

Raising Attention – Cognitive Science Perspective

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Topic

We want to understand attention!

Which laws govern attention? For instance, if we want to use attention in attention-aware ICT, we need to understand the principles that drive attention.

But what is attention?

-> attention as the selectivity of information processing of organisms





Topic

We want to understand attention!

-> attention as “limited capacity” or “ limited mental resources”

Whether selectivity is a consequence of limited resources is the question.

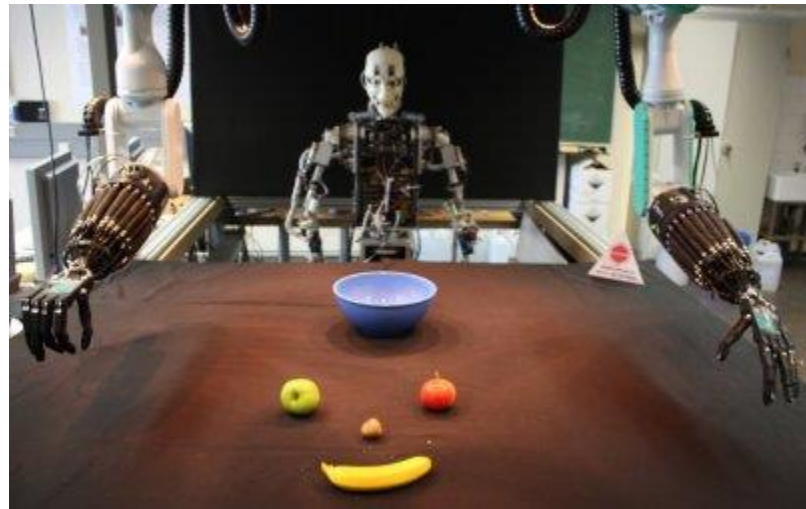
Maybe attention does not reflect upon a deficit (i.e. a limitation).

Maybe attention is an achievement.

Attention as an achievement

Selection for action view:

Selectivity serves action control; without selectivity action control would fail.

