

# Exploit Or Explore

What is what?



# Difficult Decision

MAKE YOUR CHOICE:

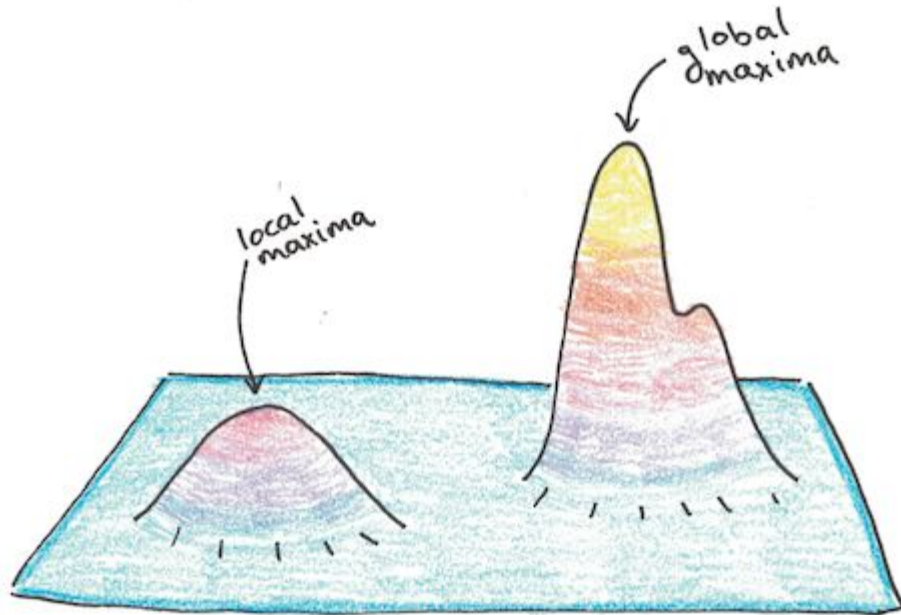
KNOWN  
REWARD

OR

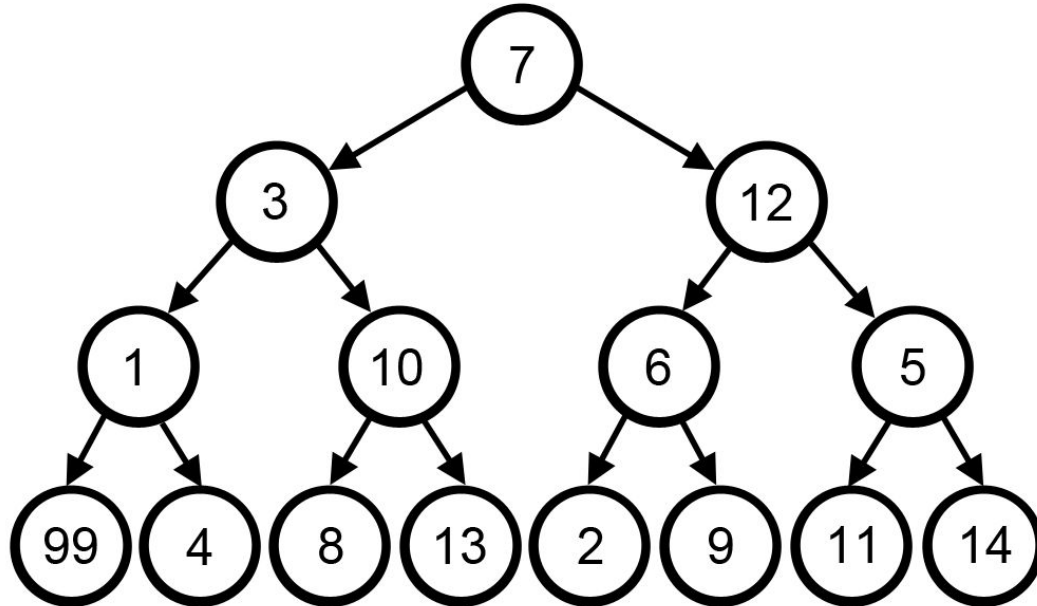
MYSTERY  
PRIZE?



