

To what extent visual search depends on the task ? The role of attention.

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Background

What we know : **Attention guides visual search** and **Task guides attention** (Henderson, 2003; Howard, 2011).

The task is linked to a specific objective. However, a complex goal includes several sub-tasks prioritized with a hierarchical organization.

From **eye-tracking patterns**, is it possible :

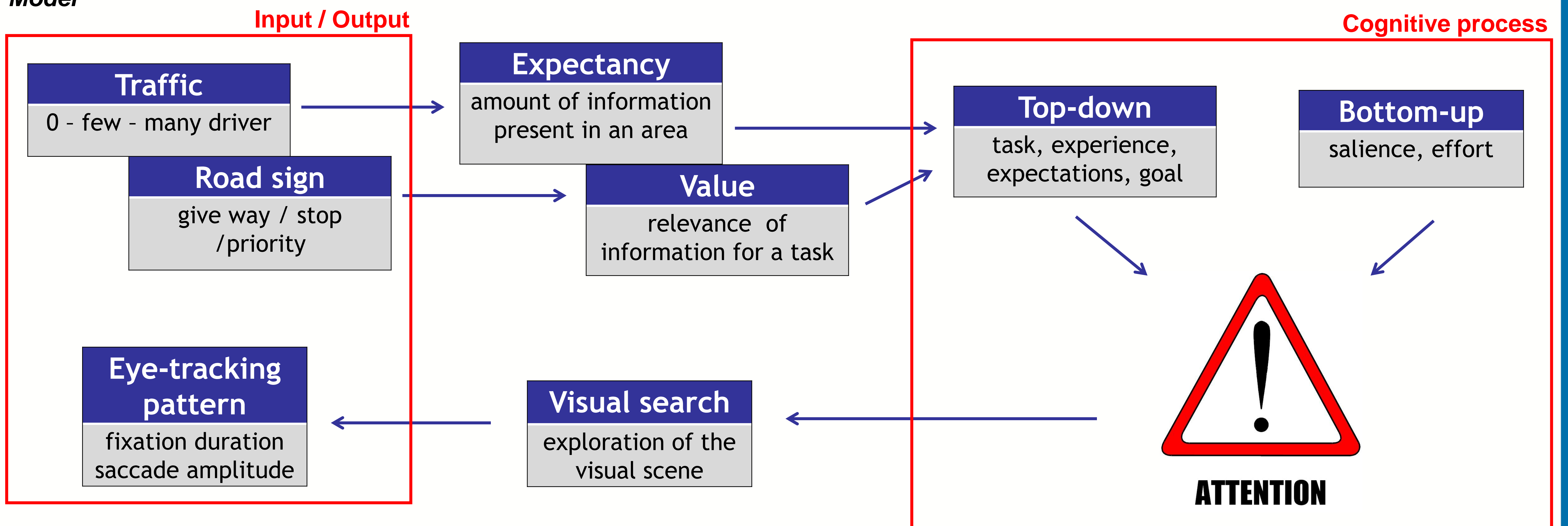
- To distinguish two complex situations of the same activity?
- To identify the relative weight of the sub-tasks ?

→ Application to a real life complex situation : **driving**, during the anticipation of a crossroads and on a straight road,

Driving situation = road sign + traffic

Sub-tasks = Control - Guidance - Navigation (Allen, 1971)

Model



Experiments

Eye-tracking glasses :	Driving simulator	Field test	Eye-tracking :
Disadvantage : unnatural conduct, automation least present.	Variables : traffic + road sign Measures : eye-tracking + driving (acceleration/braking, oscillation of the steering wheel)	Advantages : more natural, ecological validity (natural behavior, realism of situations).	Disadvantage : uncontrolled environment (weather, unexpected events, visual masking), uncontrolled variables (bottom-up).
Driving simulator :	Virtual environment : 	Within the instrumented vehicle : 	Real environment :
	Current State : data acquisition completed (36 participants), data analysis in progress.	Current State : data acquisition in progress.	

Discussion

In addition to the theoretical model presented above, we have developed a quantitative model, deriving from the SEEV model (Wickens, 2003).

It predicts the relative fixation time in different areas of interest. We plan to test it with the data obtained in these two experiments.

Then we will need to **refine our estimates of the impact of manipulated attentional variables on visual search.**

References

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