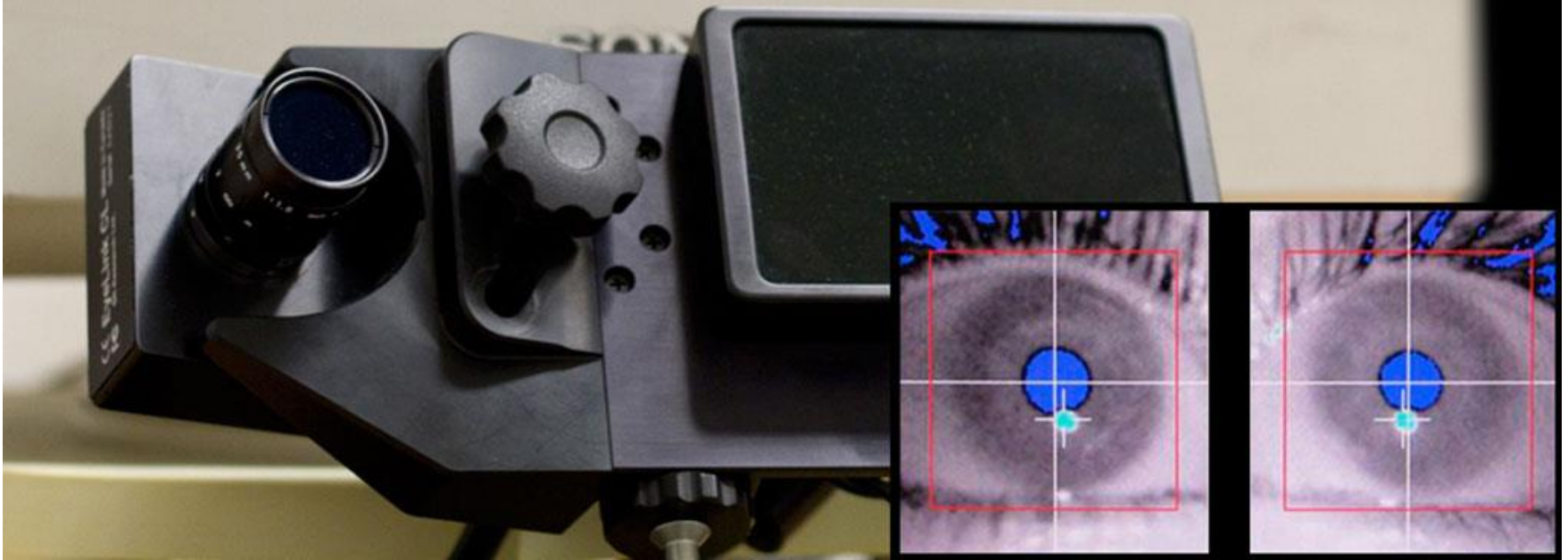


We mostly study visual attention

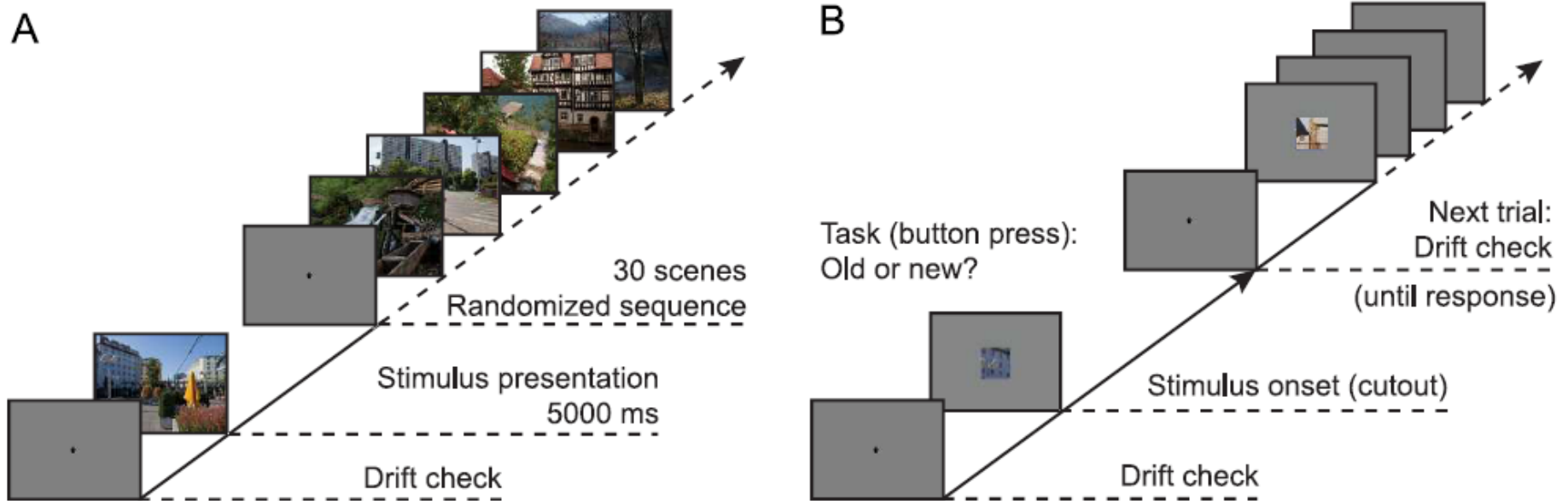
In general actions require locating action targets by vision.

E.g. one looks at a biro shortly before grasping it.

Therefore, we and others use eye-trackers to see how attention works.

