

The background of the slide features a dense field of vibrant green leaves in the upper portion, transitioning into a clear blue surface with white, concentric ripples from water droplets in the lower portion. The text is centered within a semi-transparent white rounded rectangle.

# **Perception of objects in natural scenes and the role of attention**

(Part 2)

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# Addressing two questions

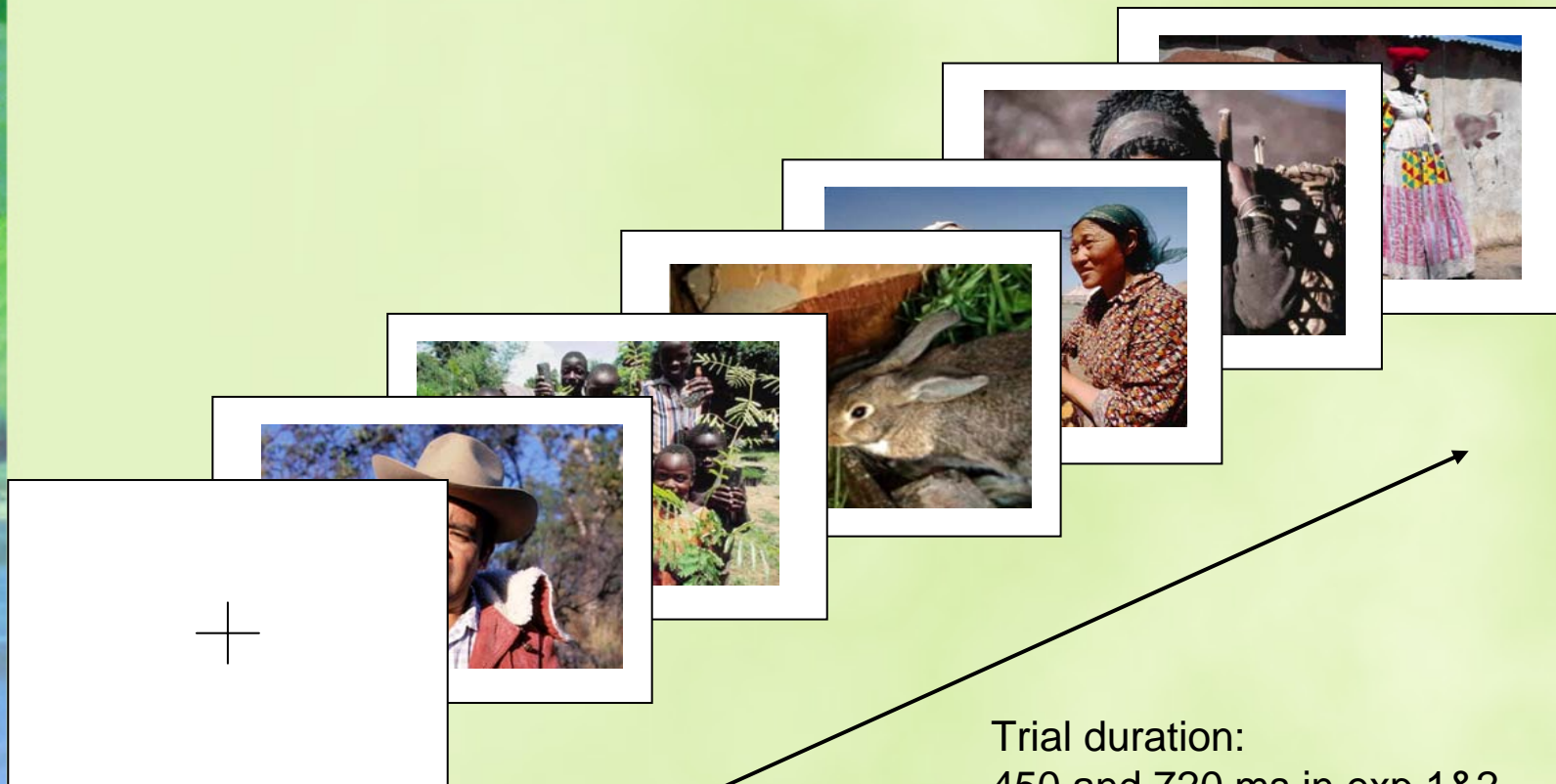
- ✿ Test feature priming hypothesis as a possible explanation for rapid scene categorization
- ✿ Test the attention capacity available for visual categorization in natural scenes



