

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

Paradigm

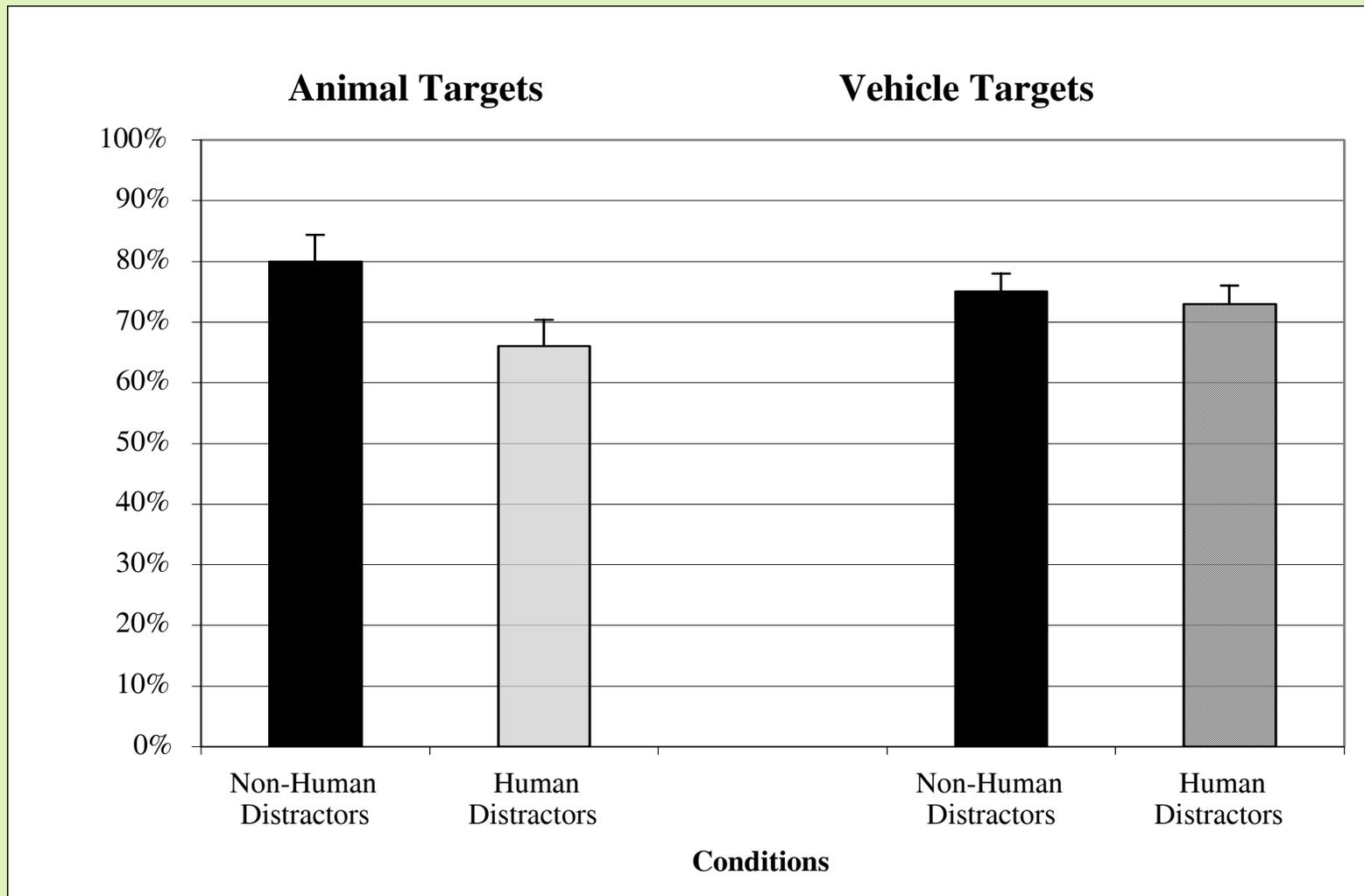


Trial duration:
450 and 720 ms in exp.1&2
1320 ms in exp.3-6

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.