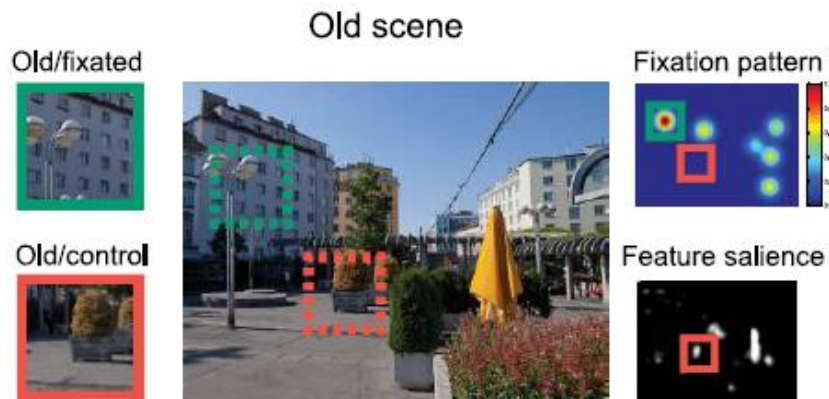


Gaze direction informs about information selection



Gaze direction informs about information selection

B



C



Eye-tracking as part of pervasive attention-aware ICT?

Gaze directions can be misleading. Gaze and attention can be dissociated.

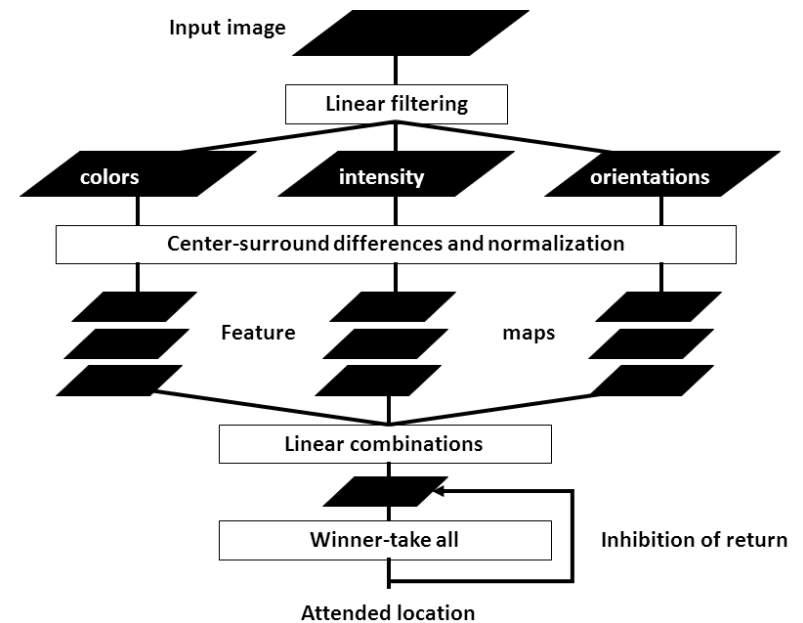
- > One can “stare” at a place and the mind can wander.
- > One can fixate on one point and attend to another.
- > One can plan to saccade to one location and attend to yet another.

One can fixate on one point and attend to another

Research question:

How does color influence attention?

-> Does color salience determine what we attend to in a stimulus-driven way?

