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Big Data with ADAMS

What the heck is ADAMS?

Peter Reutemann

What is ADAMS?

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- Java, GPLv3
- Data mining: MOA, WEKA, MEKA, R
- Spreadsheets and databases
- Image and video processing
- Visualizations (plots, GIS)
- Scripting via Jython and Groovy
- ...

Flow

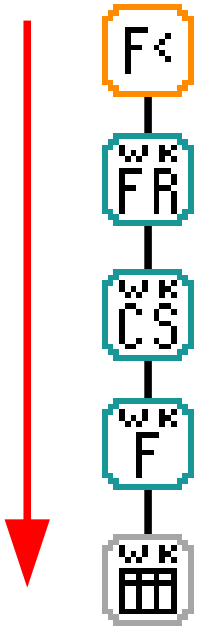
- Operators are called “actors”
- Actors arranged in tree, no connections
- Actor “handlers” nest other actors
  - e.g., sequence of actors
- Control actors control data flow
  - e.g., branch, tee, if-then-else, switch
- Input/output defines
  - standalone  , source  , transformer  , sink 

Flow (2)

- Tree only supports 1-to-n connections
- Simulating n-to-m semantics
  - Containers
  - Variables
  - Internal storage
  - Callable actors

Examples

Execute nested actors one after the other



Output file to read

Read file

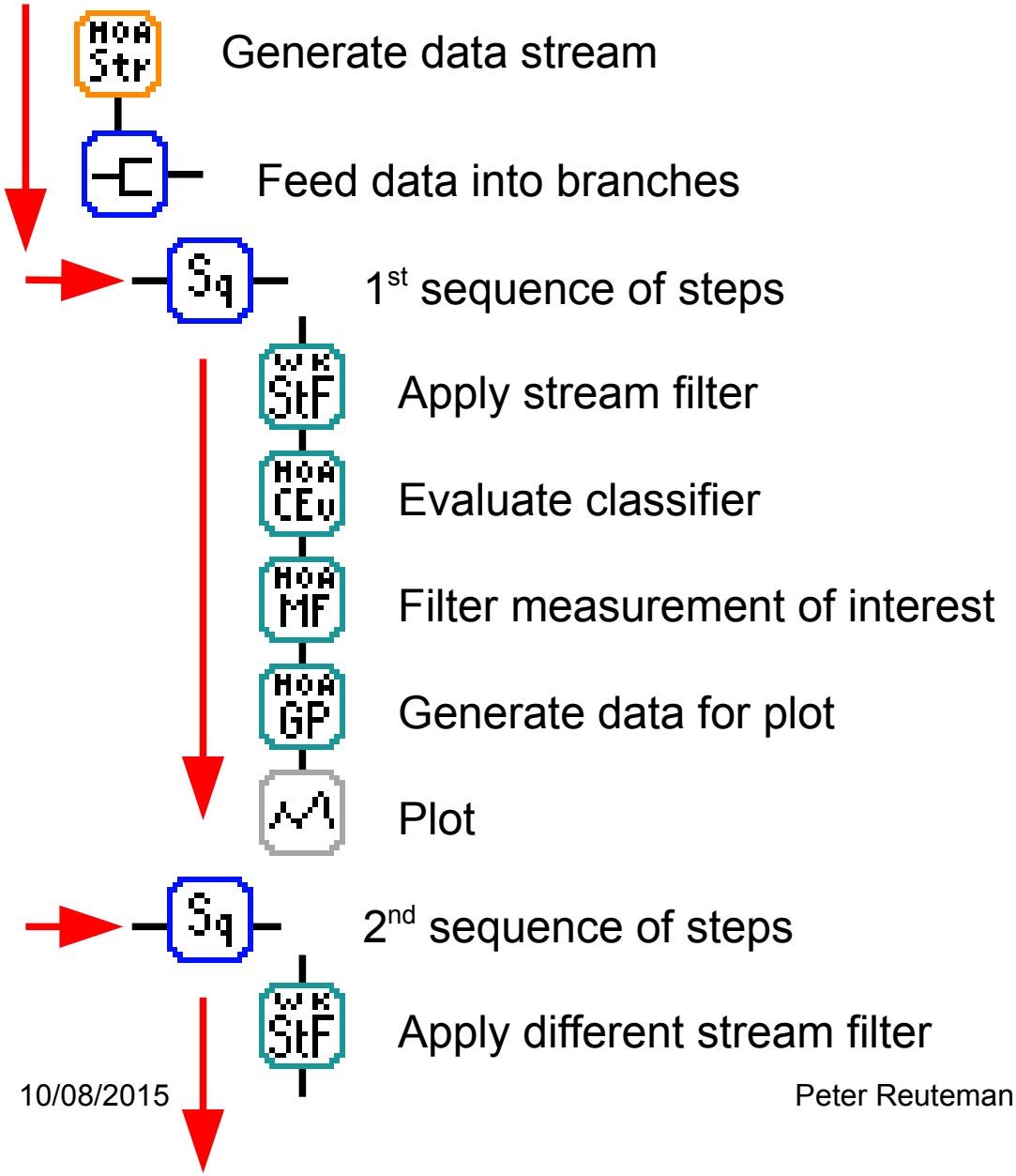
