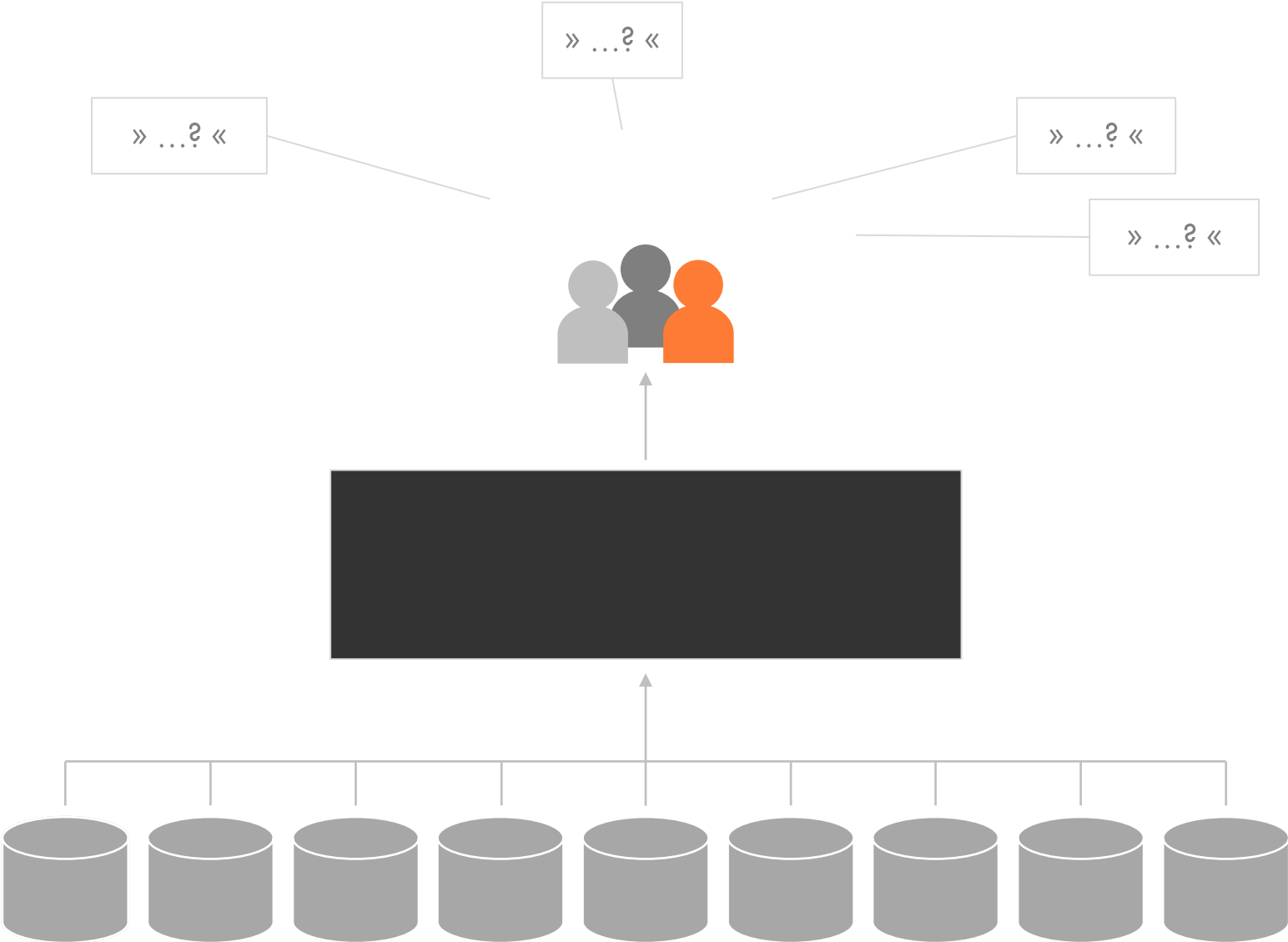
# Kann uns AI helfen, besser zu testen?



**TUM**



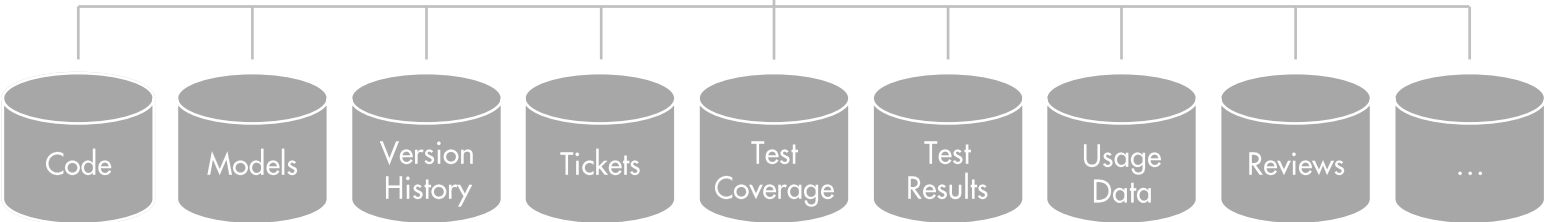
**CQSE**



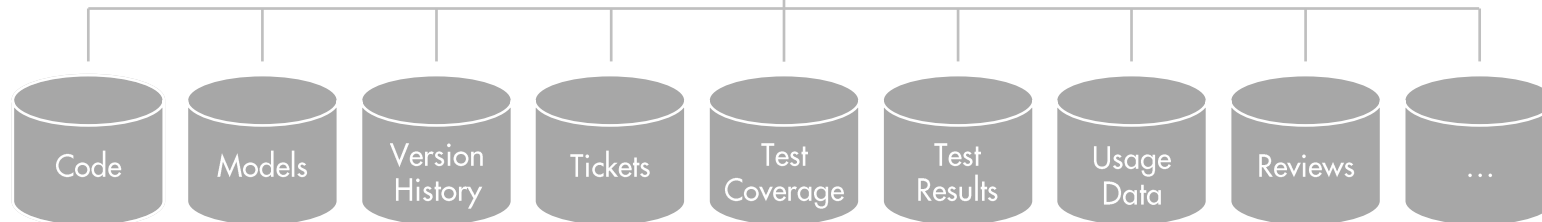
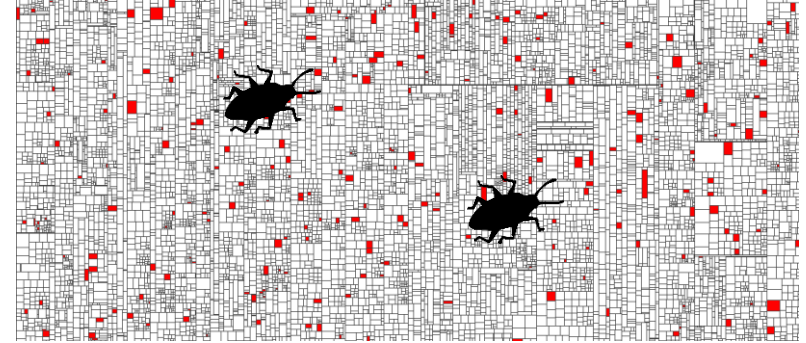
» Wo sind Fehler im Code? «

» Welche Tests sollte ich jetzt ausführen? «

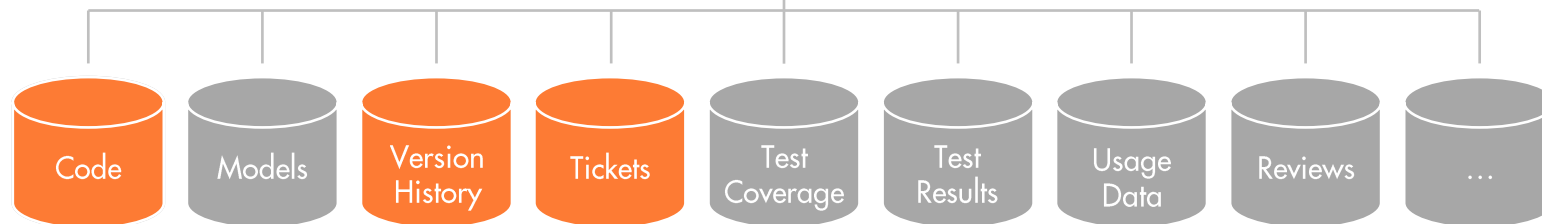
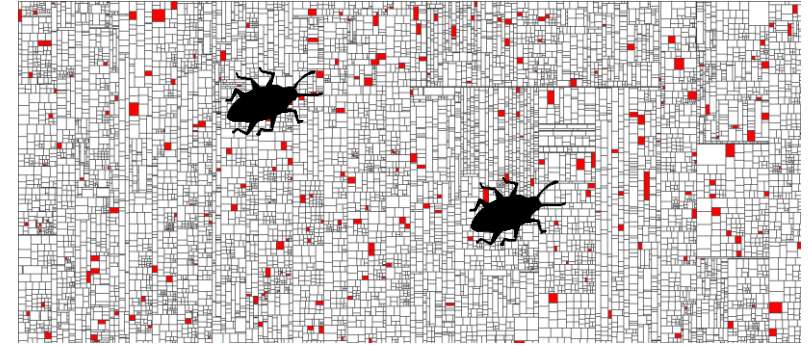
» Wo sind ungetestete Änderungen «



