Choices, Choices: Comparing between CHOC'LATE and Classification-Tree Methodology

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- Main result and purpose of the paper

Basics

- Reliable Test Set Problem
  - Input domain is usually very large
- Partition Testing
  - Specification based – informal specifications

Category-Partition Method

- Identify categories from the specifications (major aspects of parameters or environment conditions)

- Identify the associated choices for each category (disjoint subsets of values for each category)

Example

In an object recognition system, an object may be either large or small; it may be a sphere, triangular or cube; and its color may be green, blue or red.

Example

- Category – Size, Shape and Color
- Choices
  - Size – large, small
  - Shape – sphere, triangular, cube
  - Color – green, blue, red

Example

- Large – volume greater than 10 L
- Small – volume small than or equal to 10 L
- Green – light green, moderate green, deep green
- Blue – light blue, moderate blue, deep blue
- Red – light red, moderate red, deep red

Example

- All possible combinations of choices – 2*3*3=18 combinations
- The input domain is partitioned into 18 partitions
- Select an element from each partition as a test case by choosing a value from every choice in a combination of choices

Example

In an object recognition system, an object may be either large or small, and it may be a circle, triangular or square. With the exception that a triangular object must be green in color, all objects may be either green, blue or red in color.

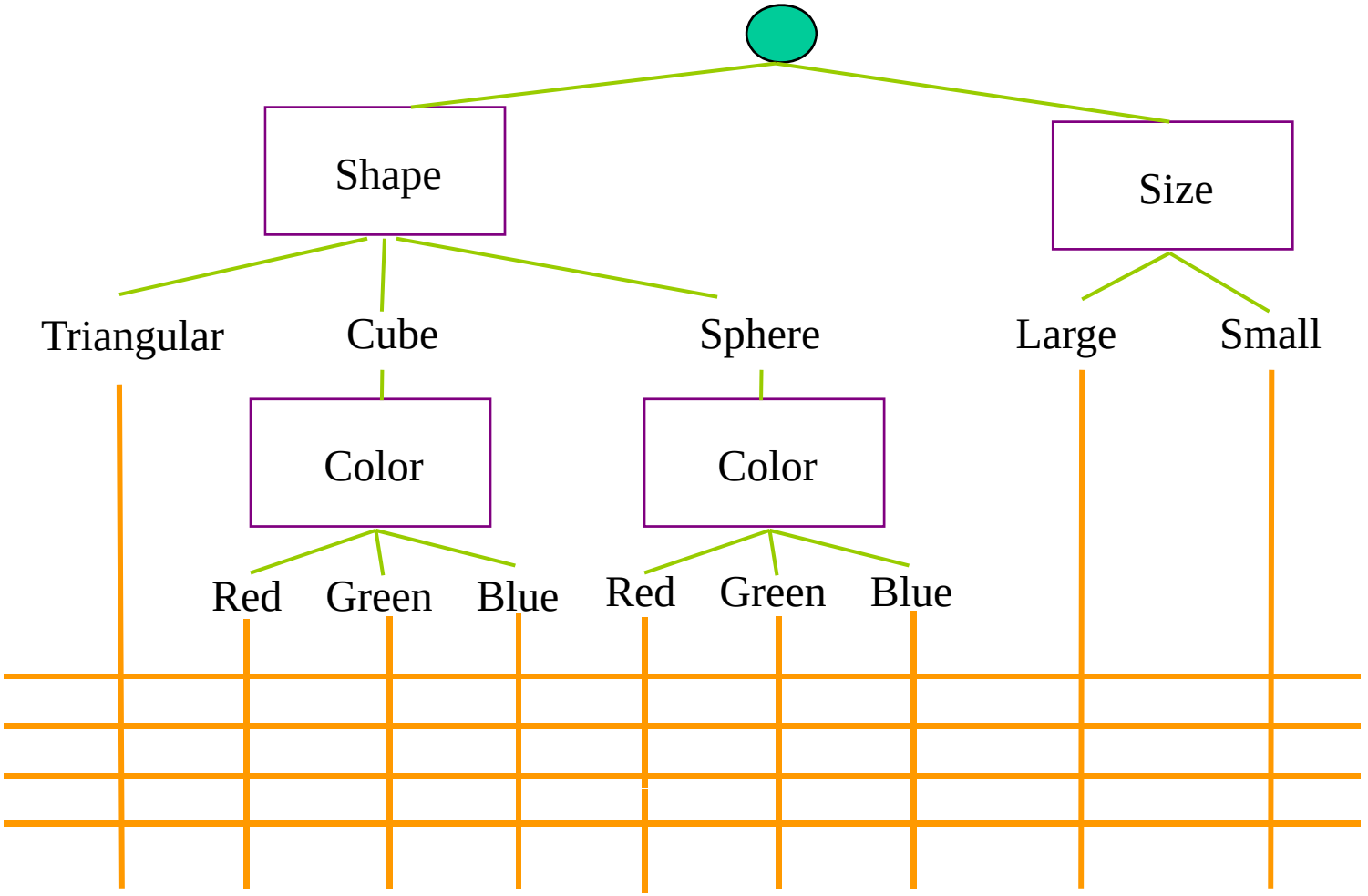
CHOC'LATE

- Semi-automatic constructions of combinations of choices
- Define the co-existence relationship between a pair of choices (Choice Relation Table)
  - Fully embedding
  - Partially embedding
  - Not embedding

