

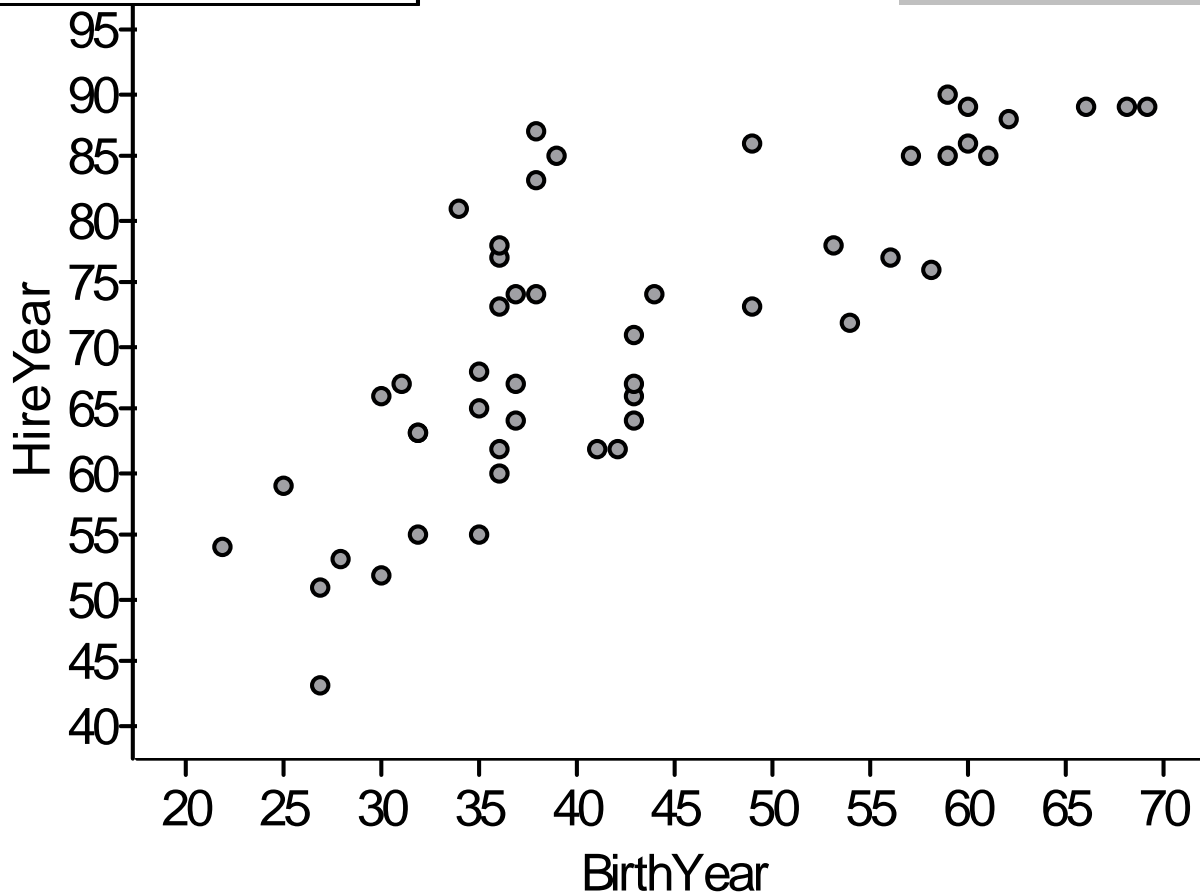
Scatterplots

a.k.a. Scatter Diagrams

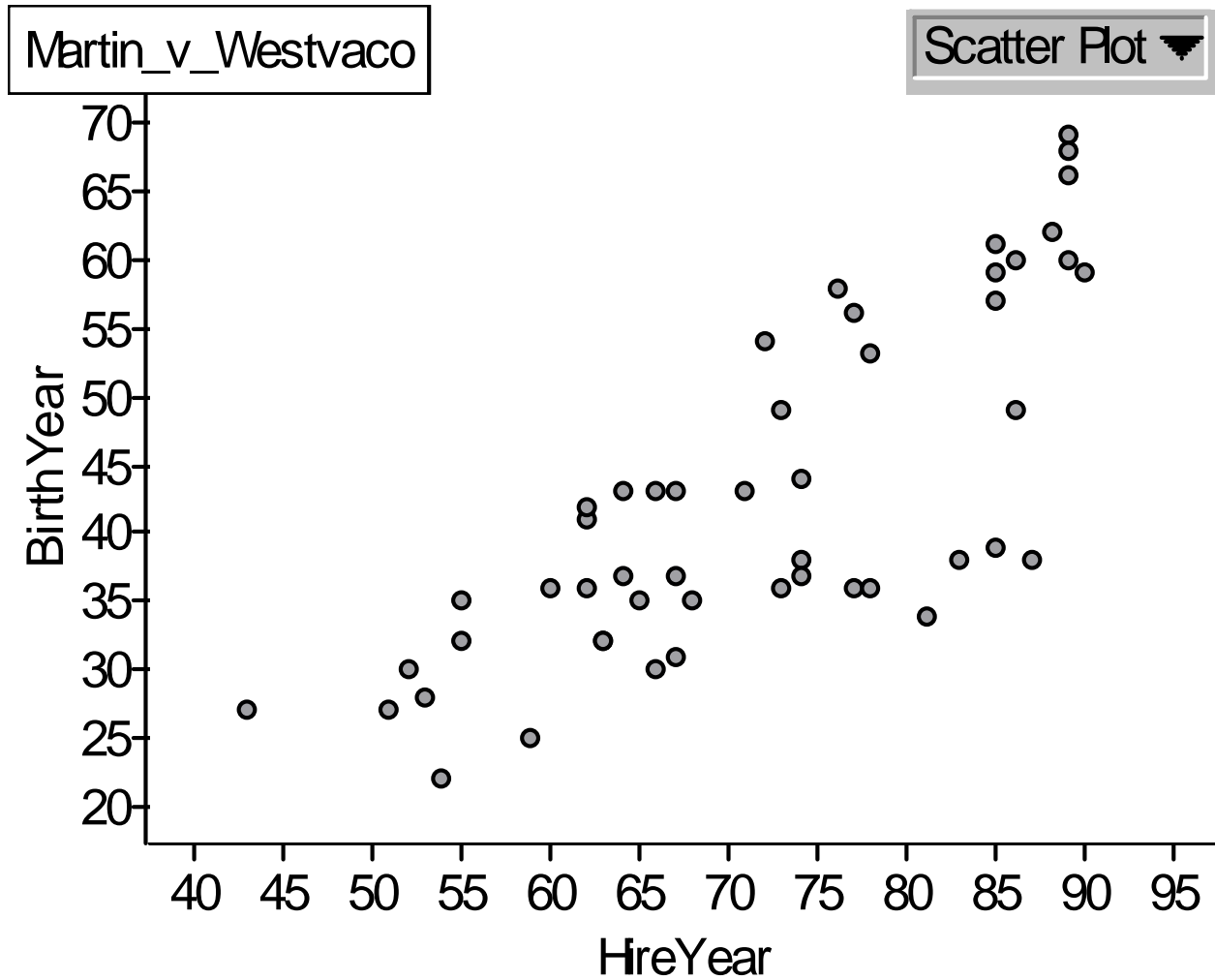
Scatterplot

Martin_v_Westvaco

Scatter Plot ▼



Scatterplot



Scatterplot

- Shows the relationship between two quantitative variables

Scatterplot

- Shows the relationship between two quantitative variables
 - Explanatory variable - "cause"
 - ◉ Influences second variable
 - ◉ Independent variable

Scatterplot

- Shows the relationship between two quantitative variables
 - Response variable - "effect"
 - ◉ Responds to changes in explanatory variable
 - ◉ Dependent variable

