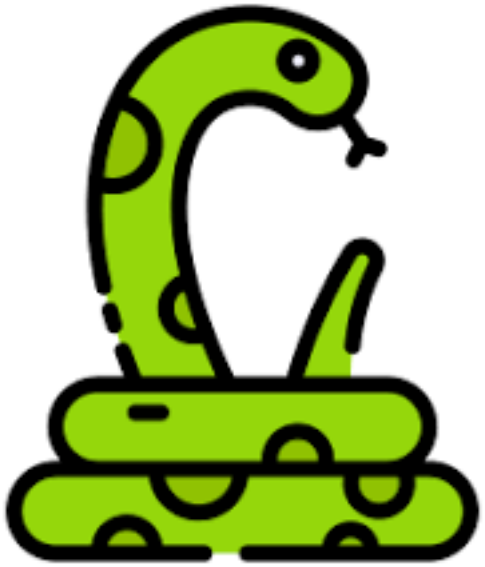
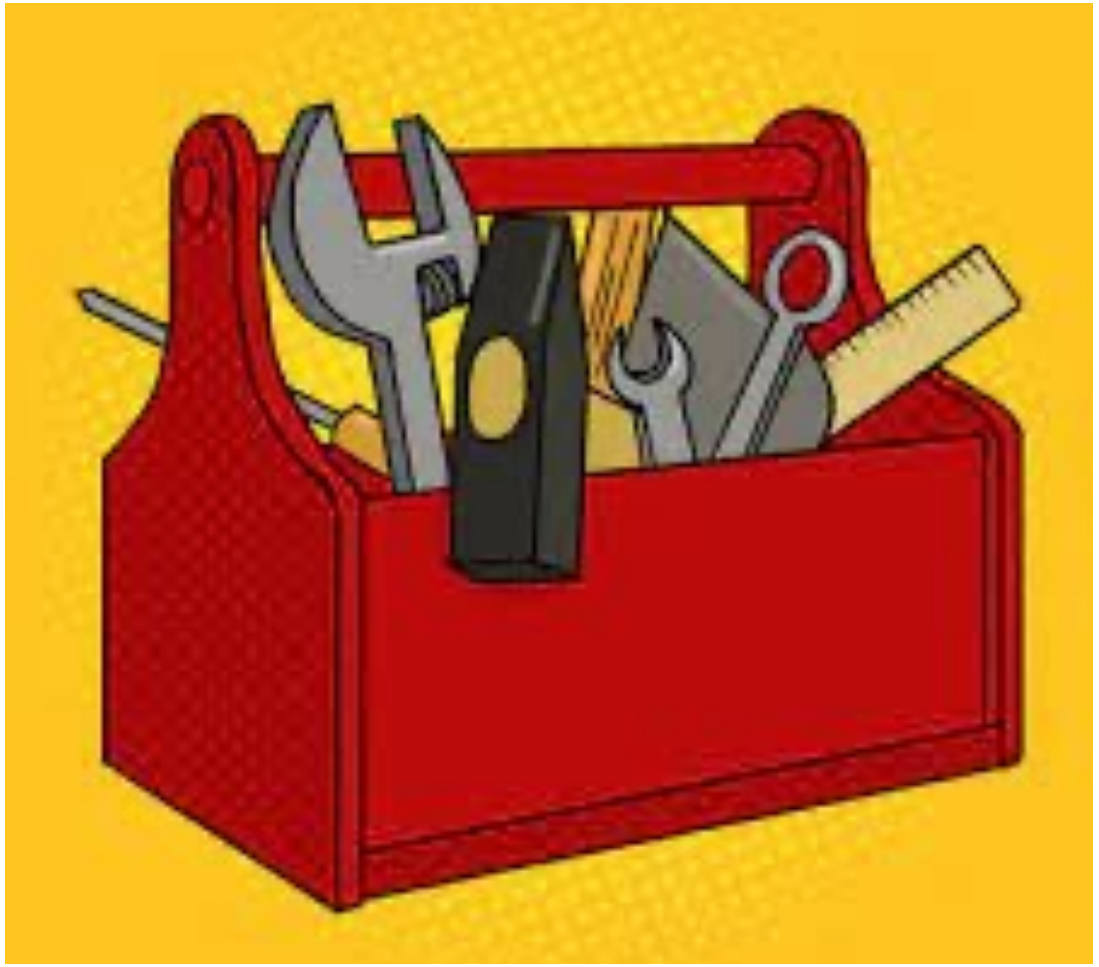
University of Glasgow

What is Conda

Kirstyn Brunker



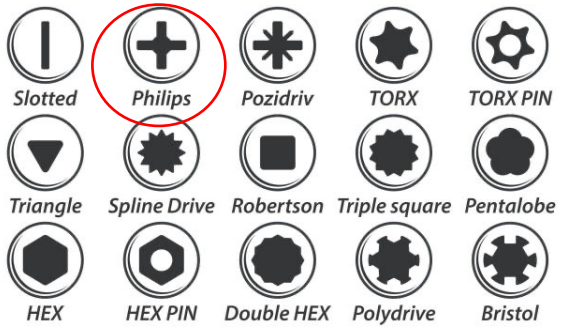
Package management and environment management system



