



More descriptive plots

## DATA VISUALIZATION 2



# Topics

- **Introduction:** GUI and basic calculations
- **Coding 1:** Scripts, style, and variable classes
- **Coding 2:** Control statements and loops
- **Visualization 1:** Basics, subplots, get and set
- **Coding 3:** Functions
- **Visualization 2: Descriptive plots**
- **Coding 4:** Basic input and output
- **Visualization 3:** Distribution and 3D plots
- **Coding 5:** Input and output specials – last lecture before holidays
- **Machine Learning 1:** Introduction and dimension reduction
- **Machine Learning 2:** Clustering
- **Machine Learning 3:** Classification
- **Coding 6:** Efficiency and debugging basics
- **Coding 7:** Advanced functions and debugging

# Legends and Annotations

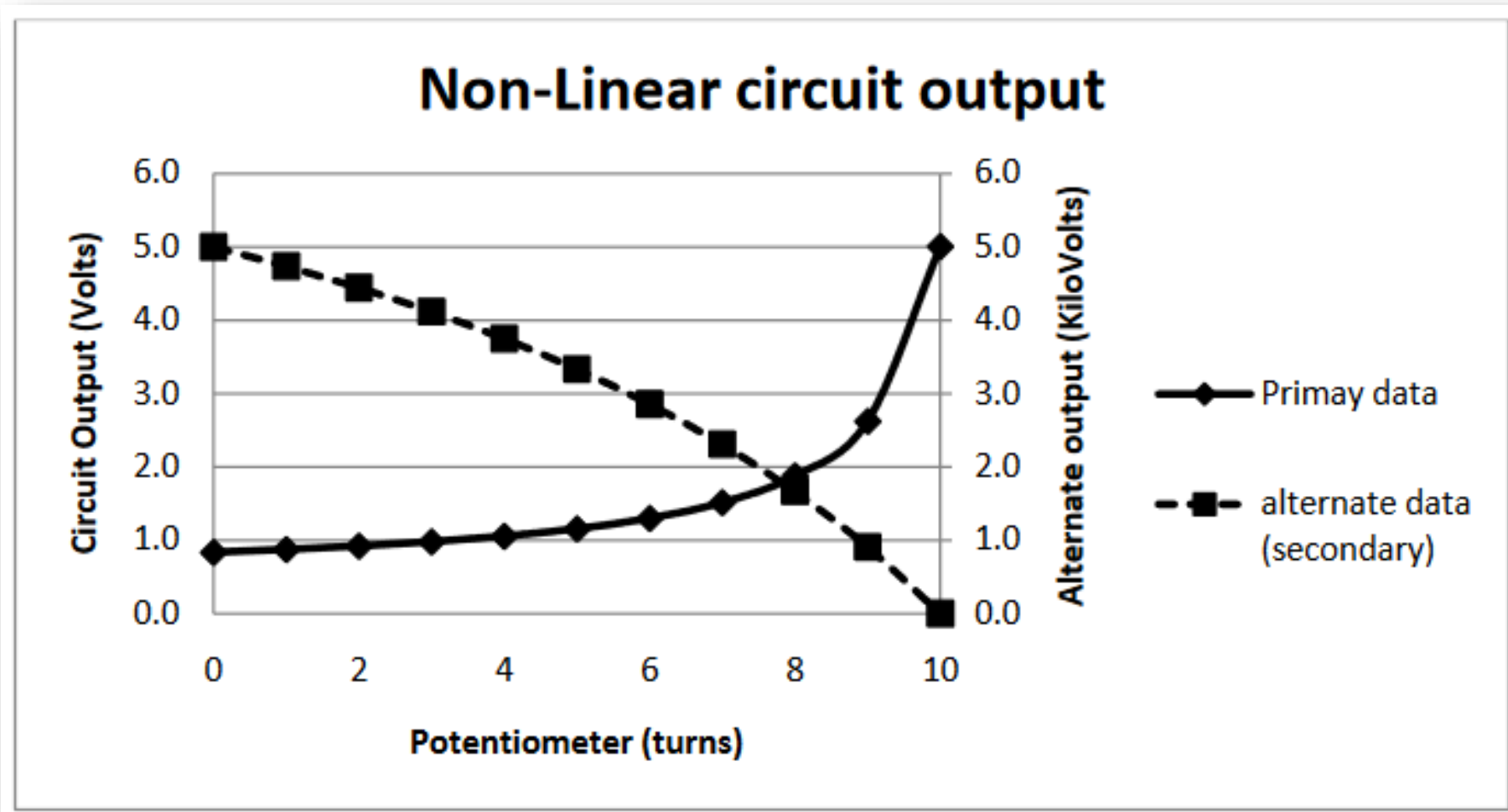


- Legends are necessary if multiple lines are in one plot
- Legends can easily be created in MATLAB
  - Function „legend“
  - You can also use plot handles to only make legends for specific lines
  - You can chose font, location and other things of the legend box in your plot
- A text and annotation can be displayed in a fig with these functions, respectively
  - Annnotations can be arrows, rectangles, textboxes, ... positions, fontsize, color etc. can be changed

# Two axes in one

- It's possible to plot two axes in one using `yyaxis left/right` or `plotyy`
- The plot color by default is set to the color of the axis (orange/blue)
  - Change like this:
    - `left_color = [R,G,B]; right_color = [R,G,B];`
      - R,G,B in the range [0,1]
    - `“set(gcf,'defaultAxesColorOrder',[left_color; right_color]);”`
- Very handy when it comes to differently scaled data that should be shown in one plot for comparison

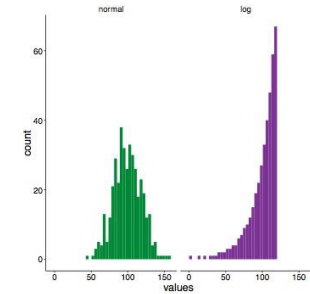
# Two axes in one



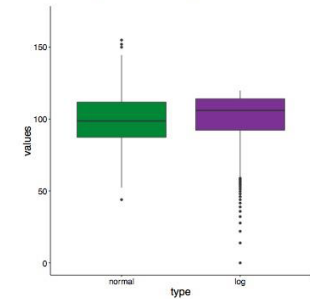
# More plot functions

- Scatter plots to display discrete markers only
- Descriptive statistics:
  - Barplots (with errorbar)
  - Boxplot
  - Histogram
- Important to understand the differences
  - Choose the plot that suits your data!
  - Bar plots not for means, but for quantities

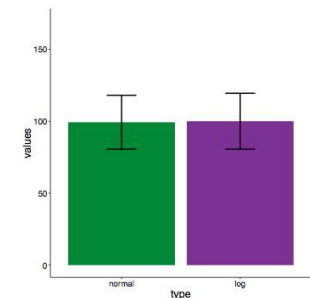
Clearly different...



also pretty clearly different....



the same!



**Friends don't let friends make barplots.**