

Landscape Exploration and The Influence of Beliefs

Jason Carver and Kevin Matulef

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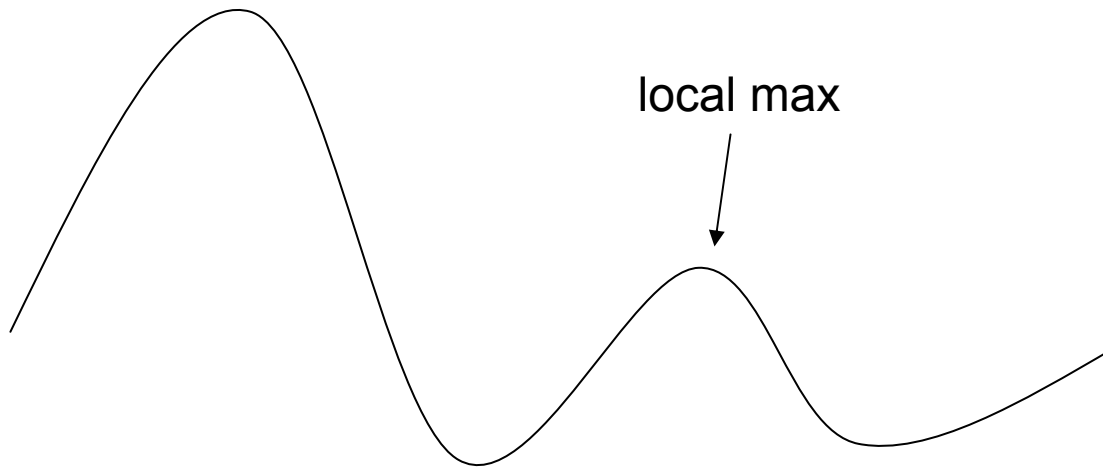
Why do people press the red button?

Because it *appears* to be the better one...

Questions

- To what extent are people willing to explore actions that *appear* suboptimal?
- Do people get stuck in “local maxima?”
- How are the answers to the above influenced by people’s *beliefs*?

Payoff Landscapes



Potential Payoffs

The Experiment



Total points: 3

Moves remaining: 10

The Experiment



Total points: 5

Moves remaining: 9

The Experiment



Total points: 8

Moves remaining: 8

The Experiment

			2	3	4					
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Total points: 12

Moves remaining: 7

The Experiment

			2	3	4	5				
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Total points: 17

Moves remaining: 6

The Experiment

			2	3	4	5	3			
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Total points: 20

Moves remaining: 5

The Experiment

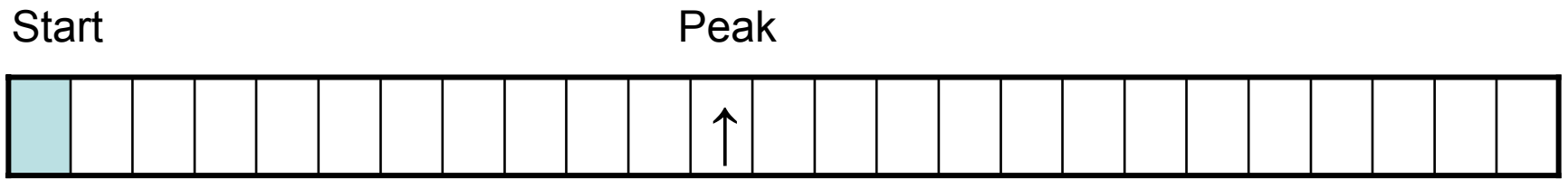
			2	3	4	5	3			
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Total points: 25

