Seminar on
Discrimination Methods
April 22, 2010

New Methods – Alternate Methods for Consideration

Presented By:
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New Methods – Recent Activity

- Ratio/Multiplicative comparisons
- Equivalence
- Combinatorial tools for product and portfolio optimization
- Appropriate analysis of no difference/no preference data
- Method of tetrads

Method of Tetrads

- Four stimuli presented:

Specified Procedure	"*Select the two stimuli with the largest sensory magnitudes*"
Unspecified Procedure	"*Group the stimuli into two groups of two*"

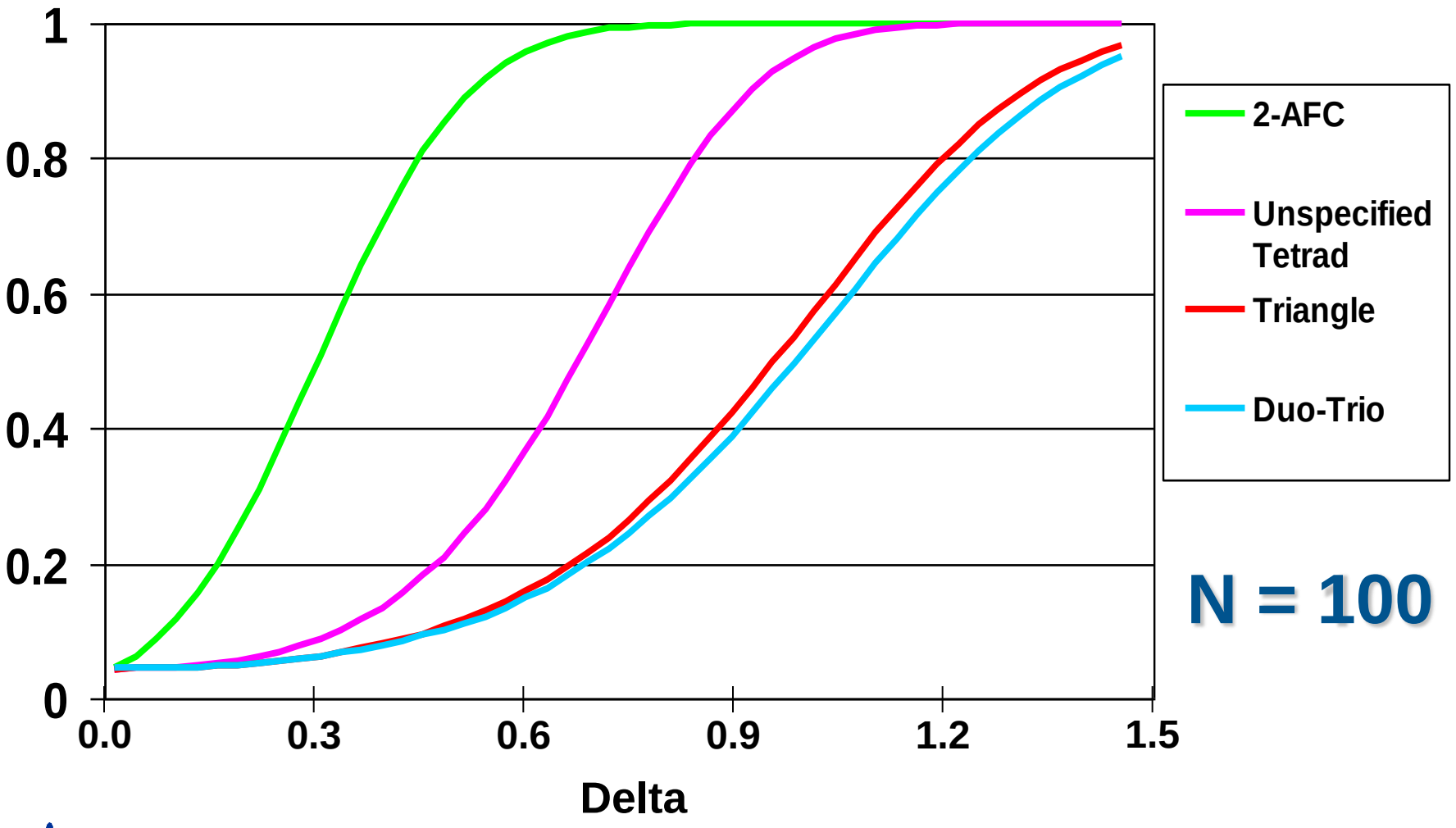
Method of Tetrads

- Benefits:
  - Simple to conduct
  - Statistically powerful
  - Unspecified procedure does not require attribute identification
  - Well suited for product visual comparisons
- Considerations:
  - Possible sensory fatigue
  - Possible memory effects