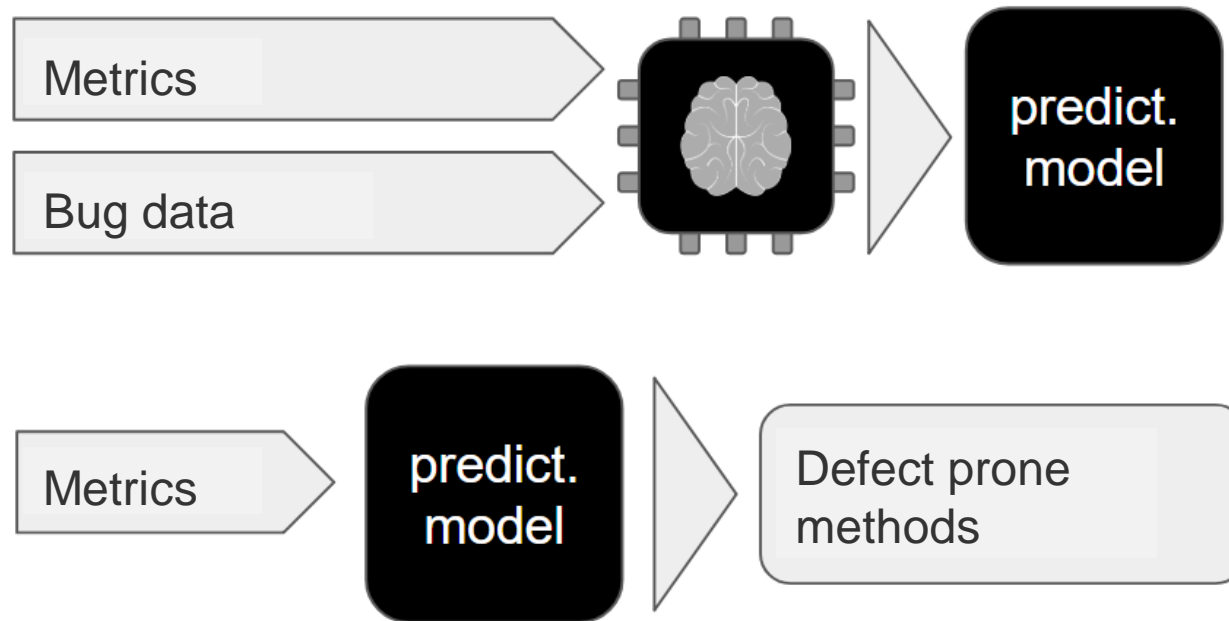
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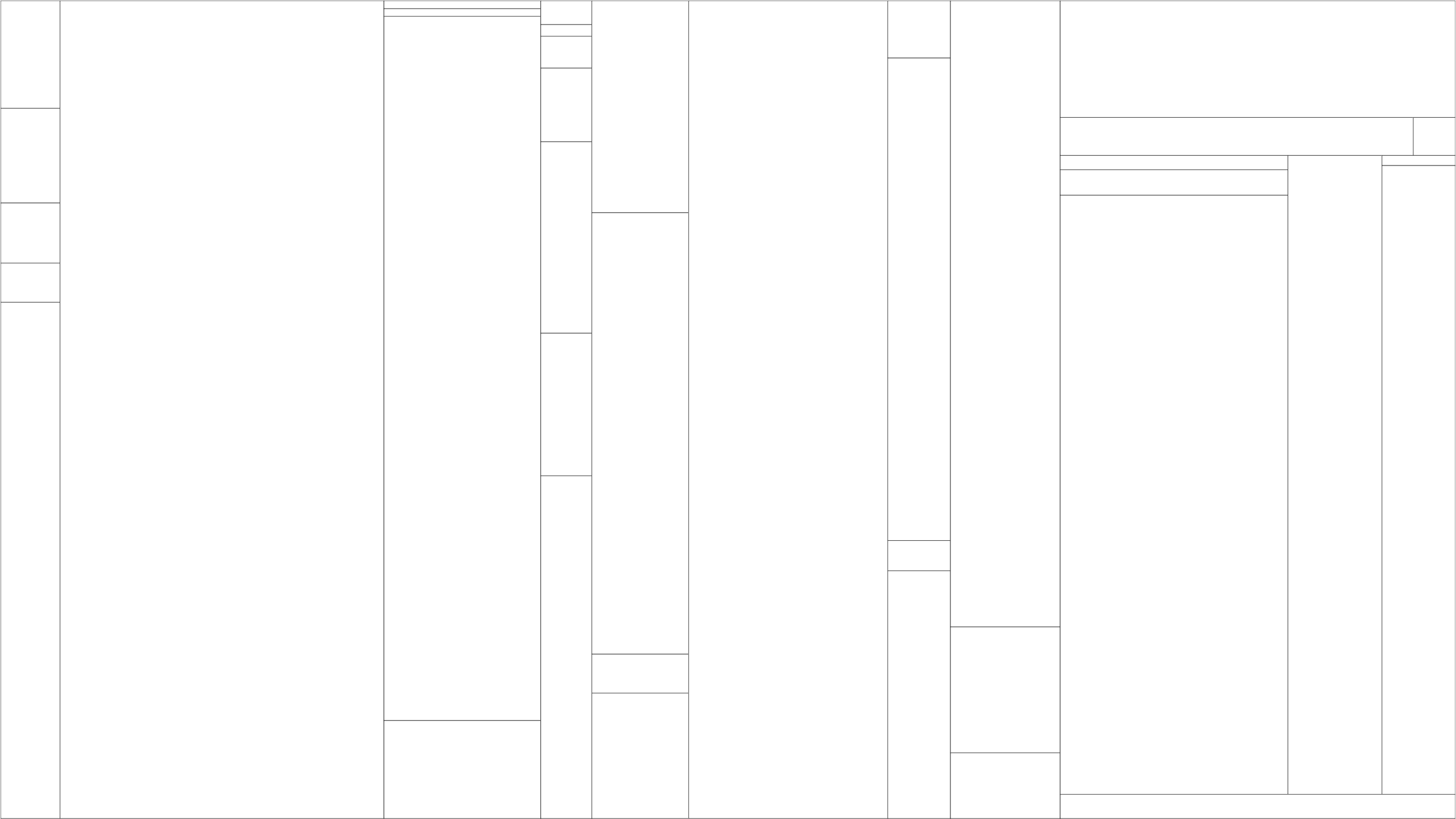


» Wo sind Fehler im Code? «



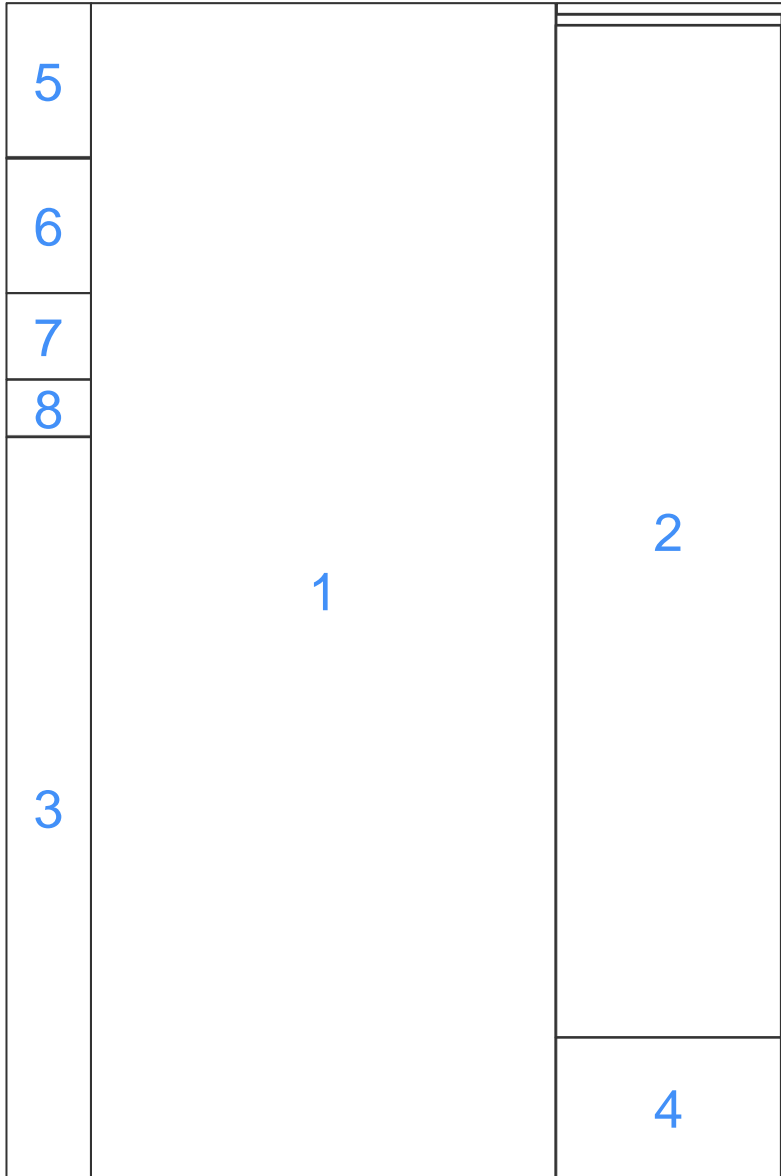
# Defect Prediction

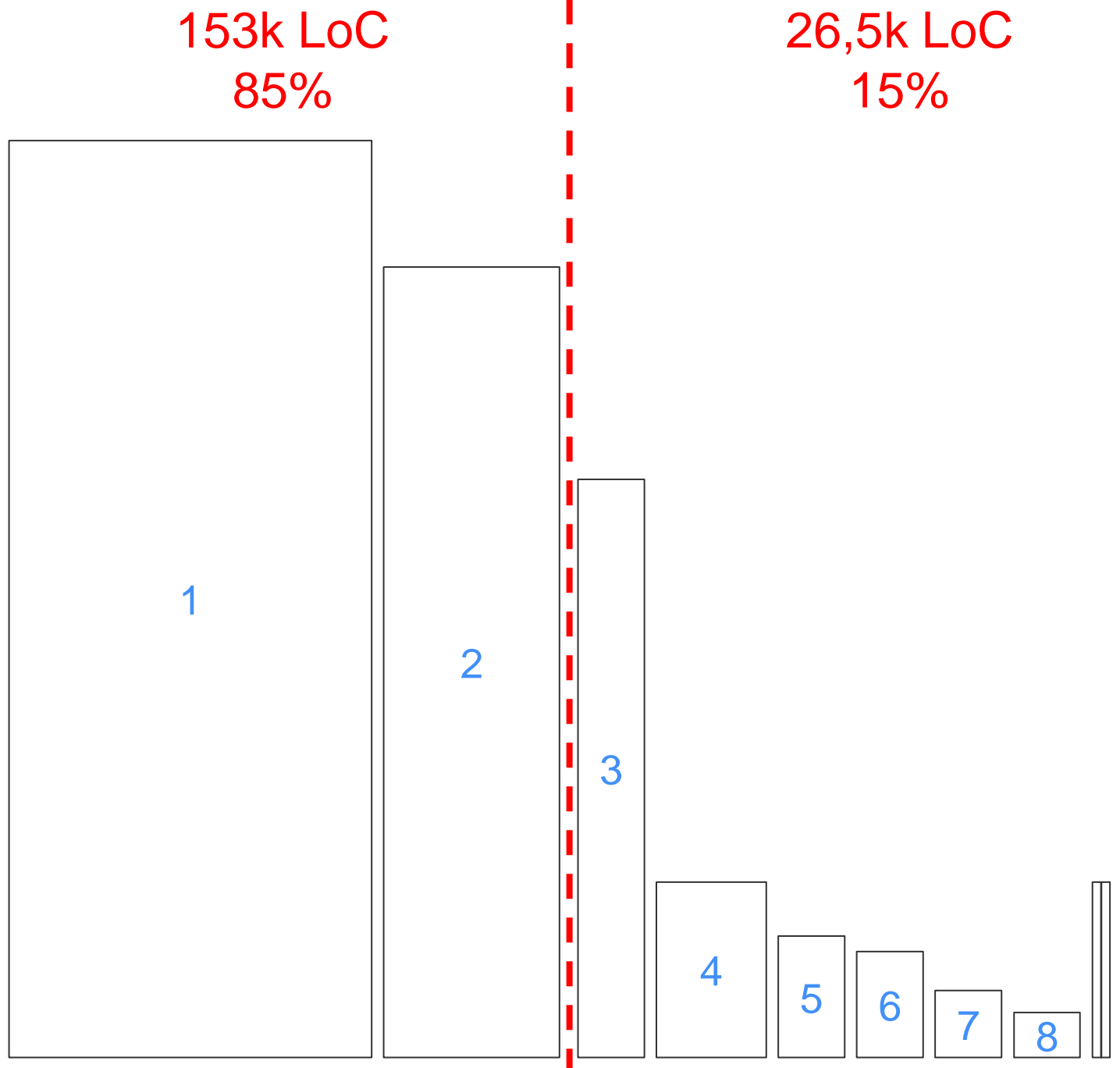
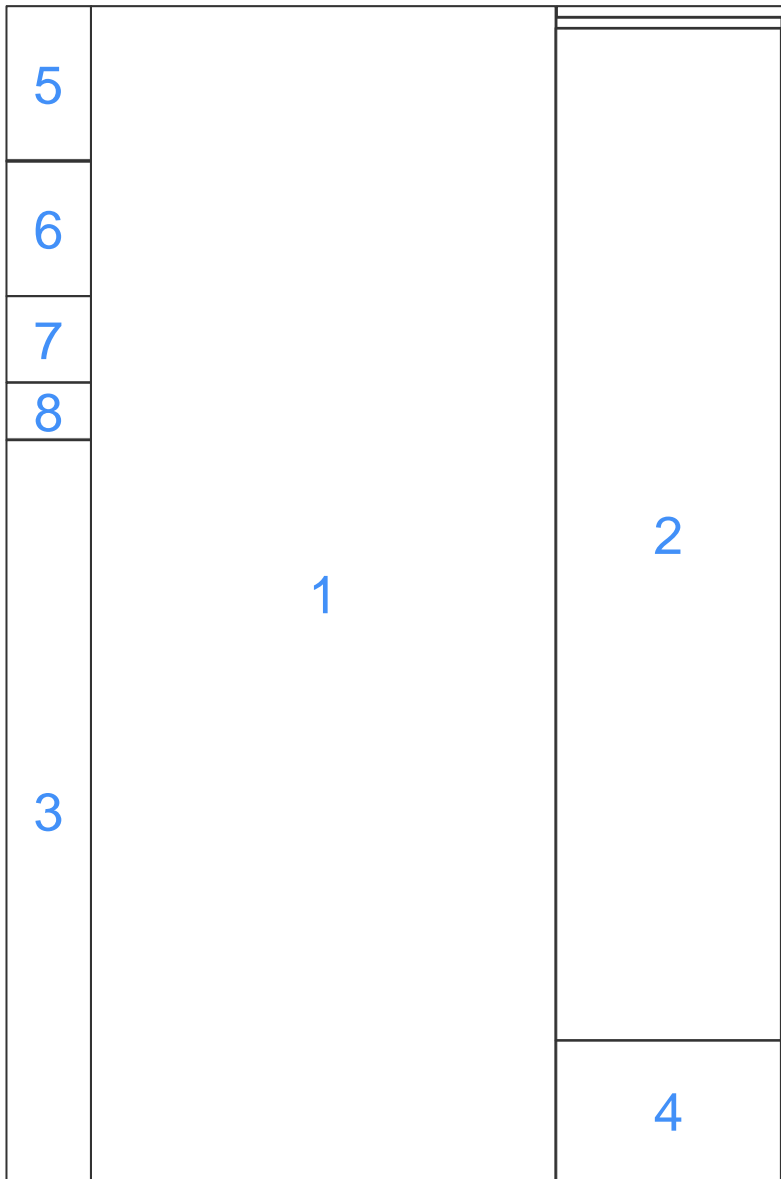


