

The Life of a Software Concern

Bram Adams

Ahmed E. Hassan

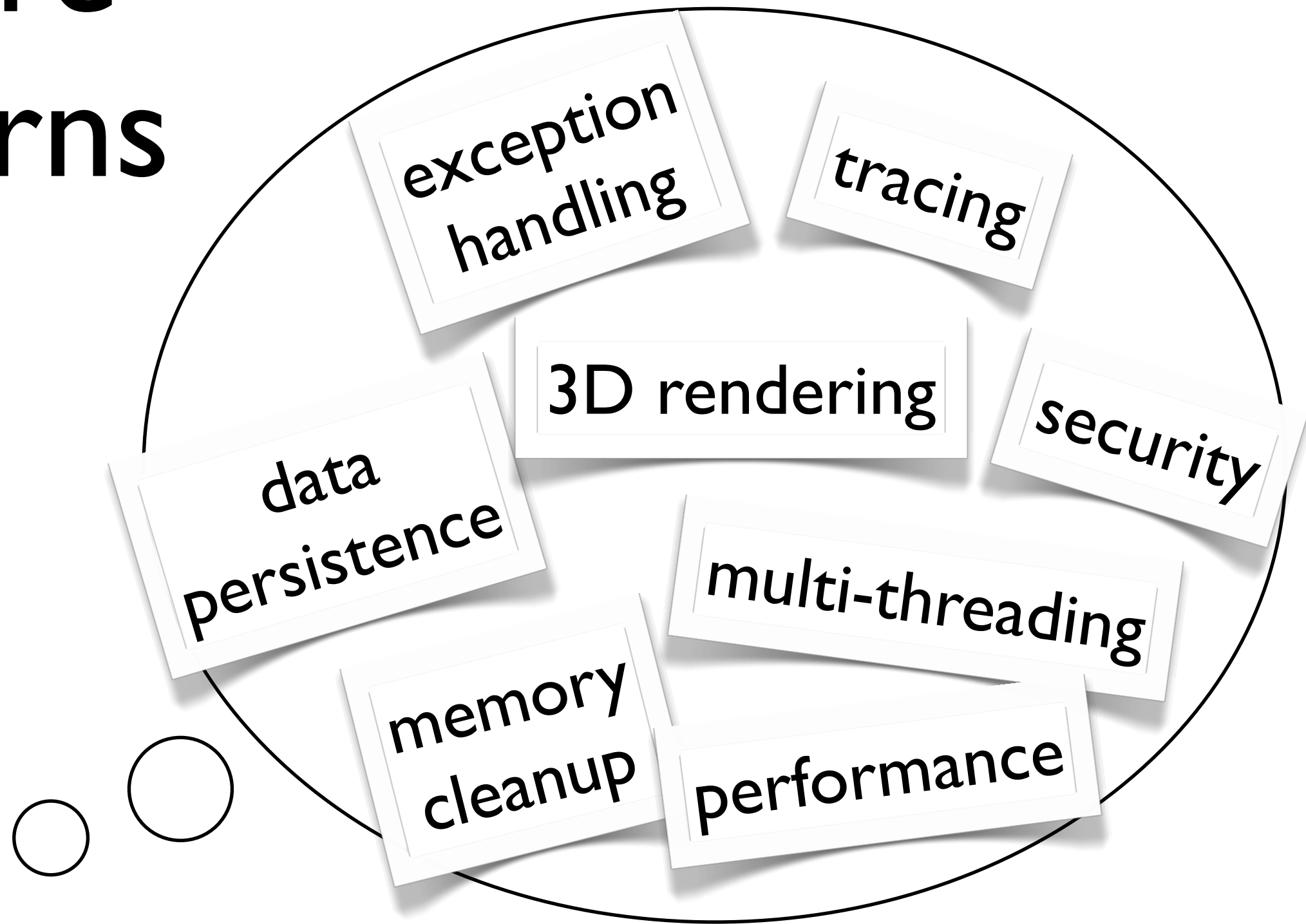
SAIL, Queen's University

<http://sailhome.cs.queensu.ca/~bram/>

