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Looking time preference for real compared to computer-displayed objects in the macaque monkey

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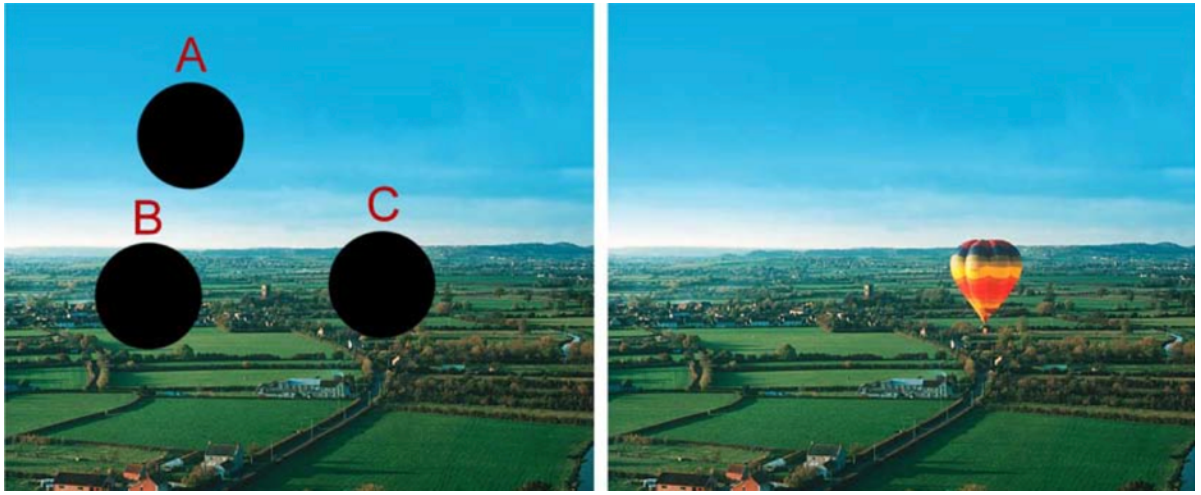
VISUAL EXPLORATION

TOP-DOWN

Original image | Free viewing | Instruction given

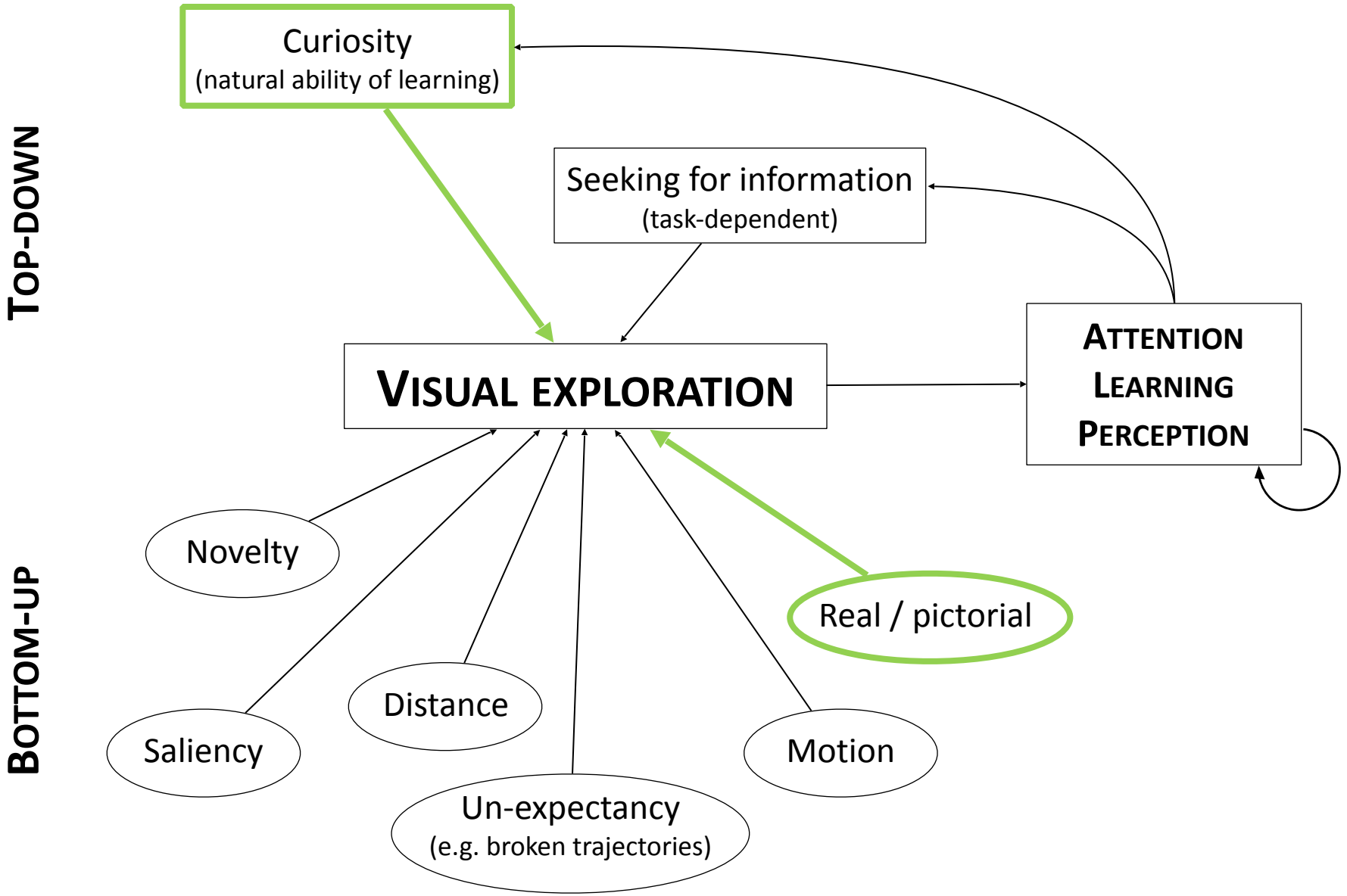
Yarbus – "Eye movements and vision" (1967)