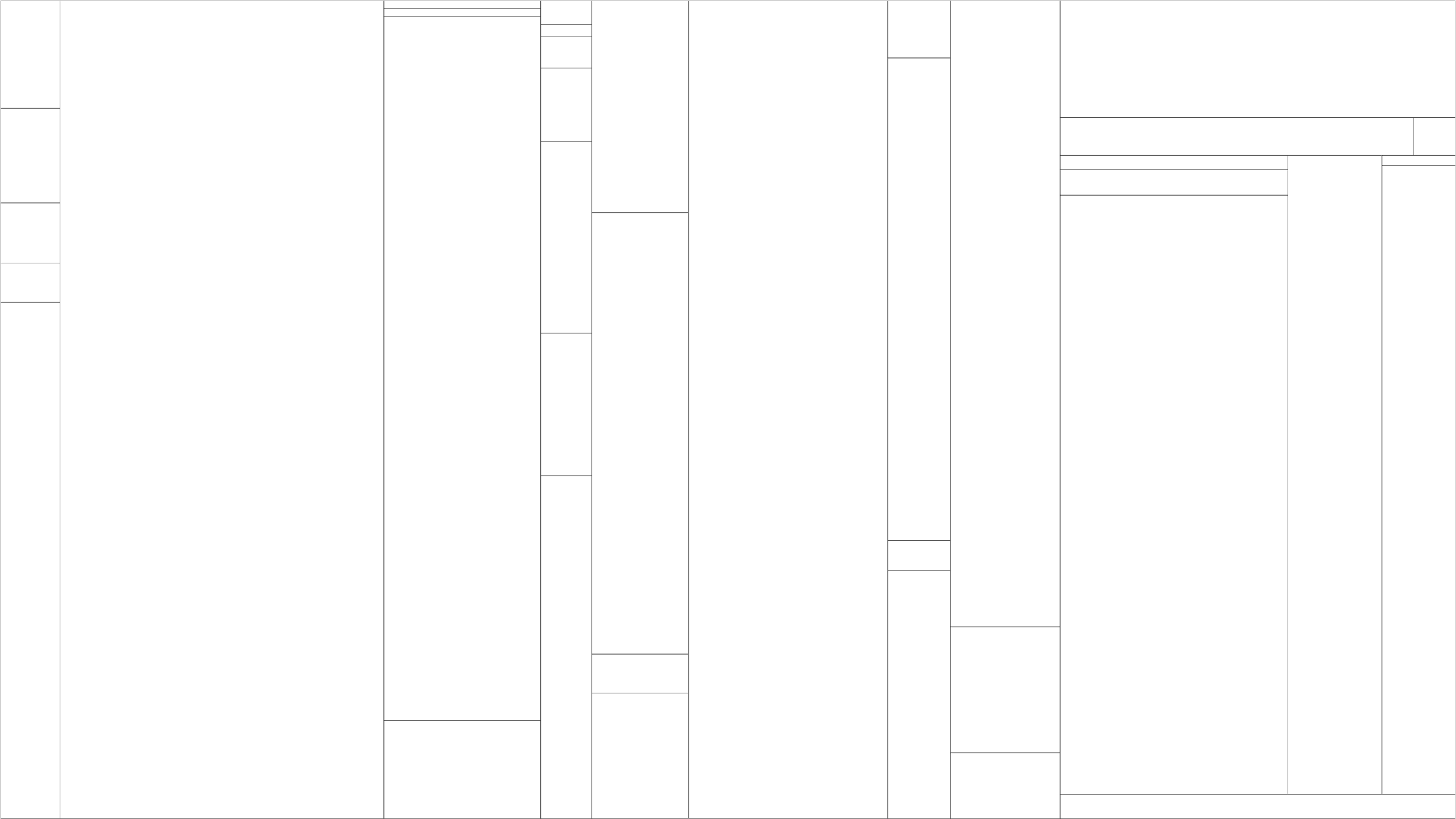


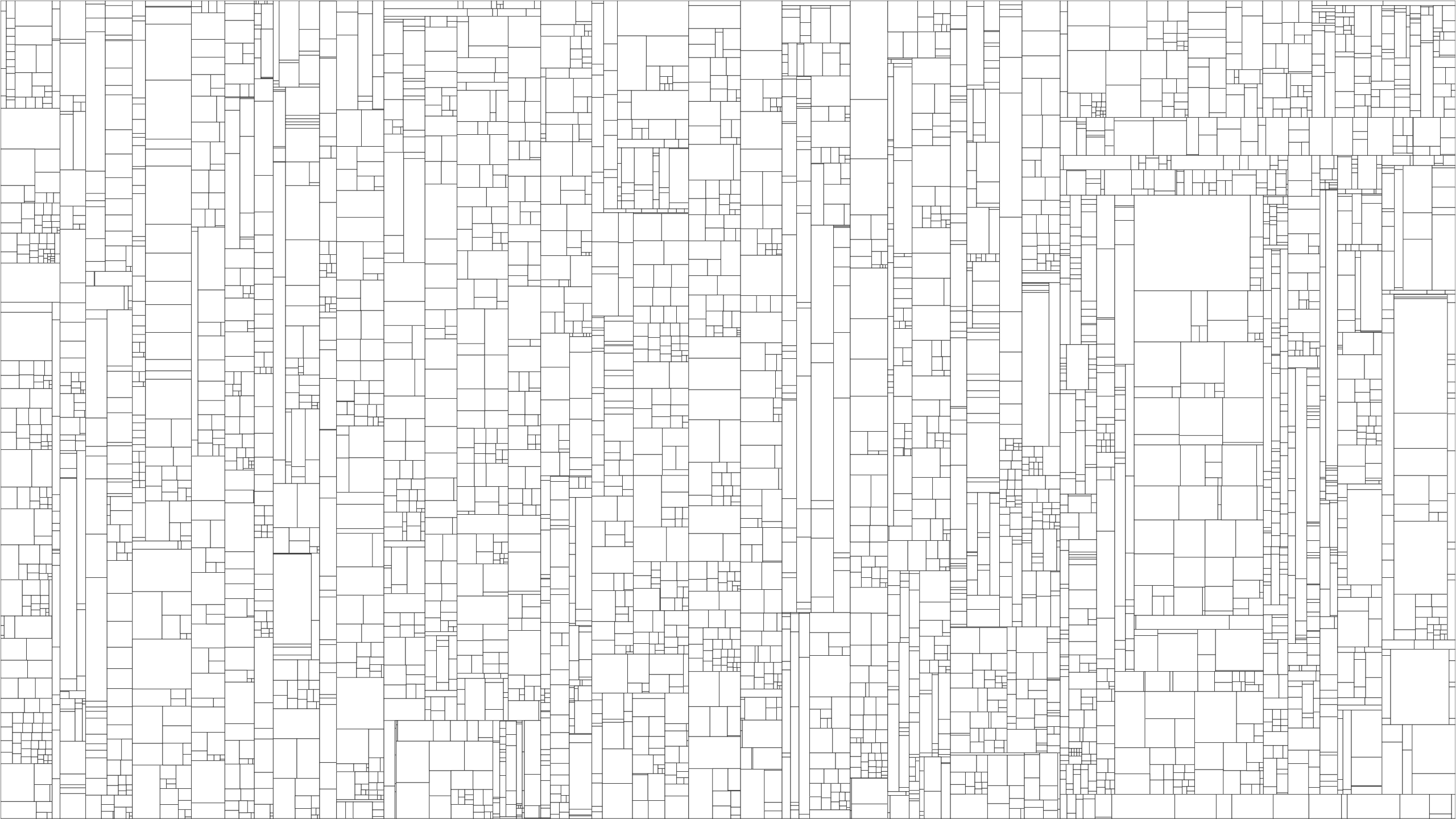


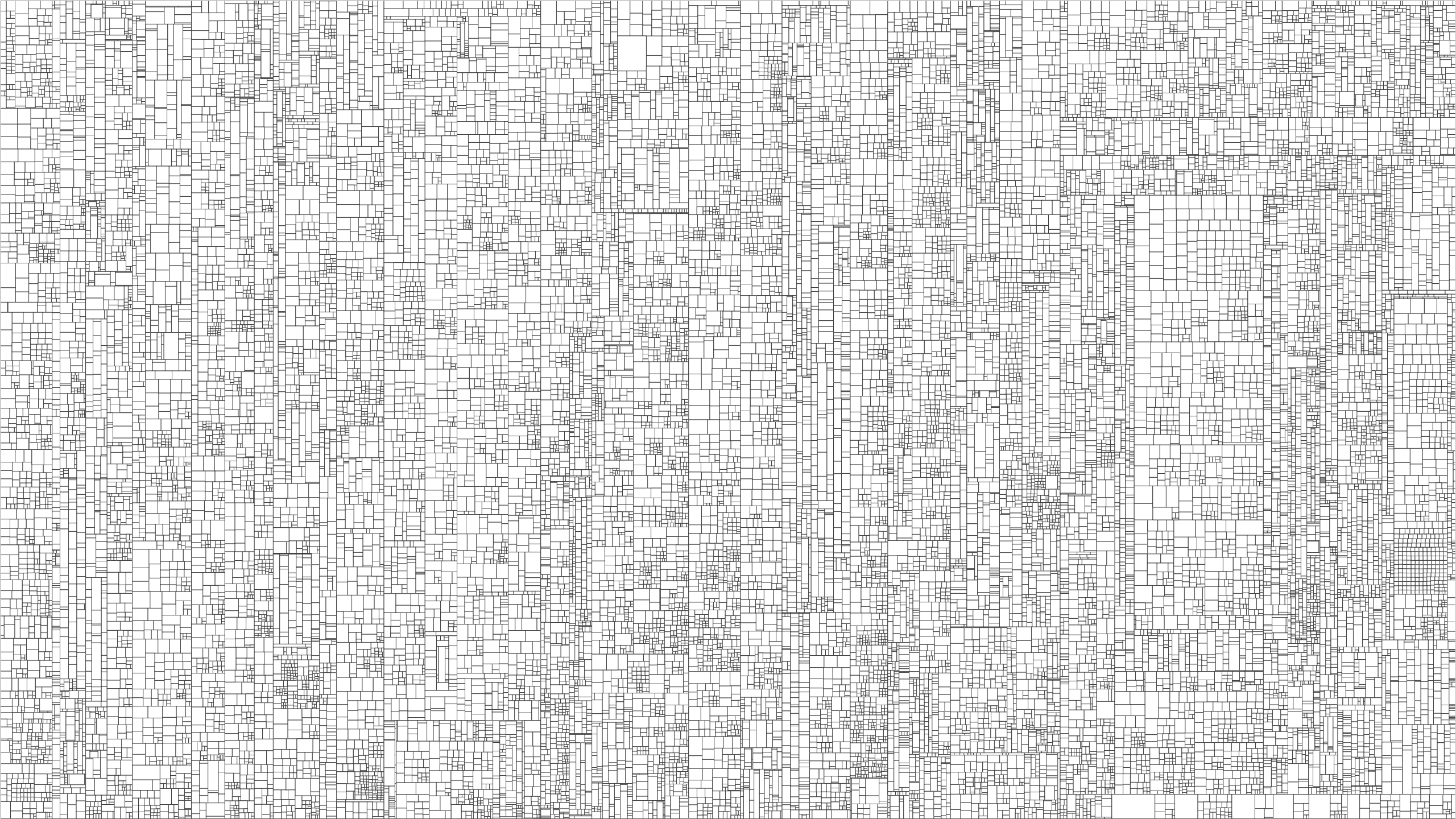
179k LoC

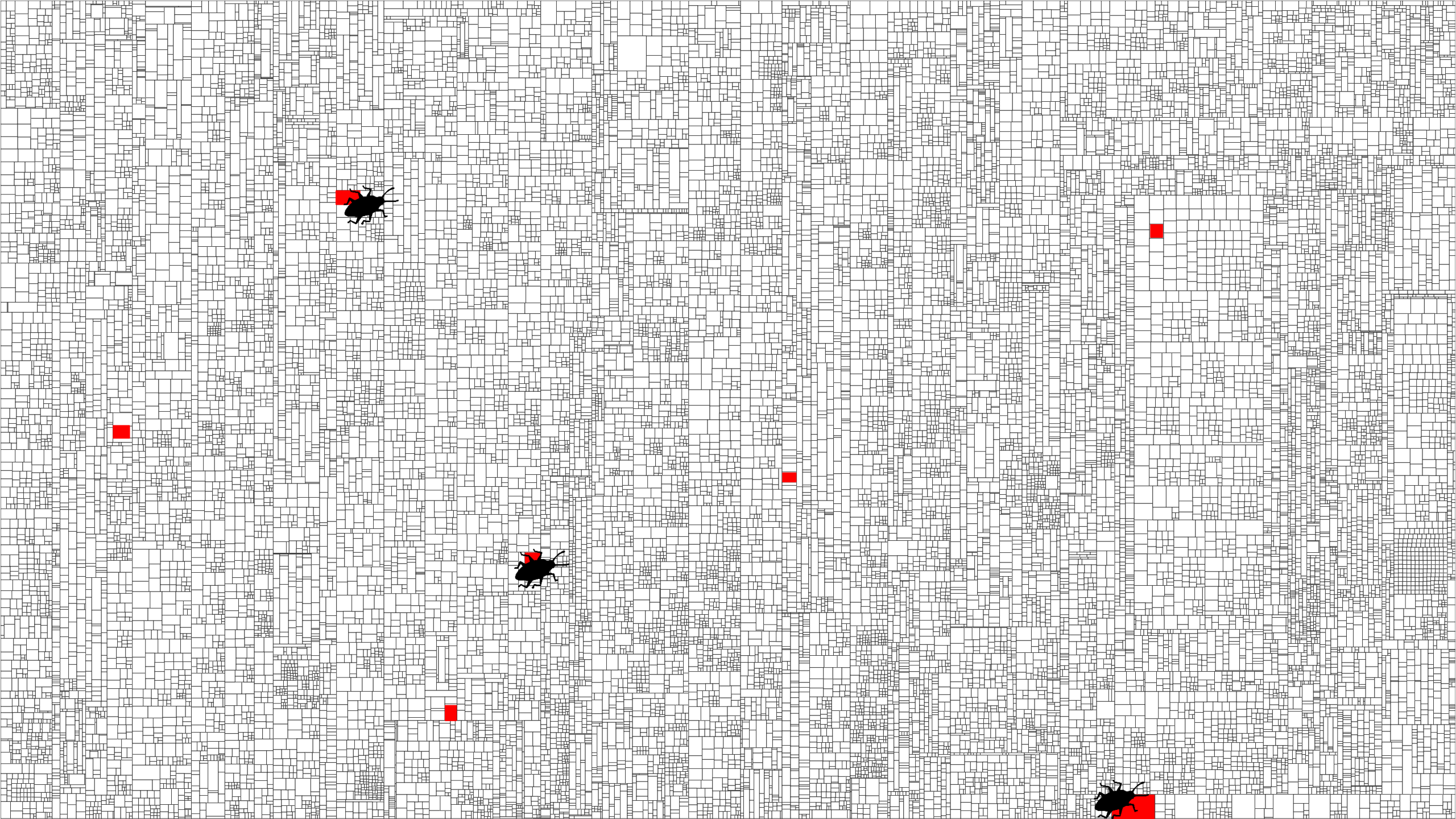


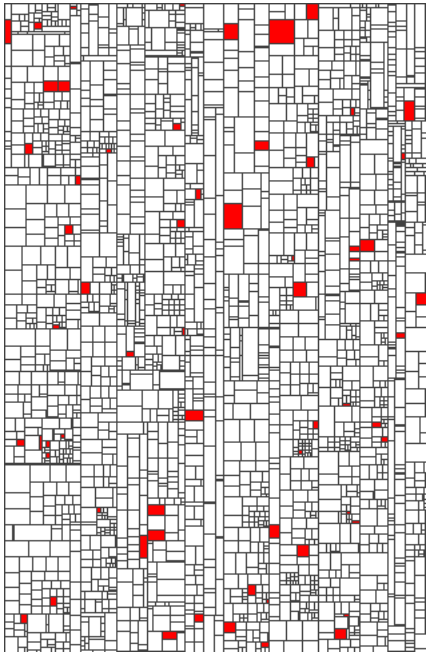








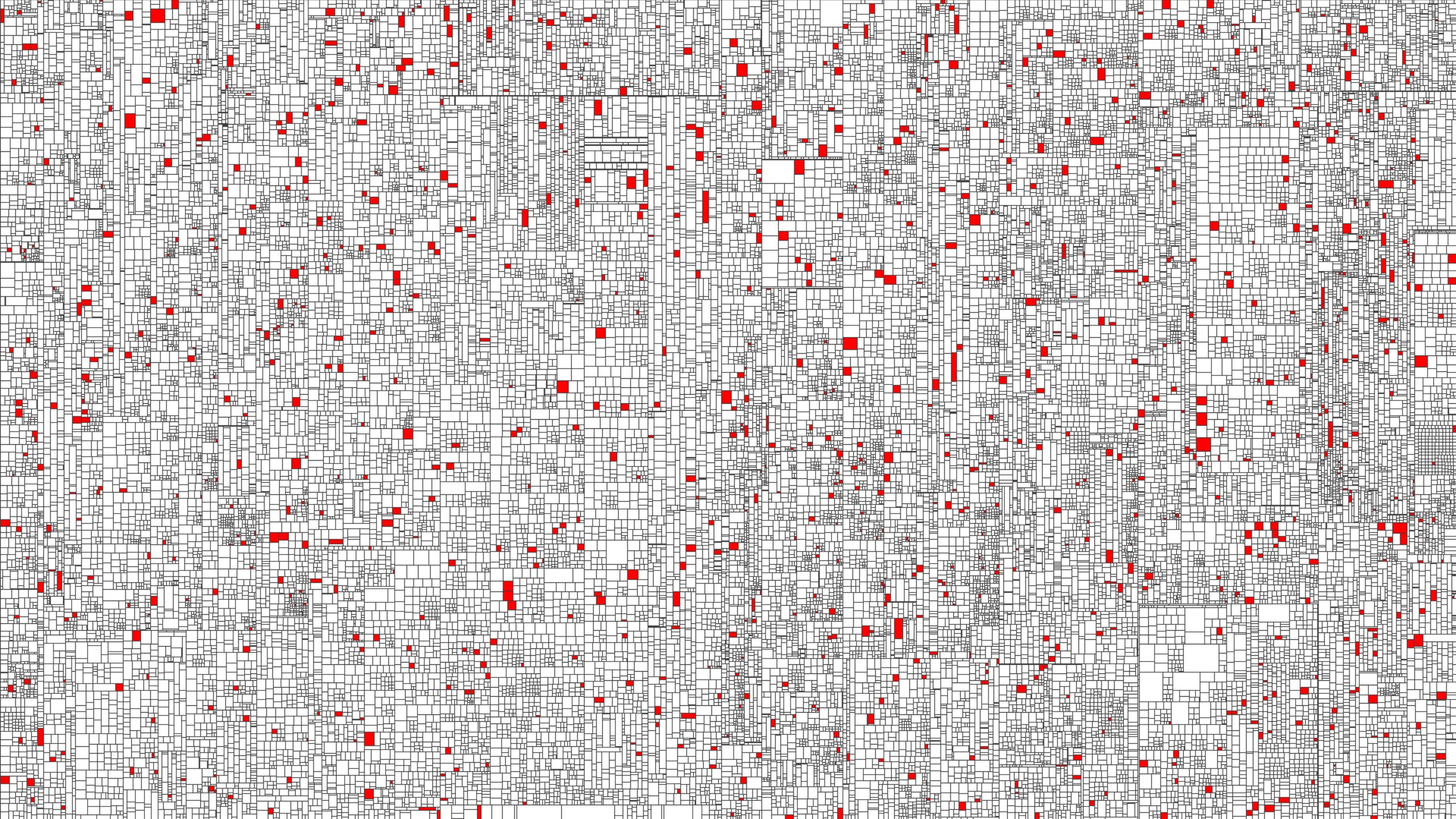