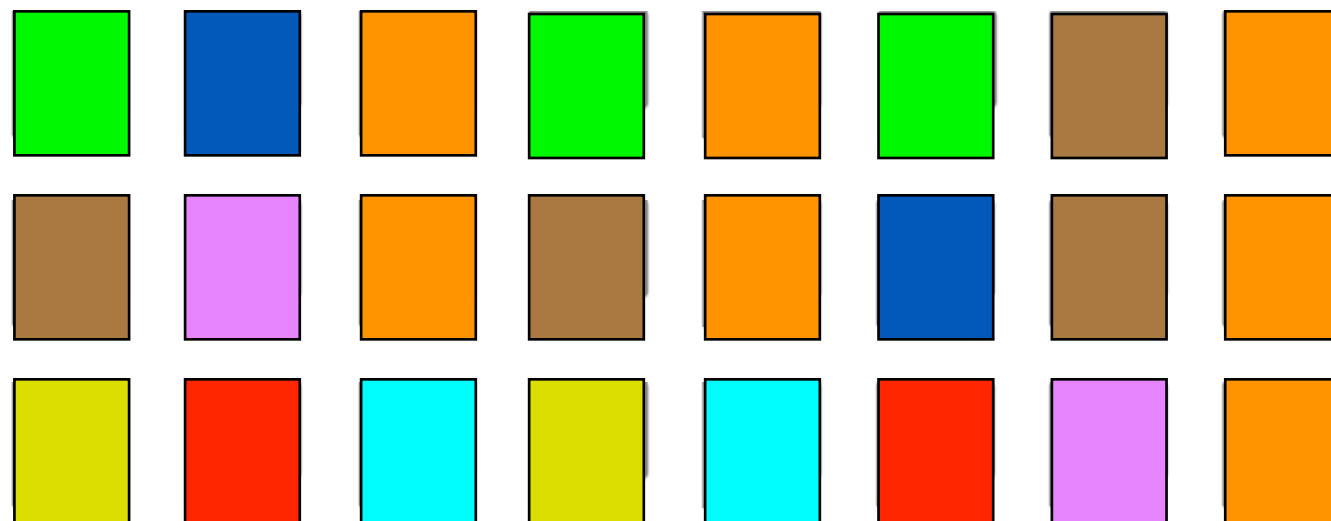
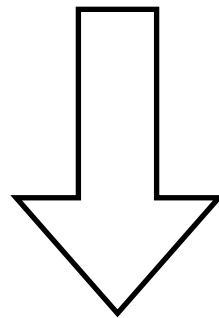
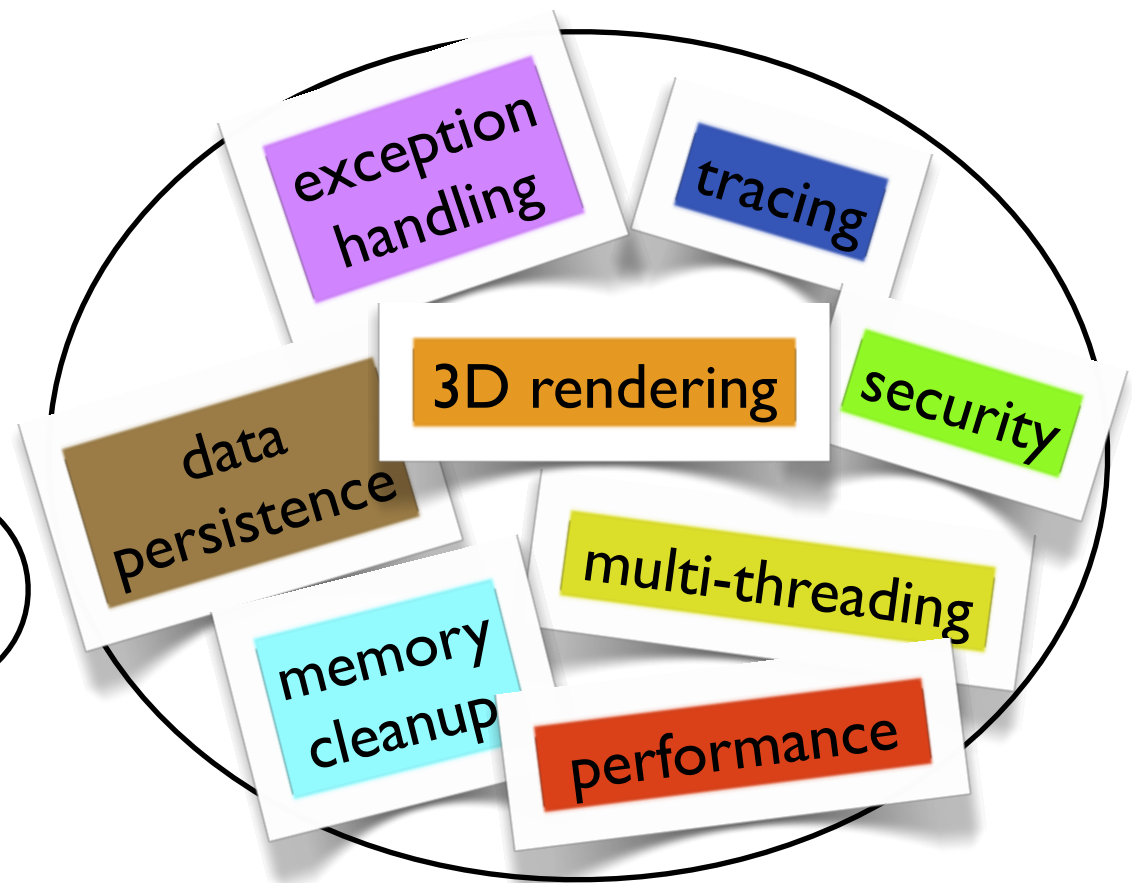
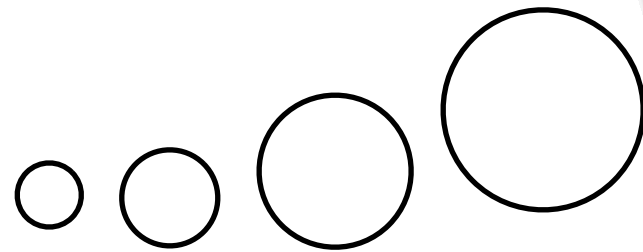


What is a software concern?