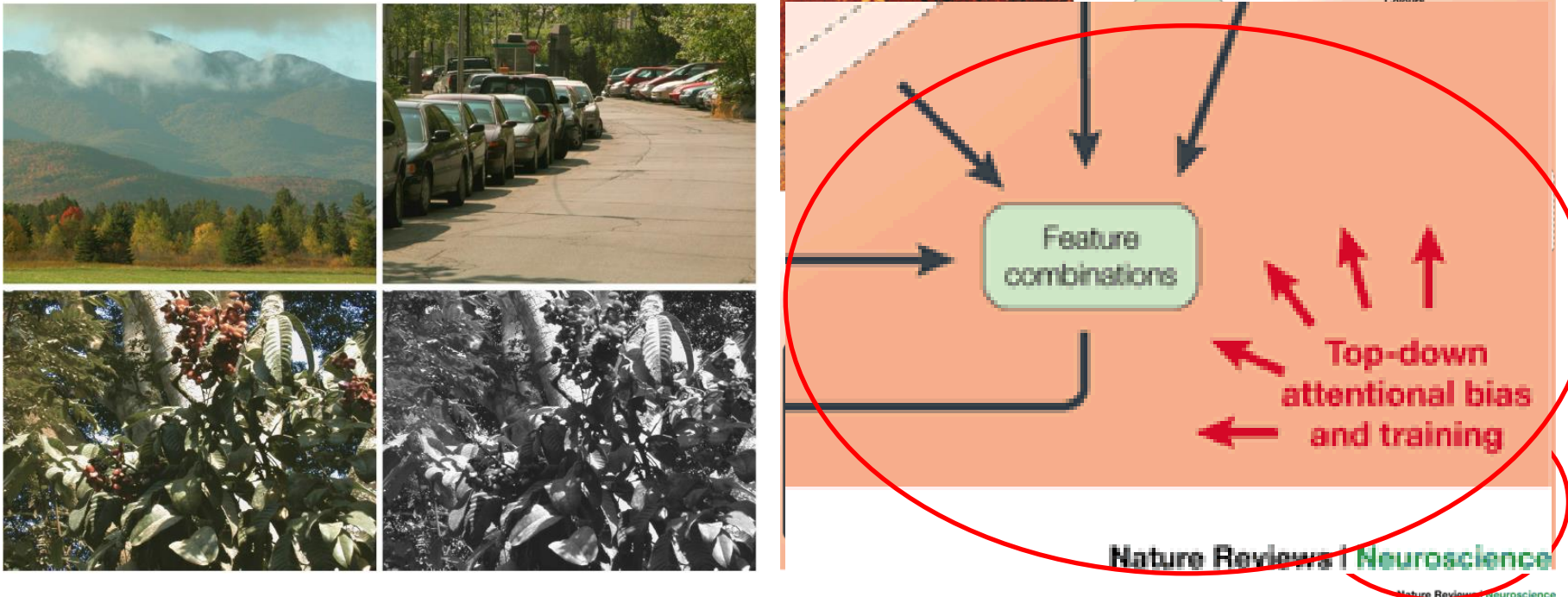


One can fixate on one point and