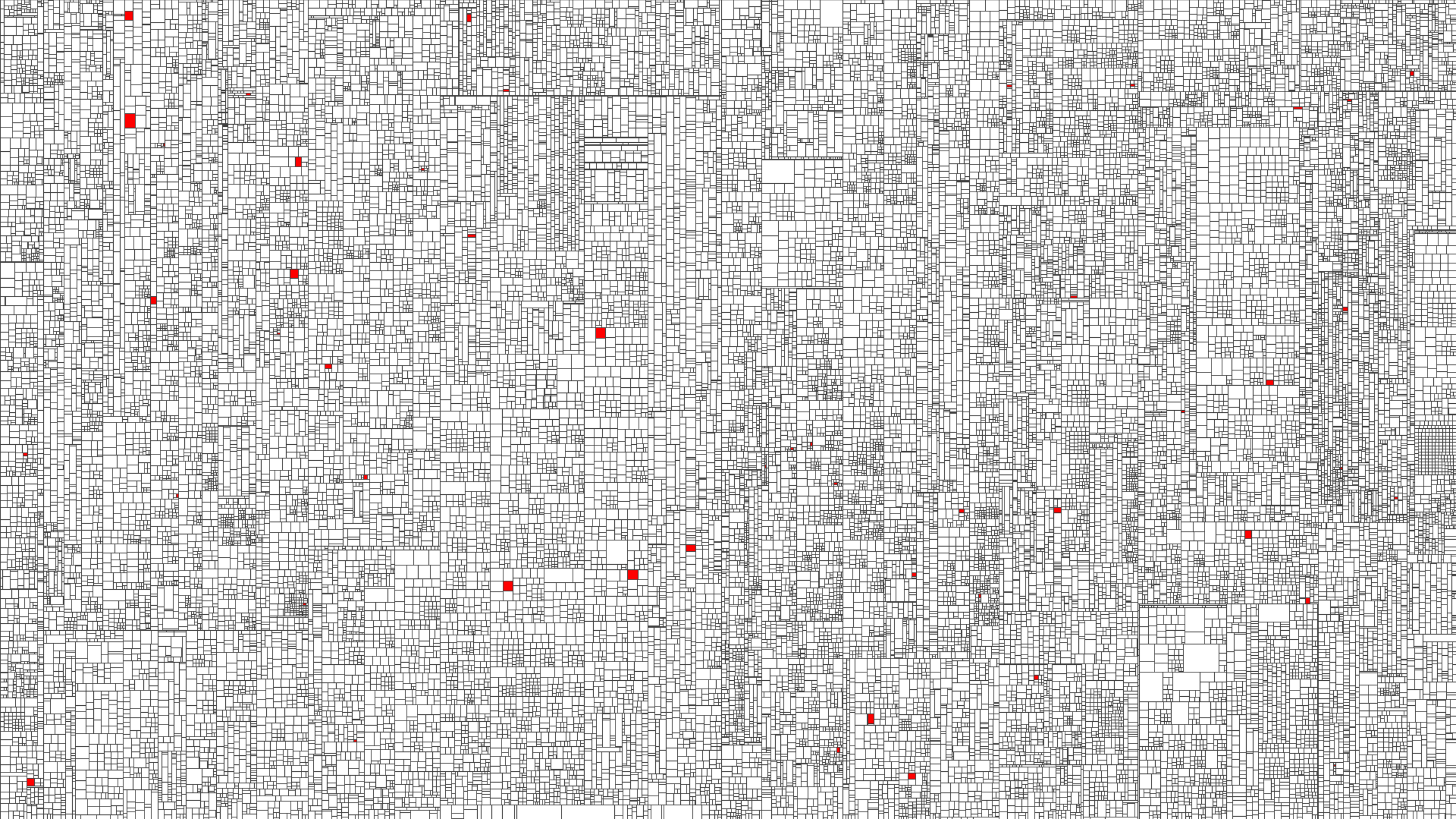


Release

Time of Study







# Evaluation

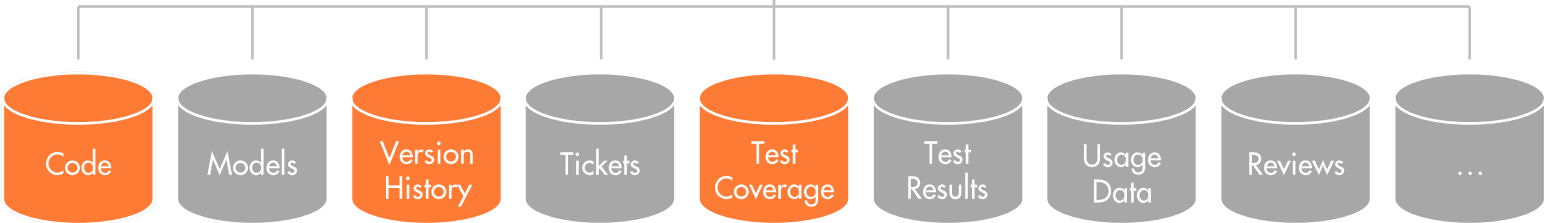
Release	# „defect prone“ Methods	# Bugs (Top 50)
1.4:	1127	
2.0:	1176	-