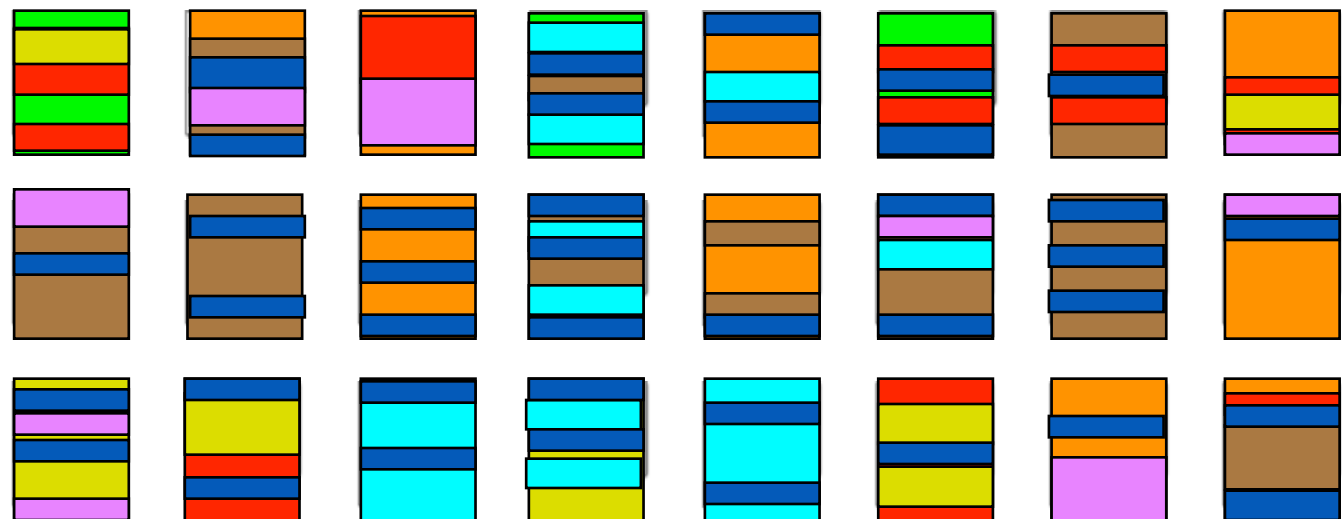
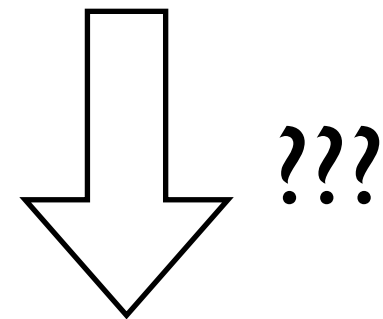
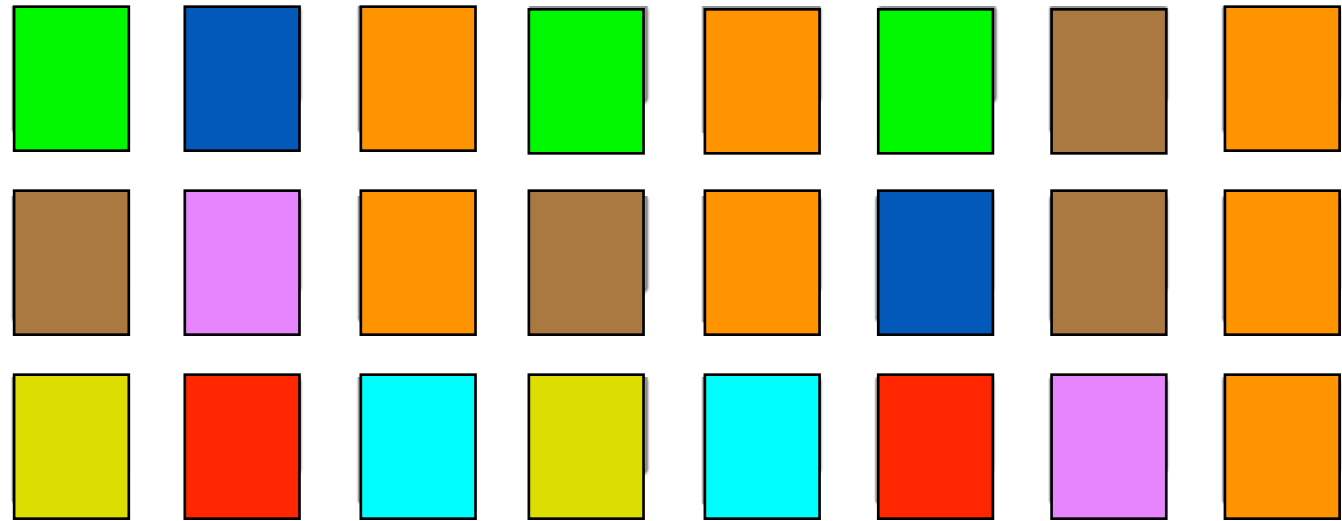
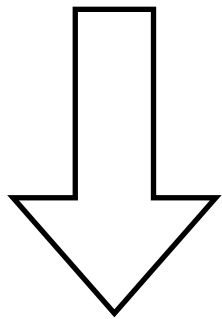
Software Concerns



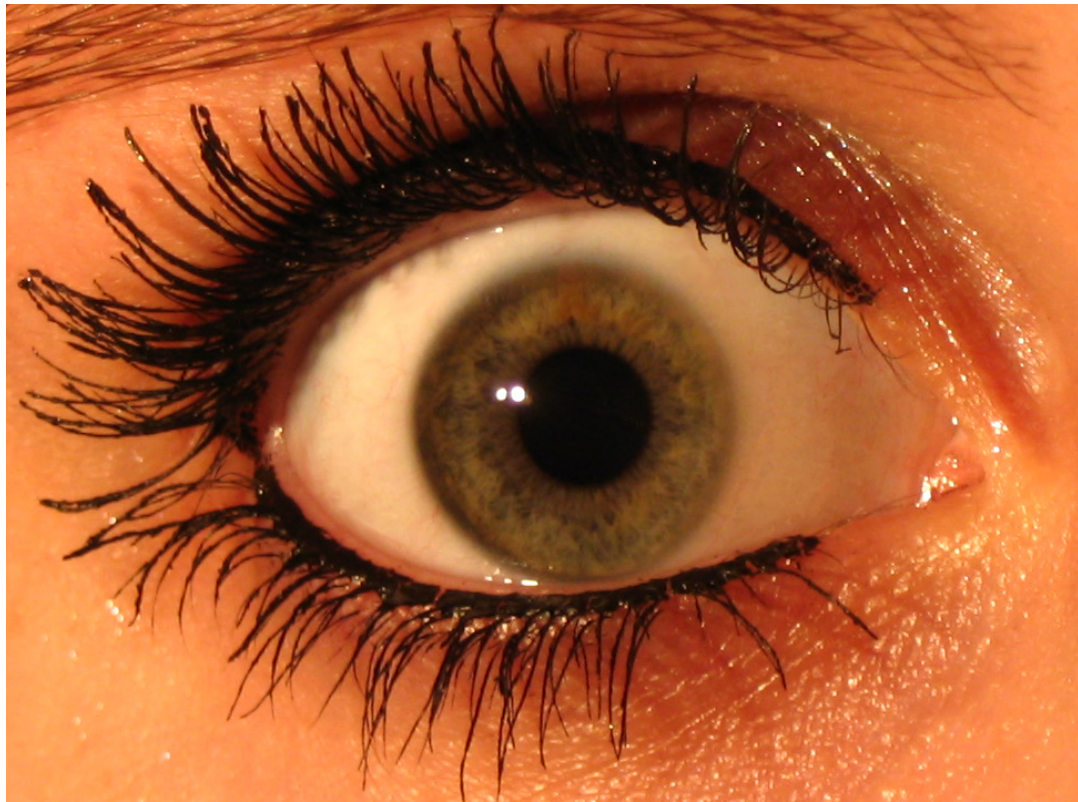
Ideal Design



Concern Drift



How to Deal with Concern Drift?



vs.