BOTTOM-UP

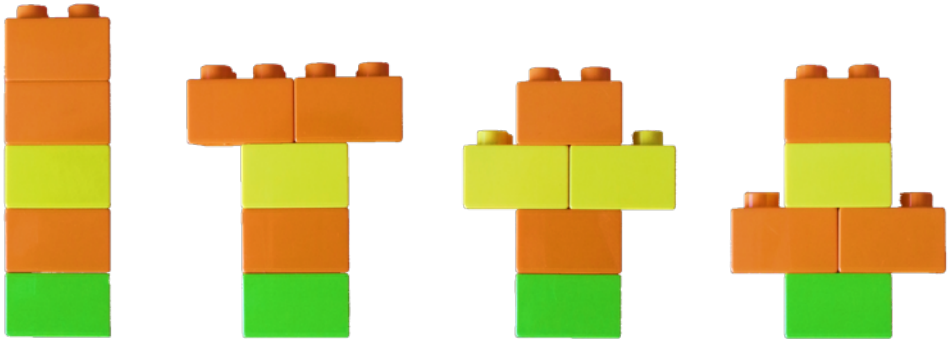


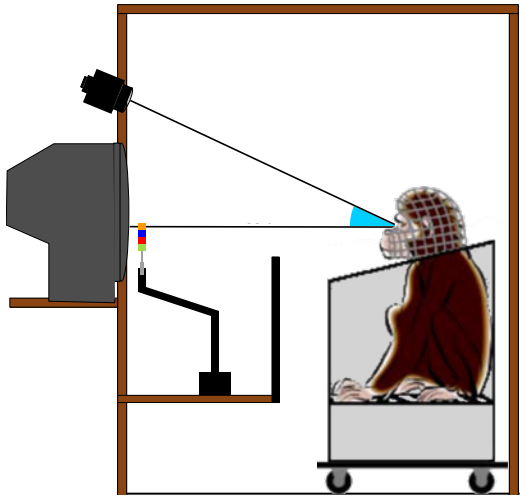
Bruce & Tsotsos – *J Vis* (2009)