# Optimization problem

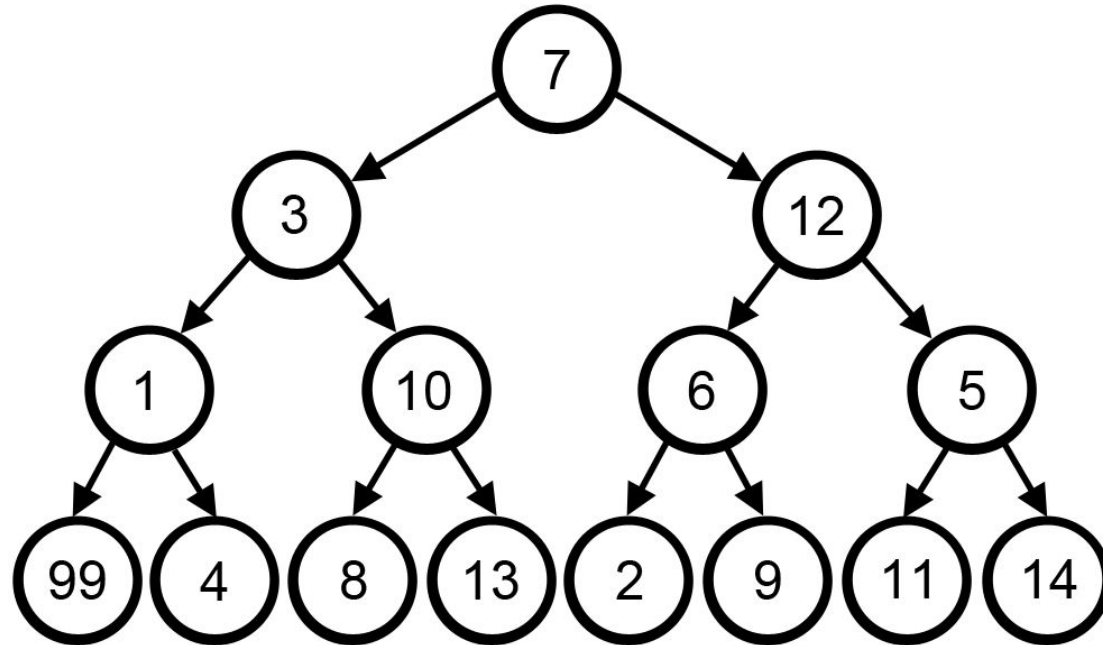


# Greedy Algorithms



How can we tell  
when we are  
exploring?

# Easy if you know the Payoff



# Difficult Decision

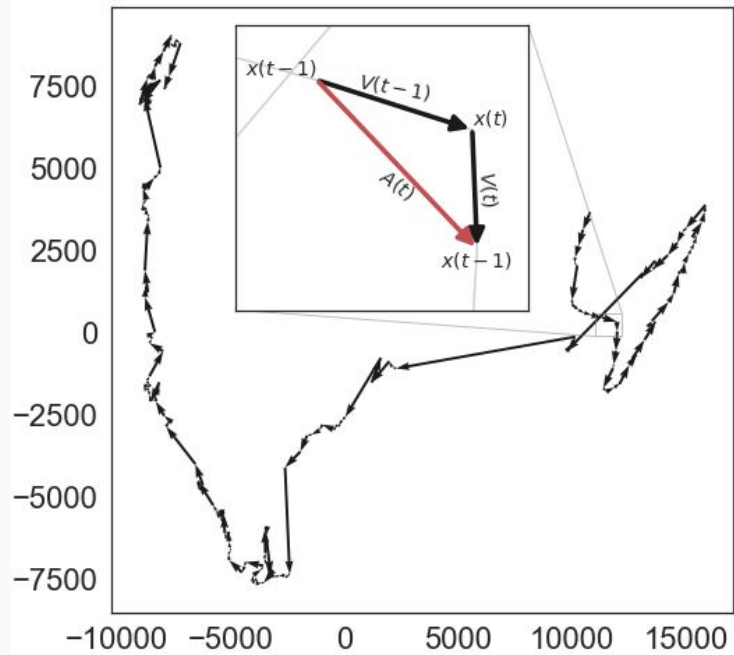
MAKE YOUR CHOICE:

