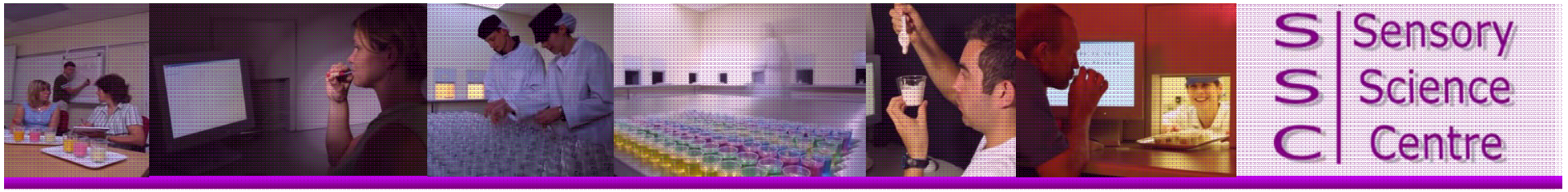


# Using discrimination tests to identify key compounds of flavour perception

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IFST PFSG Fast Forward conference, Leatherhead food research

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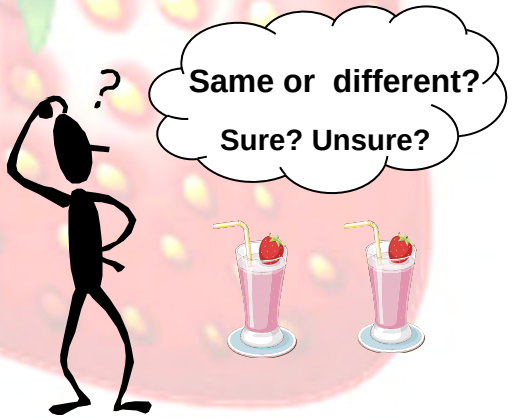
# Introduction

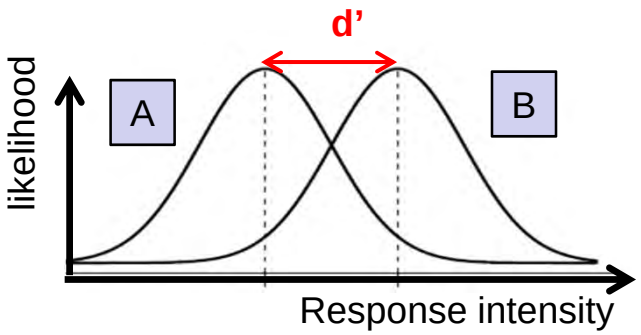
- Omission experiments
  - omission sample (n-1) assessed against complete sample (n)
- Triangle test used with few assessors
  - statistically limited
  - does not show the relative impact of each compound
- New approach
  - Same/Different test with sureness rating
- Strawberry aroma (9 compounds)

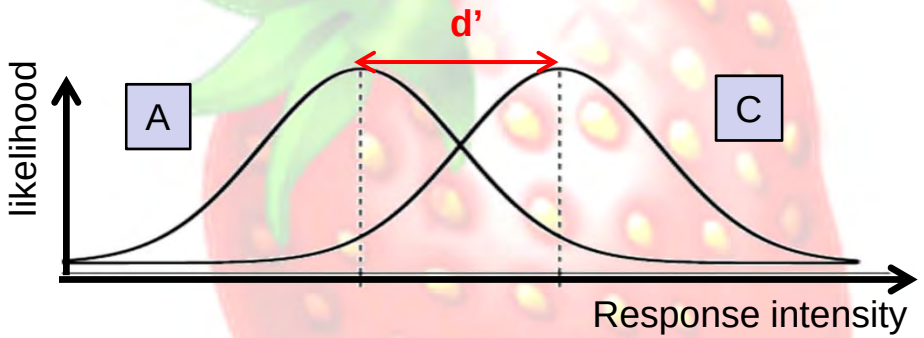


# Materials & Methods

Sensory Science Centre

- Thurstonian distance d'
  - Distance between two samples
  - A measure of sensitivity
  - Estimated using a ROC fitting software




d' independent of the method used

d' allows measuring the relative impact of each compound

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# Triangle vs Same/Different

Sensory Science Centre

| Volatile | Orthonasal | | Retronasal (citric acid) | |
|---|---|---|---|---|
| | Same/Diff | Triangle | Same/Diff | Triangle |
| Diacetyl | **1.10*** | 0.80 | 0.68 | 0 |
| Ethyl butyrate | **1.80*** | 1.69* | **1.20*** | 0.90 |
| Furaneol | **1.62*** | 0.56 | 0.32 | 0.55 |
| Hexenol | **1.82*** | 0.69 | -0.55 | **1.08*** |
| Butyric acid | **1.39*** | 0 | **1.19*** | 0.56 |
| Ethyl caproate | **1.38*** | 1.24* | 0.70 | **1.28*** |
| Methyl cinnamate | **1.94*** | 1.12* | **1.16*** | 0.39 |
| Gamma decalactone | **1.45*** | 0.80 | 0.10 | **1.68*** |
| Hedione | **1.52*** | 0.09 | 0.93 | 0 |

**Patent Filed GB1216074.3**

- Same/Different approach was more discriminatory (higher d's)
- Hypothesis: Carry over effect, sensory fatigue and memory effects
- Results different for retronasal delivery

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# Effect of congruent tastants
## Using the Same/Different method

Sensory Science Centre

- Sucrose and citric acid used as congruent tastes
- Samples delivered retronasally
- Same/Different approach

Interesting results on the effects of sweet and acidic tastes on d’

Multimodal interactions between tastes and aroma

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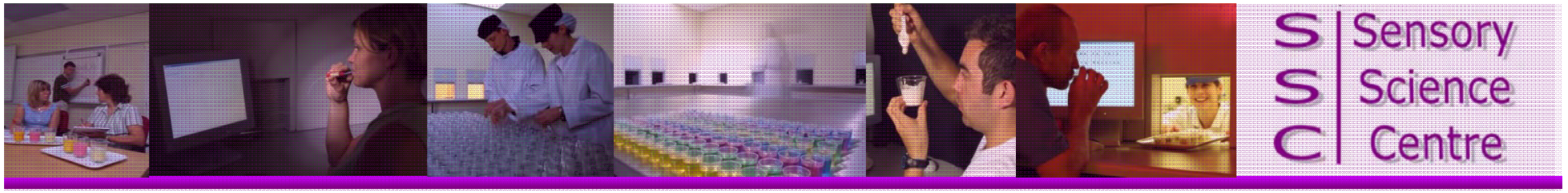
# Conclusions

- Same/Different approach
  - More discriminatory compared to the Triangle method
  - Effective to assess taste/aroma interactions
  - d' allows measuring the relative impact of the volatiles
- New approach of retronasal delivery in omission experiments
  - Results different from orthonasal delivery
  - Importance for the assessment of food products




**Thank you for your attention !!!**

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