Perceptual Grouping: A Single Preattentive Process, Or Two Operations with a Different Time Course of Processing and Different Attentional Demands?

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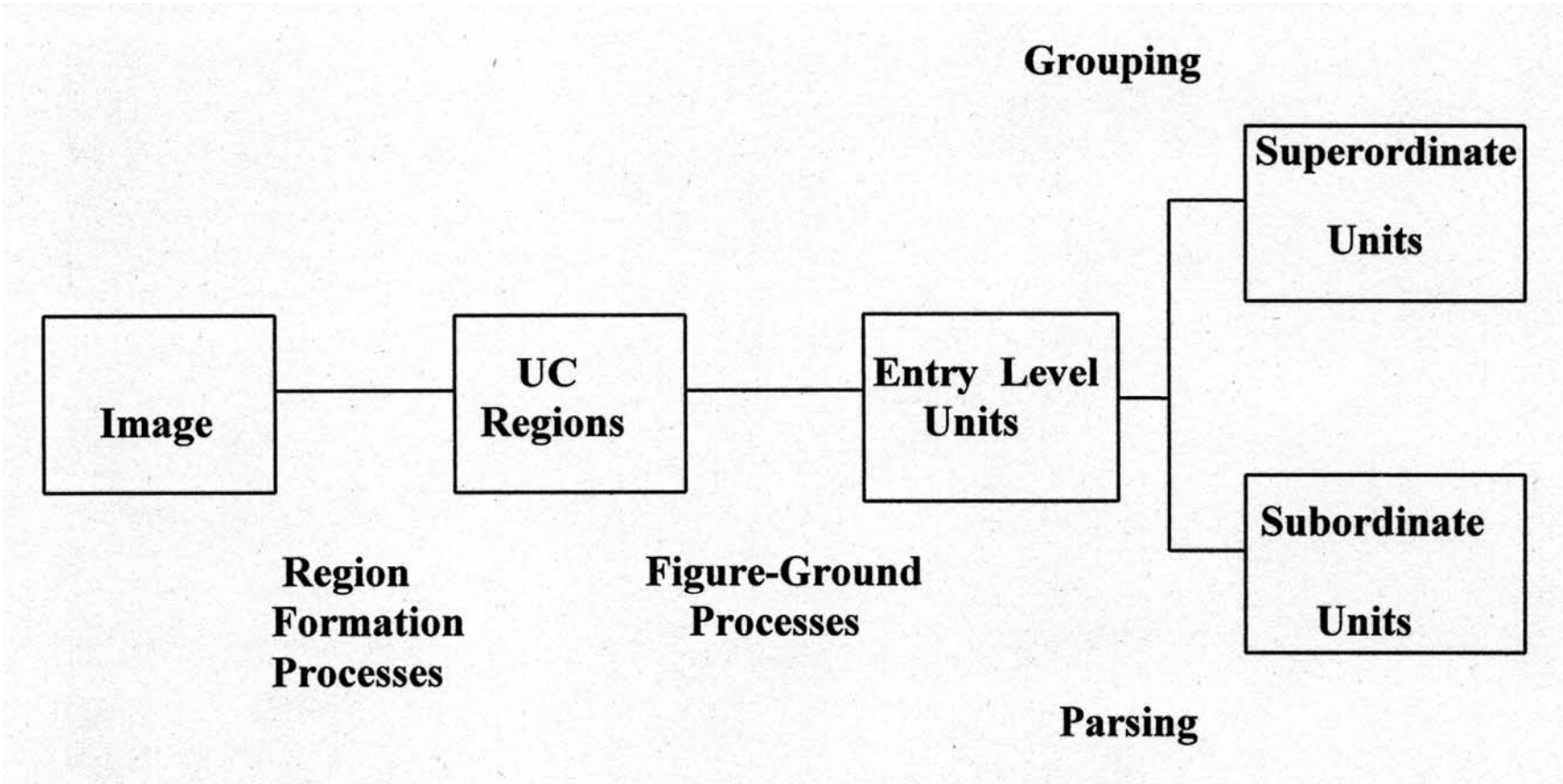
The purpose of this study
along with Kimchi's other studies
is to get some insight into
the processes underlying
visual perceptual organization
using a microgenetic analysis.



