1063.16

Attentional Characteristics for Moving Stimulus in an Orderly Manner

Miyagi Gakuin Women's University
OHASHI Tomoki, Ph.D.
<ohashi@mgu.ac.jp>

※The paper used for the poster is Washi (traditional Japanese paper).

1.Conclusion

- For the object moving in an orderly manner, attentional system calculates the saliency based on the direction of the stimulus moving.
- This phenomenon named *Direction based Saliency* is adding dynamic aspects to the traditional saliency idea.

2.Purpose

- How does attentional focus allocate to the object moving in an orderly manner?
  - *Hypothesis-1: pop-out type allocating*
    If simple pop-out is occur, attentional focus will allocate to the same position that stimulus is presented at that time.
  - *Hypothesis-2: inertia type allocating*
    If attentional system foresee the movements of stimulus, attentional focus will allocate to the next position that stimulus might be present.

3.Method

- Pre-cue was moved regularly on a virtual circle as an apparent motion stimulus. (see Fig.1)
- At least 1 cycle of rotation, a target was presented at a random position.
- Subject was required to detect(exp1) or discriminate(exp2) the target.
- SOA (last cue & target) was varied for 1.0x-2.0x of cue's moving SOAs(exp2)

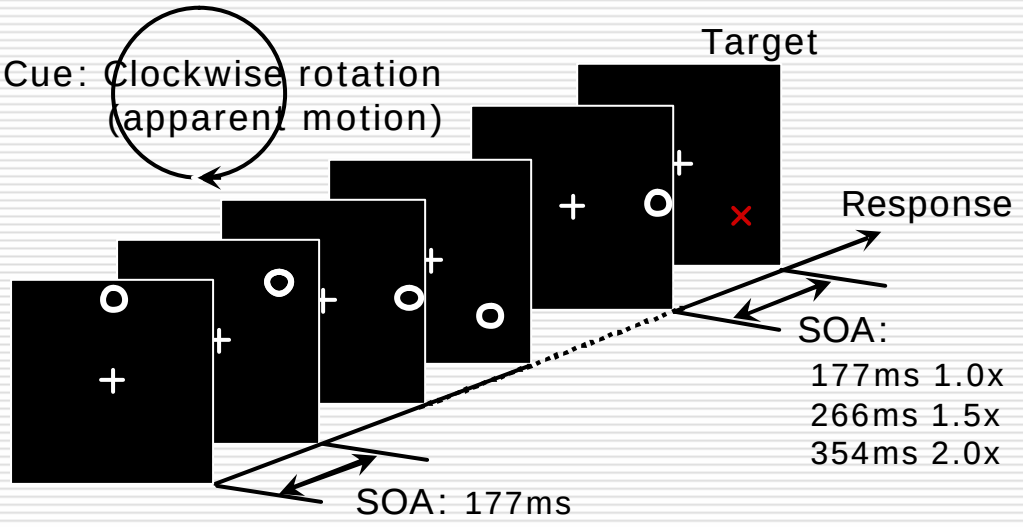
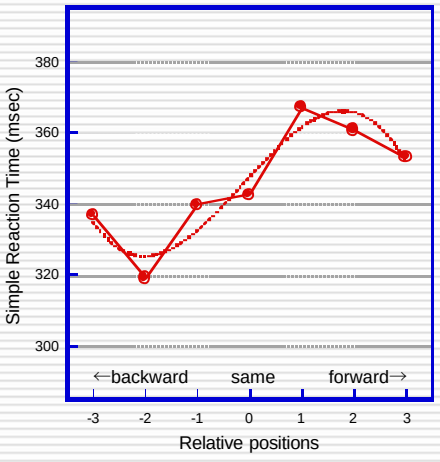


Fig.1: Experimental procedure

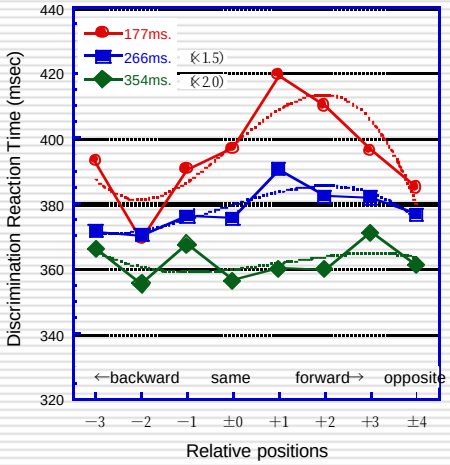
4.Result: exp1



- Response was facilitated at backward positions, and forward positions were inhibited.
- Both hypotheses were rejected.

Fig.2: mean RT for detecting target

5.Result: exp2



- Same tendency as exp1 was obtained.
- As a function of SOAs, amplitude of RTs was varied.
- SOA of the same timing as the cue moving(177ms.), the amplitude was the maximum.

Fig.3: mean RT for discriminating target

6.Discussion

- Response was facilitated at the backward positions, and forward positions were inhibited.
- These results were interpreted that target presented at same direction had less saliency and response for the stimulus was inhibited.
- This effect only occurred the condition that target was presented as the same timing as cue moving.

Direction based saliency

- To interpret the phenomenon, the *direction based saliency model* was suggested.
- Direction based saliency:
  For regularly moving stimulus, calculations of saliency is based on the dynamic feature; direction of movement.
- i.e. Traditional saliency:
  Attentional focus is allocated to the most salient object in the visual field. Calculations of saliency is based on the static features (Theeuwes, 1991; Koch & Ullman, 1985).