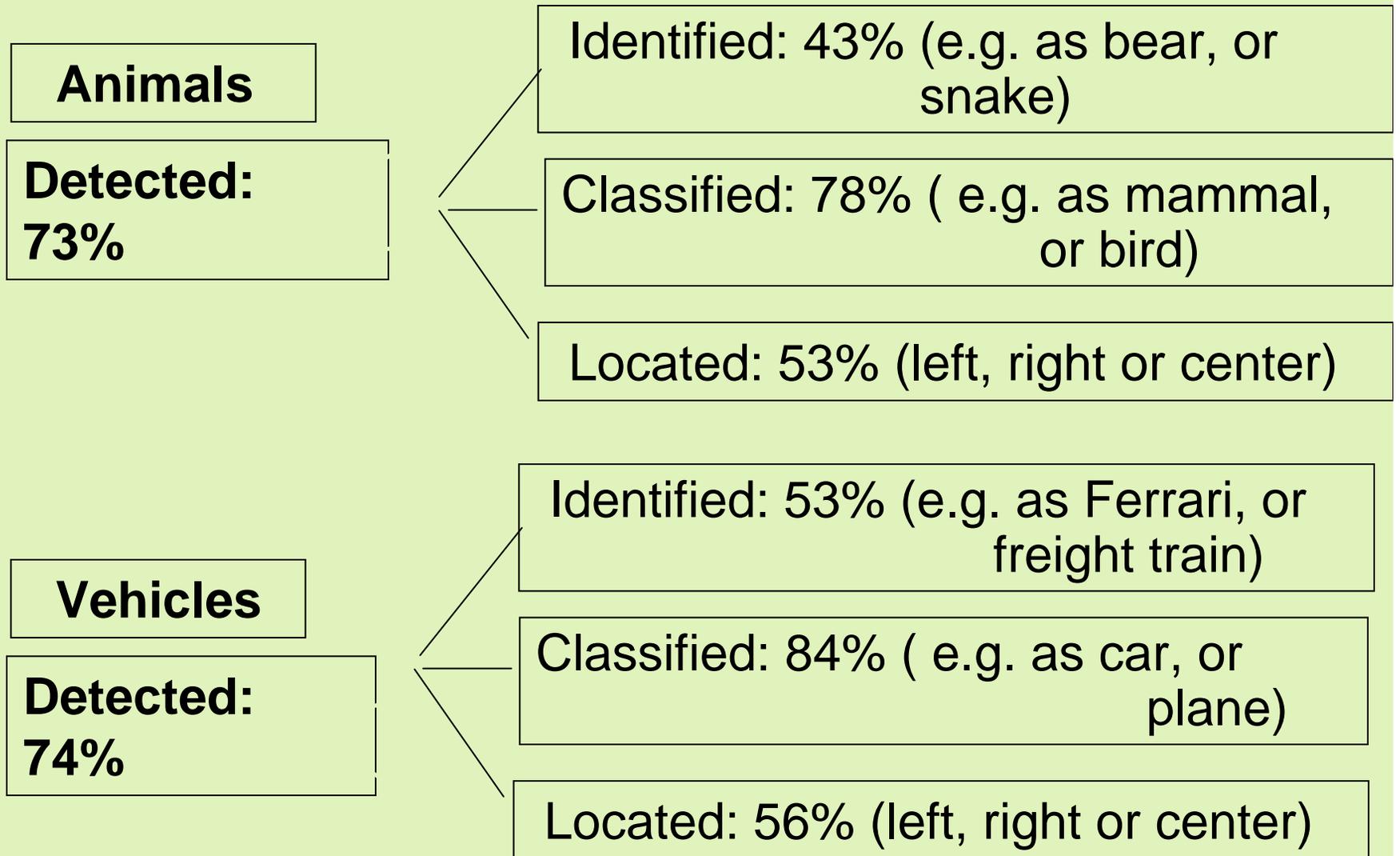
Prediction 1 (Experiment 1)