- Imagine you have a toolbox with different tools for different jobs
- Each tool has its own purpose and works best with certain tasks

- Let’s say you have different projects to work on
  - Fix your bicycle
  - Build a bookcase…

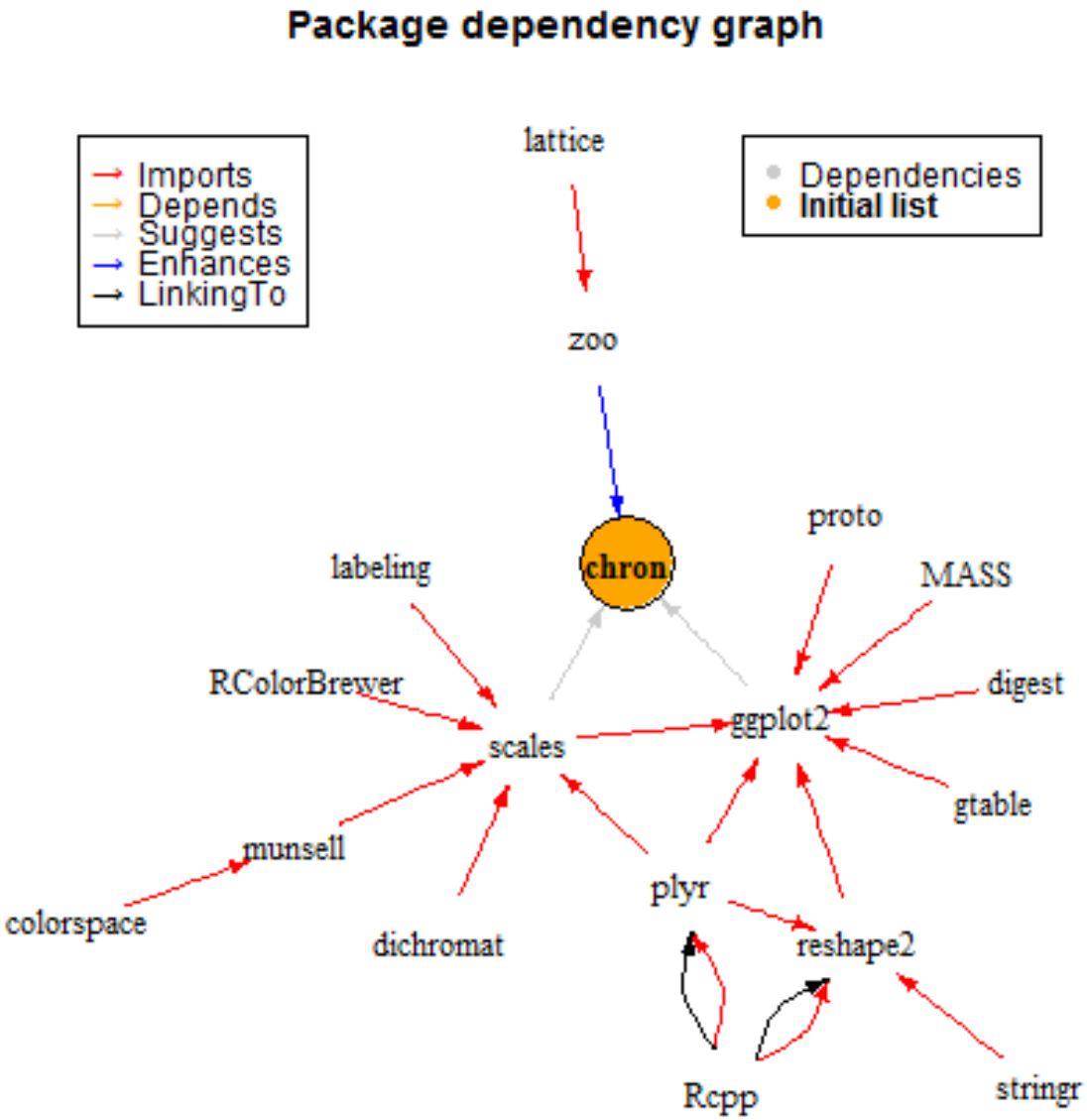
- You need the right tools for the job
  - Type *and* version of tool



Package management

- **Conda is like a tool manager for your computer.**

- It helps you organize and keep track of all the software tools (packages) you need for different projects.

