

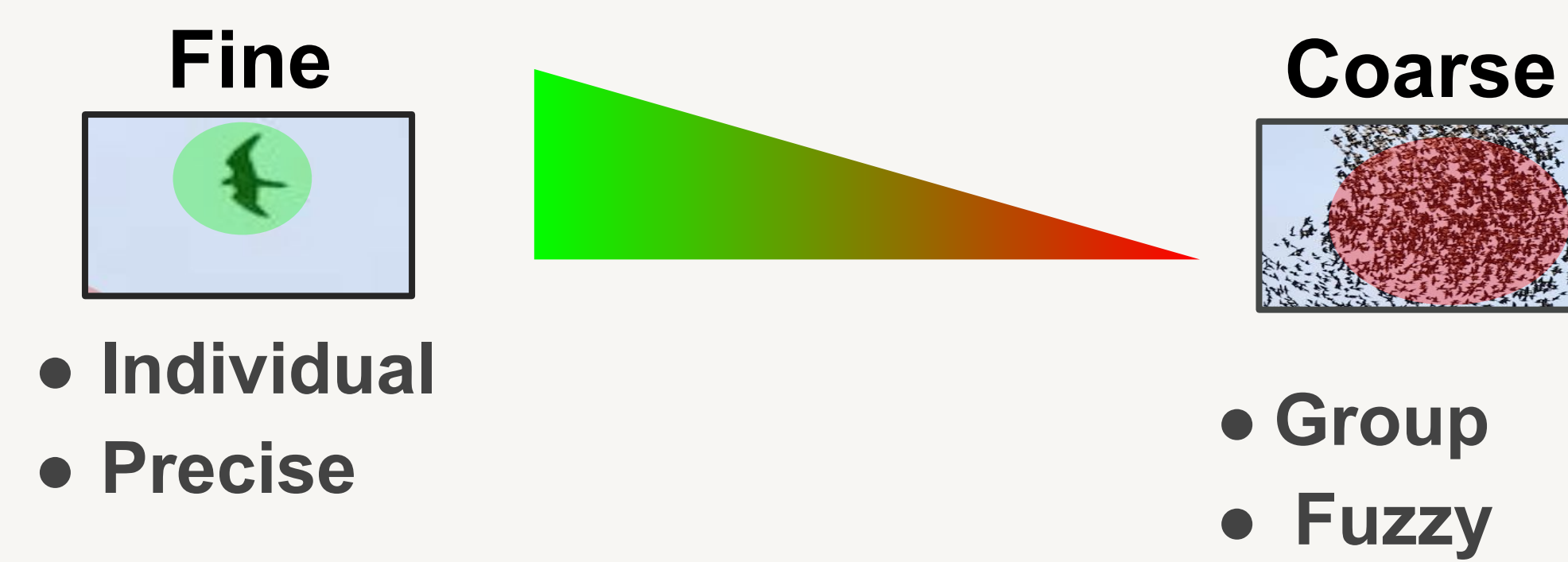


1. Introduction

Do we see the falcon the same way as the flock of starlings?