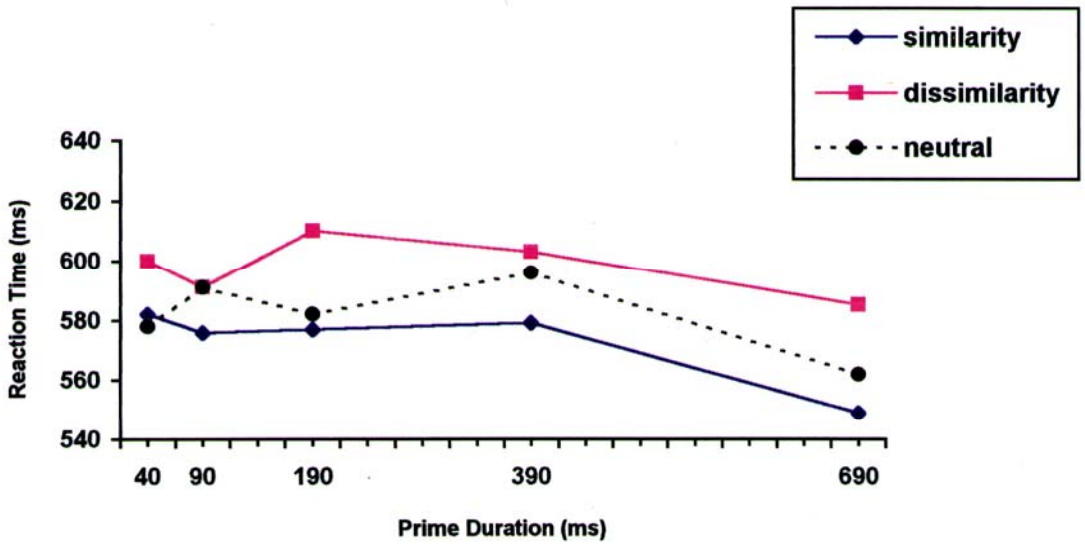
Palmer & Rock, 1994

The experiments examine the following question:

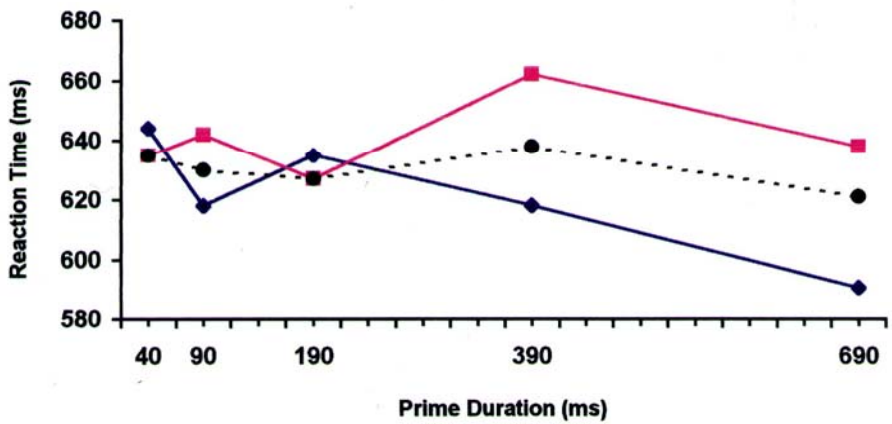
Although in both experiments grouping operates according to the principle of lightness similarity, will we find that for one kind of stimulus, grouping operates earlier in perceptual organization in comparison to the other?

Grouping according to the Principle of Lightness Similarity

Rows/Columns



Arrows/Triangles



Stimulus Type X Test-Prime Similarity X Prime Duration - $F(8,176)=2.86$, $p<0.006$

Conclusions:

- For grouping according to lightness similarity, grouping into rows and columns occurs earlier than grouping into arrows and triangles.

- Grouping into rows or columns requires only element clustering (or grouping), while in the case of arrows or triangles shape formation (or configuring) is also required and demands more time.

Further Research

- Additional primed matching experiments are being run to examine the time course for other kinds of grouping.

- An inattention experiment will examine directly the following questions:
  1) Does grouping demand attention?
  2) Does grouping refer to one operation or to different ones: element clustering and shape formation?