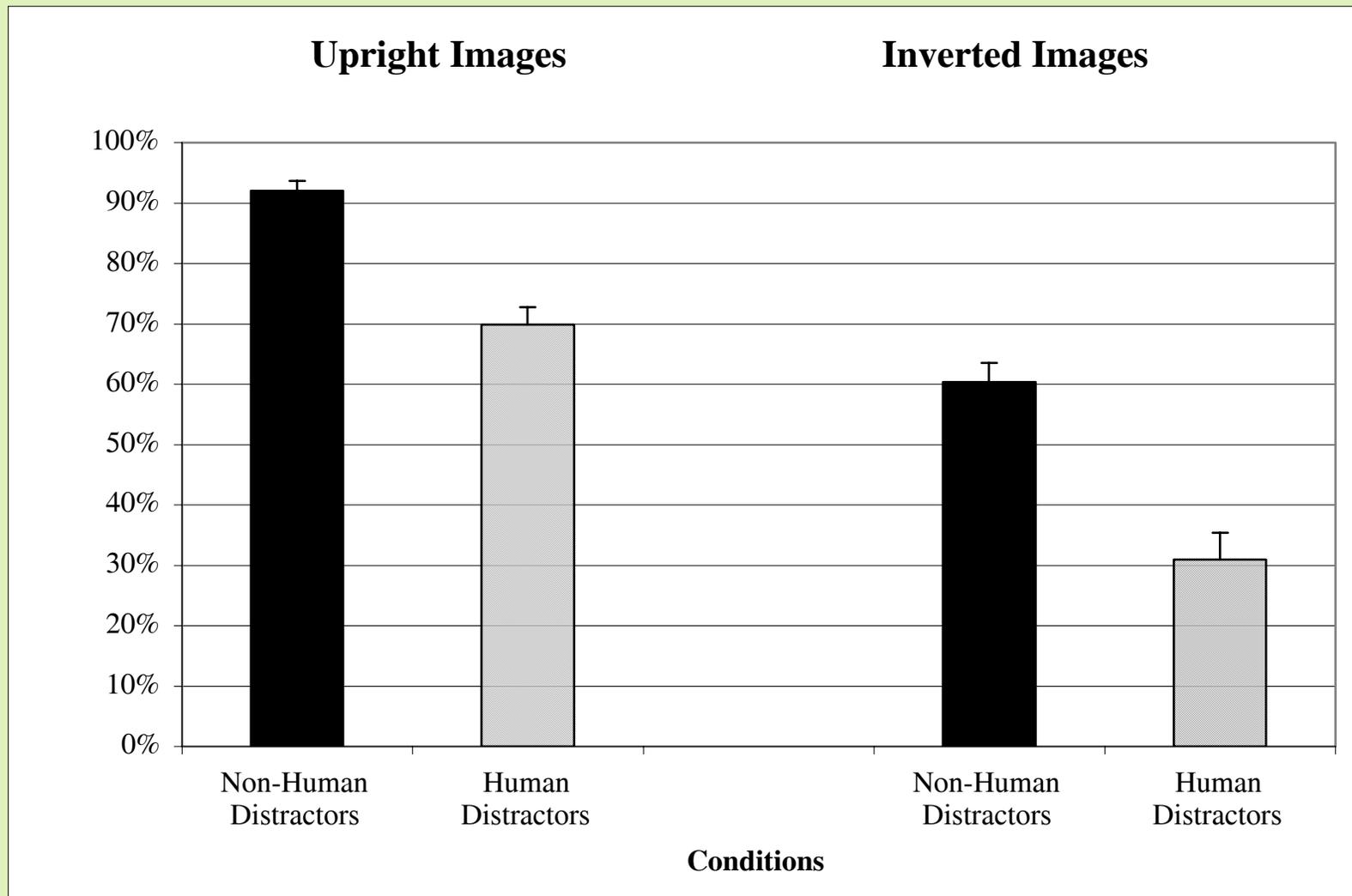
75ms image exposure

Prediction 2 & 3 (Experiment 1)

