# 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

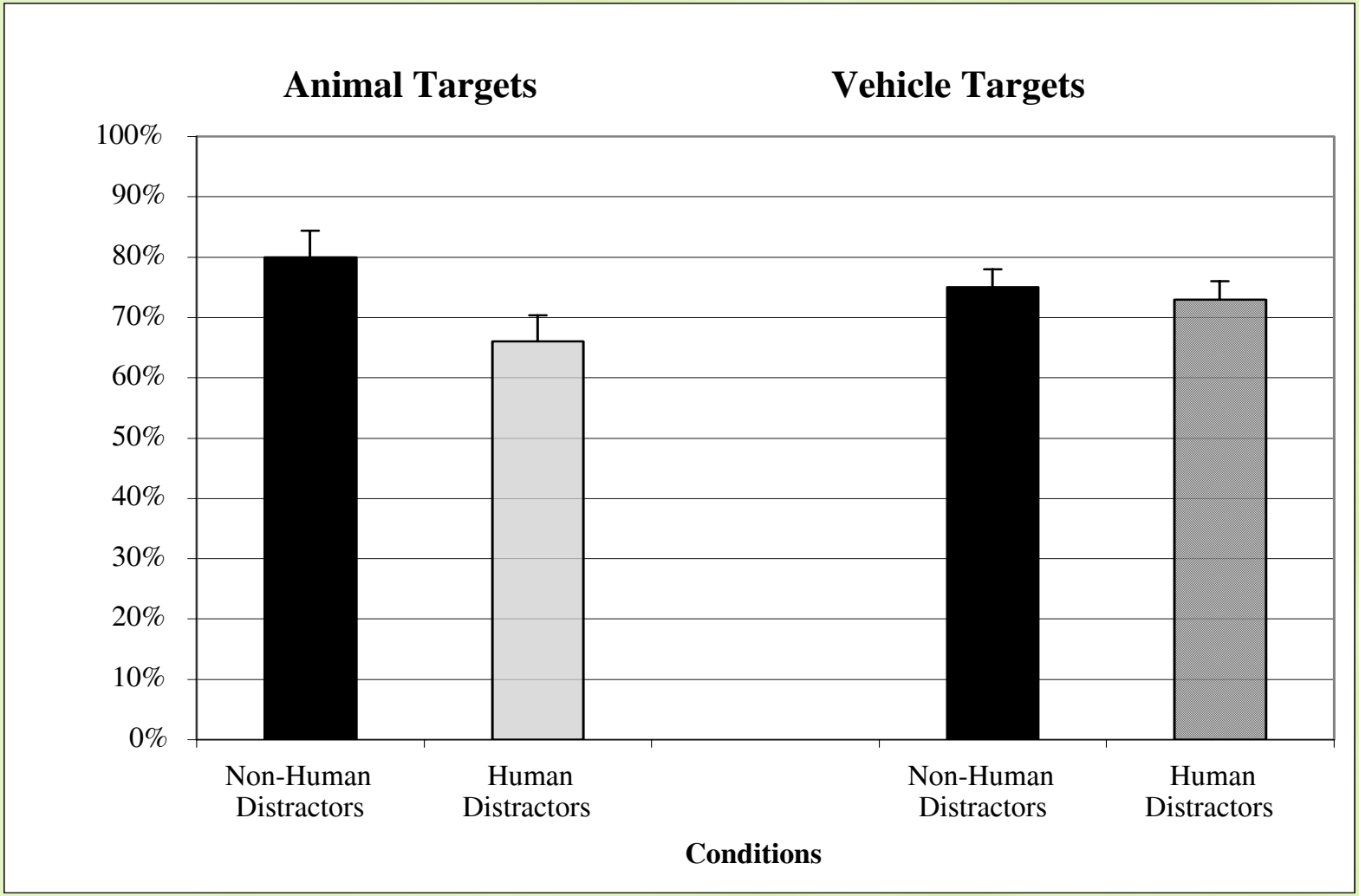
# Paradigm

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%**