A new idea:
Multi-granularity

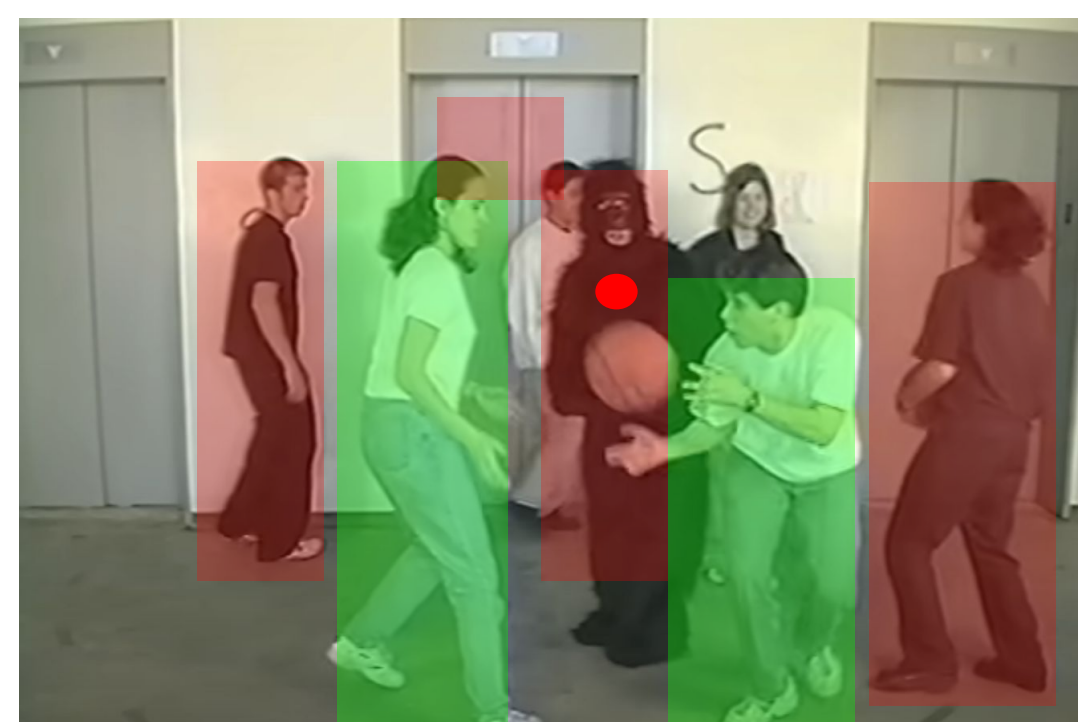


Representing different objects in the world across a ladder of resolution

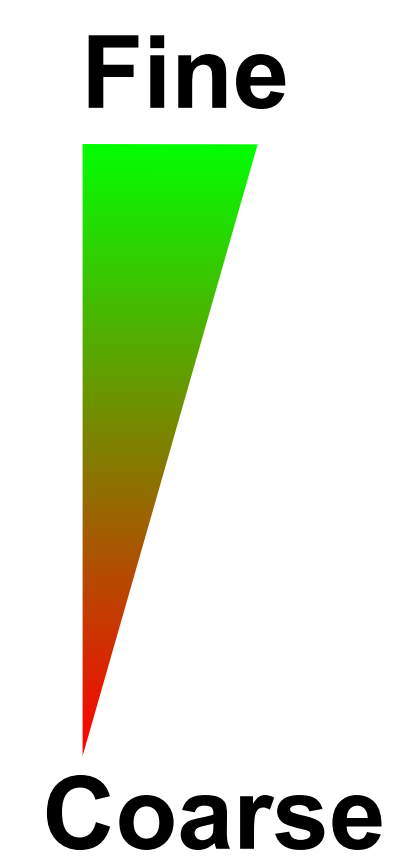
Just a human quirk, or an advantage?

Seeing what's important now:
Inattention blindness (IB)

Salient but surprising event! A gorilla passes through a group unnoticed by observers when given an attention based task **over 30%** of the time!



(Simons & Chabris 1999)