Of those detected:



Prediction 4 (Experiment 2)

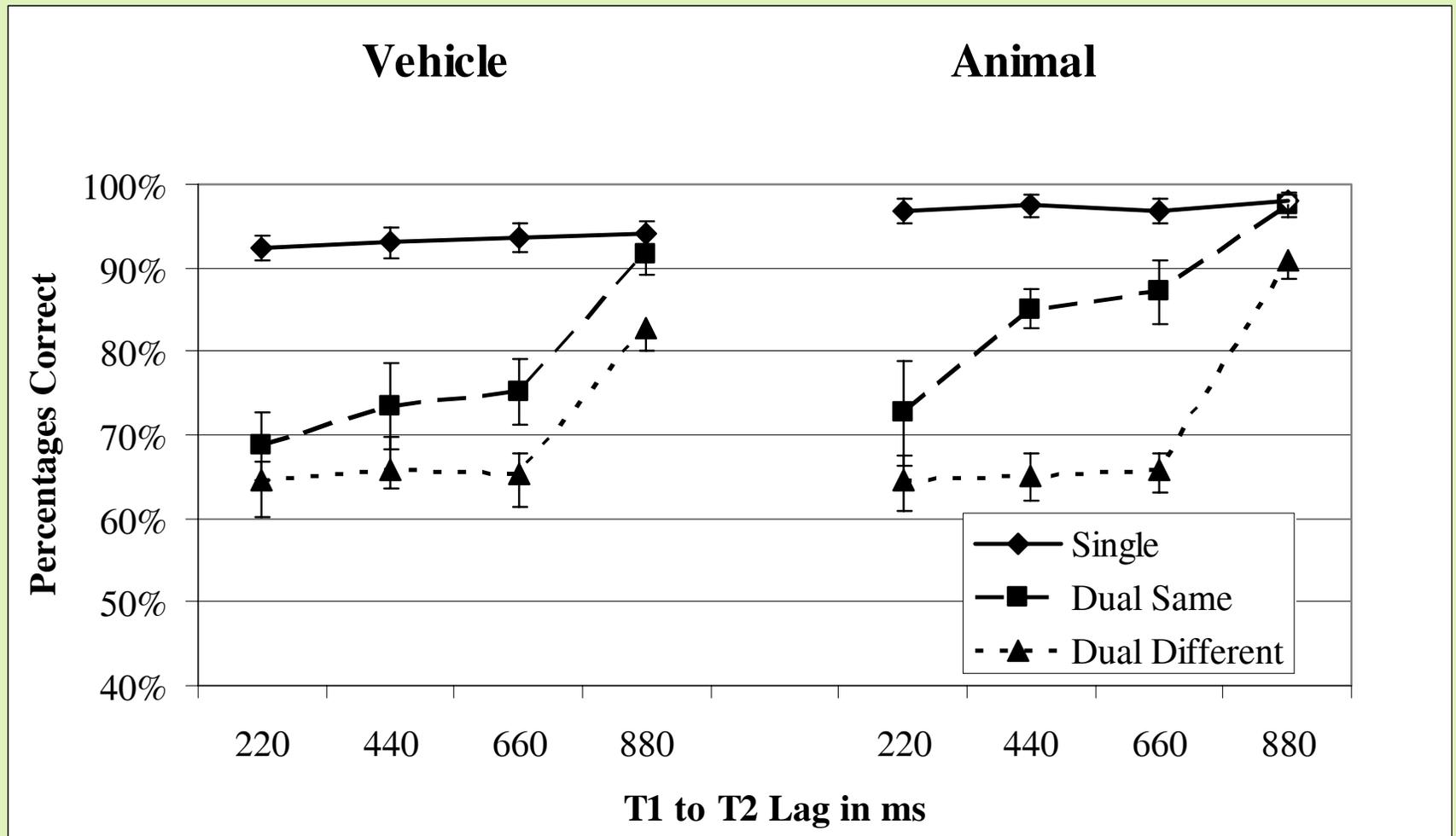


110ms image exposure

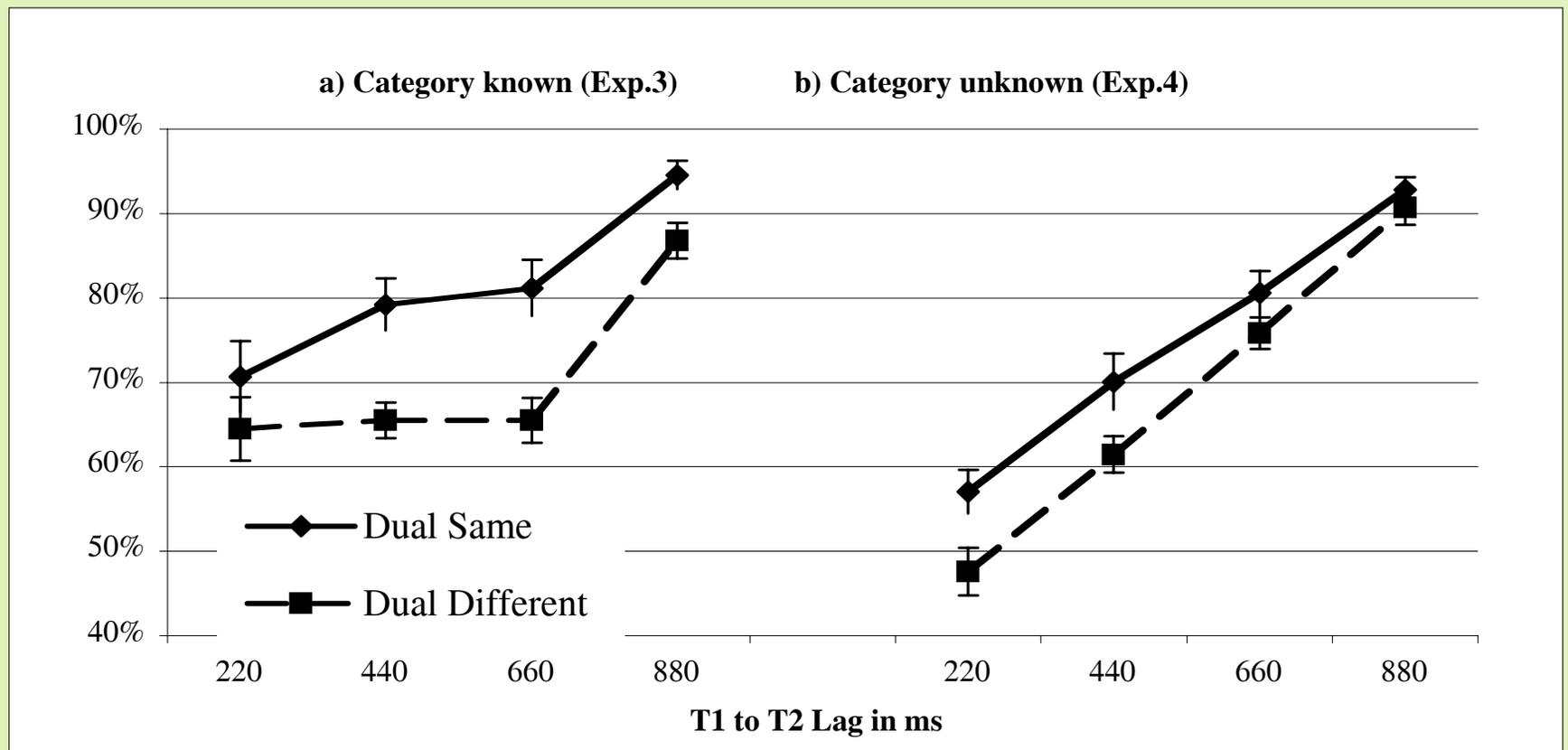
Role of attention in natural scene categorization (Exp.3-6)

- ✿ 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.