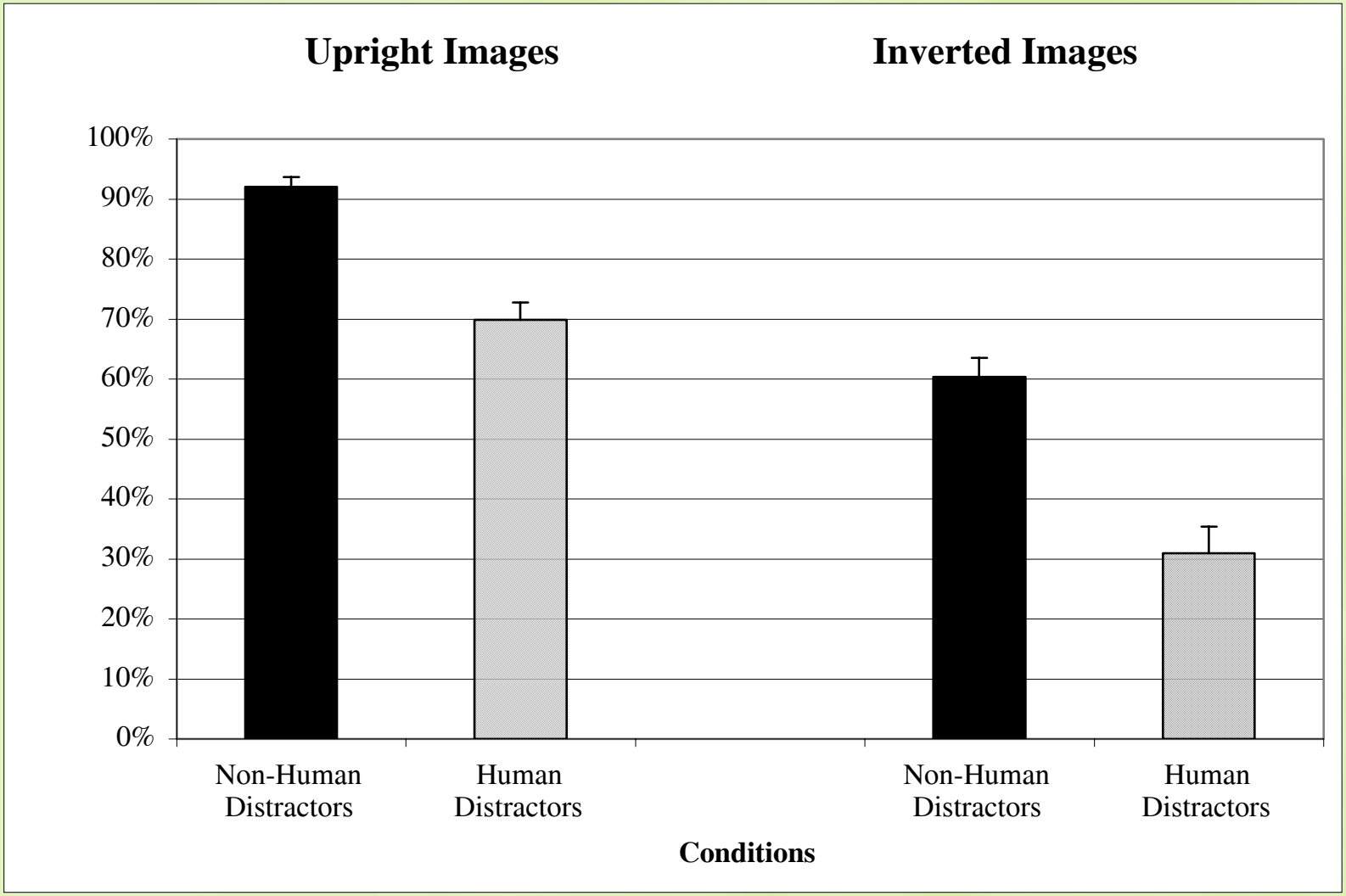
- Identified: 43% (e.g. as bear, or snake)
- Classified: 78% ( e.g. as mammal, or bird)
- Located: 53% (left, right or center)