# Stimuli



# Paradigm



Trial duration:  
450 and 720 ms in exp.1&2  
1320 ms in exp.3-6

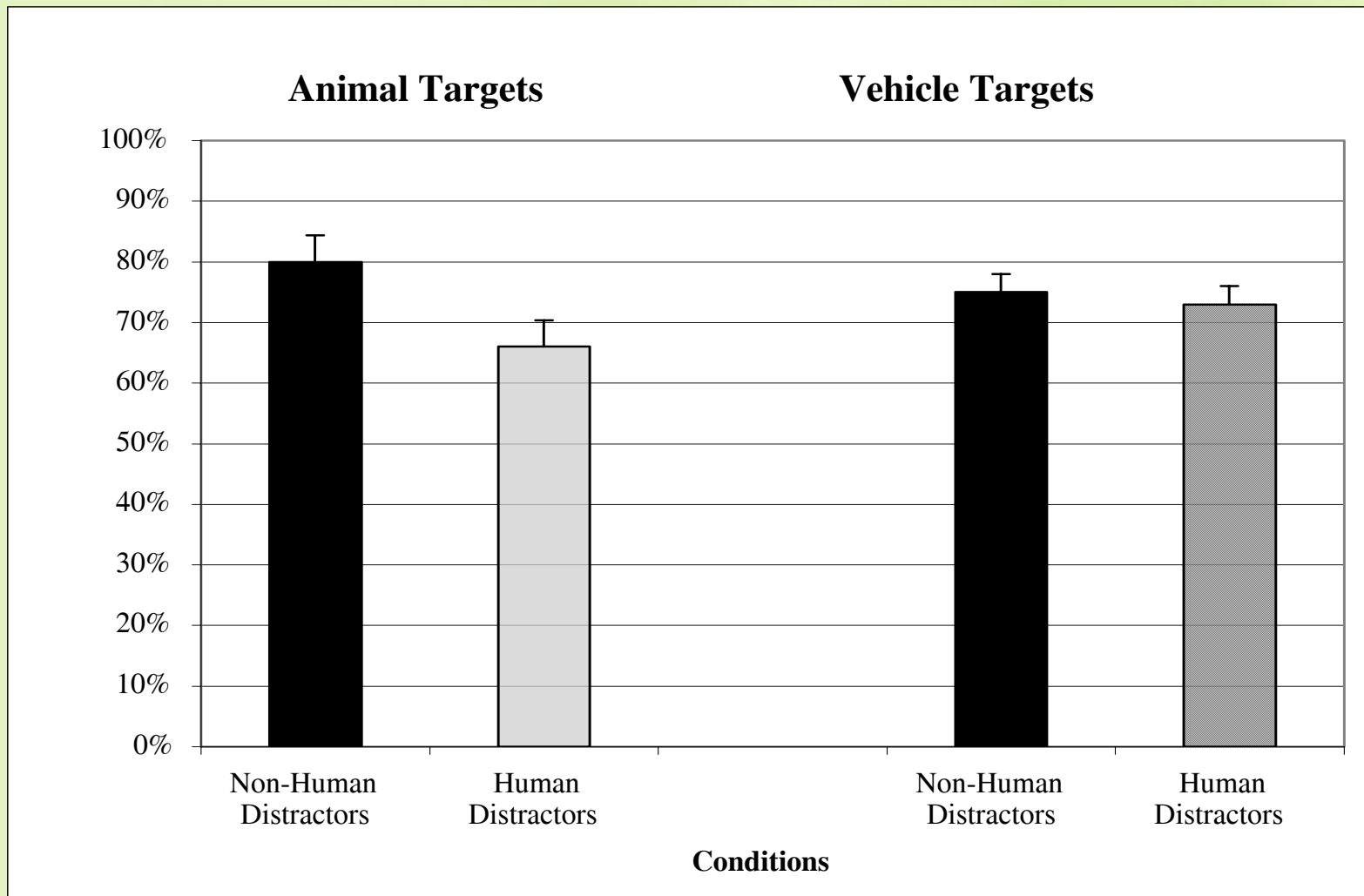


# Testable predictions

- ✿ Performance should deteriorate when the non-target scenes share some of the same features with targets.
- ✿ Uncertainty about the identity of the detected target.
- ✿ Detected targets could often be wrongly located.
- ✿ Inversion of the scene will leave intact the interference from people distractors.