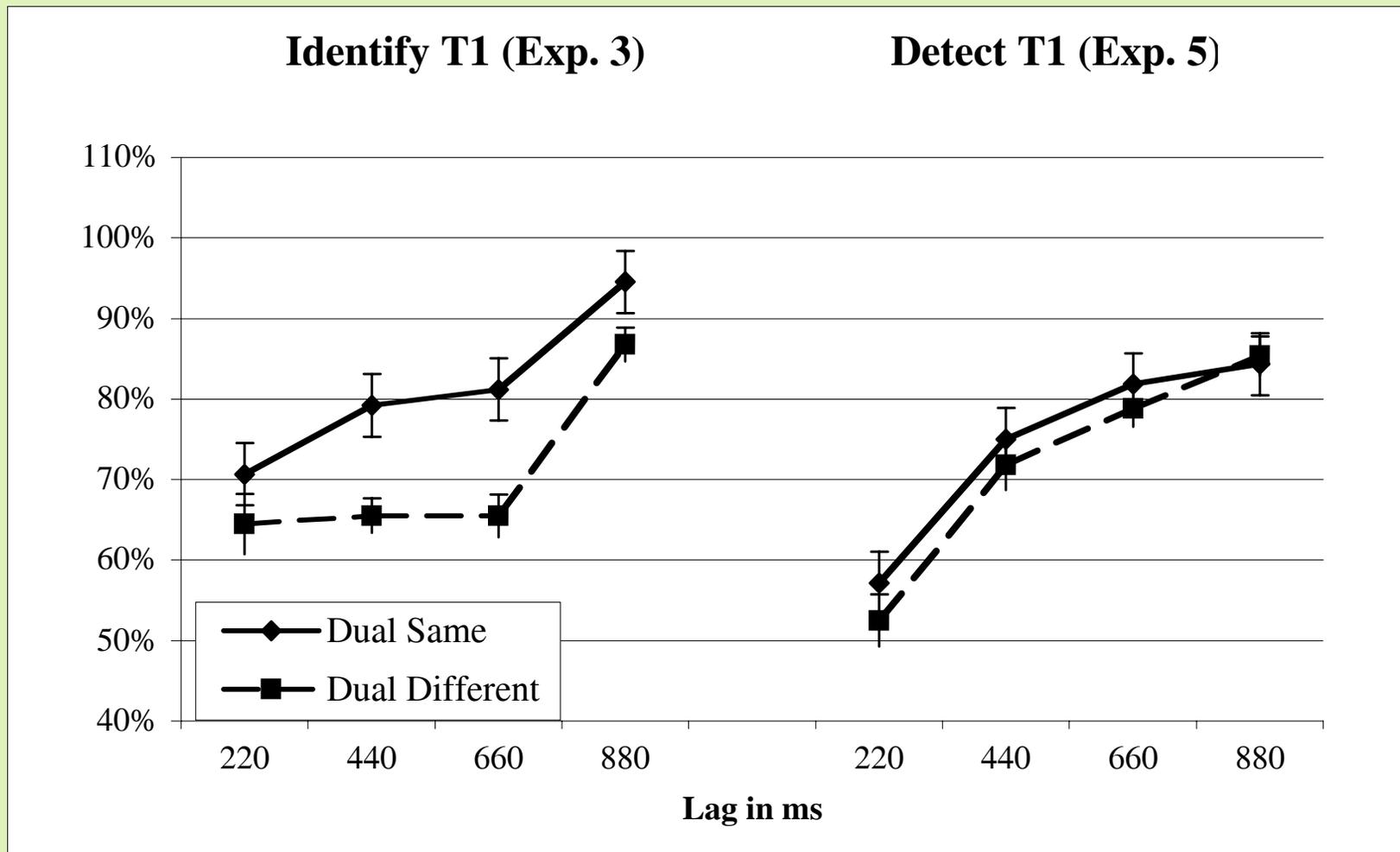
Experiment 3 (identify T1 and T2 -blocked)