**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)

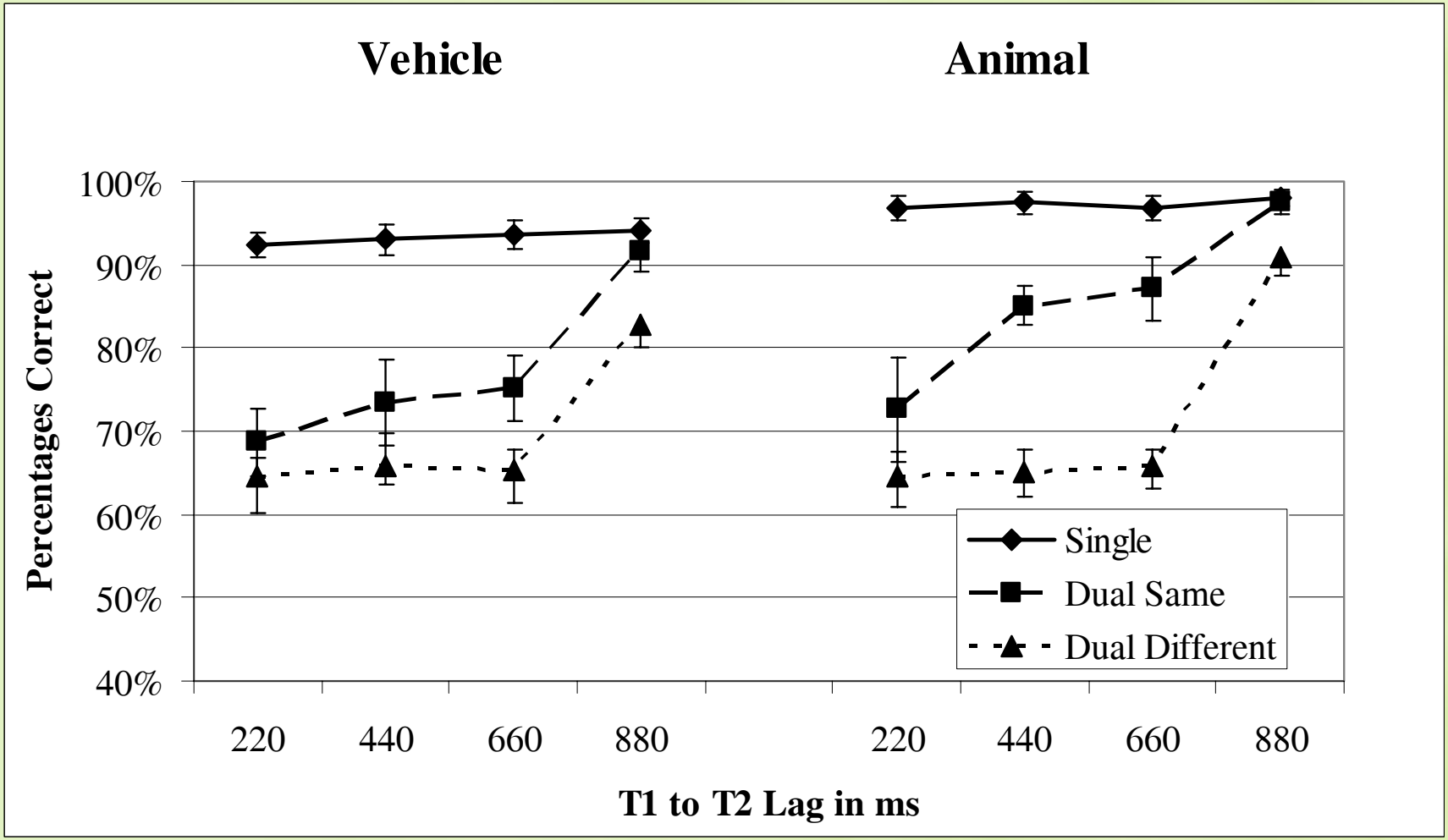



110ms image exposure