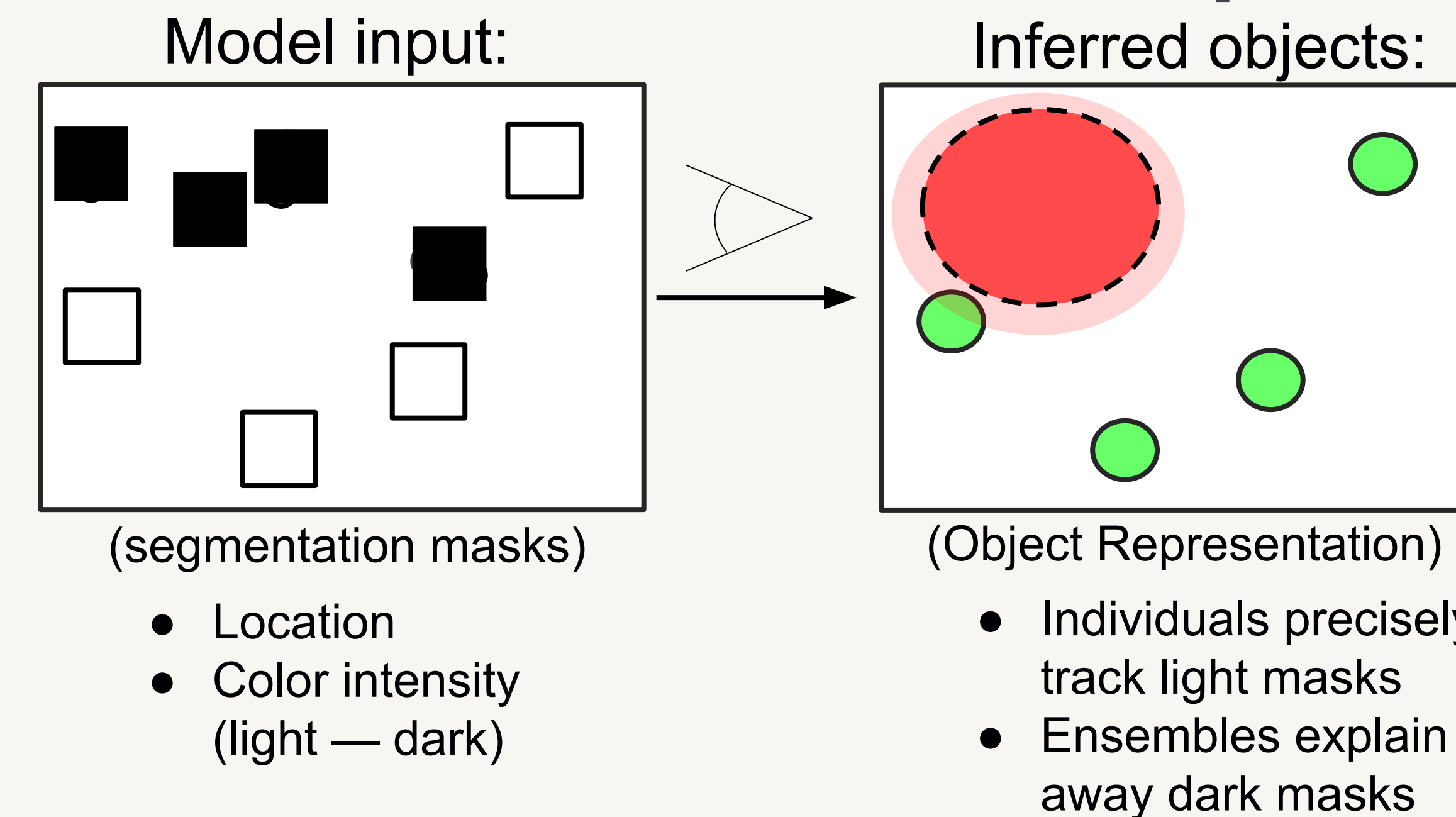


Question

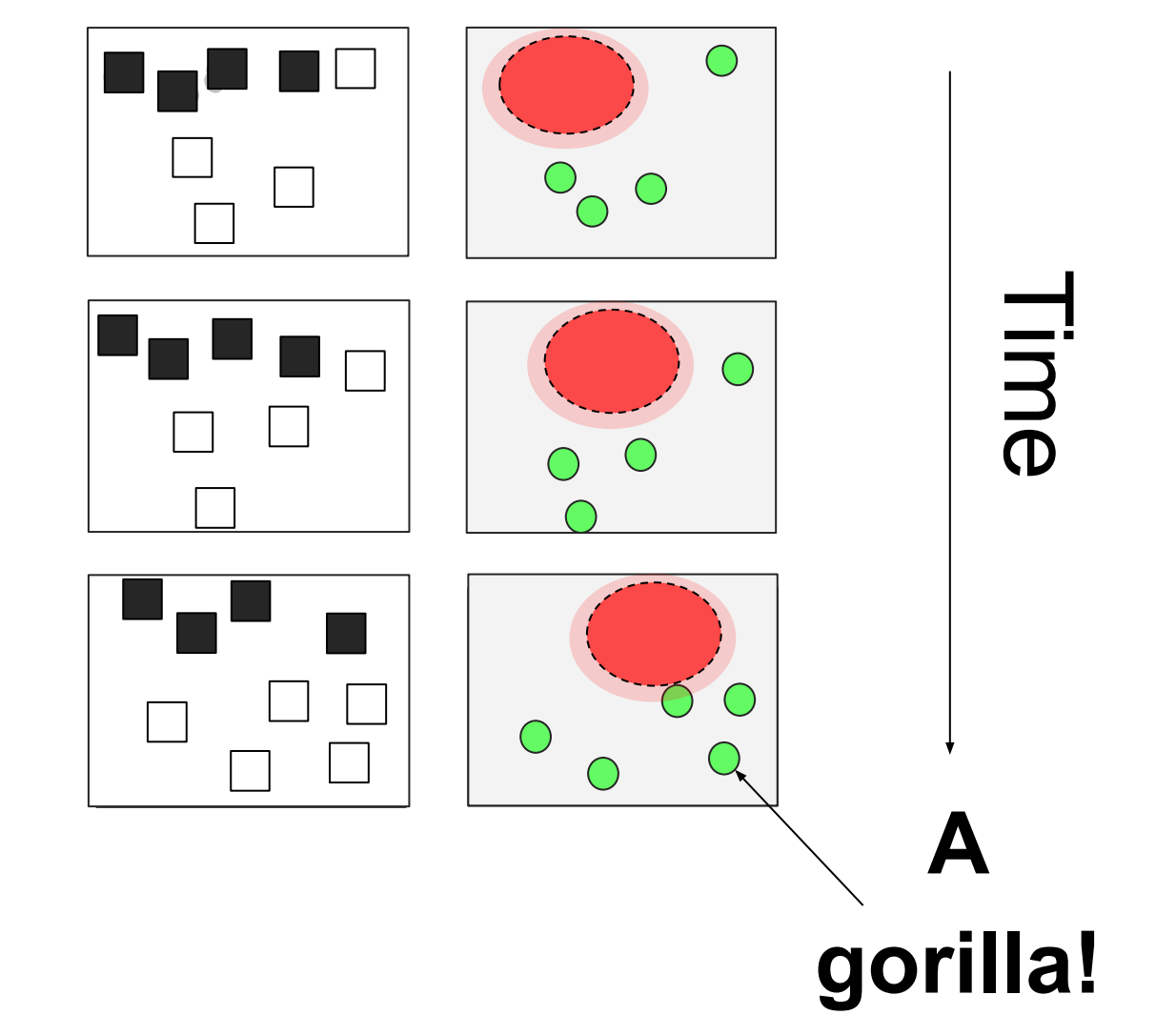
Does the interaction between multi-granularity and goal-driven attention explain IB and in turn, does IB reveal a flexibility of the human mind that's advantageous to building complex visual systems.