# Prediction 1 (Experiment 1)



75ms image exposure

# Prediction 2 & 3 (Experiment 1)

Of those detected:

**Animals**

**Detected:  
73%**

Identified: 43% (e.g. as bear, or snake)

Classified: 78% ( e.g. as mammal, or bird)

Located: 53% (left, right or center)

**Vehicles**

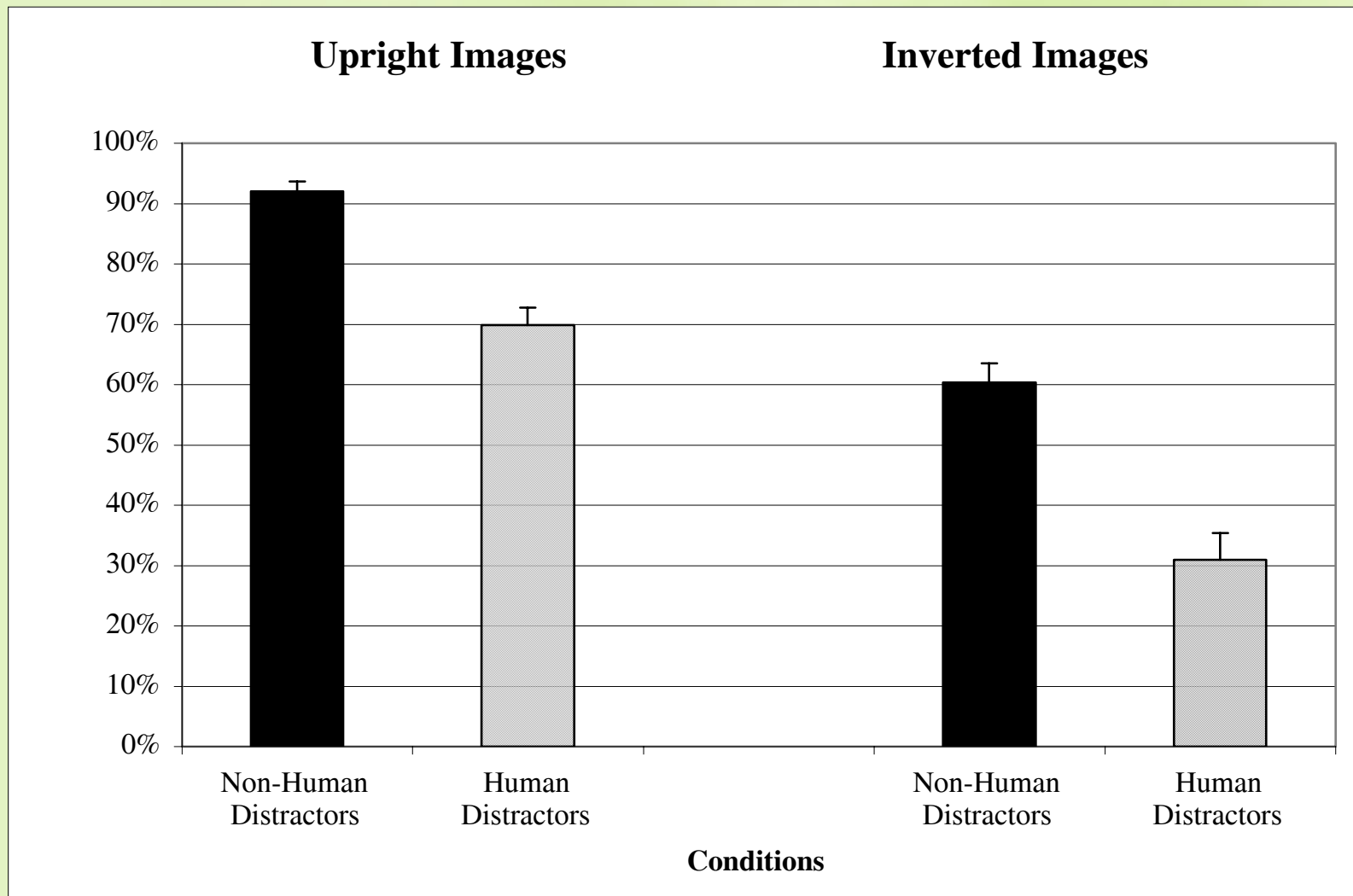
**Detected:  
74%**

Identified: 53% (e.g. as Ferrari, or freight train)