Explanatory vs Response Variable

- Time spent studying for a statistics exam vs. grade on the exam
- Your weight, in pounds, vs. your height, in inches
- Rainfall, in inches, during the growing season vs. yield, in bushels/acre, of corn
- SATM vs SATV

Describing Pattern in Scatterplot

- **Identify**
 - **Variables and Cases** - describe the units of measure and the range of each
- **Describe the overall shape**
 - **Linearity**
 - **Clusters**
 - **Outliers**

Describing Pattern in Scatterplot

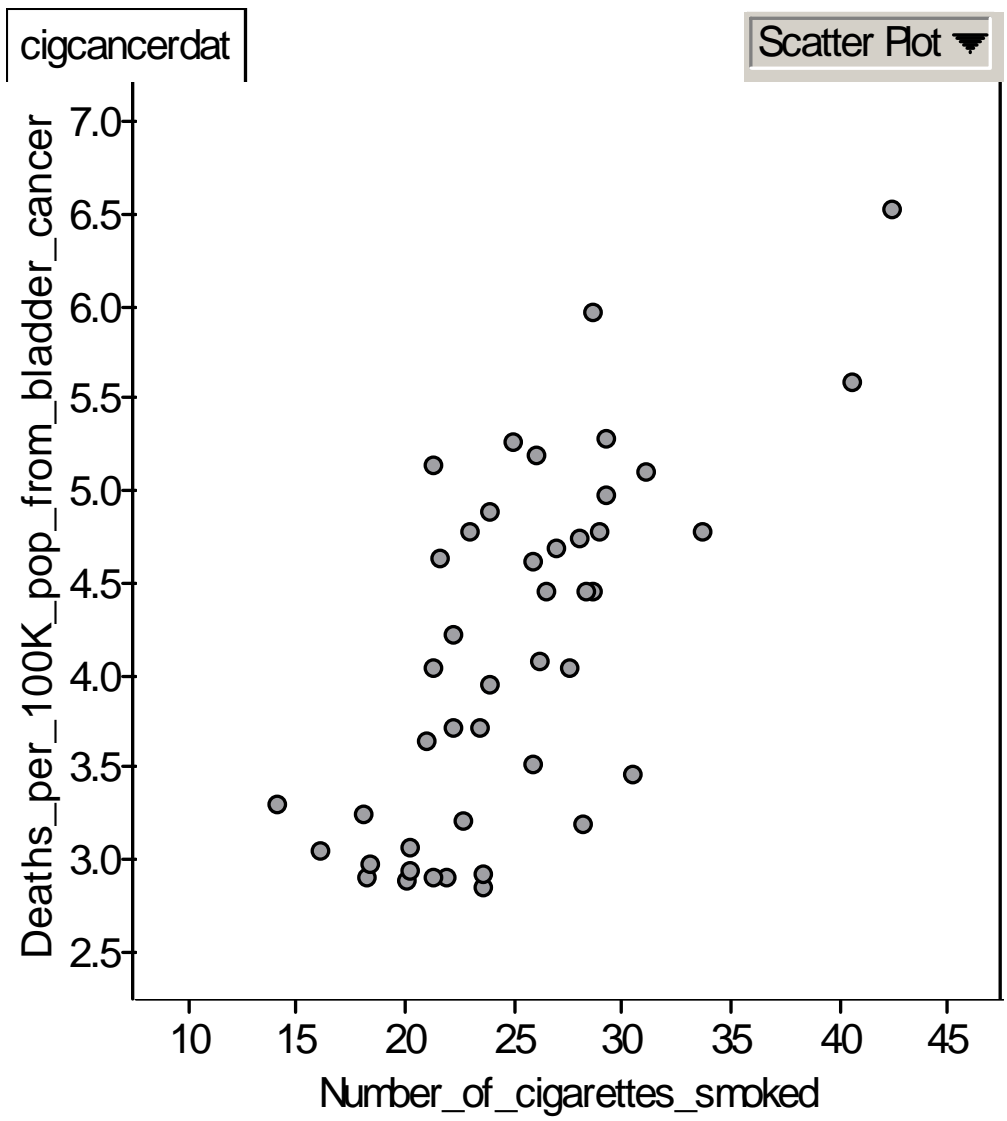
- Describe the trend
 - Positive trend - as x increases, y increases
 - Negative trend - as x increases, y decreases