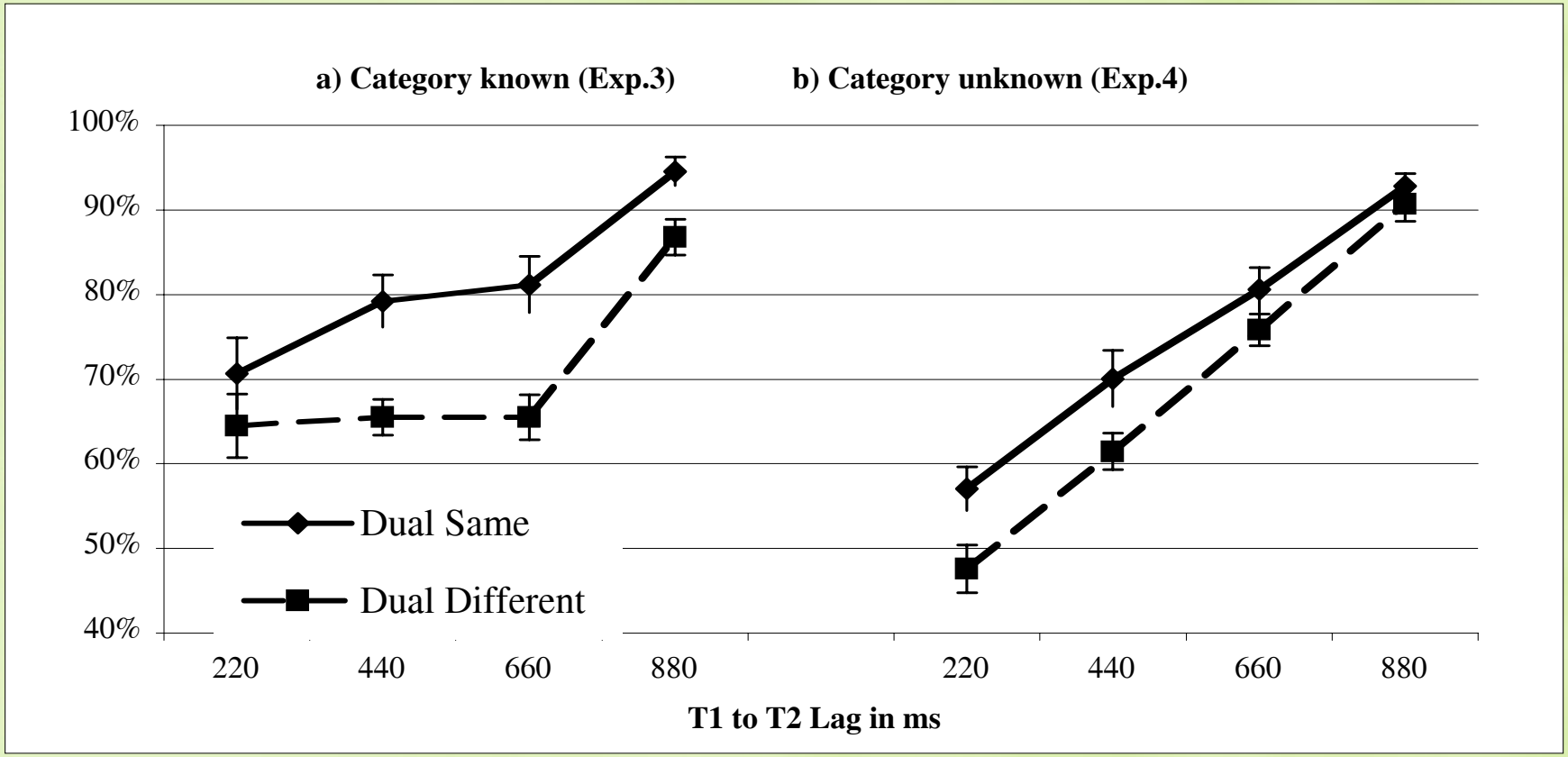
# Role of attention in natural scene categorization (Exp.3-6)

- 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.