3. Simulation Results

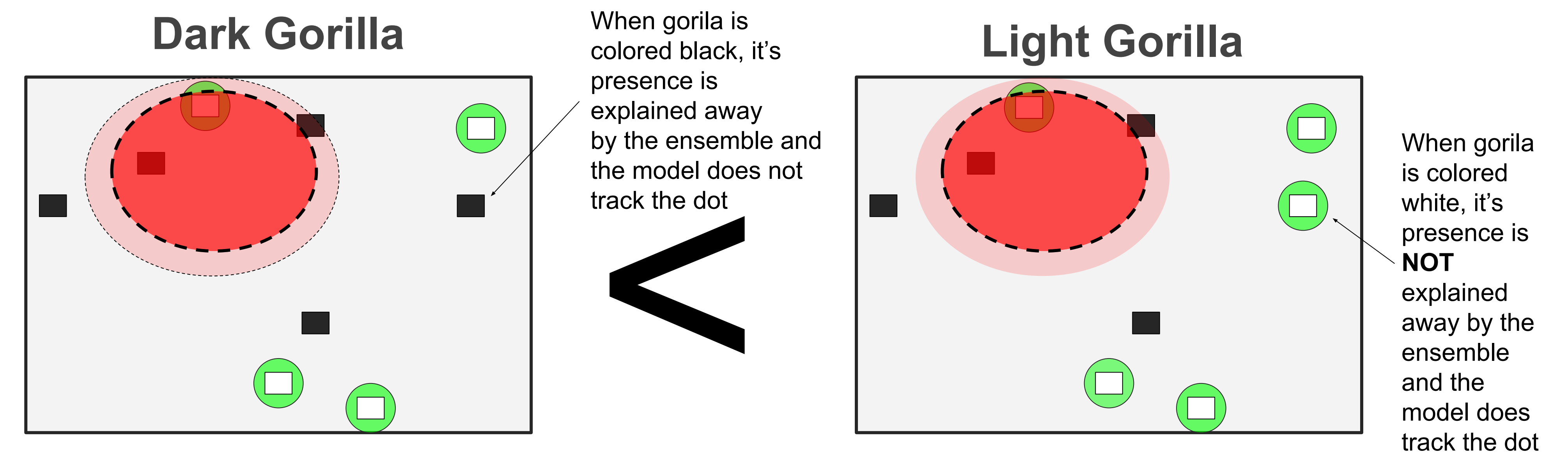
Model Inference step



Inference across time

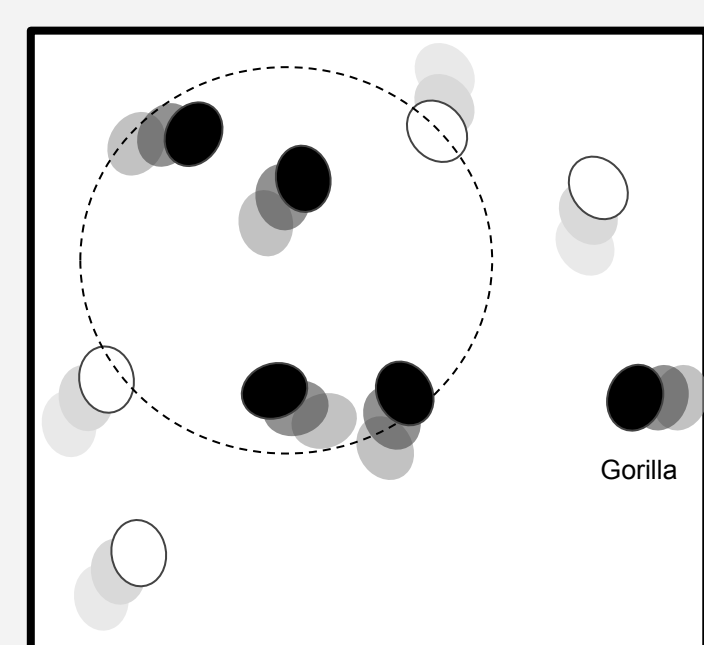


When did(n't) our model see the gorilla?



2. Method

Experiment



Task:

Count how many times white dots bounce against the walls.

Conditions:

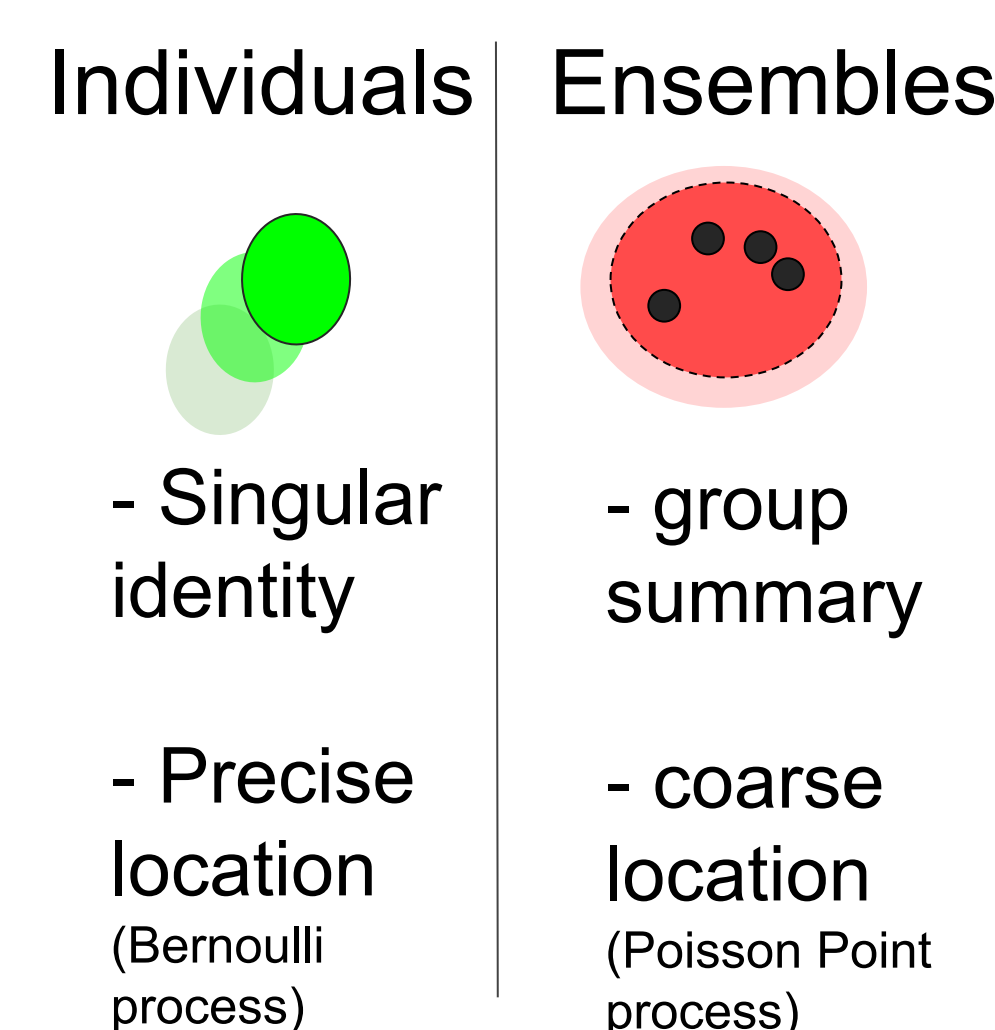
During each trial, either a dark or white "gorilla" dot appears.