Classified: 84% ( e.g. as car, or plane)

Located: 56% (left, right or center)

# Prediction 4 (Experiment 2)



110ms image exposure

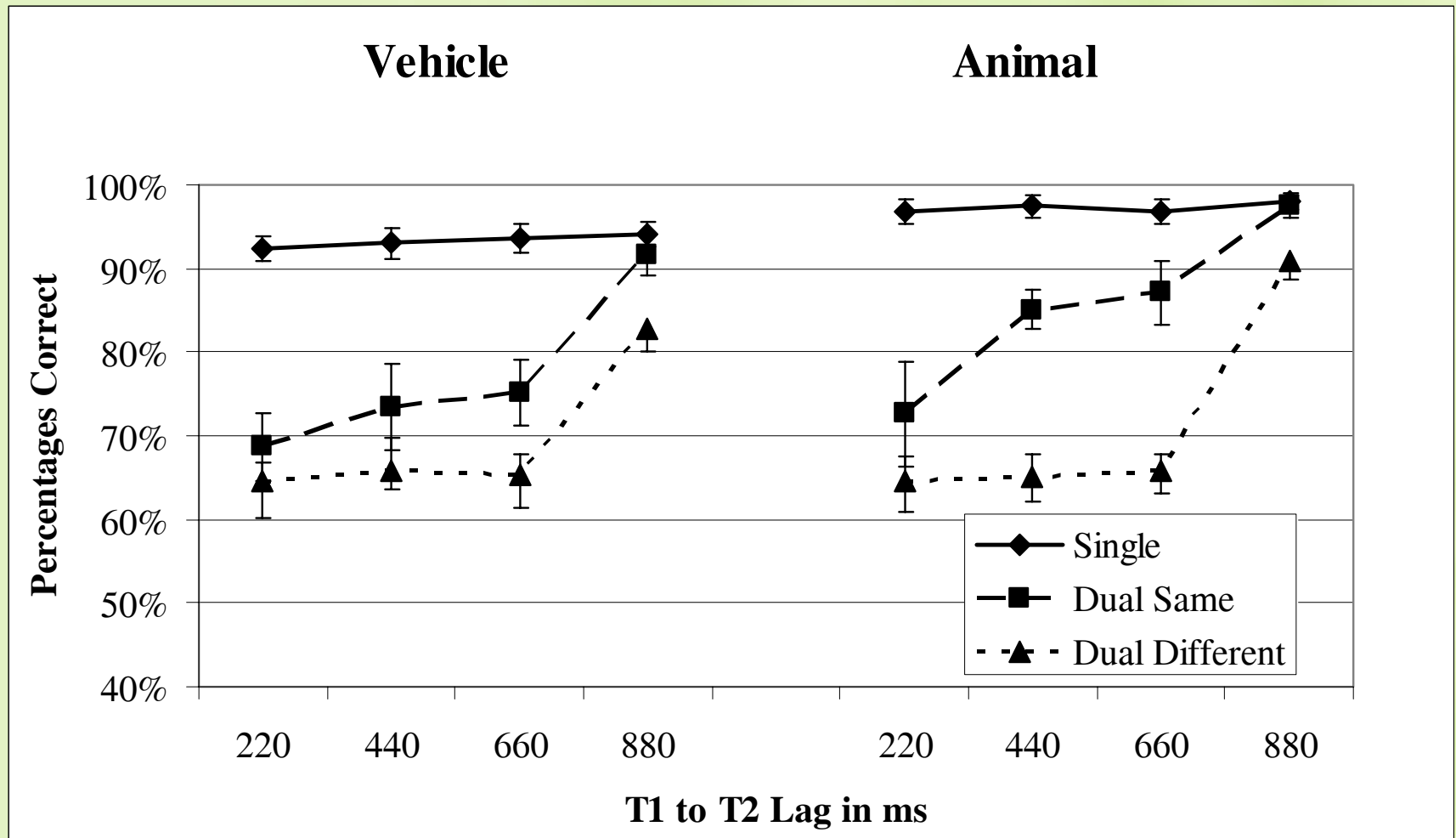




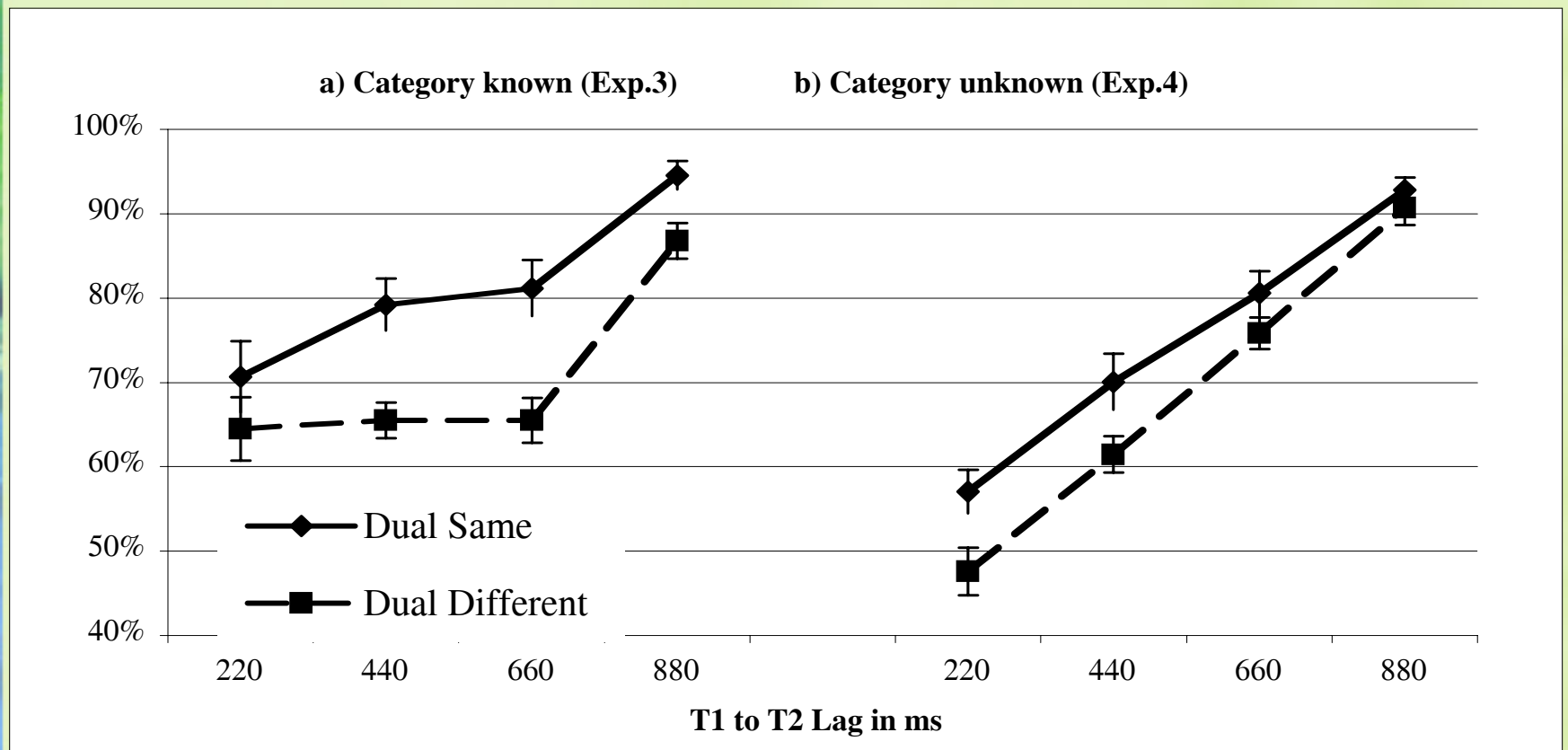
# Role of attention in natural scene categorization (Exp.3-6)

- ✿ Experiment 3- AB classical design, identify T1 and T2 (blocked).
- ✿ Experiment 4- identify T1 and T2 (randomly mixed).
- ✿ Experiment 5- only detect T1. Report and identify T2.
- ✿ Experiment 6- only detect both T1 and T2.

