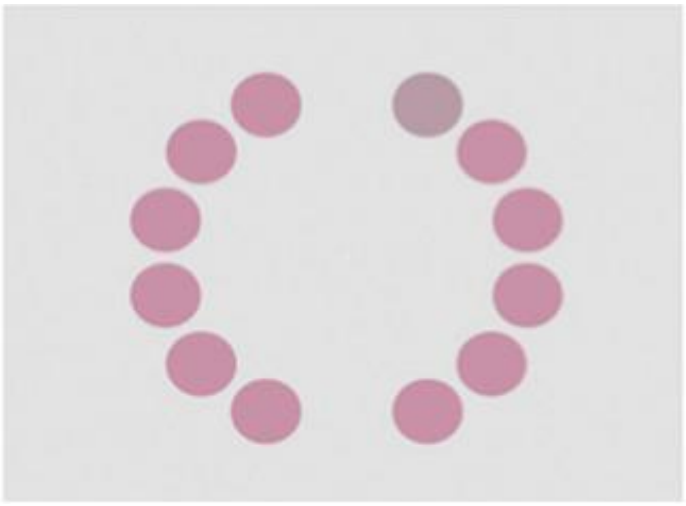
# The Psychophysics Battery

## Contents



## 1 Colour Visual Search

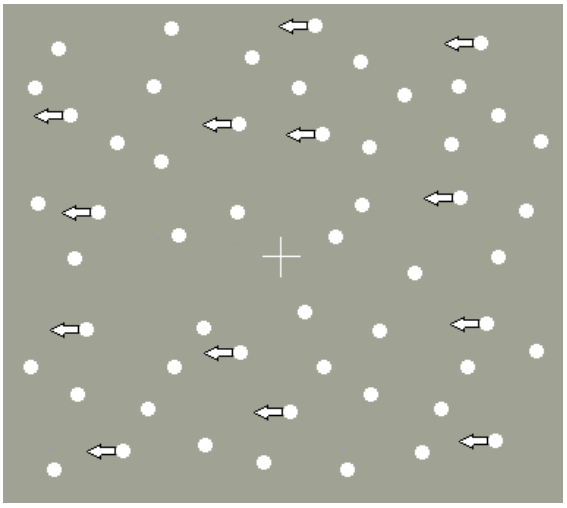
- Find the one with different colour.



# 2 Motion coherence

## 2.1 Task goal

Find the motion coherence threshold



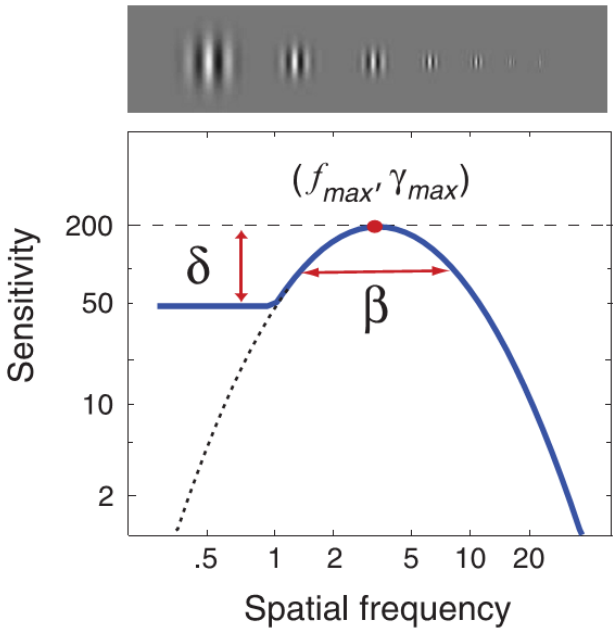
# 3 Gabor Detection

A simple Gabor detection task to find the contrast intensity threshold.

# 4 Quick Contrast Sensitivity Function (qCSF) (by Acer)

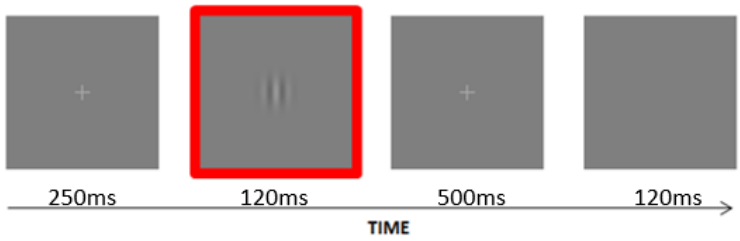
## 4.1 The goal of the task:

Finding 4 parameters of the Contrast Sensitivity Function which describing the relationship between spatial frequencies and visual sensitivity by a Bayesian adaptive procedure.




## 4.2 Procedure

Each trial contains two cross fixations. After the cross fixation, there will either be a visual stimulus or a blank screen. Participants need to indicate the interval containing the visual stimulus. The qCSF toolbox can perform the Bayesian inference for the 4 parameters of the function for each individual.