Will the model see the gorilla?

Will the model represent the gorilla dot as an individual?

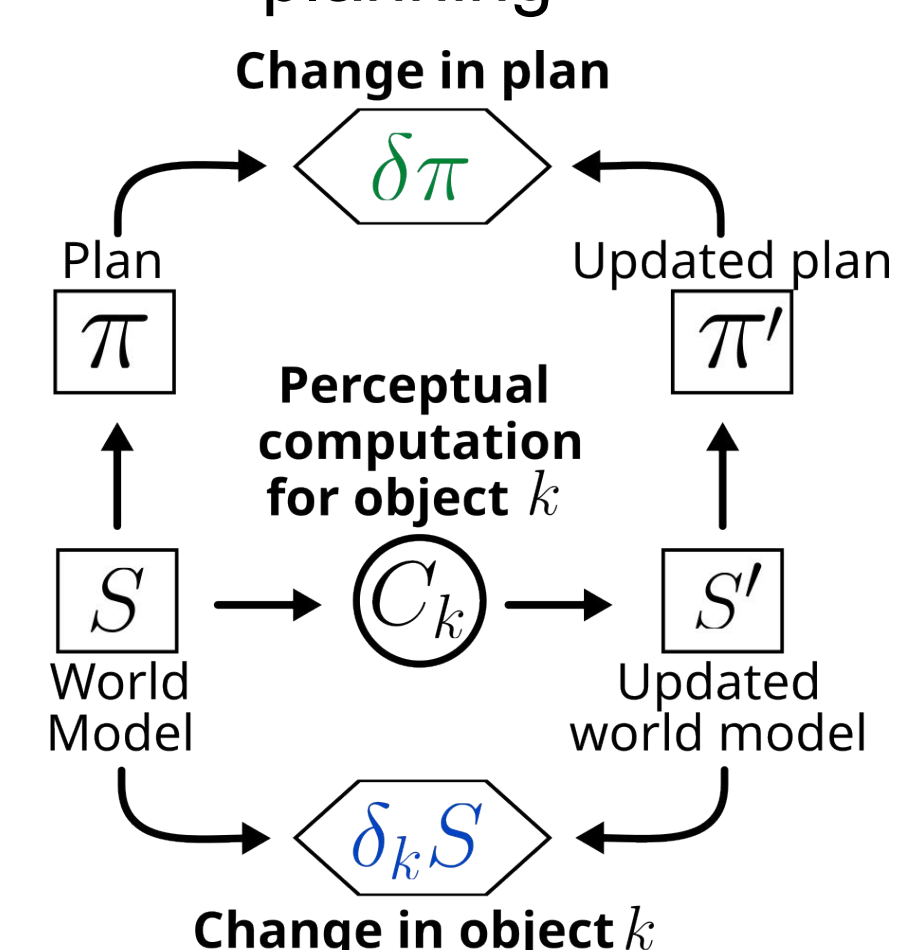
Model Components

Multi-granular Objects



+ Adaptive computation

Synchronizes perception for planning



Conclusion

- Preliminary results show the integration between multi-granularity and goal-driven attention may explain IB
- Future work will explore how low detection rates in IB may inversely correlate with high level task attention performance during challenging tasks

References

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- Most, S. B., Scholl, B. J., Clifford, E. R., & Simons, D. J. (2005). What you see is what you set: Sustained inattention blindness and the capture of awareness. *Psychological Review*, 112(1), 217–242. <https://doi.org/10.1037/0033-295x.112.1.217>
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- Yuille, A. L., & Liu, C. (2020, November 27). Deep nets: What have they ever done for vision? *International Journal of Computer Vision*. SpringerLink. <https://link.springer.com/article/10.1007/s11263-020-01405-z>