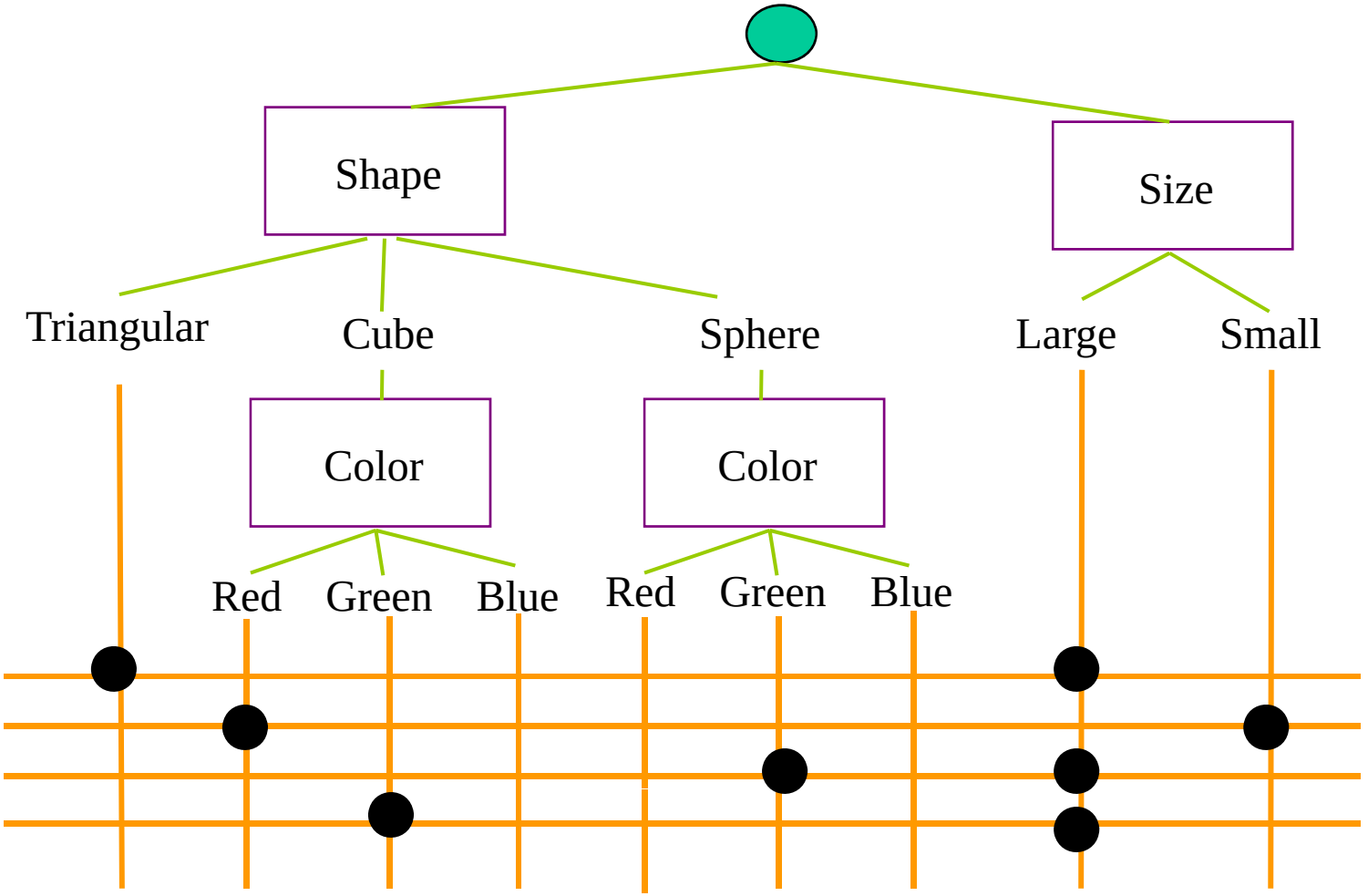
Classification-Tree Method

- Proposed by Grochtmann and Grimm
- Semi-automated
  - Use a tree structure to construct combinations of choices
  - Define the co-existence relationship categories

A Possible Classification Tree



A Possible Classification Tree with Test Case Table



Comparison

- Similarity
- Difference
- Strength and weakness

Selection Guidelines

- Specifications – details
- Size of categories and choices
- Relationships between categories
- Amount of testing resources

Conclusion

Question:

Is Testing Method A better than Testing Method B?

Thanks