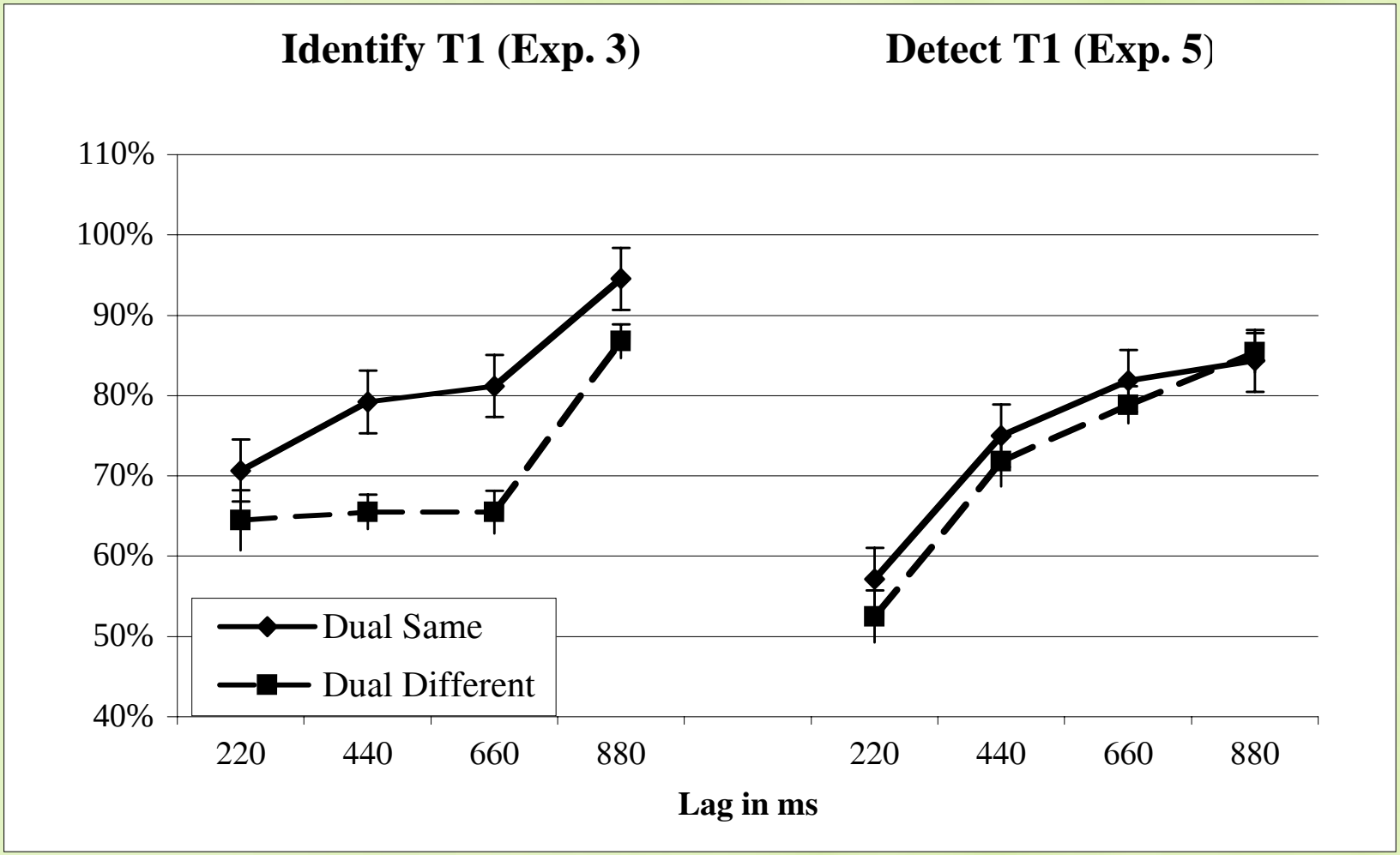
# Experiment 3 (identify T1 and T2 -blocked)