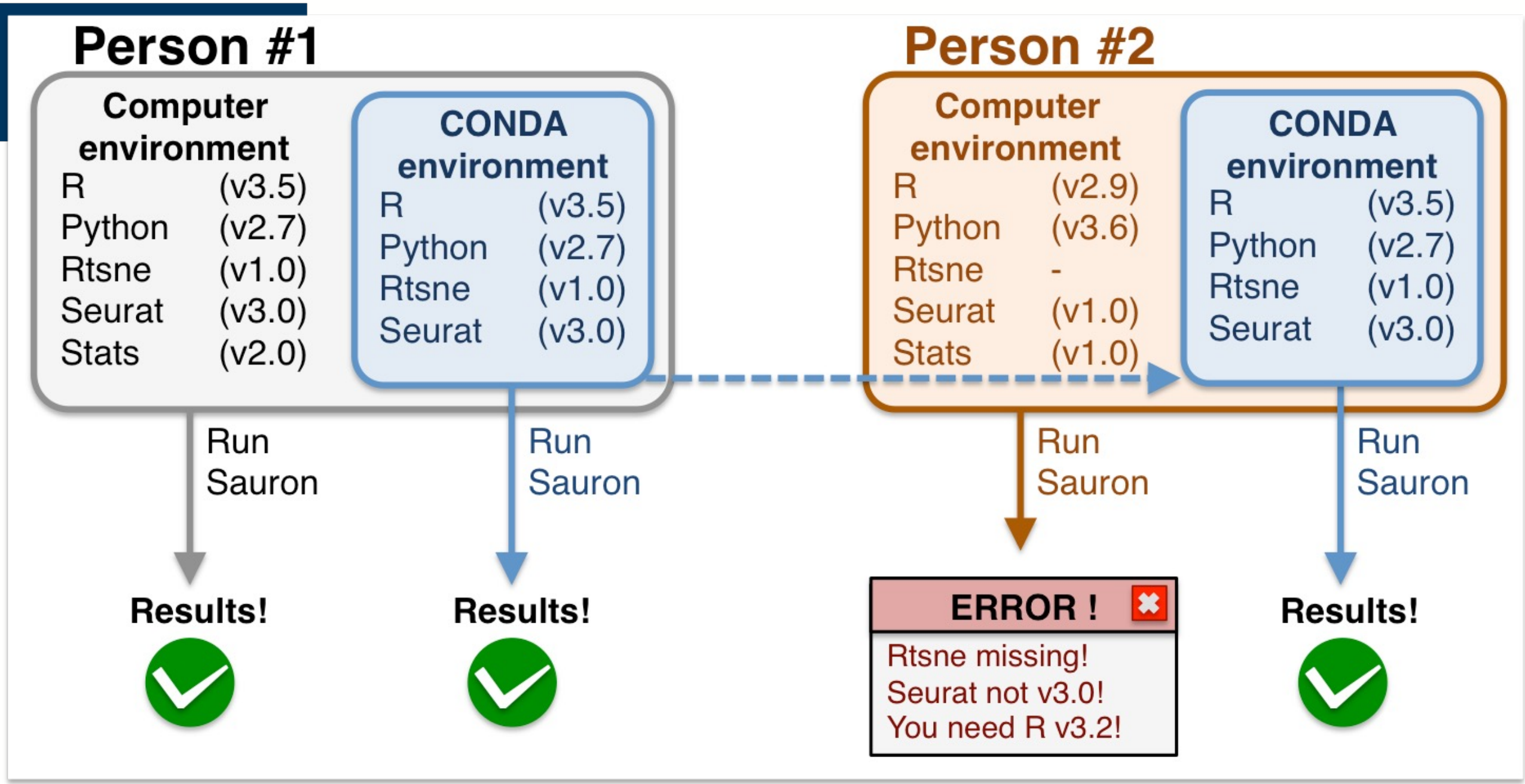


Environment management

- Create isolated environments for different projects
  - Each project has its own set of packages without having to worry about conflicts
- It's like having separate workbenches for building the bookshelf and fixing the bicycle.

- Makes it easier to start new projects, switch between projects, and share your work with others.

- Keeps everything organized and efficient.


Person #1
Computer environment
R (v3.5)
Python (v2.7)
Rtsne (v1.0)
Seurat (v3.0)
Stats (v2.0)
CONDA environment
R (v3.5)
Python (v2.7)
Rtsne (v1.0)
Seurat (v3.0)
Run Sauron
Run Sauron
Results!
Results!
Person #2
Computer environment
R (v2.9)
Python (v3.6)
Rtsne -
Seurat (v1.0)
Stats (v1.0)
CONDA environment
R (v3.5)
Python (v2.7)
Rtsne (v1.0)
Seurat (v3.0)
Run Sauron
Run Sauron
ERROR !
Rtsne missing!
Seurat not v3.0!
You need R v3.2!
Results!

Summary

- As a package manager, Conda can install, update and remove packages.

- As an environment manager, it can manage virtual environments.
  - “Self-contained” environments for different projects
  - Reproducible and easier to share and collaborate on projects

A quick note on mamba

- mamba : a drop-in replacement for conda, offering higher speed and more reliable environment solutions

- For example, to create the conda environment we will use later today (artic-rabv) takes half the time with mamba compared to conda:
  - Mamba = 2m 34s
  - Conda = 5m 11s