Set class attribute

Apply filter

Display data

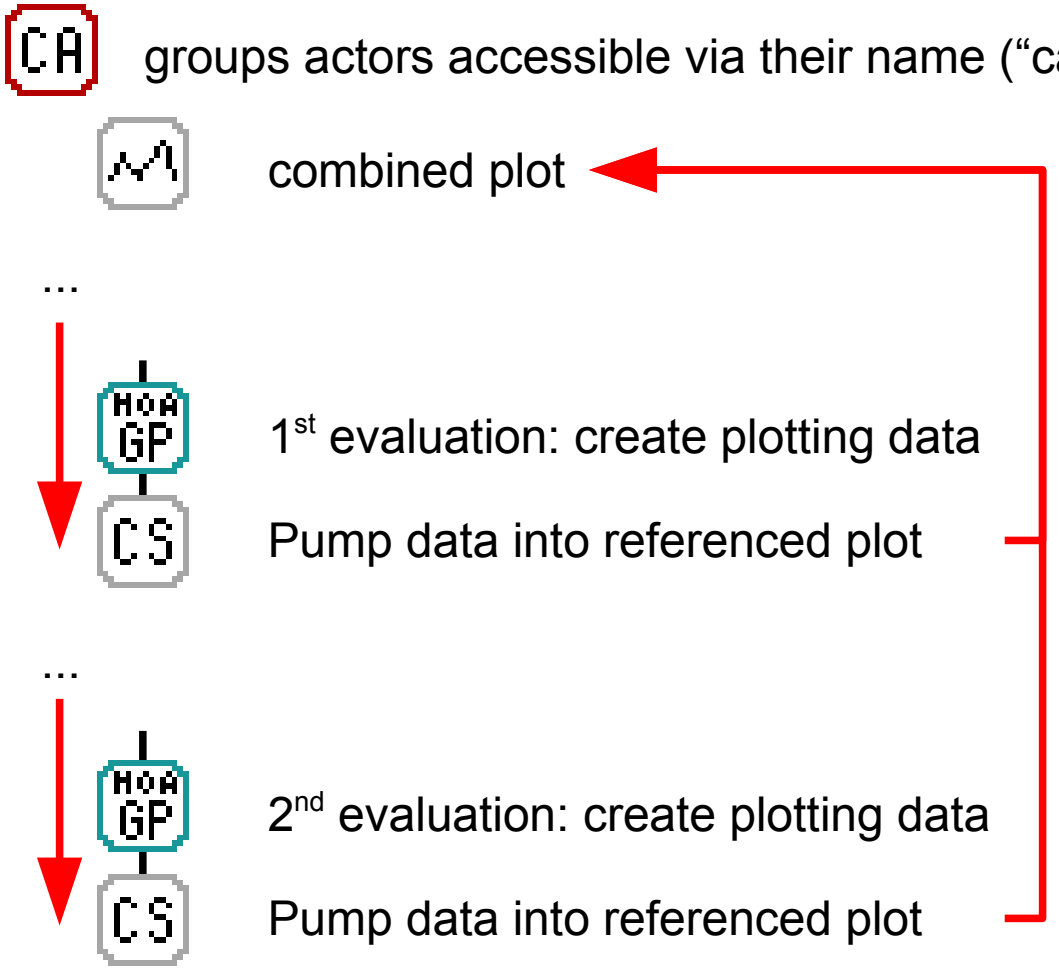
Load dataset, apply filter and display dataset

Examples (2)



Filter data stream in two separate branches with different filters, evaluate classifier and plot metric

Examples (3)



Generate combined plot of two evaluations by using “callable actors” functionality

Research (demos)

- Compare two MOA classifiers (drift)
- Compare MOA classifier on different streams
- MOA cluster visualization
- Track mouse in video

Industry

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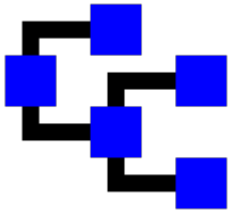
BLGG AGROXPERTUS

- BLGG - environmental lab in NL
- Spectral analysis
  - XRF: 10,000, MIR: 2,000, NIR: 1,500
- In operation since 2006
- Predictive modelling: soil, plant (~250 models)
- 1,000 to 3,000 samples per day
- Savings due to less wet chemistry
  - USD 18 million to USD 33 million per year

Interested?



https://adams.cms.waikato.ac.nz/