

# Interpretation of the Results

## Overview

The table presents the results of Dunn's post-hoc test, comparing the logarithmically transformed sales between three product categories: **Furniture**, **Office Supplies**, and **Technology**. Each row represents a comparison between two groups (group1 and group2), showing whether significant differences exist in their average sales.

## Columns Explained

- **group1** and **group2**: The two categories being compared.
- **p-adj**: The adjusted p-value for the comparison. A lower value indicates a stronger evidence against the null hypothesis (that there is no difference between the groups).
- **meandiff**: The mean difference in log-transformed sales between the two groups. Positive values indicate that the mean of group1 is higher than that of group2, while negative values indicate the opposite.
- **reject**: A boolean value indicating whether to reject the null hypothesis (True means a significant difference was found).
- **lower** and **upper**: The lower and upper bounds of the confidence interval for the mean difference.

## Detailed Analysis

### 1. Furniture vs. Furniture:

- **p-adj**: 1.000
- **meandiff**: 0.000
- **reject**: False
- **Interpretation**: No difference, as expected, since they are the same category.

### 2. Furniture vs. Office Supplies:

- **p-adj**:  $1.534319 \times 10^{-138}$  (extremely small)
- **meandiff**: 1.481696
- **reject**: True
- **Interpretation**: There is a significant difference between Furniture and Office Supplies, with Furniture having a higher average log sales.

### 3. Furniture vs. Technology:

- **p-adj**: 0.052 (not statistically significant at the 0.05 level)
- **meandiff**: -0.201886
- **reject**: False
- **Interpretation**: No significant difference between Furniture and Technology, although the mean of Technology is slightly higher.

4. Office Supplies vs. Furniture:

- p-adj:  $1.534319 \times 10^{-138}$
- meandiff: -1.481696
- reject: True
- Interpretation: This is the same comparison as above but viewed in the opposite direction, reinforcing that Office Supplies has significantly lower average log sales compared to Furniture.

5. Office Supplies vs. Office Supplies:

- p-adj: 1.000
- meandiff: 0.000
- reject: False
- Interpretation: No difference, as expected.

6. Office Supplies vs. Technology:

- p-adj:  $2.001982 \times 10^{-154}$
- meandiff: -1.683583
- reject: True
- Interpretation: There is a significant difference, with Technology showing higher average log sales compared to Office Supplies.

7. Technology vs. Furniture:

- p-adj: 0.052
- meandiff: 0.201886
- reject: False
- Interpretation: No significant difference between Technology and Furniture, despite a positive mean difference.

8. Technology vs. Office Supplies:

- p-adj:  $2.001982 \times 10^{-154}$
- meandiff: 1.683583
- reject: True
- Interpretation: A significant difference exists, with Technology showing higher average log sales than Office Supplies.

9. Technology vs. Technology:

- p-adj: 1.000
- meandiff: 0.000
- reject: False
- Interpretation: No difference, as expected.

## Conclusion

In summary, the Dunn's post-hoc test results indicate significant differences in average log sales between Office Supplies and both Furniture and Technology, with Furniture generally having higher sales than Office Supplies. Meanwhile, Technology also outperforms Office Supplies. There is no significant difference between Furniture and Technology in terms of average sales.