Describing Pattern in Scatterplot

- Describe the strength
 - Strong - points clustered around an imaginary line
 - Weak - points scattered farther from an imaginary line
 - Varies in strength
 - Points fan out at one end (heteroscedasticity)
 - Constant strength

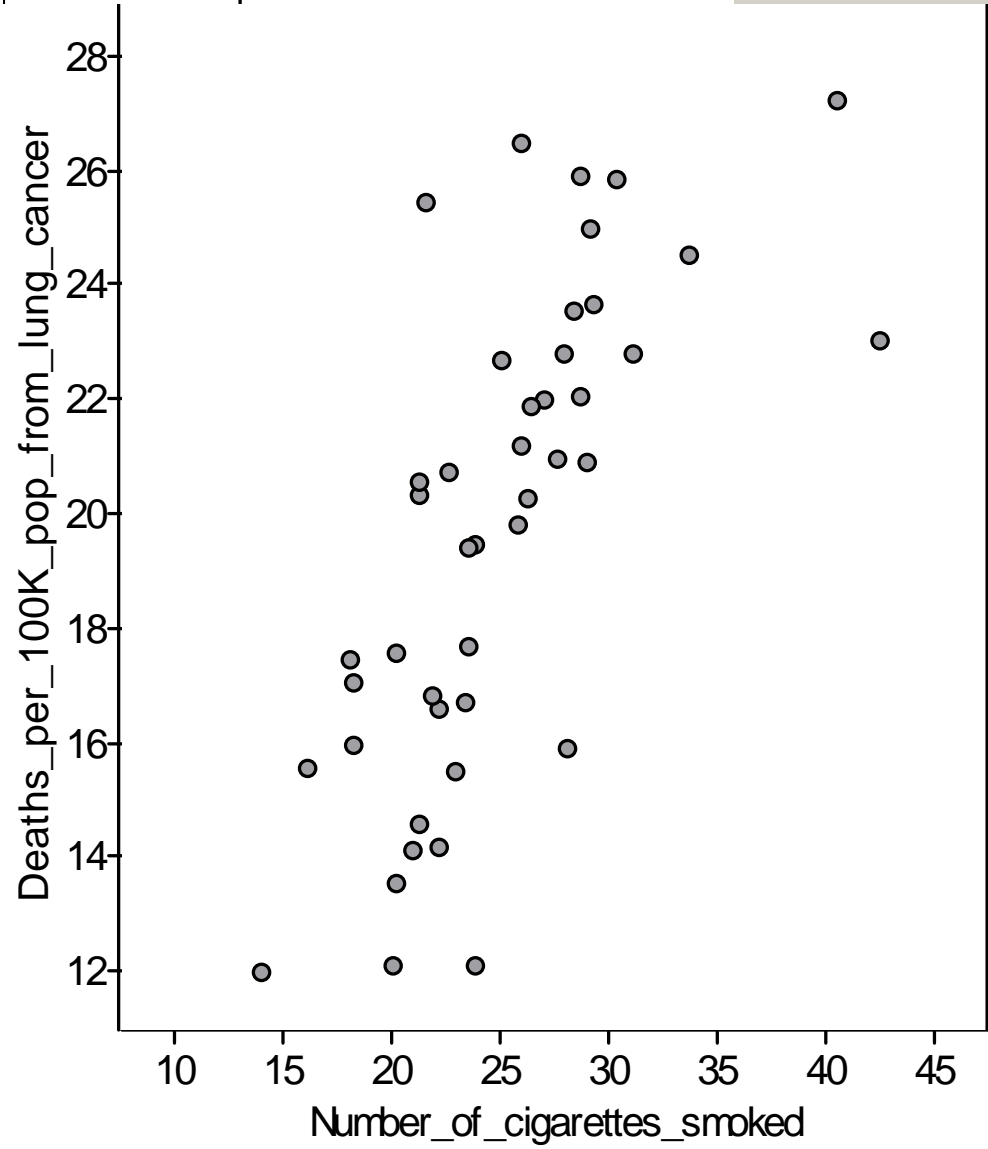
Describing Pattern in Scatterplot

- Plausible explanations for pattern?
- Reasonable to conclude one variable is dependent on another? Causes another
- Possible for third variable to cause both?