attend to another

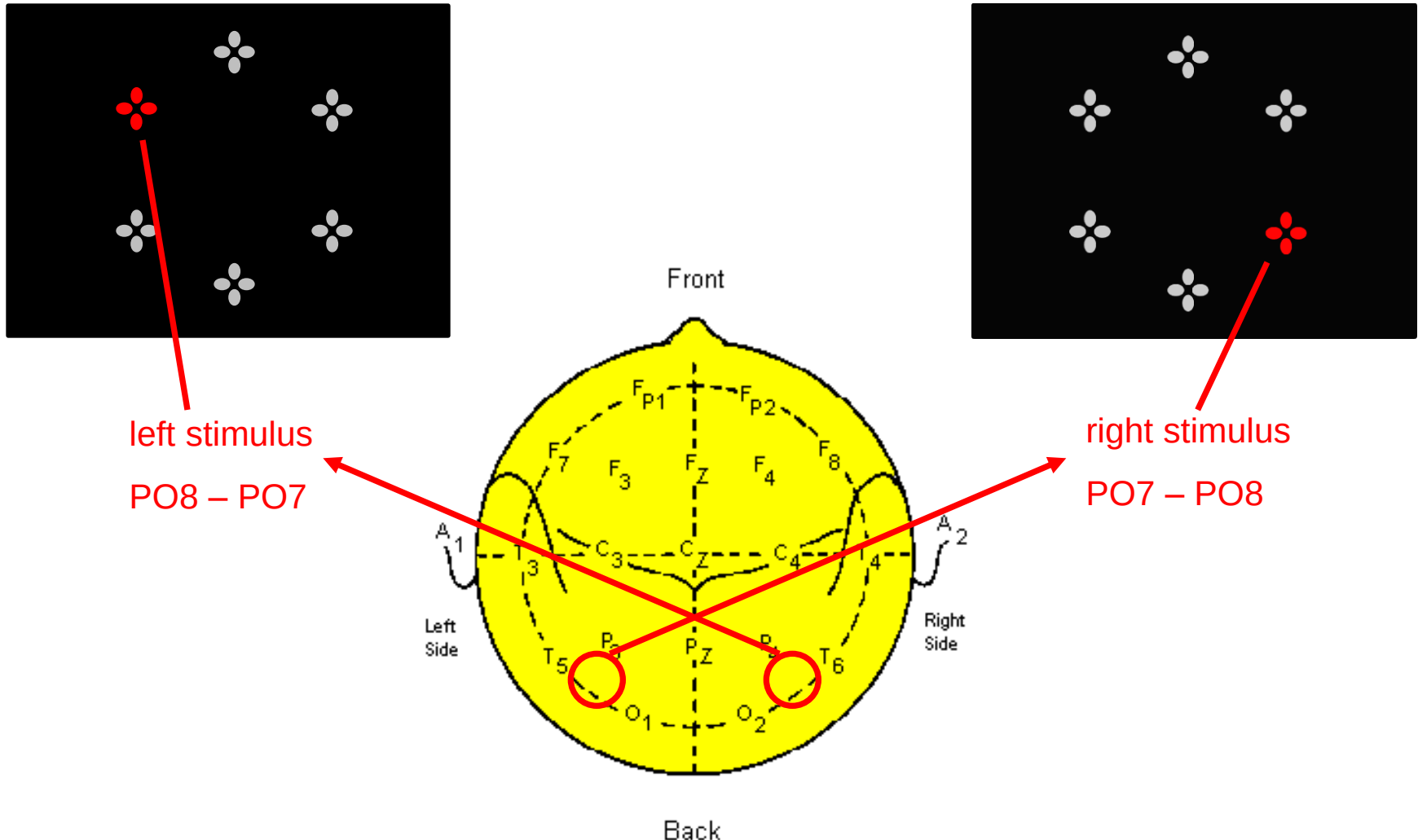
Research question:

