Stat 101L: Lecture 10

Scatter plots & Association

- Statistics is about … variation.
- Recognize, quantify and try to explain variation.
  - Variation in contents of cola cans can be explained, in part, by the type of cola in the cans.

1

Scatter plots & Association

- Response variable – variable of primary interest.
- Explanatory variable – variable used to try to explain variation in the response.

2

Scatter plots & Association

- When both the response and the explanatory variables are quantitative, display them both in a scatter plot.
- Look for a general pattern of association.

3

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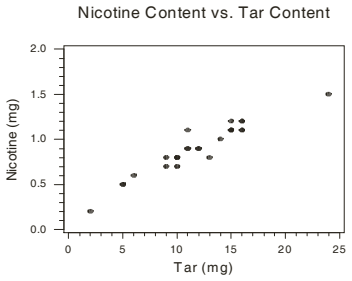
Scatter plots & Association

- Example: Tar (mg) and nicotine (mg) in cigarettes.
  - y, Response: Nicotine (mg).
  - x, Explanatory: Tar (mg).
  - Cases: 25 brands of cigarettes.

4

Scatter plot



5

Positive Association

- Above average values of Nicotine are associated with above average values of Tar.
- Below average values of Nicotine are associated with below average values of Tar.

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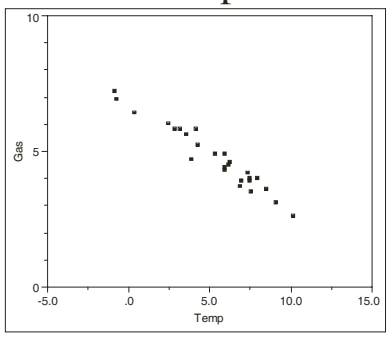
Stat 101L: Lecture 10

Negative Association

- Example: Outside temperature and amount of natural gas used.
  - Response: Natural gas (1000 ft^3).
  - Explanatory: Outside temperature (^{o} C).
  - Cases: 26 days.

7

Scatter plot



8

Negative Association

- Above average values of gas are associated with below average temperatures.
- Below average values of gas are associated with above average temperatures.

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