# A feature-integration theory of attention — part 2

# Is texture segregation pre-attentive?

Experiment 5

- Red and blue Os and Vs
- Grouped so that the boundaries separated red from blue (feature: color), O from V (feature: shape), or red O and blue V from red V and blue O (conjunction)
- Card sorting task: separate packs of cards into piles based on whether the boundary is vertical or horizontal
- **Significantly slower at sorting conjunctive pack** than the feature packs.

# This also applies to letters

Experiment 7

- Groups of letters that either differed by the presence or absence of a diagonal line (PO/RQ — feature) or by no simple feature (FK/EX — conjunction)
- Significantly faster to identify the border for the feature distinction compared to the conjunction

Suggests that texture segregation is **pre-attentive** if distinguishable on a single separable feature.
Also suggests that letters can be broken into features.

# The difficulty is graded.

Experiment 6

- Same as Exp 5 except the shapes in the conjunctive condition were similar to half in the other condition on one dimension, and different on another
  - Red O and green Π vs. blue O and green V
- This conjunctive condition was significantly slower than the feature conditions, but faster than Exp 5's conjunctive condition.

# Without attention, are features free-floating?

Experiments 8 and 9

- If detecting a feature does not require attention, then it shouldn't depend on knowing where it was.
- If feature integration requires attention, then identifying a conjunction *should* depend on knowing where it was.
  - Detecting two or more features and then recognizing that they happen together
- Presented two rows of characters for a short amount of time
- Participants tried to name the "odd one out" and say where it was
  - Typical feature vs. conjunction manipulation

Accuracy at identifying the target was more closely related to accuracy at locating it for the conjunction targets compared to the feature targets.

# Summary

- Detecting a conjunction of features requires attention and a serial and self-terminating search.
- Detecting separable features does not require attention and happens in parallel.
    - Texture segregation is pre-attentive if the distinction is on a separable feature.
- Conjunction searches vary in difficulty (it's not just attention on or off).
- Unidimensional distinctions can induce attention if the difference is not obvious.
- Local features within letters are separable rather than being "unitized."
- Identifying a conjunction of features depends on locating the item; identifying a separate feature does not.