

SURFACE BASED FACILITATION AND

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MECHANISMS OF INHIBITION IN MOT

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ATTENTIONAL ION PERCEPTION

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OBJECT-BASED ATTENTION

Attention is directed to and selects an entire object/surface — instead of particular features — and thereby facilitates the formation of a coherent representation of the attended surface, while suppressing unattended visual input.

PREDICTIONS

Even if we only aim at attending to one of the features of an object/surface, it will result

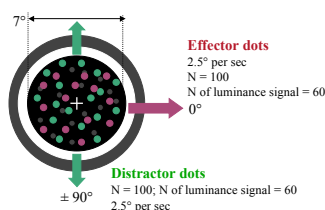
1. in an automatic attentional enhancement of the processing of all the features of the attended object and
2. in a simultaneous suppression of the unattended object.

EFFECT OF ATTENTION MEASURED BY MAE

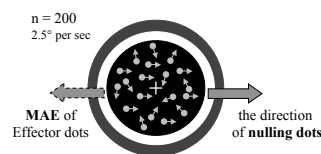
Attention was directed to the *luminance* of one of two surfaces moving transparently in different directions.

The effect of attention was assessed by measuring the strength of the *Motion Aftereffect* evoked by the attended and unattended moving surfaces.

STIMULUS: Adaptation



STIMULUS: Test



PROCEDURE

ADAPTATION

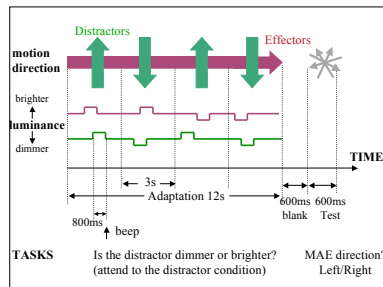
Passive: observers look at the stimulus without a task.

Attend to the Effector: observers report the polarity of luminance change (brighter or dimmer than the mean luminance of the surface) within Effector population.

Attend to the Distractor: observers report the polarity of luminance change within Distractor population.

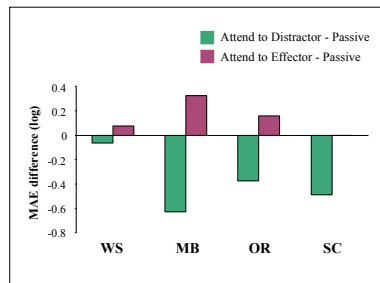
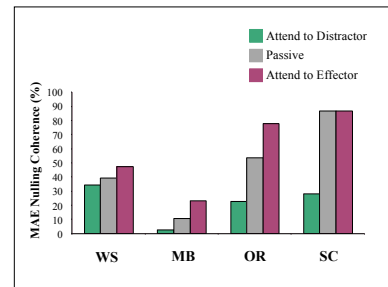
TEST

Observers report the MAE direction in the test phase in a two-alternative forced-choice paradigm



RESULTS

Four observers were tested, one expert and three naïve. We found that, when observers attend to the luminance of a moving surface, the MAE evoked by this surface is significantly enhanced while the MAE evoked by the unattended surface is significantly reduced, compared to the passive viewing condition.



CONCLUSIONS

Attention to one of the features, in our case the luminance of transparently moving surfaces, results in both enhancement of the motion signal associated with the attended surface, as well as inhibition of that associated with the unattended surface.

In the case of bivectorial transparent motion, attention is directed to the moving surface as a whole, and as a result attention simultaneously modulates all the features of the attended surface.

REFERENCES

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- Rodriguez, V., Valdés-Sosa, M., & Freiwald, W. (2002). Dividing attention between form and motion during transparent surface perception. *Cognitive Brain Research*, *13*, 187-193.