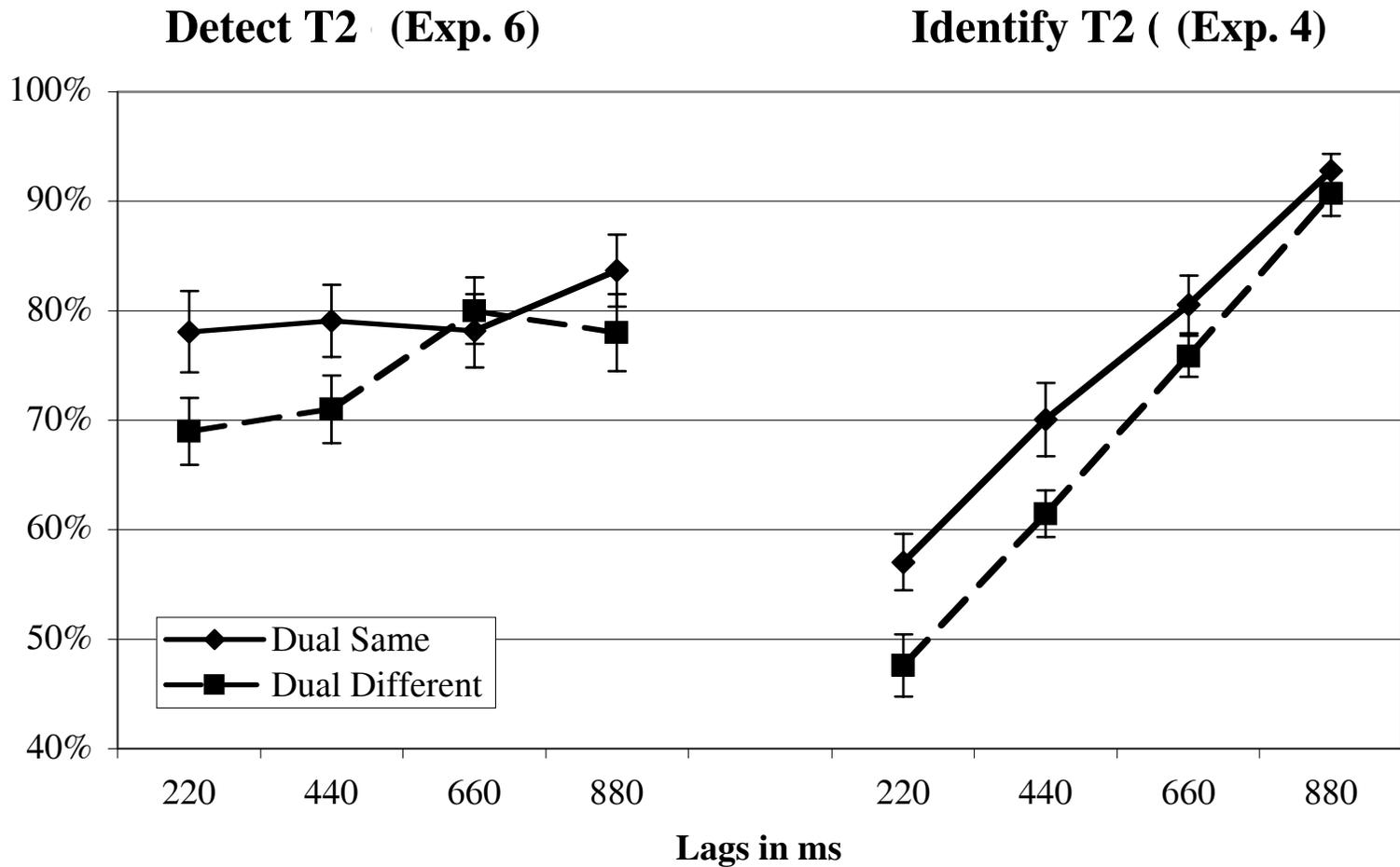
Category known vs. unknown



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!