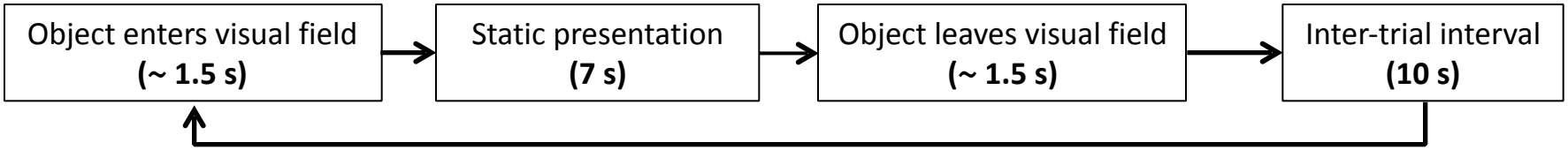
VISUAL EXPLORATORY BEHAVIOR

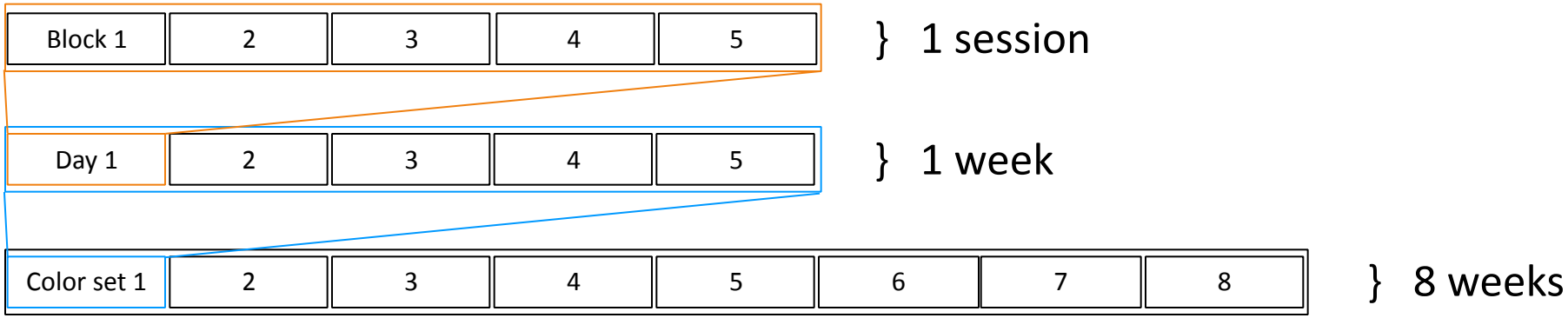


EXPERIMENTAL PARADIGM

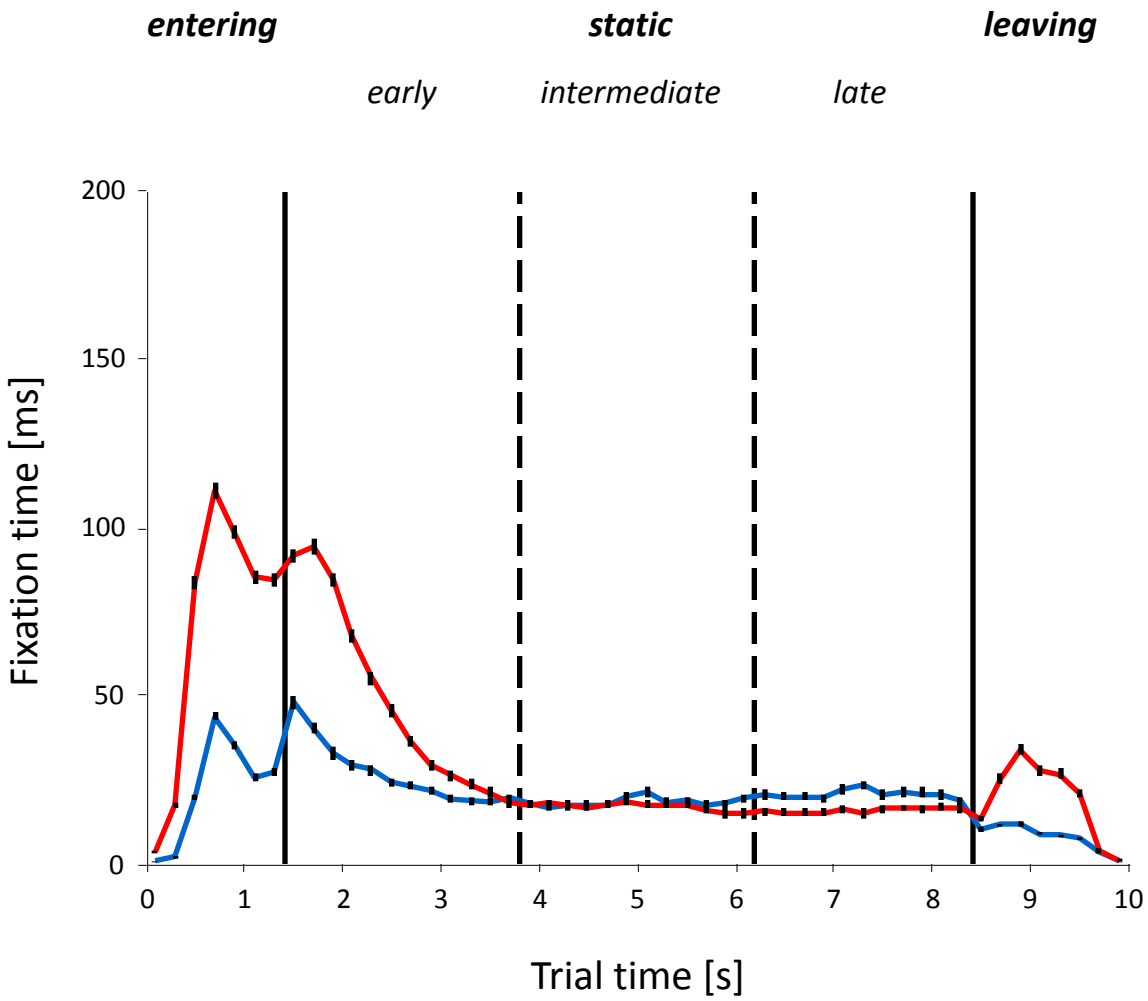