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TTTTTTTTTTTTTTTTTTTTTTTTTEEEEEEEEEEEEEEEEEEEEEEE          CCCCCCCCCCCC  SSSSSSSSSSSSSSSS TTTTTTTTTTTTTTTTTTTTTT
T:::::::::::::::::::::TE:::::::::::::::::::::E    CCC::::::::::::C  SS:::::::::::::::::ST:::::::::::::::::~T
T:::::::::::::::::::::TE:::::::::::::::::::::E    CC:::::::::::::::::CS:::::SSSSSSS:::::ST:::::::::::::::::~T
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      TTTTTTTTTTTT          EEEEEEEEEEEEEEEEEEEEEEE          CCCCCCCCCCCC  SSSSSSSSSSSSSSSS          TTTTTTTTTTTT

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Tracking the Evolution of Concern

Scattering and Tangling



Concern Diff

stable
concern

new concern

disappearing
concern

☒ Snapshot Mode

CENTER

EVOLUTION

09 December 2001 @ 06:18:04

Previous

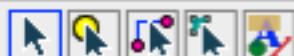
Next

Height: ☒ size ☐ #function callers ☐ #file callers ☐ #subsystem callers ☐ #concerns tangled with
Width: ☐ size ☒ #function callers ☐ #file callers ☐ #subsystem callers ☐ #concerns tangled with

METRICS

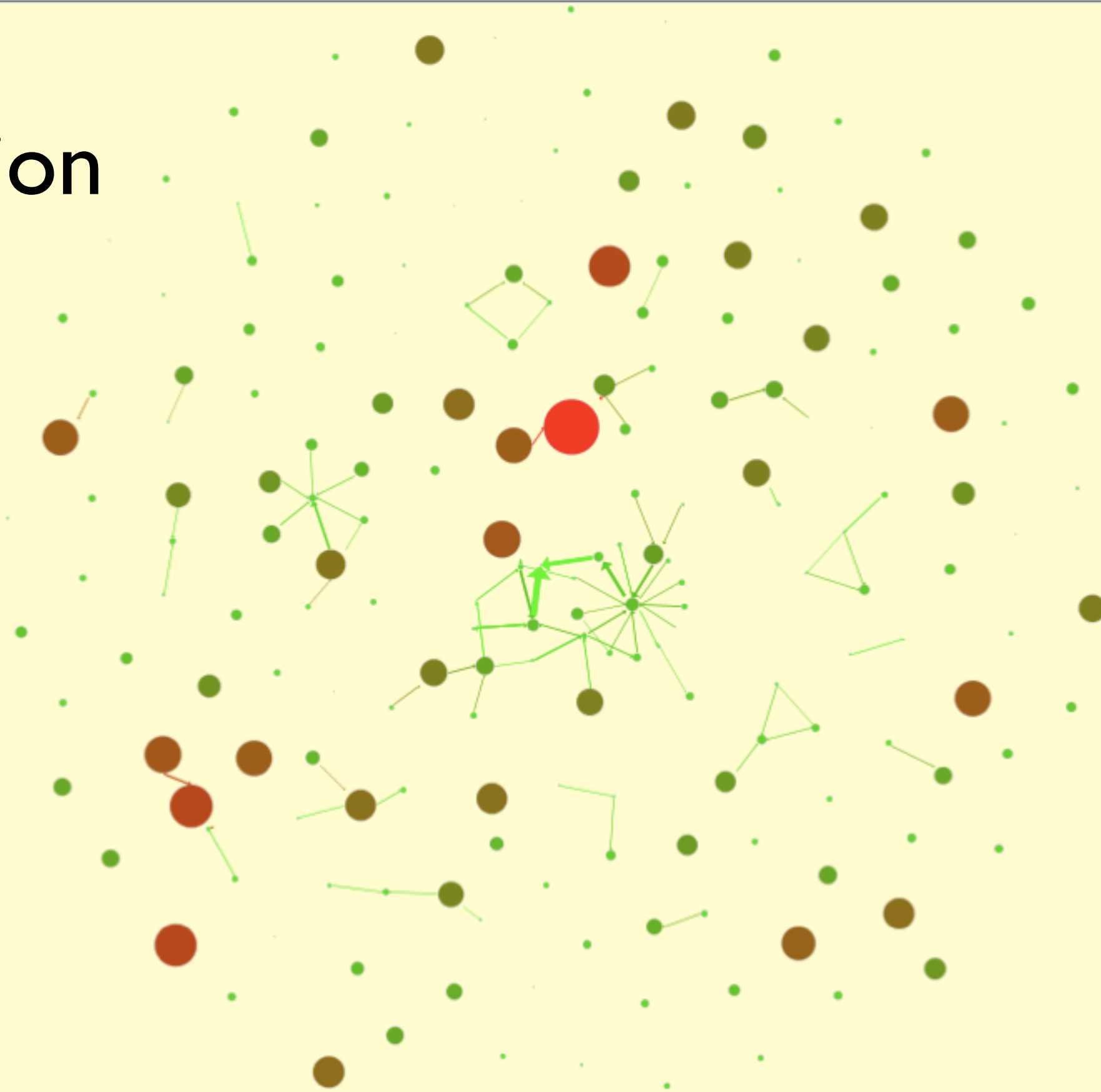
Interpreter Time Slider

Select a state

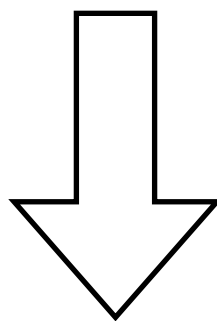
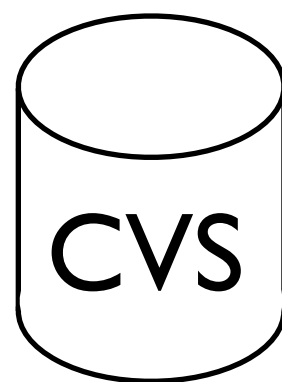