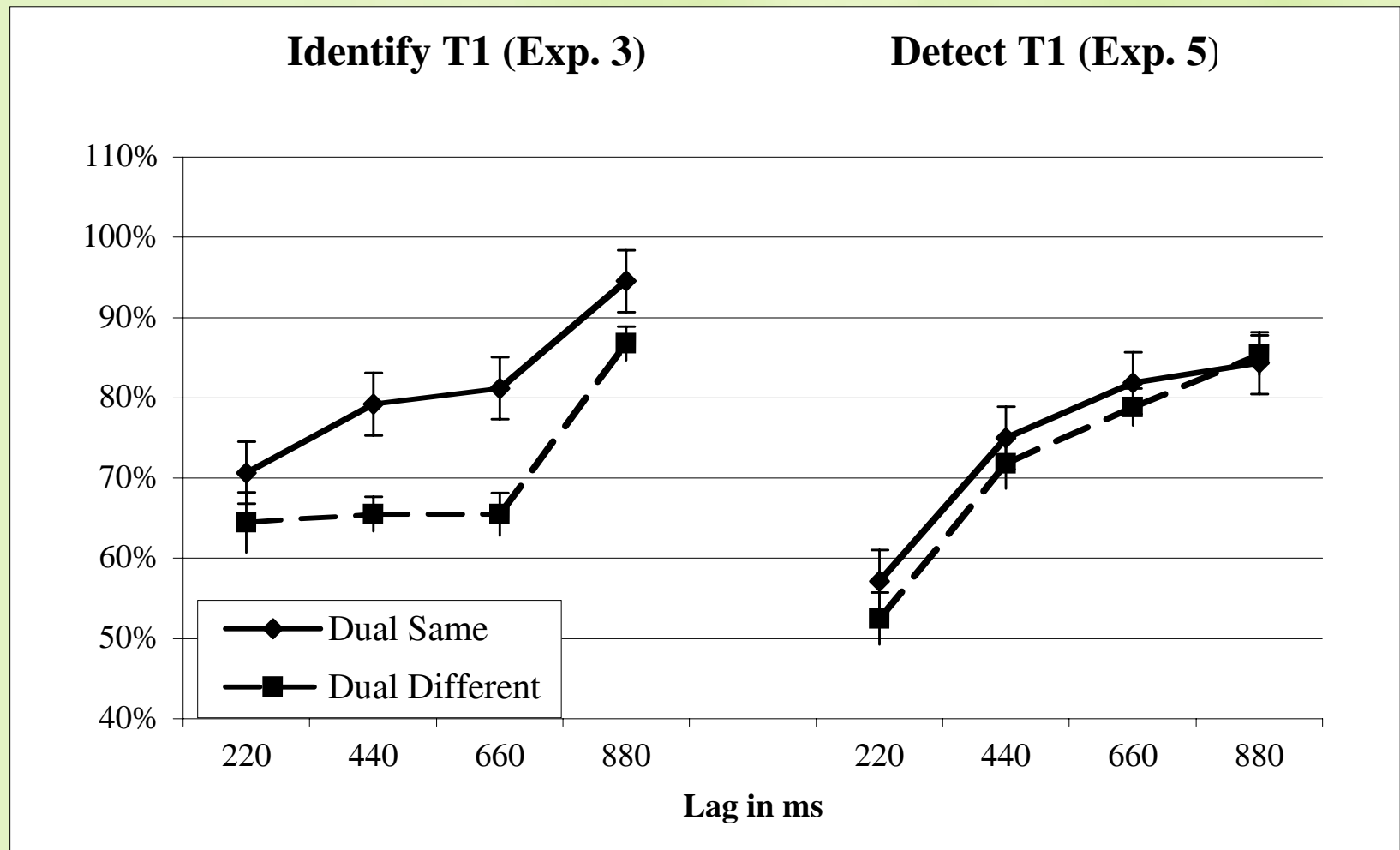
# Experiment 3 (identify T1 and T2 -blocked)