Pascarella, Palomba, Bacchelli, *Re-evaluating Method-Level Bug Prediction*, 2018:  
**Prediction nicht besser als zufällige Klassifikation.**

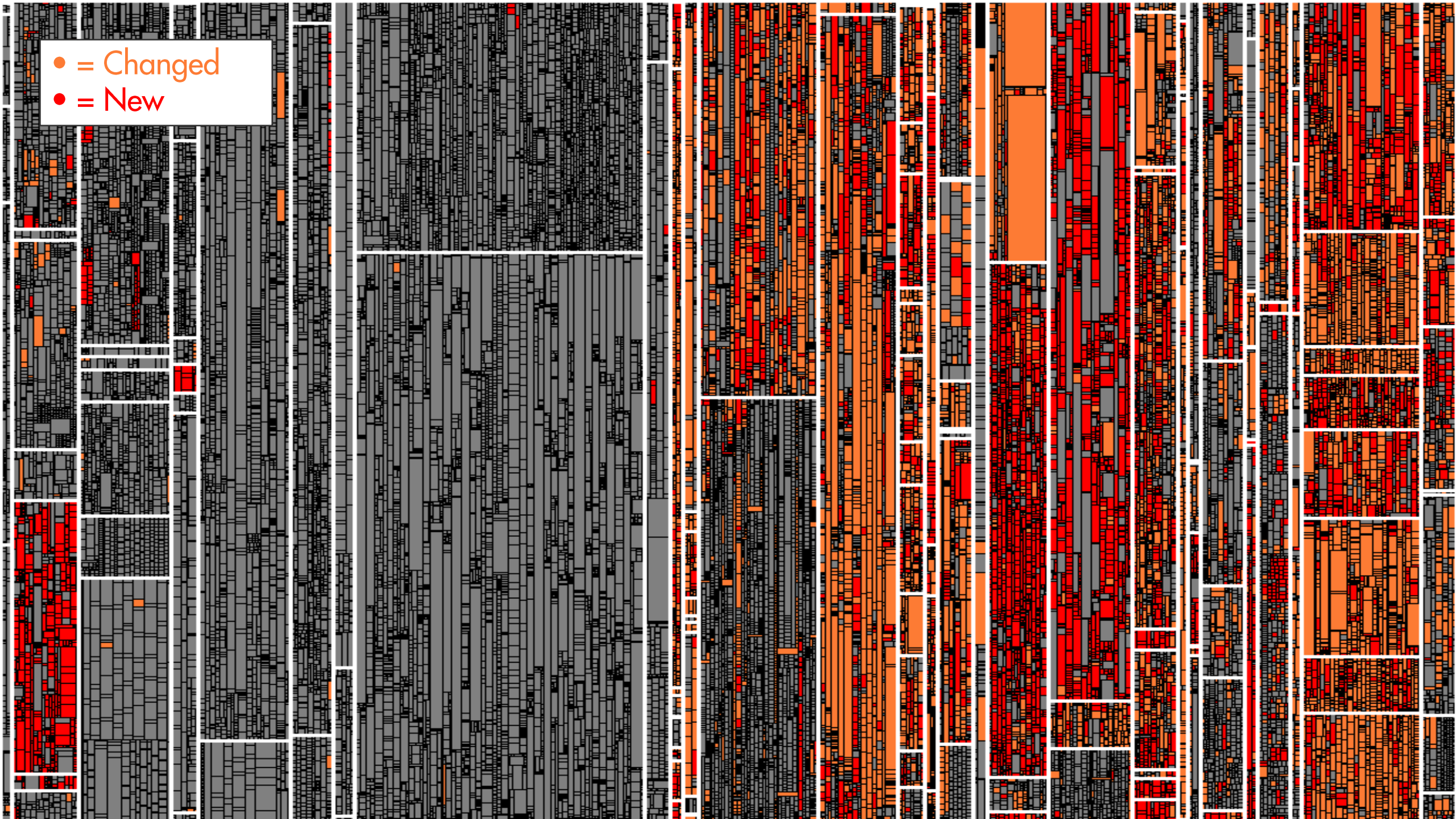
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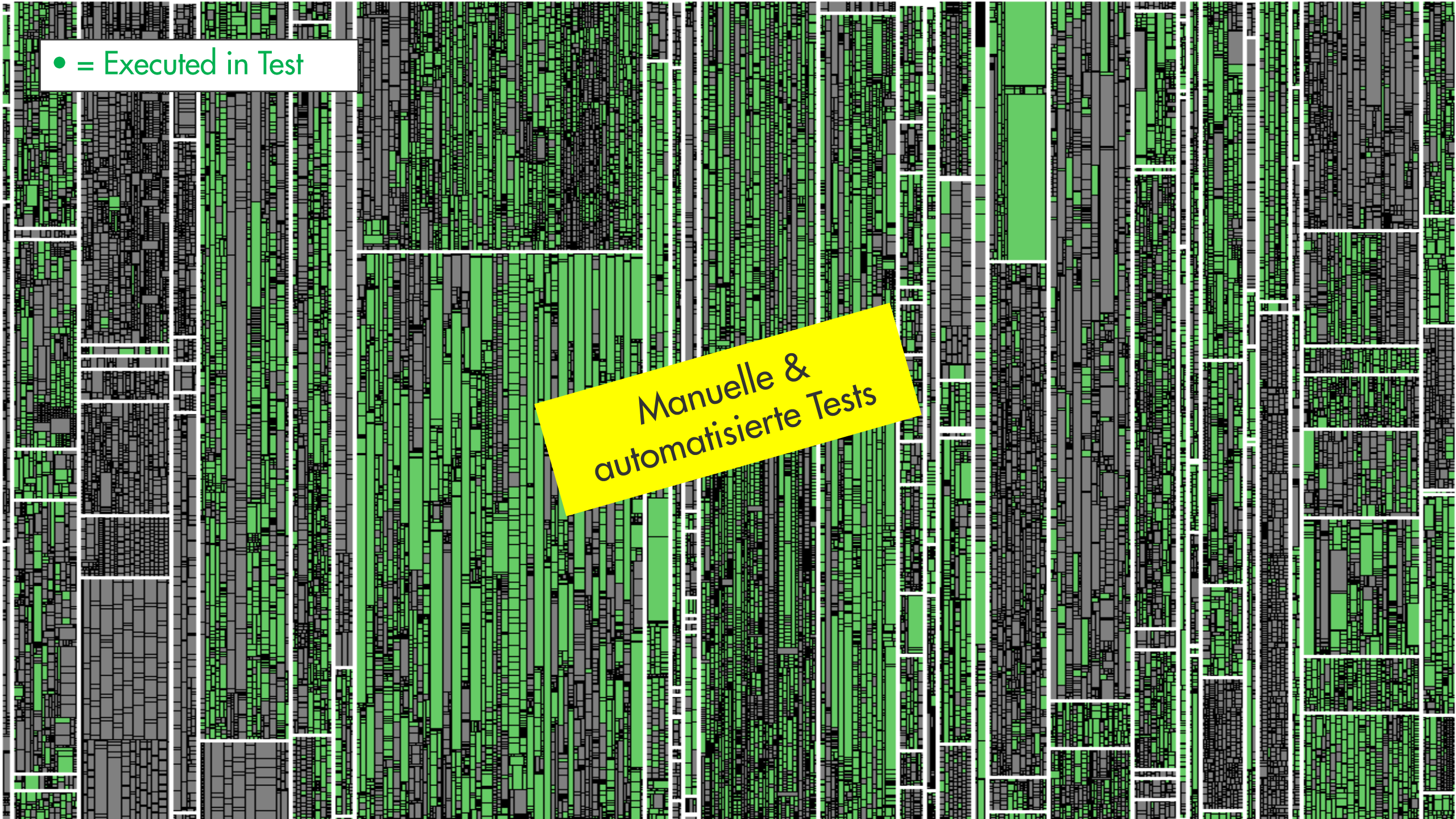