LONGER EXPLORATION OF REAL OBJECTS

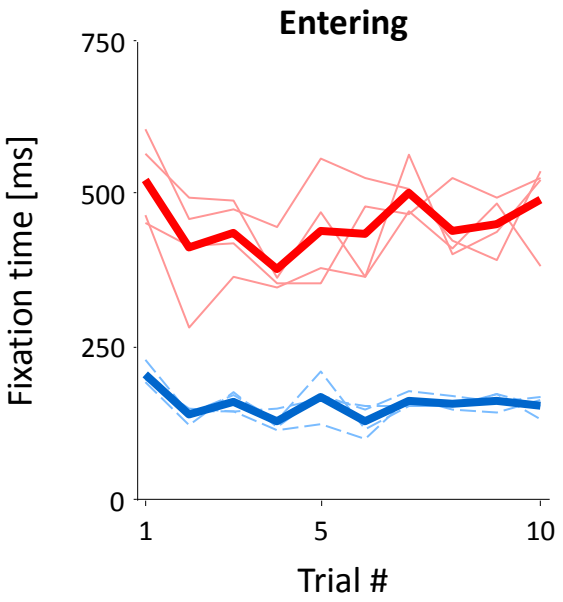


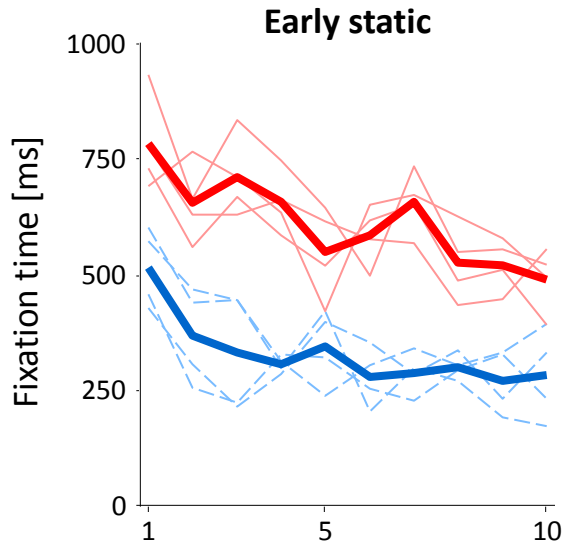
Longer looking time for real objects compared to their pictures.