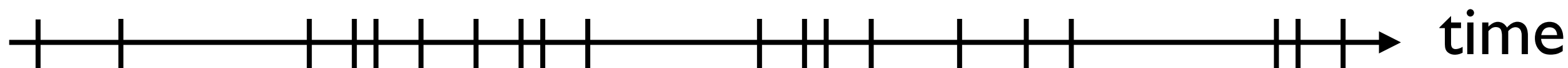
Global Evolution



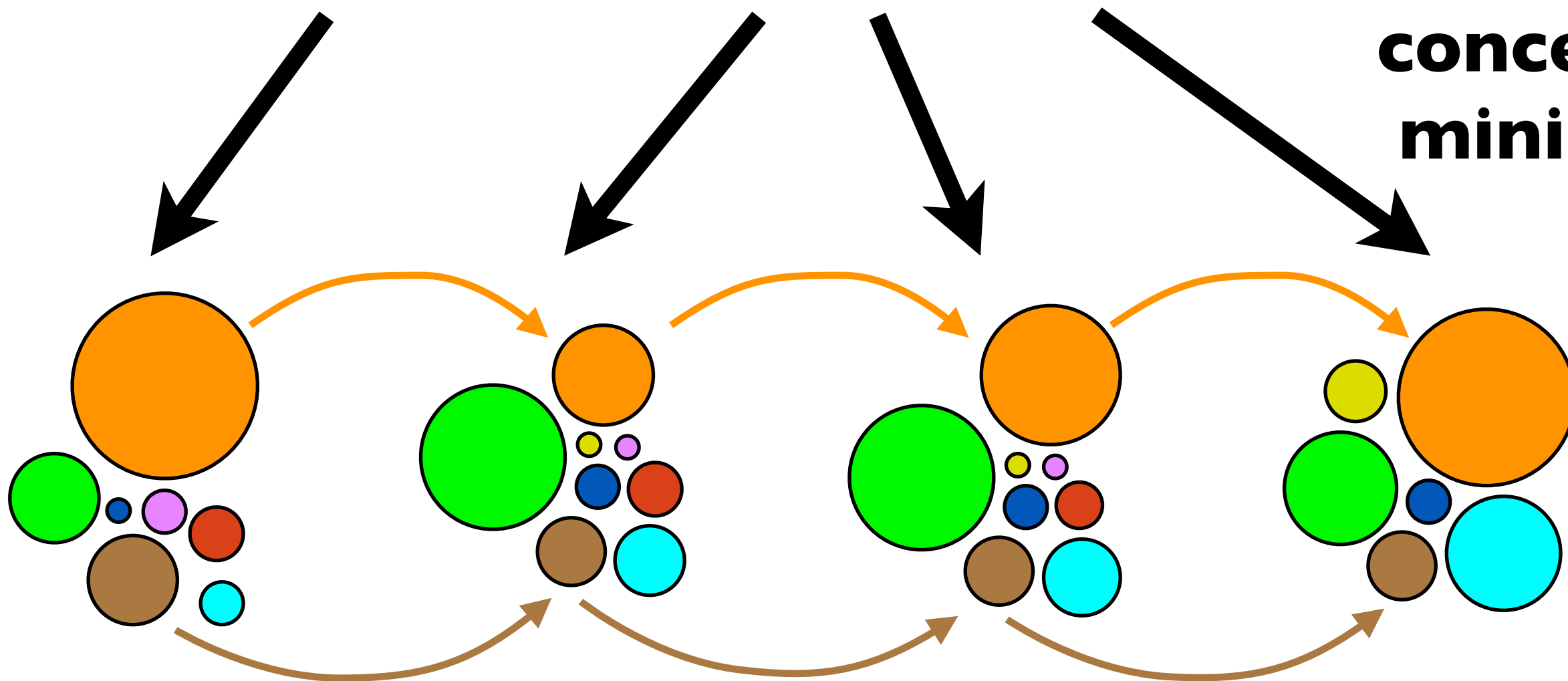
TECST



**evolutionary
extractor**



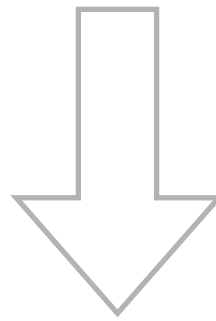
**concern
mining**