- = Changed
- = New

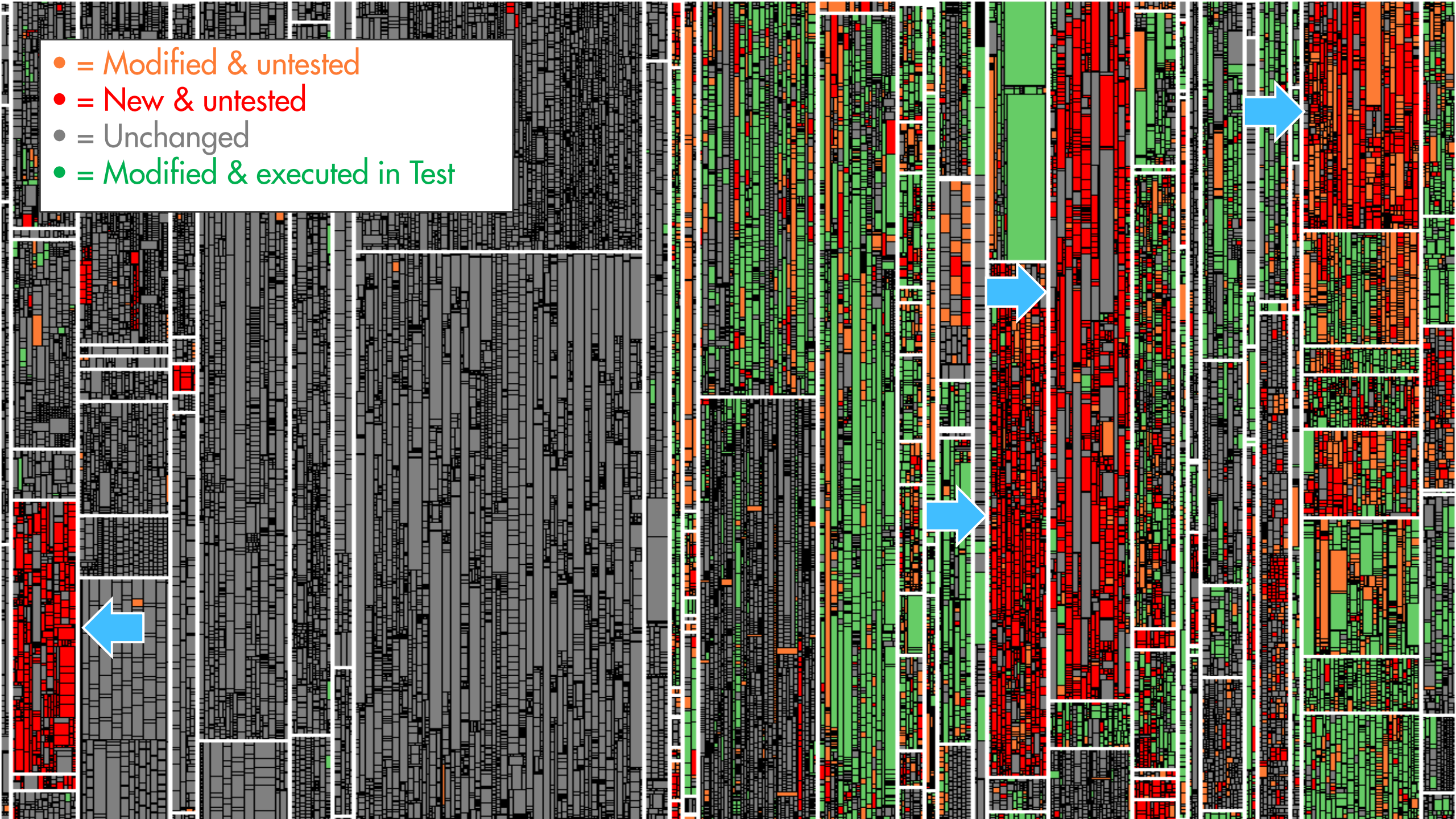



















● = Executed in Test

Manuelle &  
automatisierte Tests







- = Modified & untested
- = New & untested
- = Unchanged
- = Modified & executed in Test





Issue # <span>▼</span>	Subject	Done		Test Gap
<a href="#">TS-10549</a>	Undo/Redo for web-based architecture editor	Done		0% 
<a href="#">TS-10784</a>	Fix long method finding in TaintAnalysisRunner	Done		0% 
<a href="#">TS-10923</a>	Implement metric 'Nesting Depth' for Simulink	Done		29% 
<a href="#">TS-11364</a>	External findings are not registered during first upload	Done		14% 
<a href="#">TS-11942</a>	Manual test coverage upload during development	Done		43% 
<a href="#">TS-12050</a>	Tool for transferring findings blacklists and tasks	Done		50% 
<a href="#">TS-12262</a>	Cannot set or alter alias without reanalysis	Done		0% 
<a href="#">TS-13151</a>	Fetch parent relationship of TFS work items	Done		0% 



Issue # ▾	Subject		Test Gap
<a href="#">TS-14421</a>	Get rid of TestGapSynchronizer block	Done 	0% 
<a href="#">TS-14733</a>	Remove Dataflow blocks	Done 	22% 

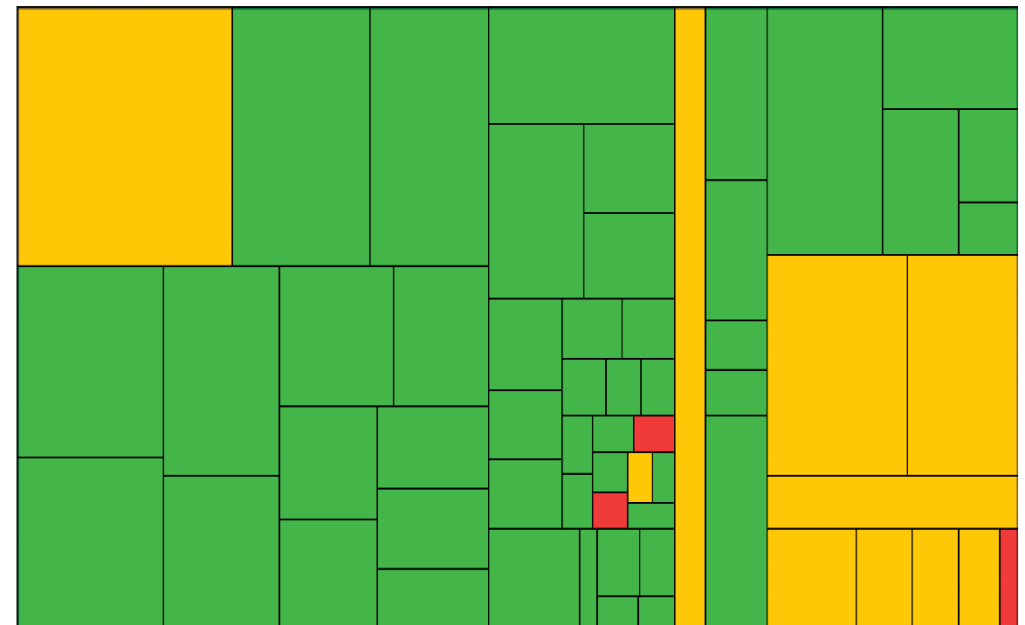
**Done Issue TS-14733 - Remove Dataflow blocks**

Creator:  (on Apr 06 2018 19:44) Last update: Aug 24 2018 09:32

Assignee: 

Project	Type	Priority	Resolution	Fix Version
TS	Maintenance	Normal	Green	Teamscale 4.5
Component	Labels	Affected Version	Customer	Customer Issue
Backend	Performance			
Epic Name	Freshdesk URL	Merge Request		
		<a href="https://git.cqse.eu/cqse/teamscale/3621">https://git.cqse.eu/cqse/teamscale/3621</a>		