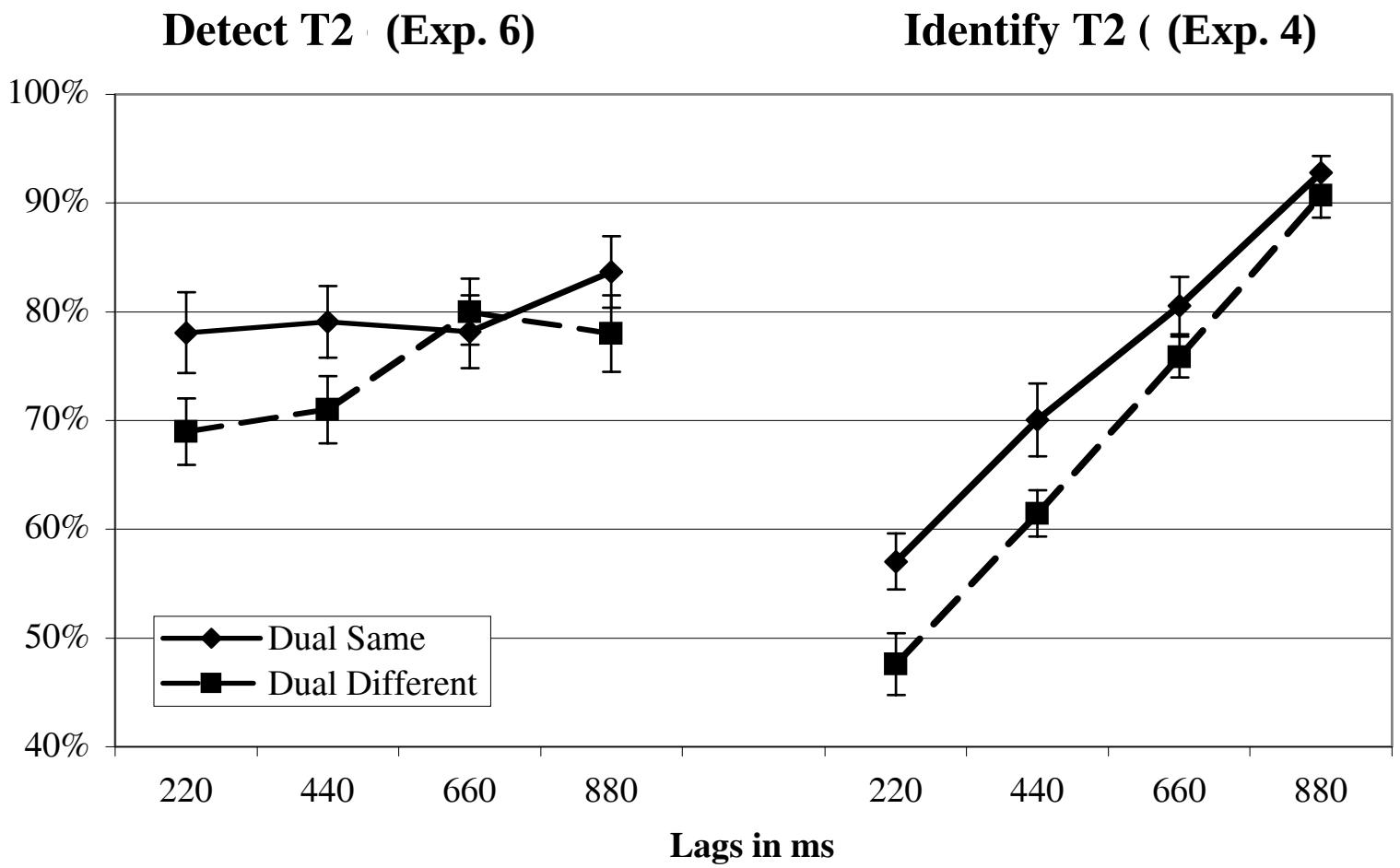
# Category known vs. unknown



# 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!