

# The Confidence Table as an Improvement in Classification

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# Outline of Talk

## 1. Summer Research Experience

- Overview
- Hypotheses tested
- Materials and Methods
- Results and Interpretation

## 2. Carrying the Research Experience Forward

- Developing lab units for student teaching
- Future plans
- Outcomes

# 1. Summer Research Experience

# Overview

- Grad student research project was to test accuracy of the classification table.
- My role was to conduct tests
  - Real data and random data
  - Wrote programs to test more efficiently

# Hypothesis Tested

- Classification table: takes posterior probability and rounds to 1 or 0
- Confidence table: keeps posterior probability as a decimal
- The confidence table is more accurate than the classification table

# Materials and Methods

- Random data:
  - Created a random multivariate normal data set
  - Assigned group number
  - No better than chance in determining group membership.
  - 1000 simulations

- Political data:
  - Respondents classified by party affiliation
  - 1127 people were surveyed
  - 30 issues were discussed
  - Issues put into groups of 4

# Results

- Random data:
  - 3 groups – should accurately classify 33%
  - Confidence table gave from 33-40%
  - Classification table gave 30-53%
  - Difference of about 15% for other groups
- Political data:
  - Confidence table averaged 11% more accurate



# Interpretation of Results

- Rounding makes classification table inflates accuracy by 10-15%
- Confidence table inflates accuracy 0-7%
- Confidence table is much more reliable

## 2. Carrying the Research Experience Forward

# Developing a Lab Unit (Future plans or current activity)

- Hypothesize about amount of education needed
- Conduct survey
- Present data
- Personal finance
- Salaries, expenses, stocks and bonds

# Future Plans (or how will the STEP research will impact my teaching)

- Real life applications
- Importance of statistics
- Programming

# Acknowledgements

- Dr. Steve Bieber
- Dr. Joe Stepan
- WySTEP