Method of Tetrads – Guessing Models

- Six equally likely perceptual outcomes:
  - WWSS, WSWS, WSSW, SSWW, SWSW, SWWS
- Specified:
  - Only WWSS is correct
  - Guessing probability = 1/6
- Unspecified:
  - Both WWSS and SSWW are correct
  - Guessing probability = 1/3

Power Curves of Varying Methods



N = 100

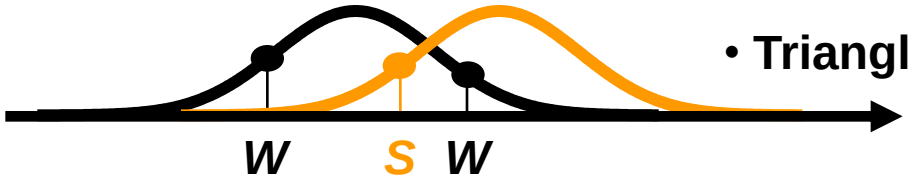
Triangle – Possible Cases

(a)

• Triangle: Correct

48.0%

(b)



• Triangle: *Incorrect*

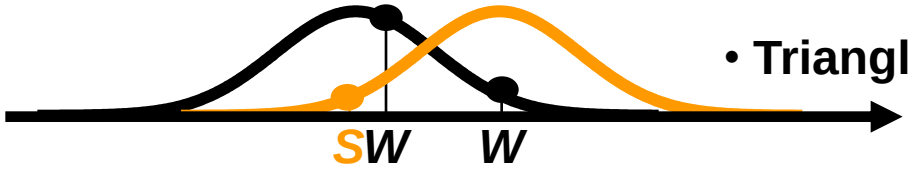
17.9%

(c)

• Triangle: *Incorrect*

28.5%

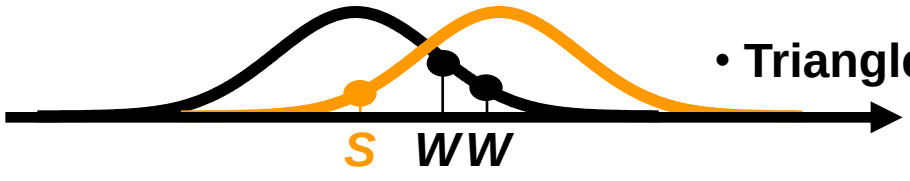
(d)



• Triangle: *Incorrect*

3.2%

(e)



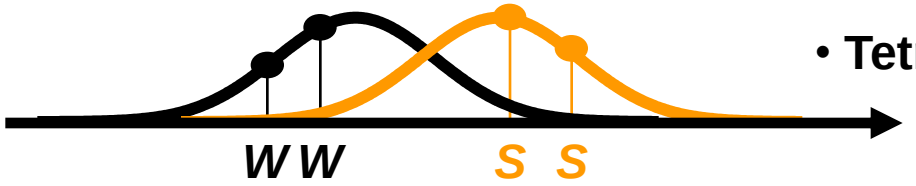
• Triangle: Correct

2.3%

Overall P_c = *50.3%*

Unspecified Tetrad – Possible Cases

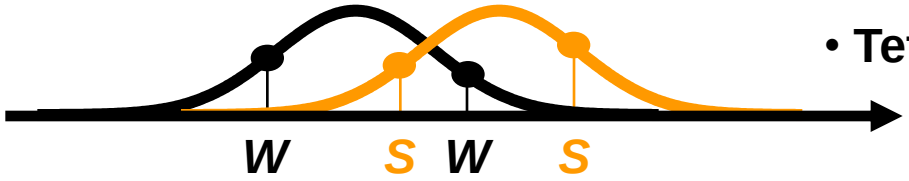
(a)



• Tetrad: Correct

63.0%

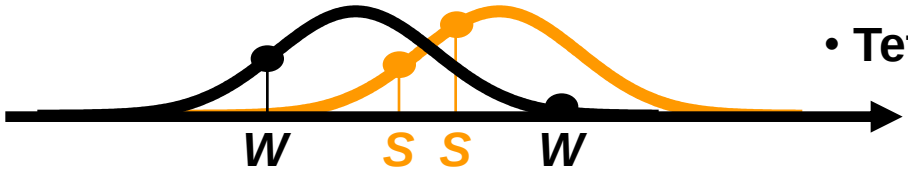
(b)