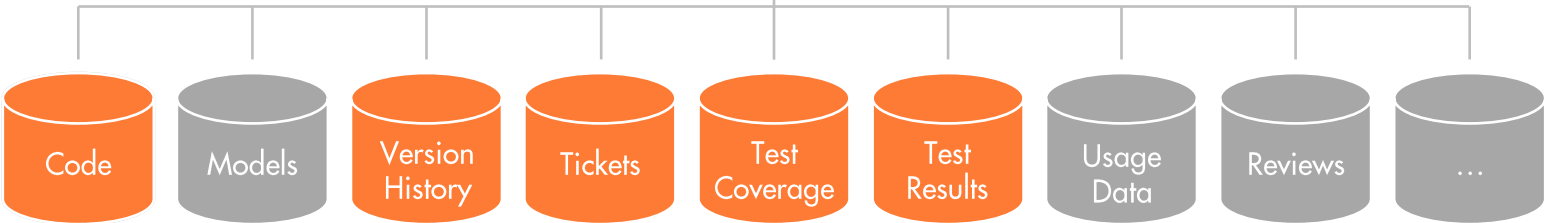
Aug 15 2018 12:37–Now | Test Gap: 22%

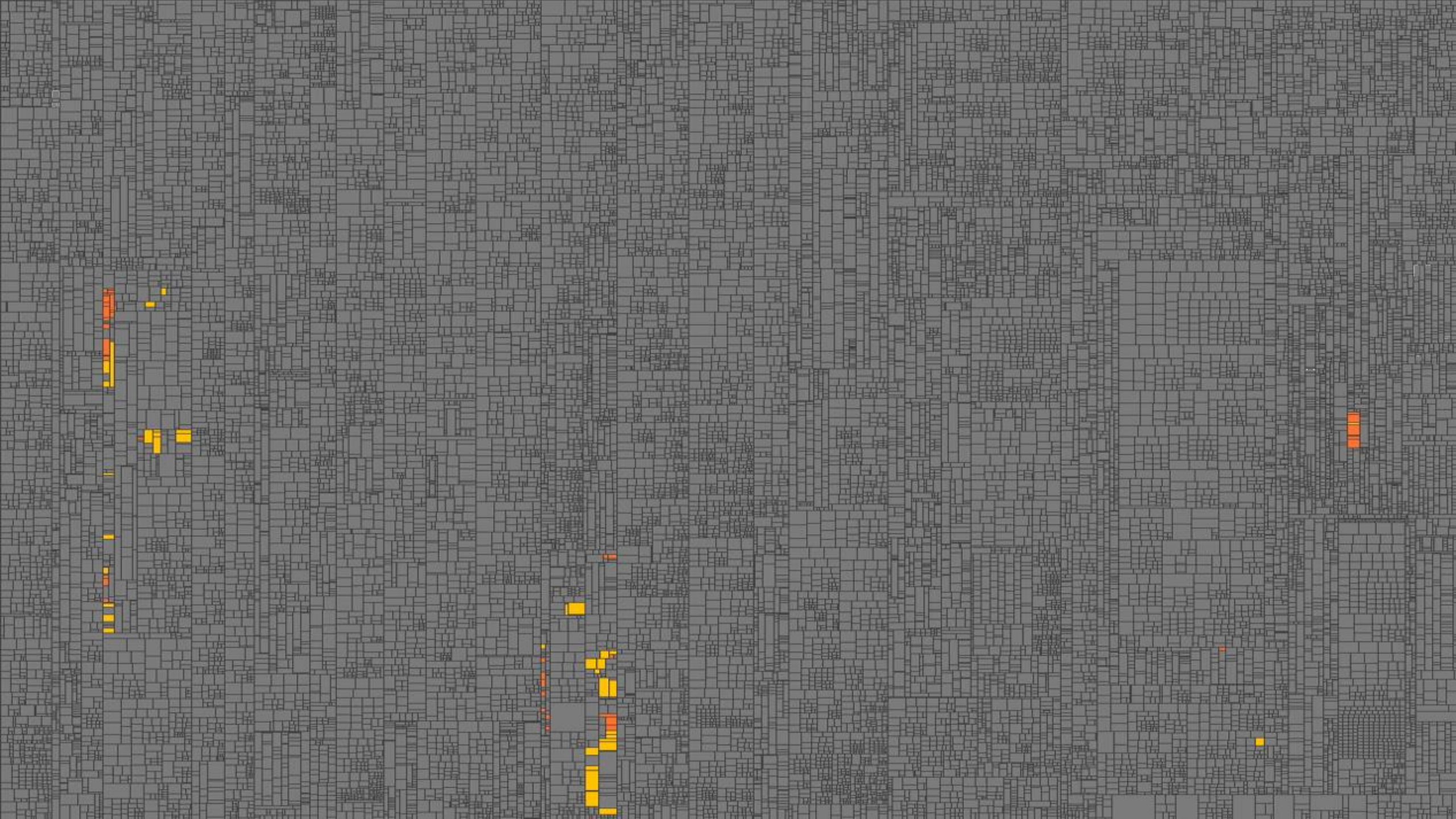


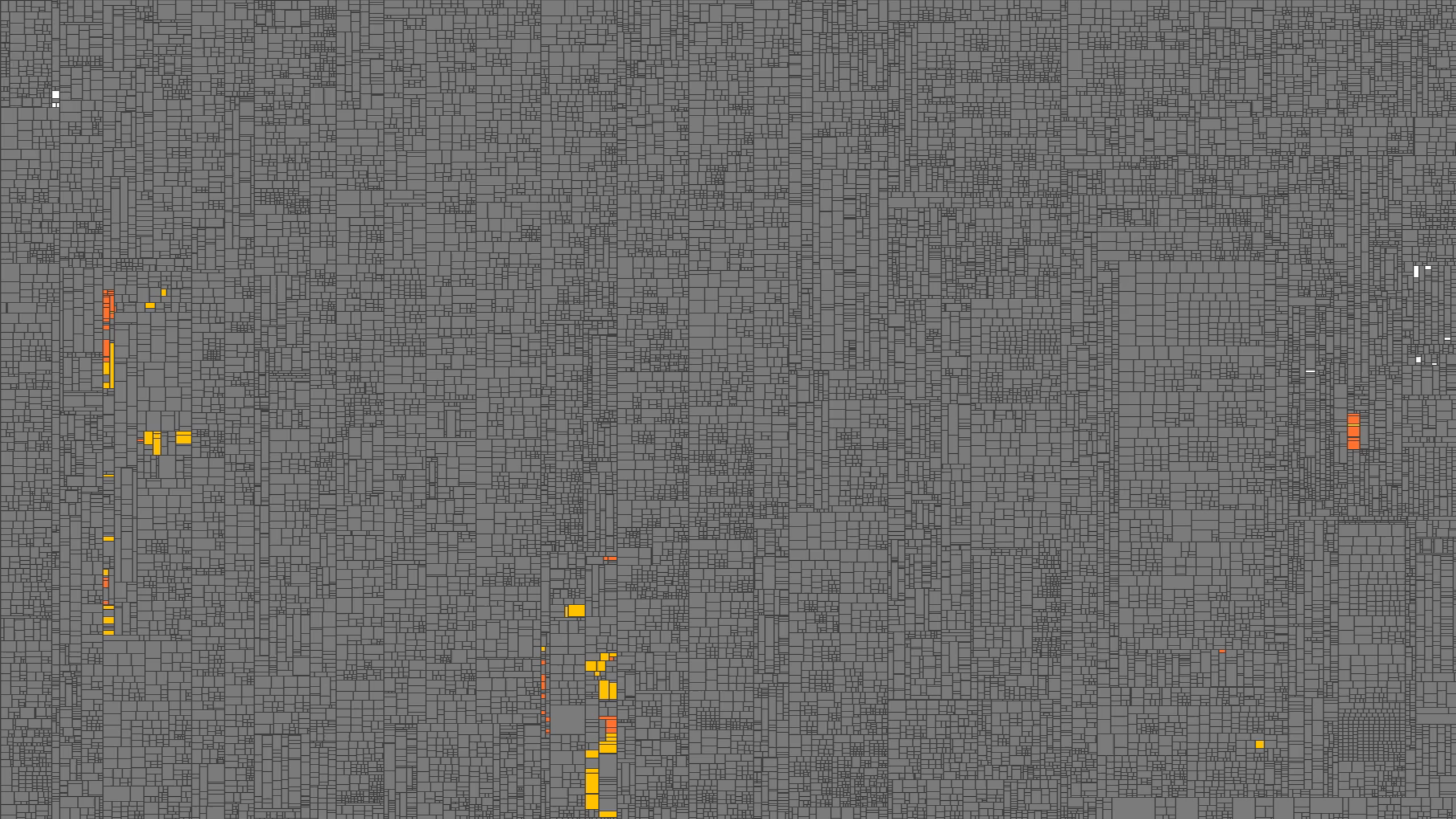
» Wo sind Fehler im Code? «

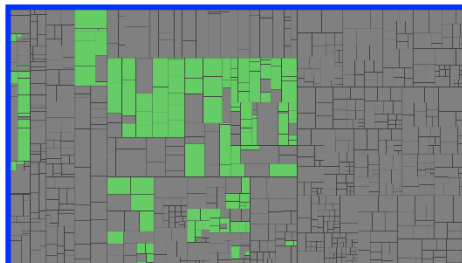
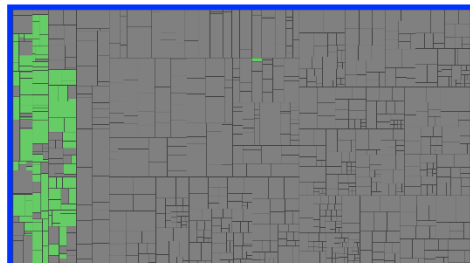
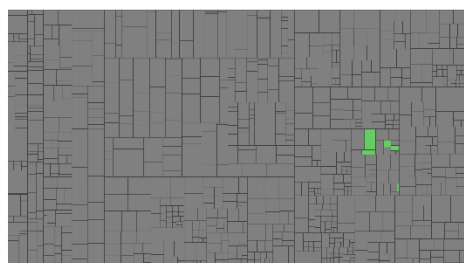
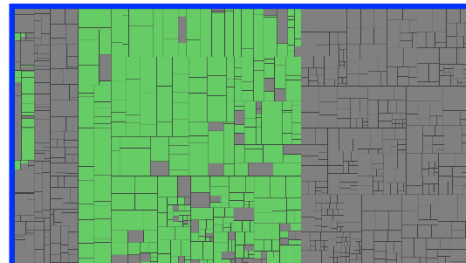
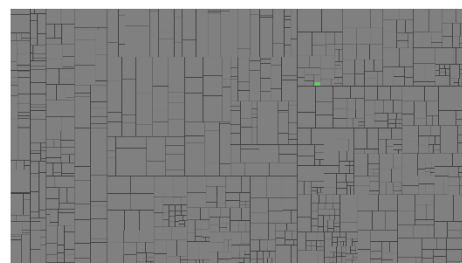
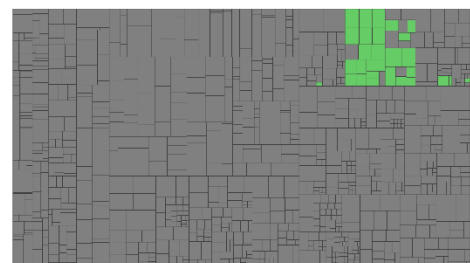
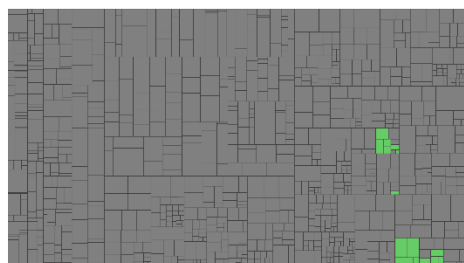
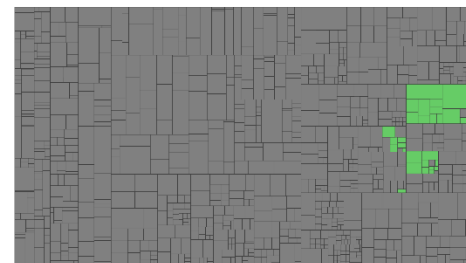
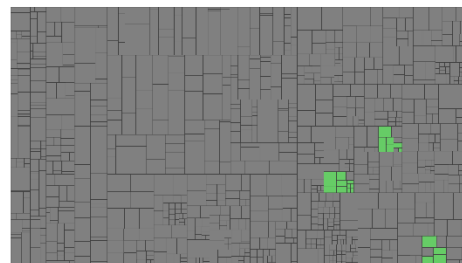
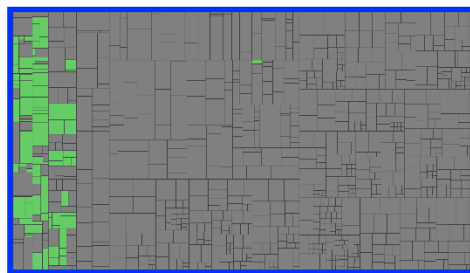
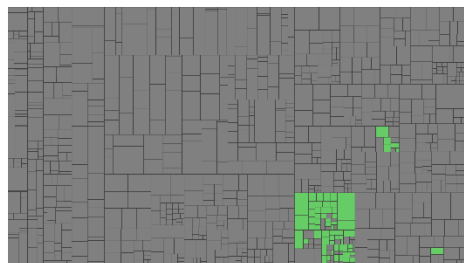
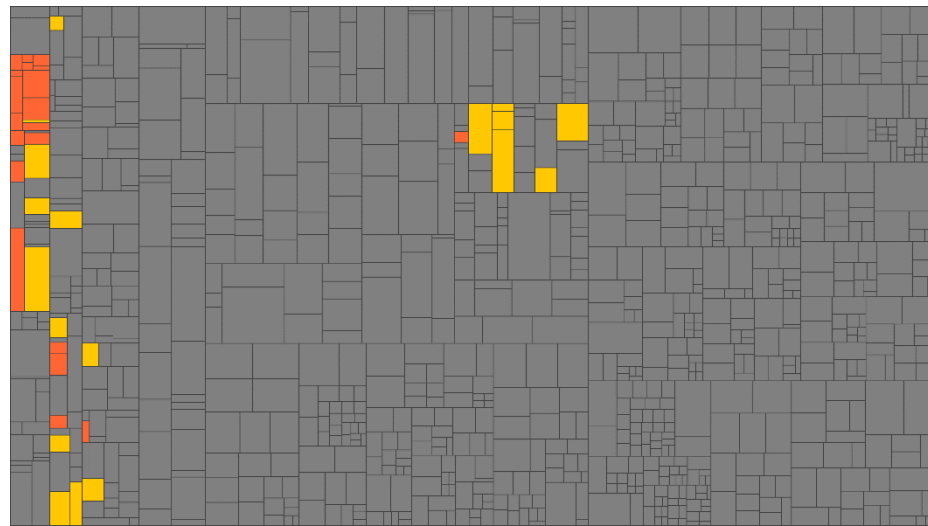
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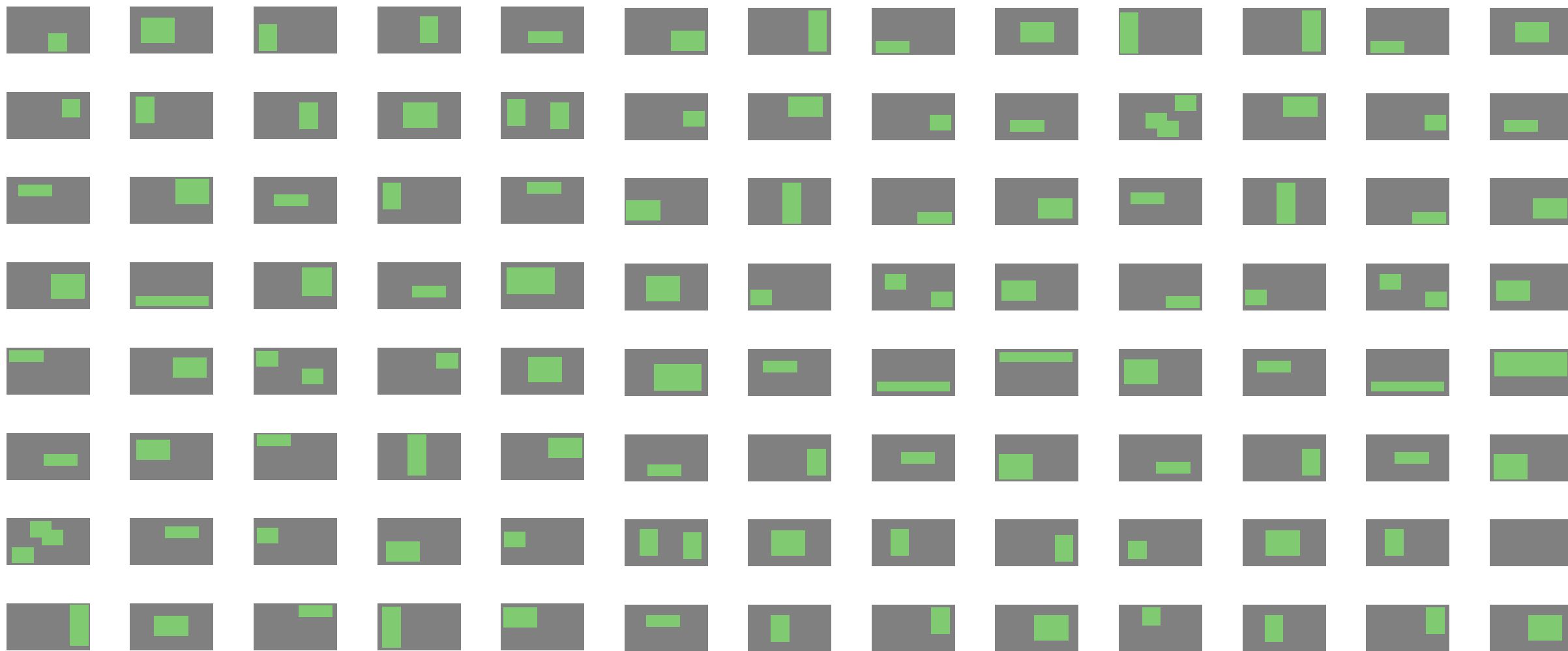