Challenges

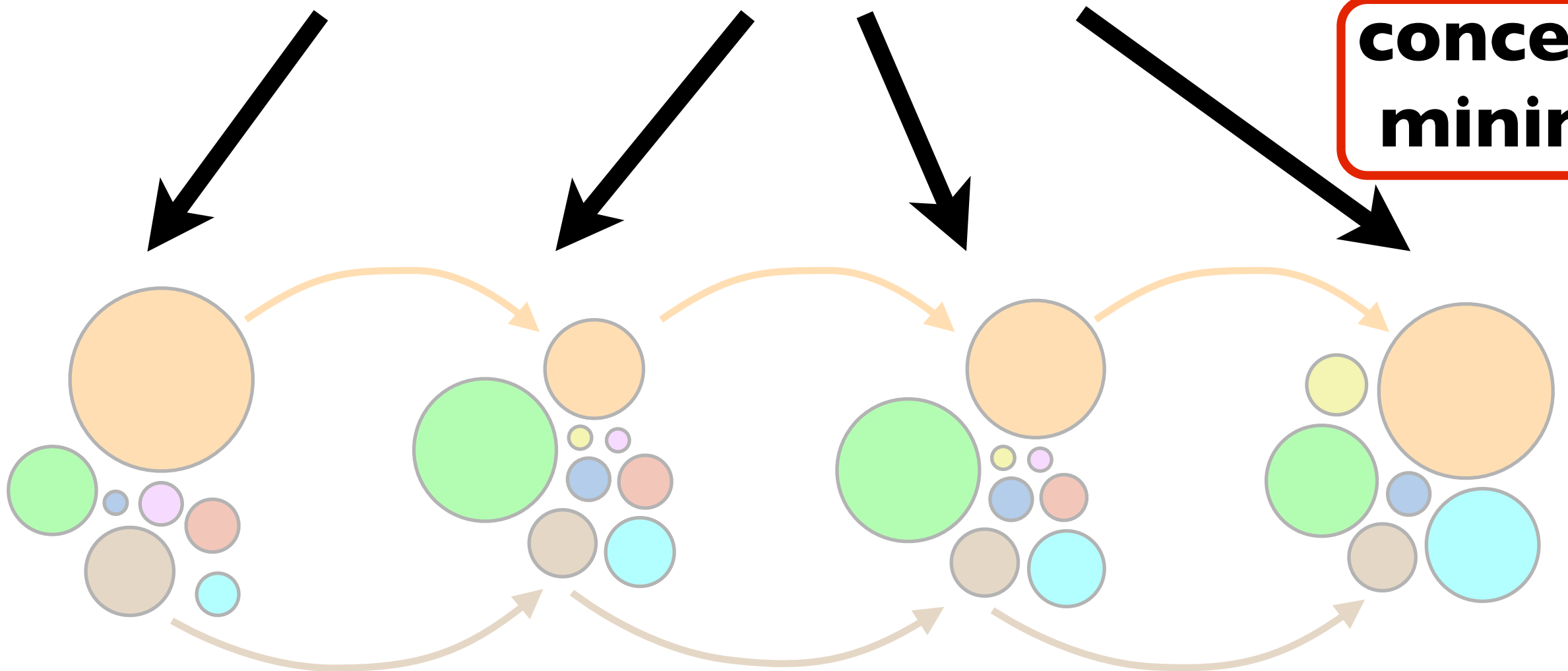
Challenge I



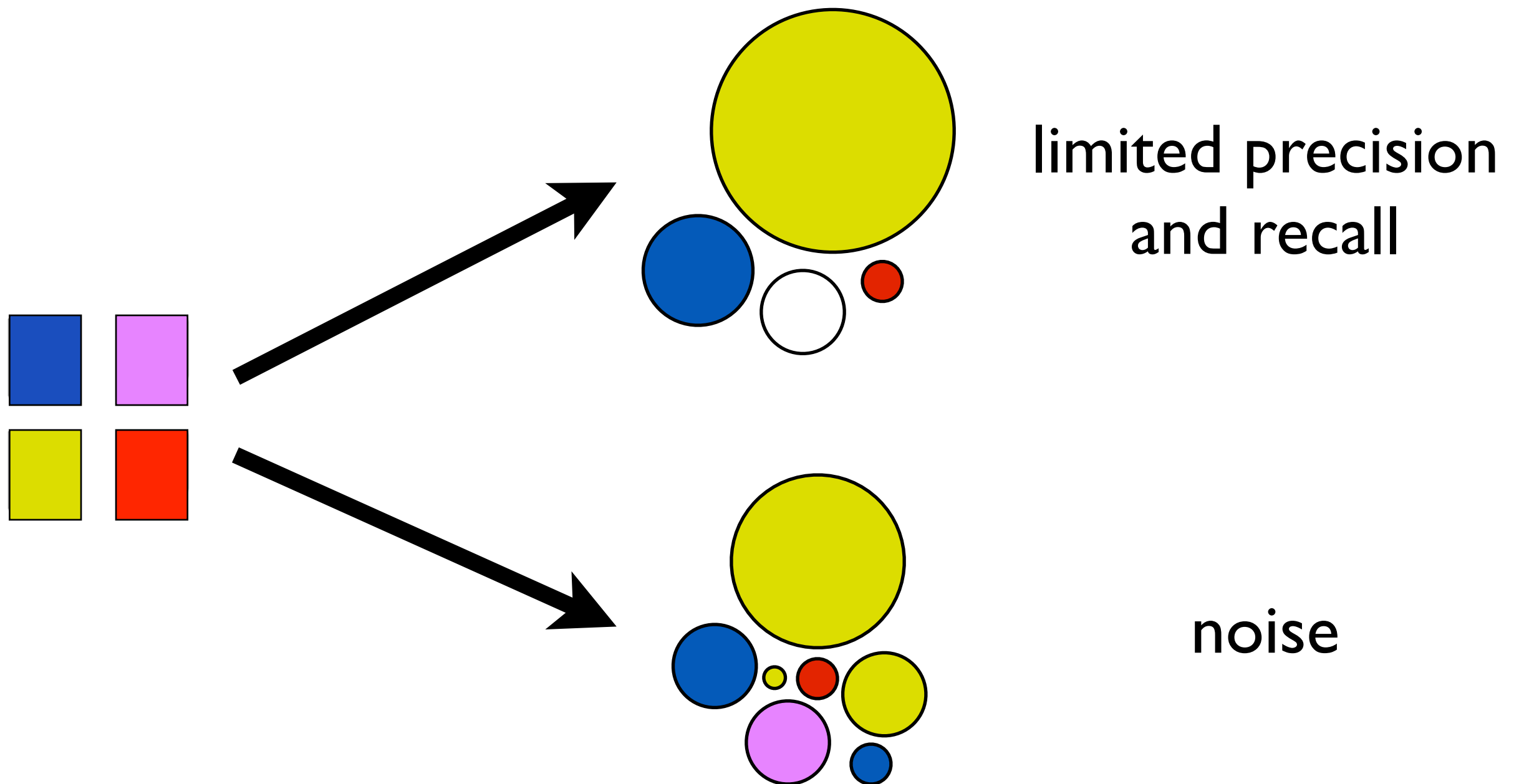
evolutionary
extractor



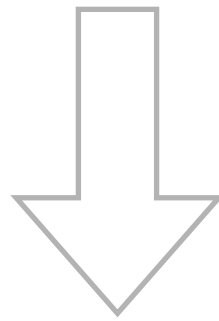
**concern
mining**