• Tetrad: *Incorrect*

20.2%

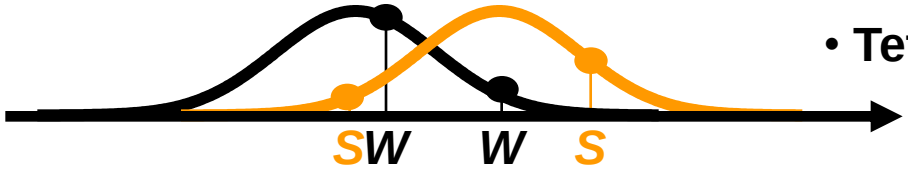
(c)



• Tetrad: *Incorrect*

6.7%

(d)



• Tetrad: *Incorrect*

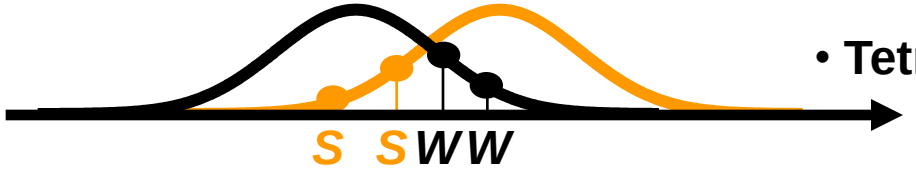
6.9%

(e)

• Tetrad: *Incorrect*

2.1%

(f)