References:

Hou, F., Huang, C.-B., Lesmes, L., Feng, L.-X., Tao, L., Zhou, Y.-F., & Lu, Z.-L. (2010). qCSF in Clinical Application: Efficient Characterization and Classification of Contrast Sensitivity Functions in Amblyopia. *Investigative Ophthalmology & Visual Science, 51*(10), 5365–5377. doi:10.1167/iovs.10-5468

Lesmes, L. A., Lu, Z.-L., Baek, J., & Albright, T. D. (2010). Bayesian adaptive estimation of the contrast sensitivity function: The quick CSF method. *Journal of Vision*, *10*(3), 17. doi:10.1167/10.3.17

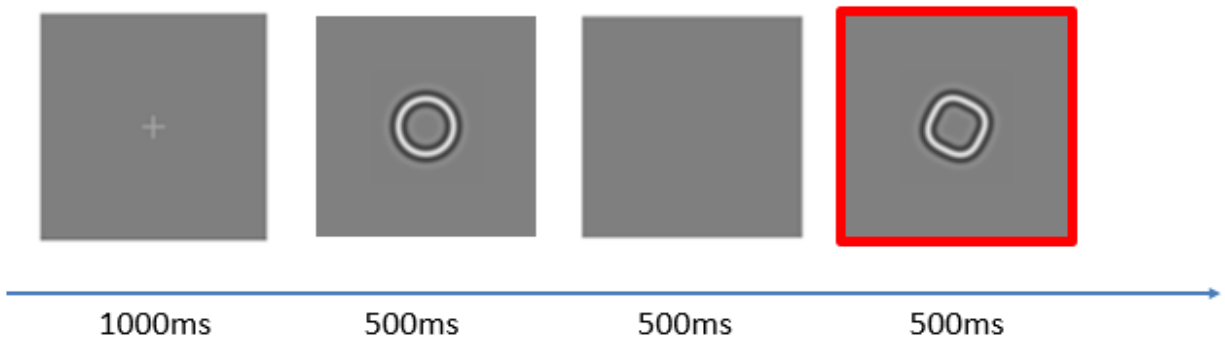
# 5 Shape discrimination - radial frequency patterns (local) (by Acer)

## 5.1 About the stimulus

The radial frequency pattern is created by applying a frequency modulation on the edge of a circle. When the modulation increase, the circle is distorted more and looks not like a circle.

## 5.2 Procedure

- Use the staircase adaptive procedure
- Two interval force choice task
- Target stimulus is “non-circle”
- No response time restriction



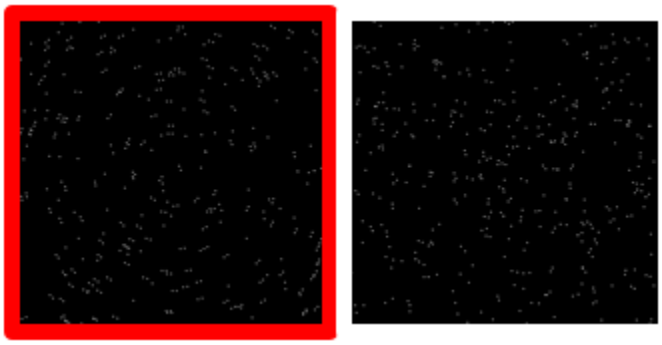

Reference:

Wilkinson, F., Wilson, H. R., & Habak, C. (1998). Detection and recognition of radial frequency patterns. *Vision Research*, *38*(22), 3555–3568. doi:10.1016/S0042-6989(98)00039-X

# 6 Shape discrimination – Glass pattern (global) (by Acer)

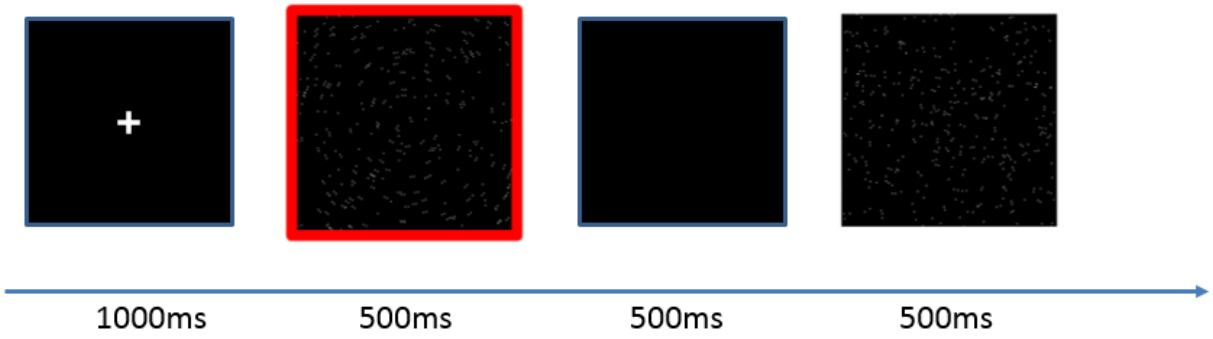
## 6.1 About the stimulus

The glass pattern is constructed by pairs of dots. The polarity direction of some of the pairs follow a global pattern, e.g. a circle, and some are randomly oriented. When the ratio of the random pairs increase, the global pattern is more difficult to be seen.



## 6.2 Procedure

- Use the staircase adaptive procedure
- Two interval force choice task
- Target stimulus is "**Global circle-like patten**"
- No response time restriction




Reference:

Wilson, H. R., & Wilkinson, F. (1998). Detection of global structure in Glass patterns: implications for form vision. *Vision Research*, *38*(19), 2933–2947. doi:10.1016/S0042-6989(98)00109-6

# 7 Temporal order judgments (TOJ) (by Acer)

## 7.1 Procedure

- Use the staircase adaptive procedure
- Two discs appear at left and right visual field
- Respond to the one appearing first
- No response time restriction