How does color influence attention?

-> Or do search goals for particular colors determine which colors capture attention?

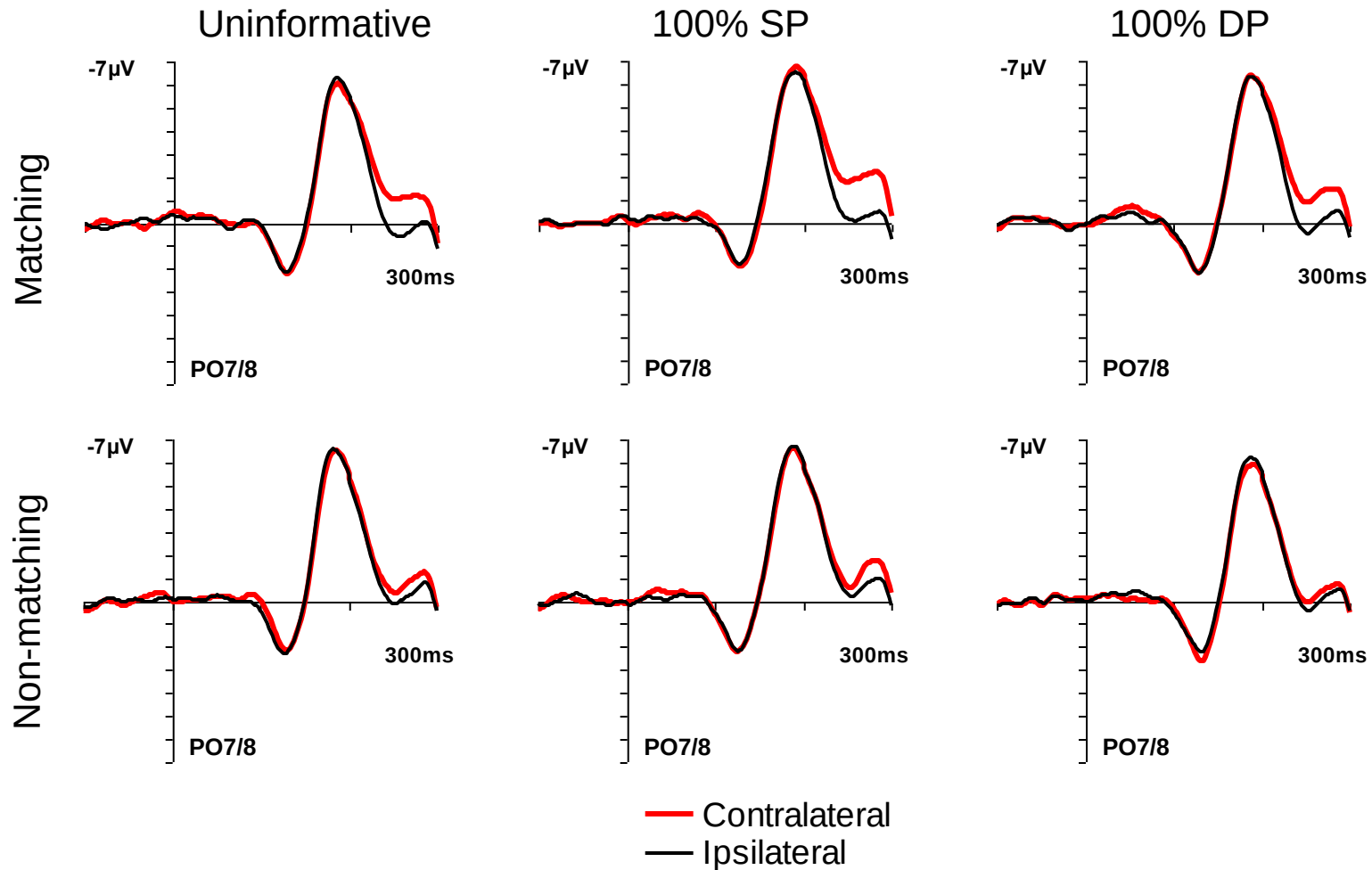


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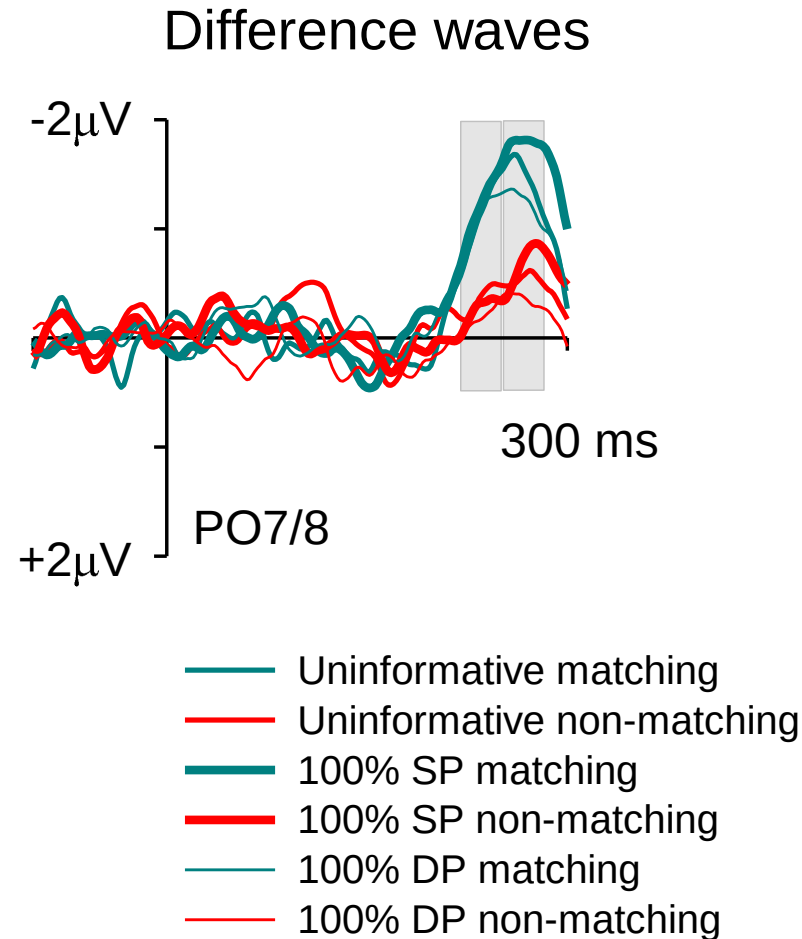


Ansorge, U., Kiss, M., Worschech, F., & Eimer, M. (2011). The initial stage of visual selection is controlled by top-down task set: new ERP evidence. *Attention, Perception & Psychophysics*, 73, 113-122.