I. Concern Mining Shortcomings



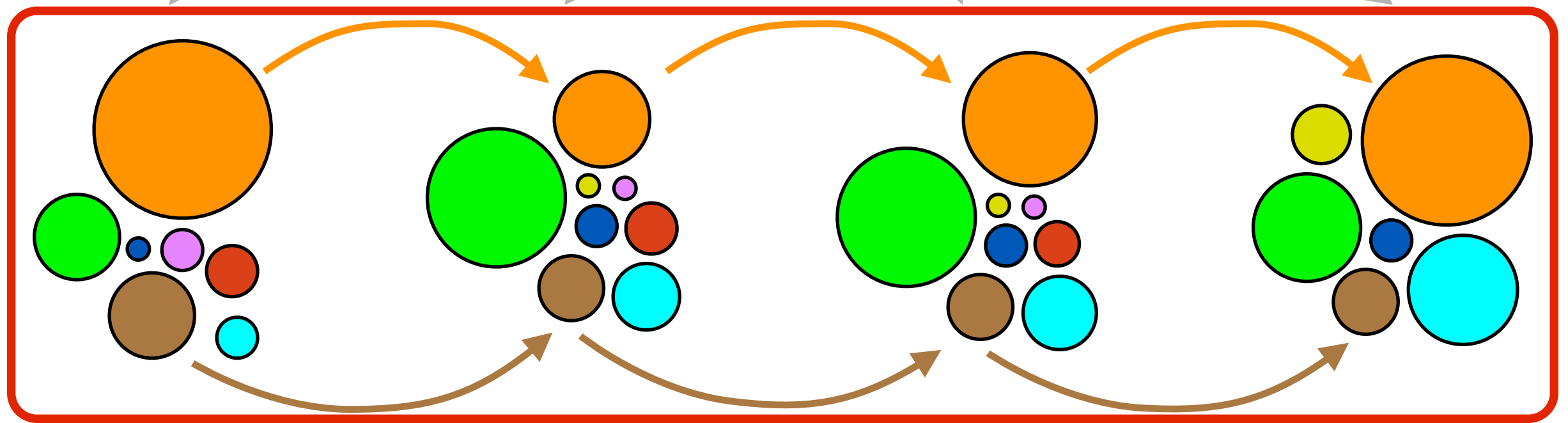
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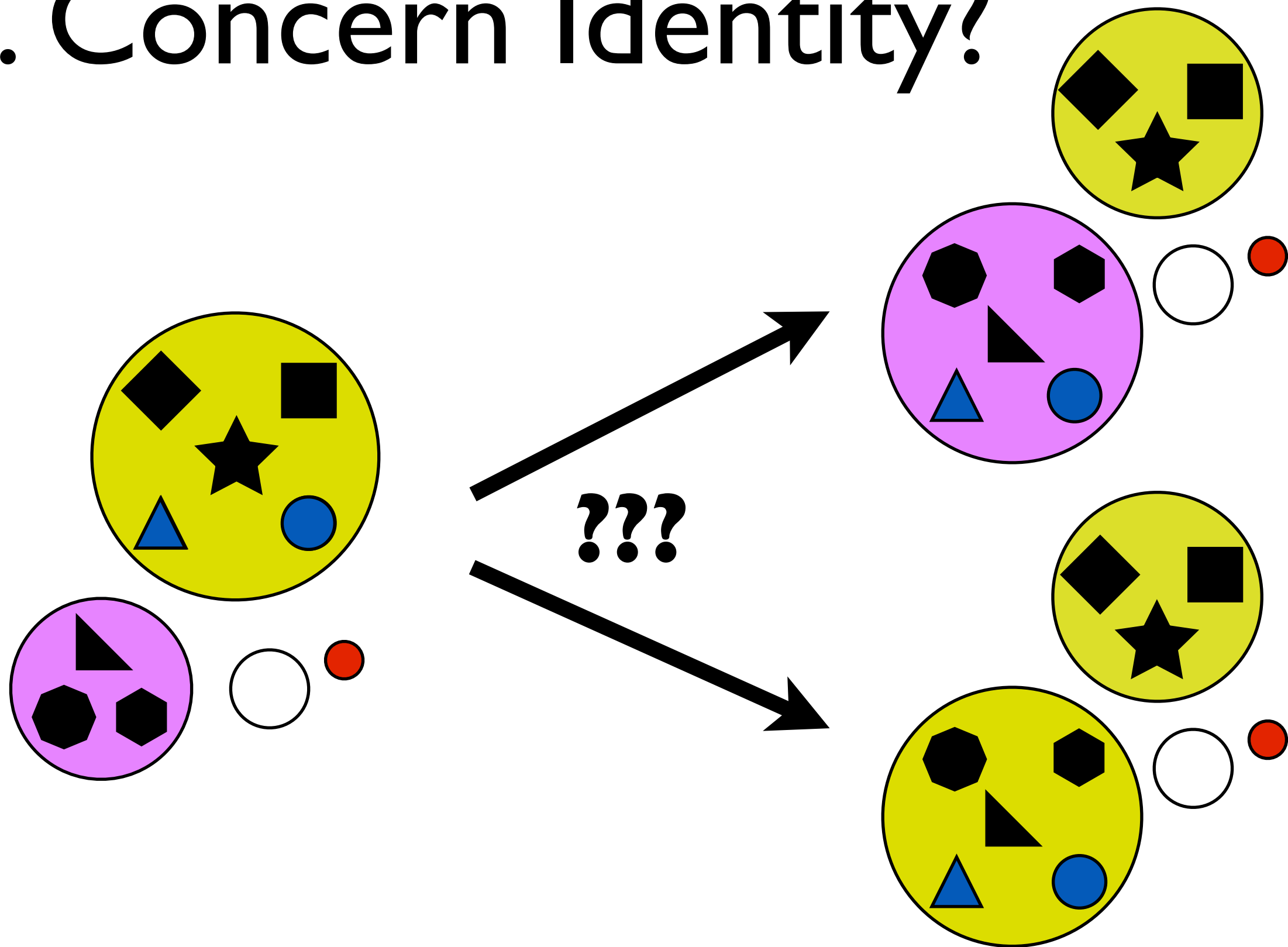
**evolutionary
extractor**