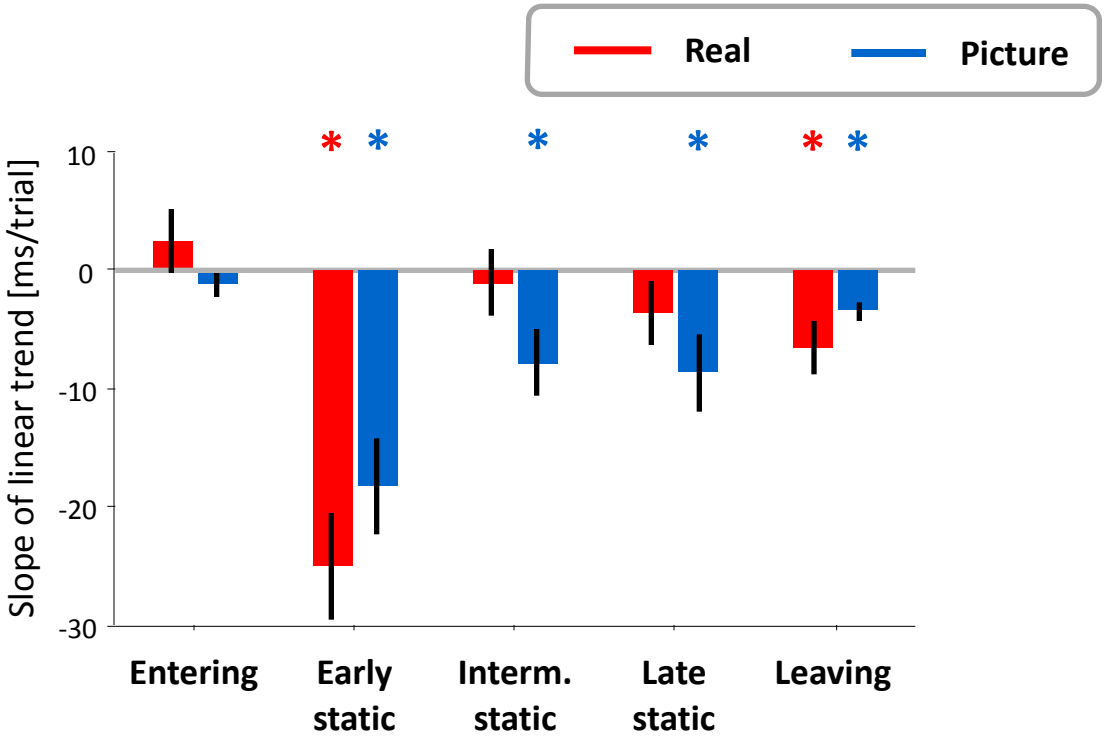
Largest modulations occur within the first 4 seconds.