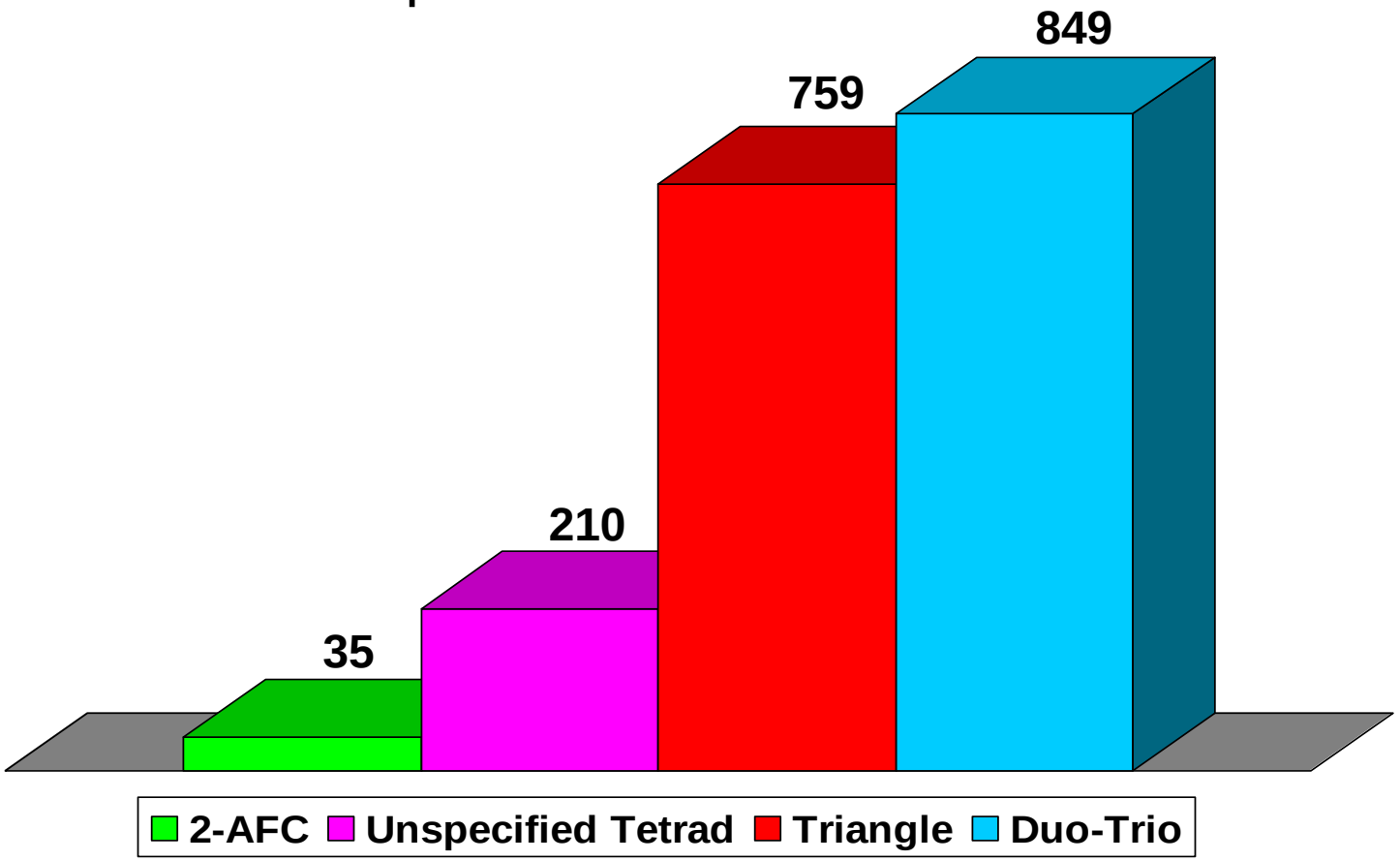
• Tetrad: Correct

1.0%

Overall P_c = 64.0%

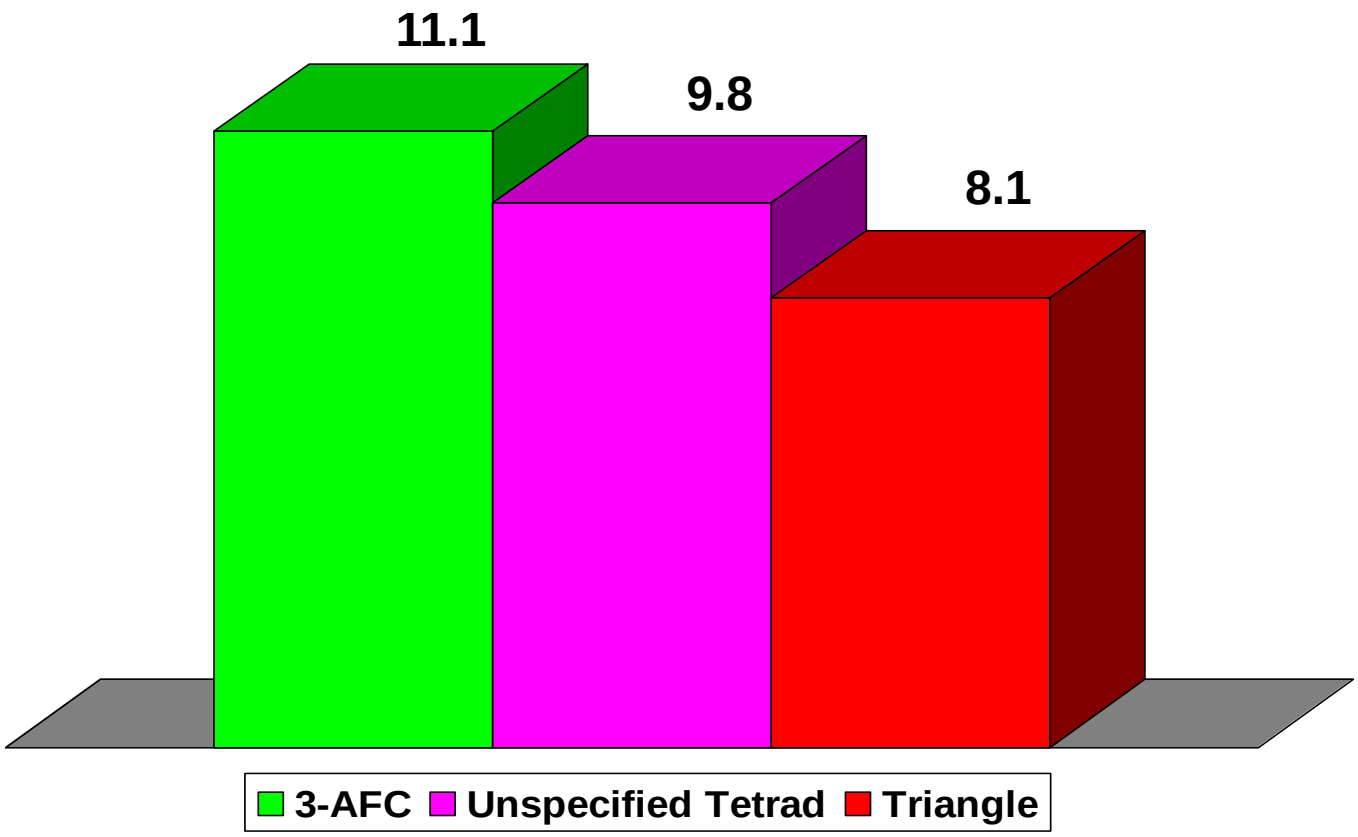
Cost of Method Choices: Sample Size

- Sample sizes required for 80% certainty of detecting delta of 0.7 with alpha level of 0.05



Experimental Verification

- Delwiche and O'Mahony (1996)
- Puddings varied on sweetness
- Mean number of correct responses out of 12



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