**concern
mining**

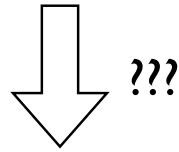
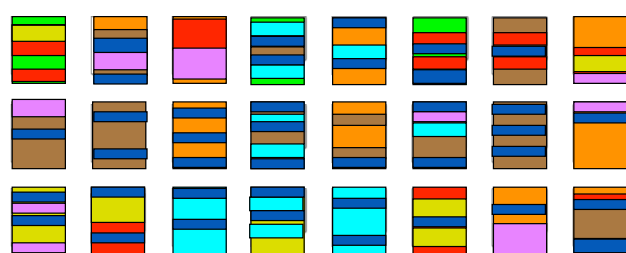
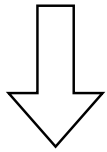
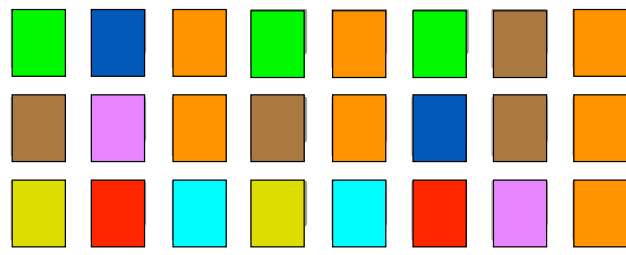


2. Concern Identity?

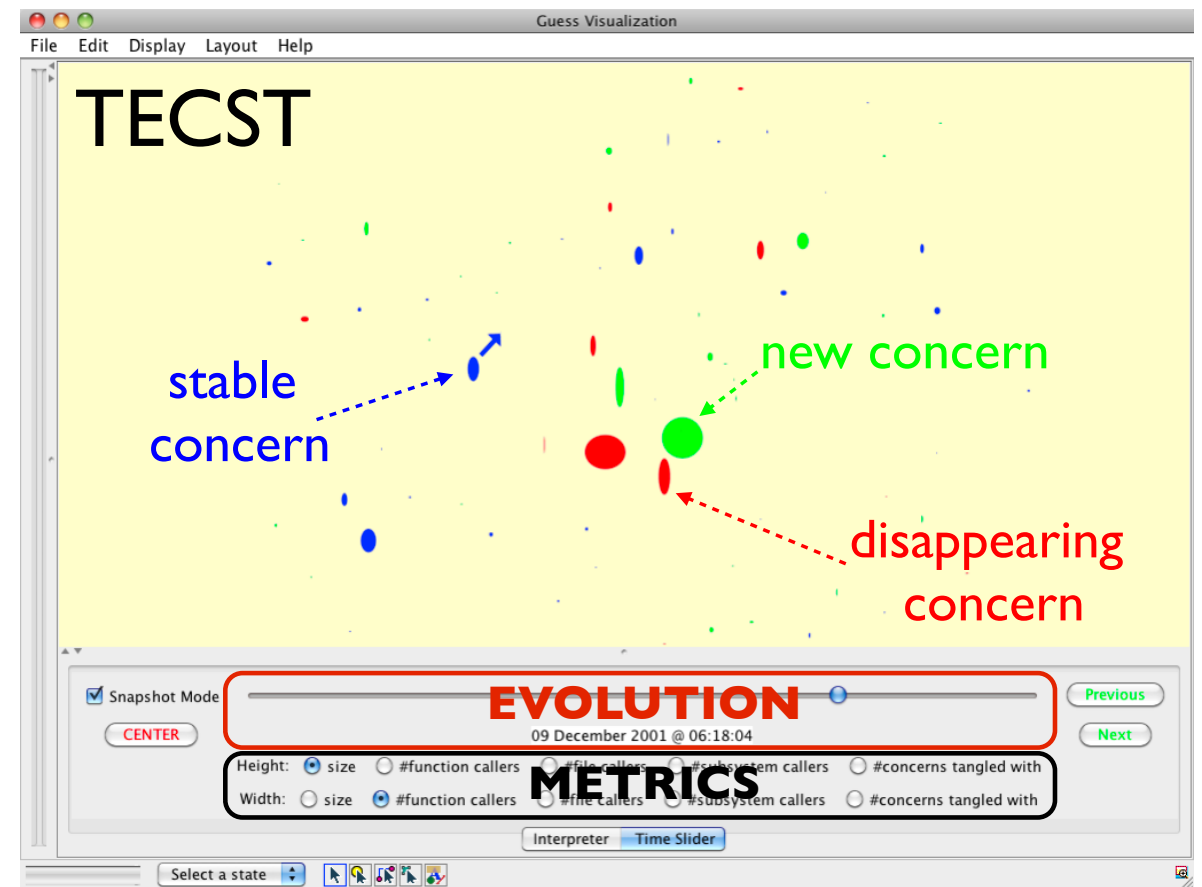
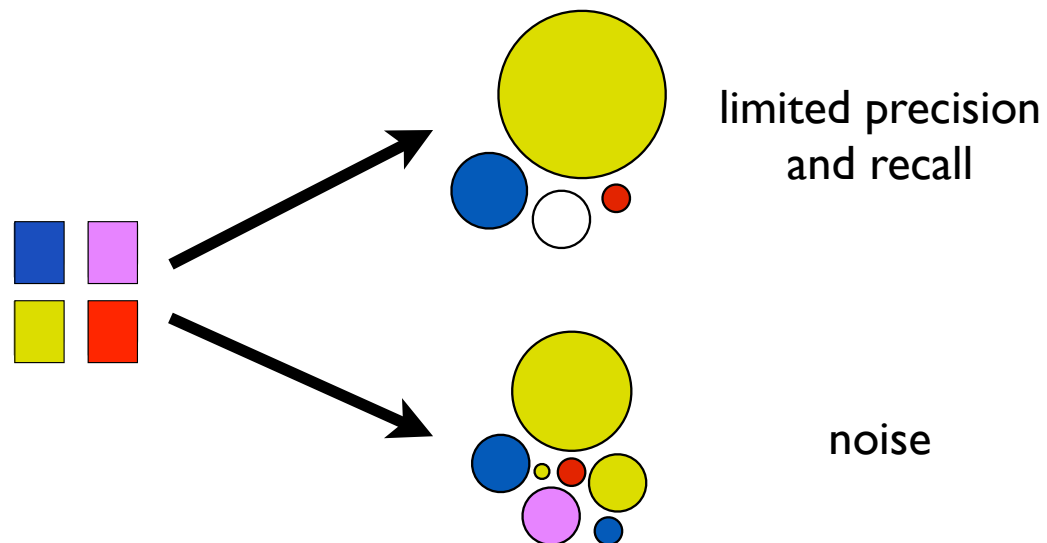


time

Concern Drift



1. Concern Mining Shortcomings



2. Concern Identity?