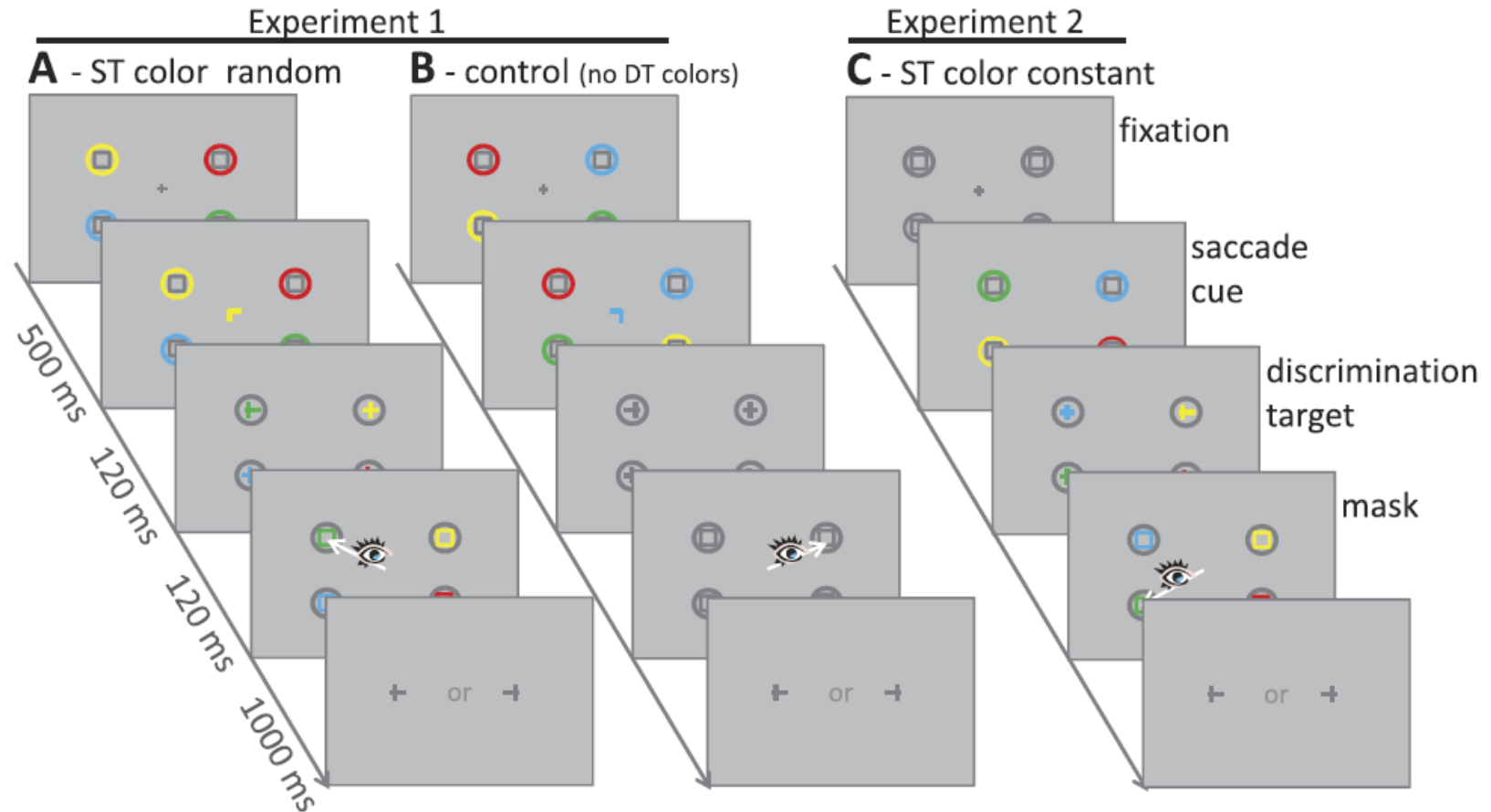
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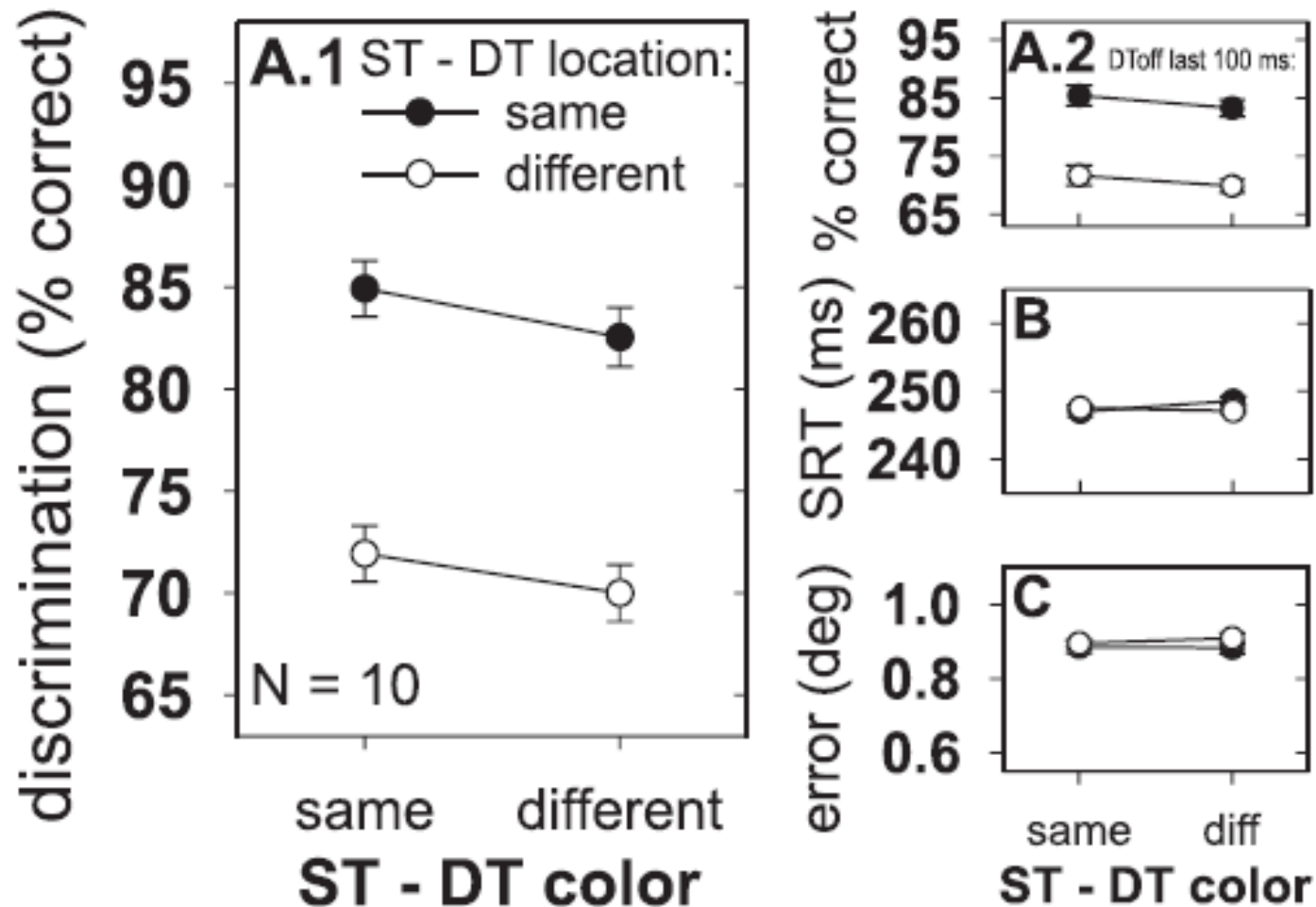
One can fixate on one point and attend to another



One can plan to saccade to one location and can attend to another



One can plan to saccade to one location and can attend to another



Back to the main topic

What is attention?

Much more than we have talked about so far...