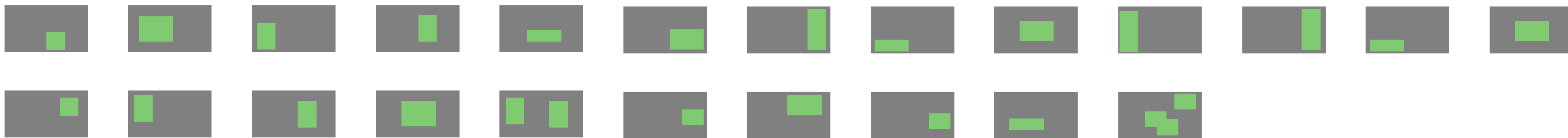




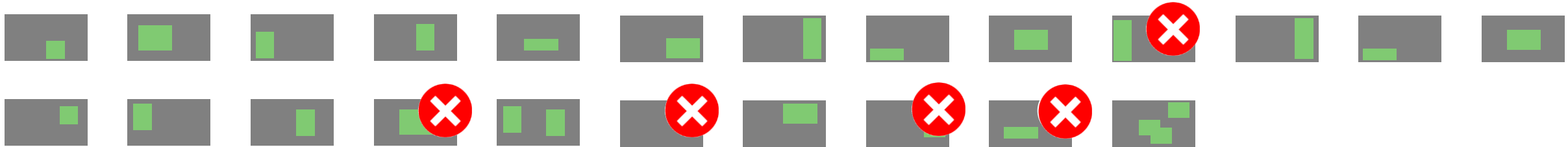
... 4000+ test cases  
don't execute  
changed code

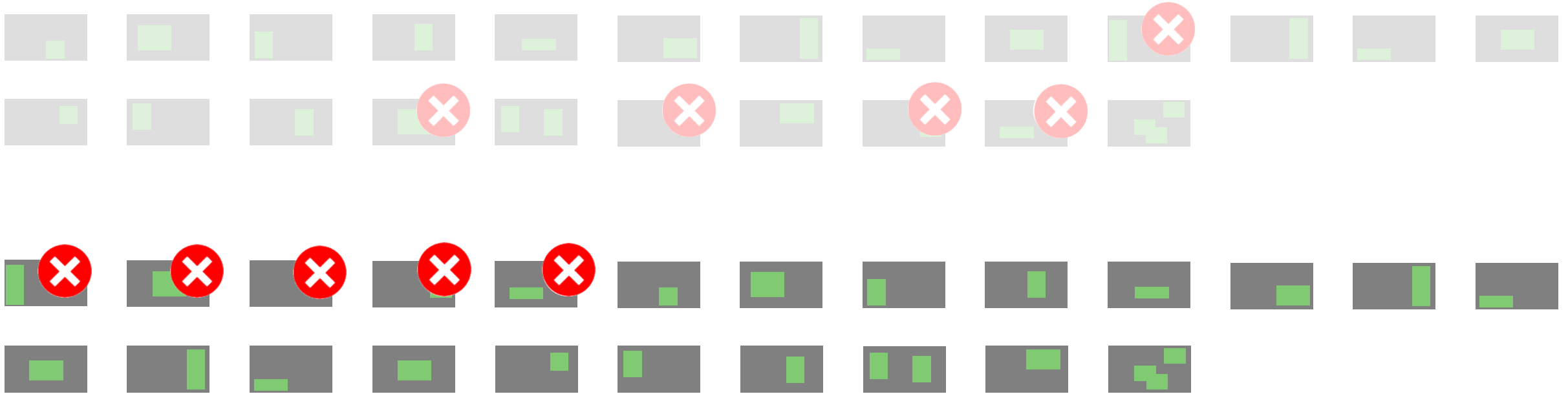


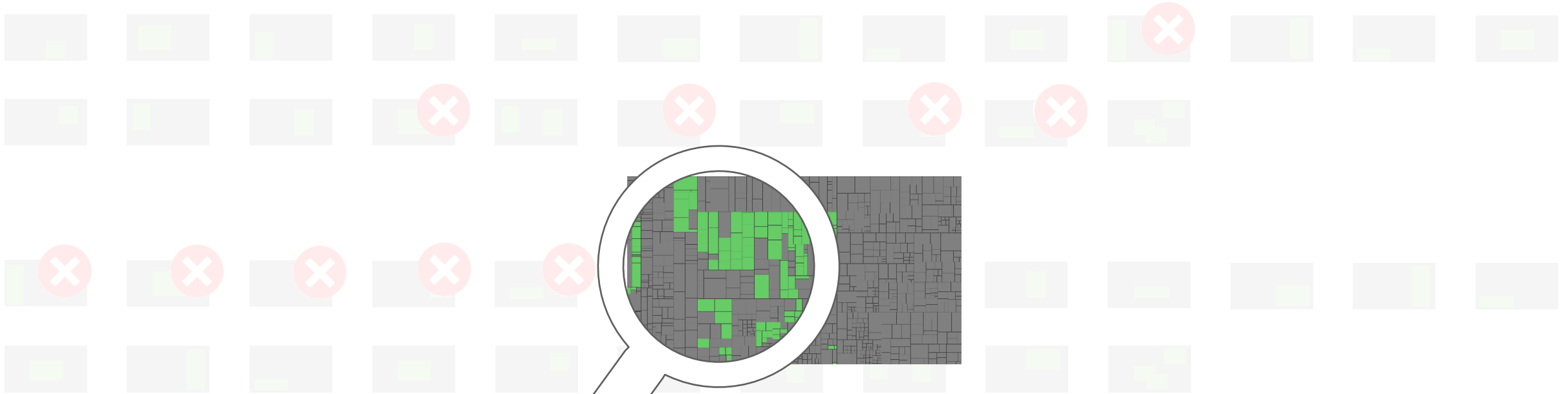












Change coverage

Execution time





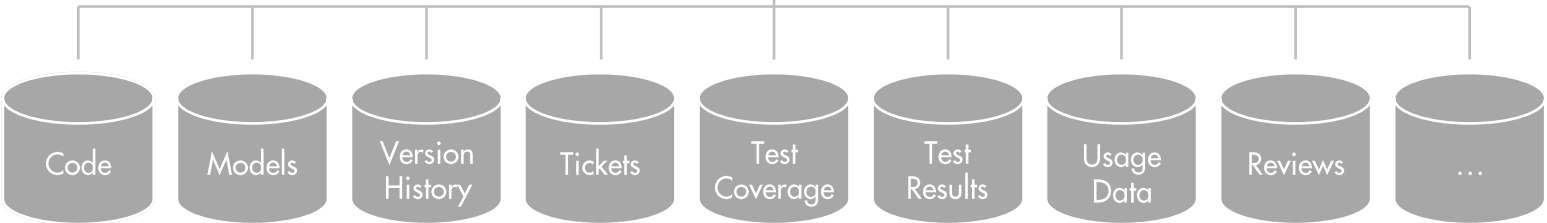
» Wo sind Fehler im Code? «

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Software Intelligence  

# Kontakt – Ich freue mich auf Fragen 😊



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**CQSE**