time bin: 200 ms

DIFFERENT RATES OF ADAPTATION DURING A SESSION





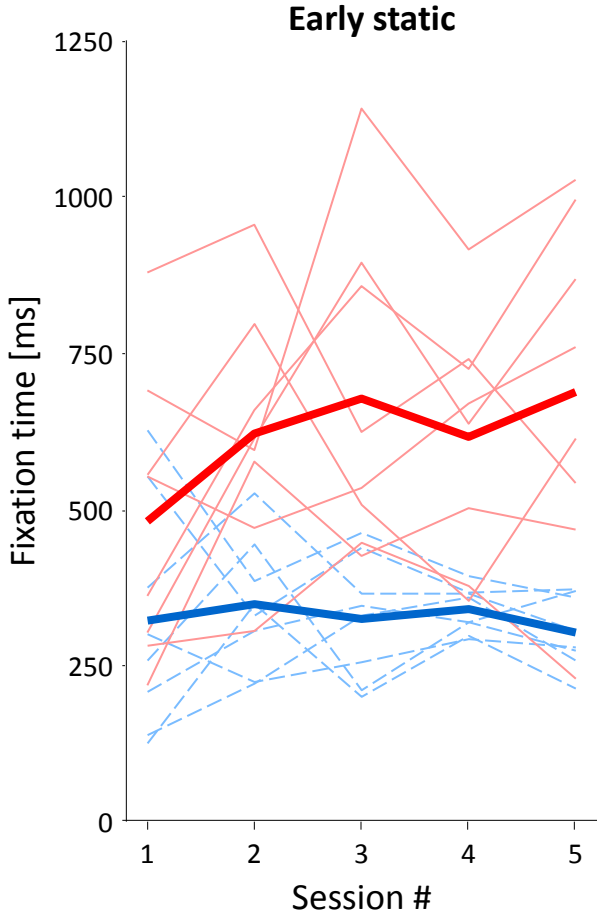


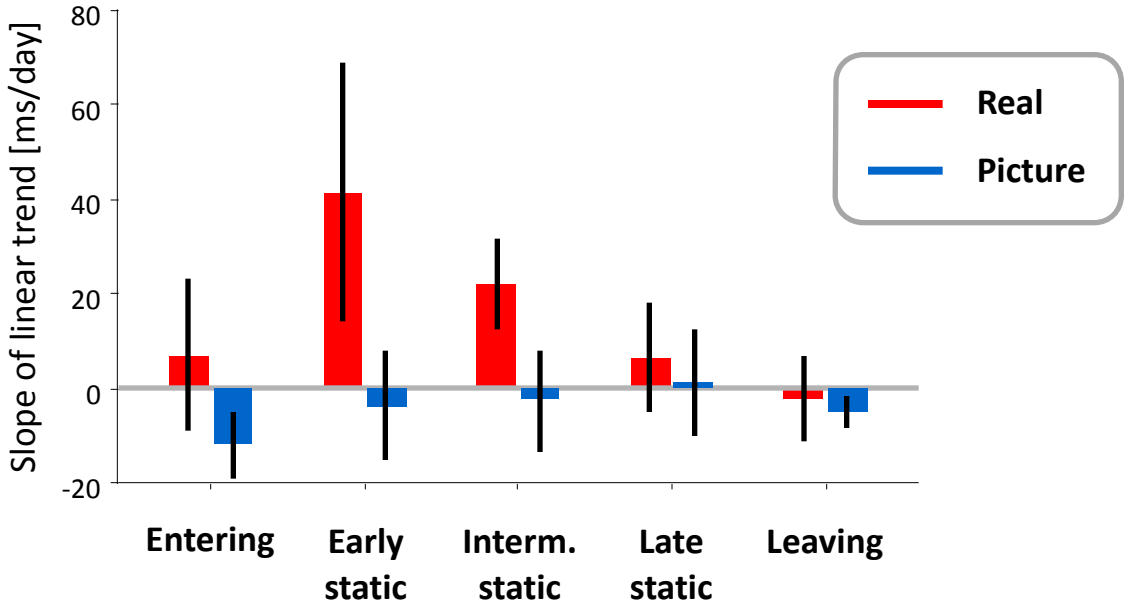
Different dynamics between epochs:

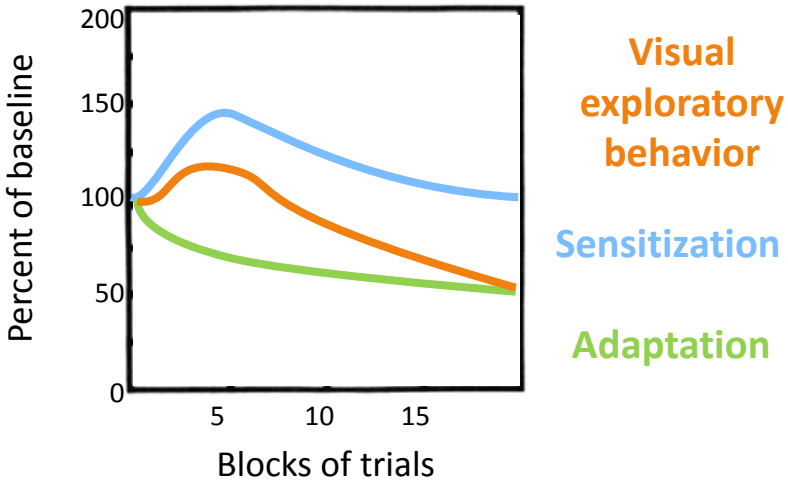
- Stable for *entering*
- *Early static* is heavily modulated
- Faster adaptation for pictorial stimuli

* $p < 0.05$ [two-tailed un-paired t-test; H_0: no modulation (slope = 0); Holm-Bonferroni corrected p-value]

LOOKING PREFERENCE TREND AFTER CONSECUTIVE DAYS







Opposite trends:

- Little decrease in looking time for pictures
- Non-specific increase for real objects

Groves & Thompson - *Psychol Rev* (1970)

CONCLUSIONS

Increase in looking time for real objects compared to their pictures shown on a computer monitor, within a factor of 3.

When **objects are entering** the visual field there is **little to no adaptation** to visual exploratory behavior within the same session and after up to 5 consecutive days.

During the **early static epoch**, there is **strong adaptation** within a session. After multiple sessions, there is evidence for probable sensitization to real objects only.

REFERENCES

- Bovet & Vauclair – *Behav Brain Res* (2000)
- Bruce & Tsotsos – *J Vis* (2009)
- Colombo & Mitchell – *Neurobiol Learn Mem* (2009)
- De Luna *et al* – *J Neurosci Met* (2014)
- Groves & Thompson – *Psychol Rev* (1970)
- Yarbus – "Eye movements and vision" (1967)

ACKNOWLEDGEMENTS

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