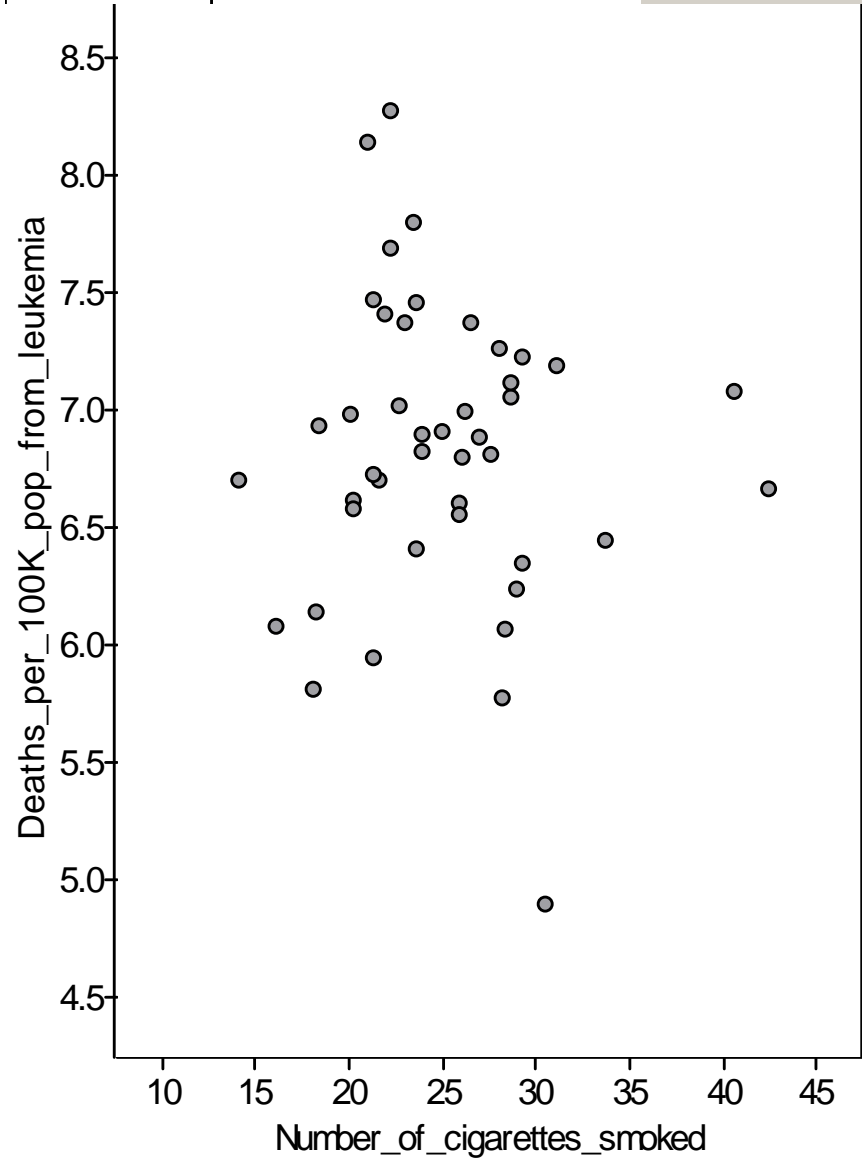
cigcancerdat

Scatter Plot ▼



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Scatter Plot ▼



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Scatter Plot ▼