Moves remaining: 4

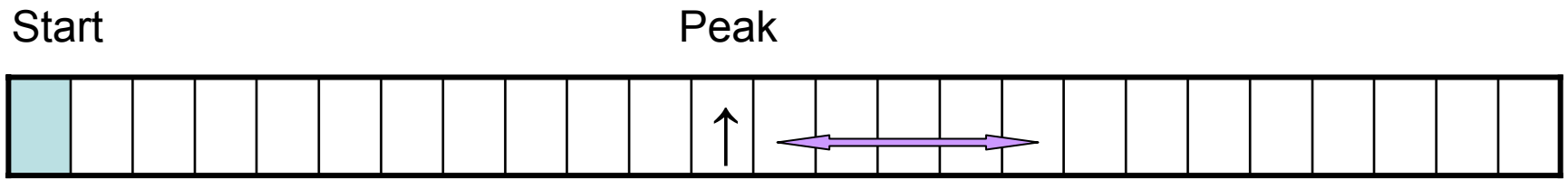
Results

- Group A: control



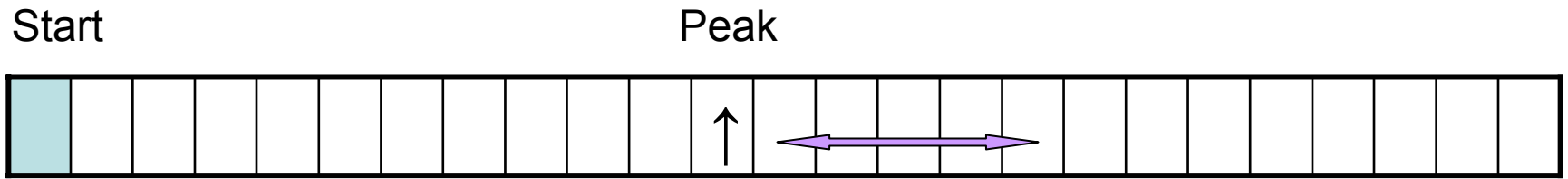
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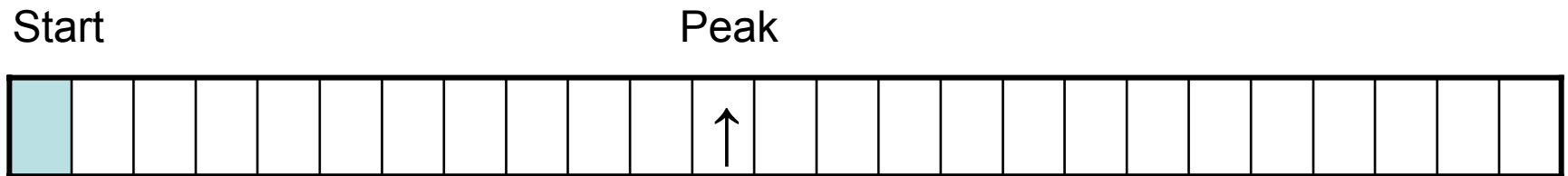


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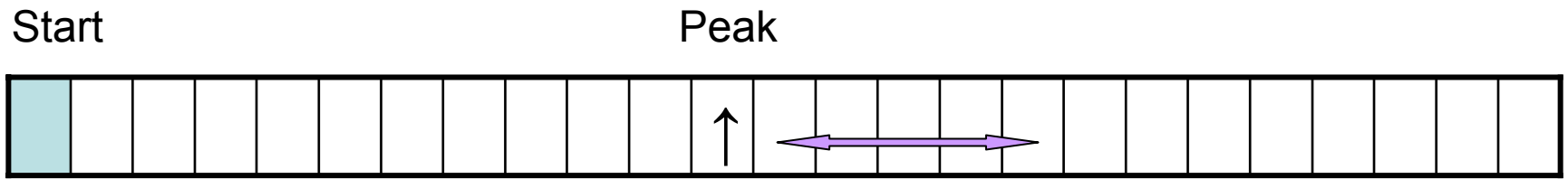


- Group B: subjects told max value on board

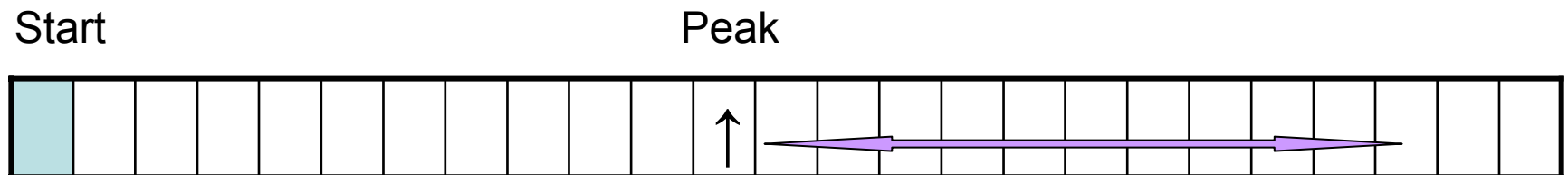


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Modeling

- Reinforcement model
 - Reinforcement of actions?
 - Reinforcement of destinations?

Modeling

- Reinforcement model
 - Reinforcement of actions?
 - Reinforcement of destinations?
- No obvious place in reinforcement model for the “belief” about where fortune lies.
- Can it be incorporated in a natural way?

Conclusion

- Adventurousness in exploratory situations very contingent upon beliefs
- Simple “reinforcement” model may be insufficient to explain human behavior in such situations.

Further Questions

- Hundreds of variations:
 - “Patterned” landscapes?
 - Probabilistic rewards?
 - Continuous landscapes?
 - 2 dimensions? 3 dimensions?
- Connections with risk aversion?
- Connections with “belief learning?”