# Category known vs. unknown

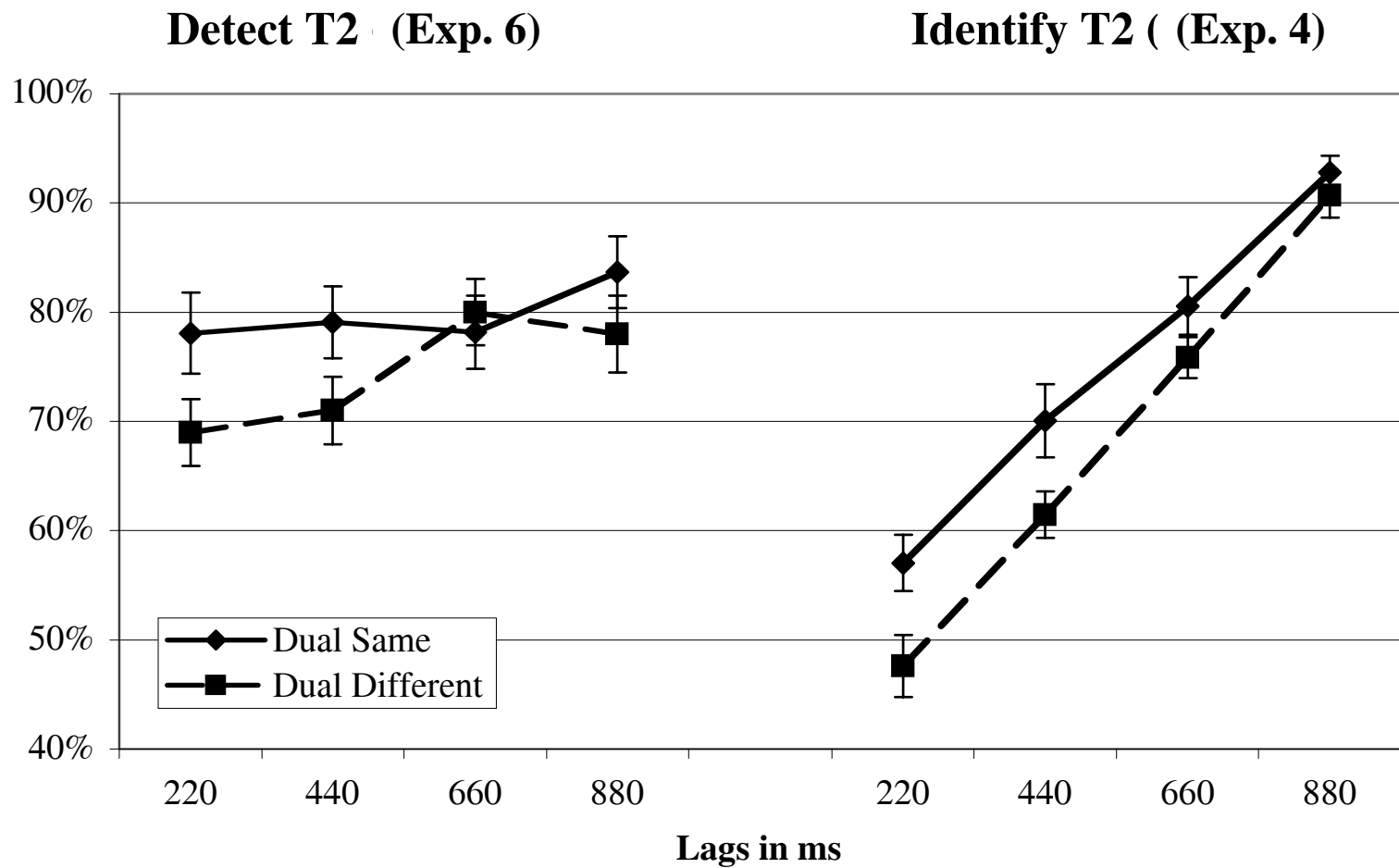


# Identifying versus Detecting T1





# Identifying versus Detecting T2



# Summary

- ✿ Early aspects of natural scene categorization may reflect the parallel detection of disjunctive sets of features rather than the binding and individuation of high-level objects (exp.1& 2)
- ✿ Identification of a category target requires attention and competes with detection of a second target appearing within the next 800-1000ms. (exp.3-6)



**Thank You!**