KNOWN  
REWARD

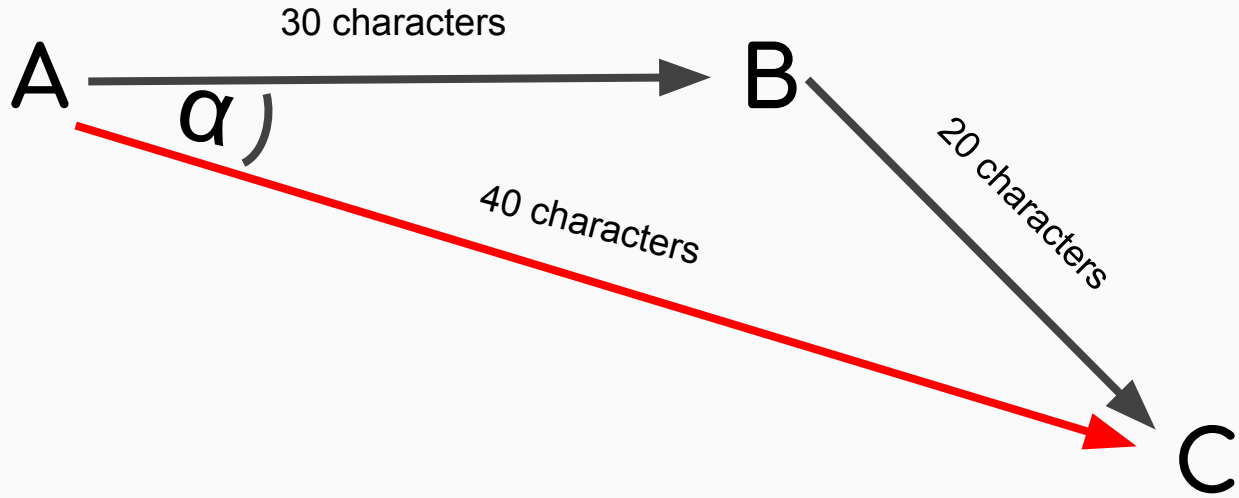
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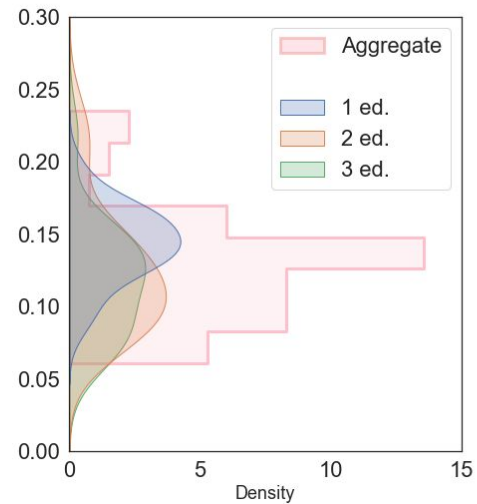
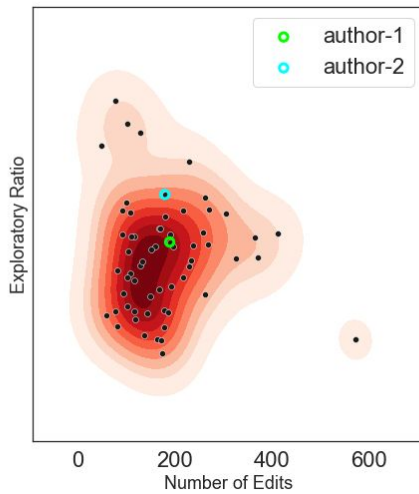
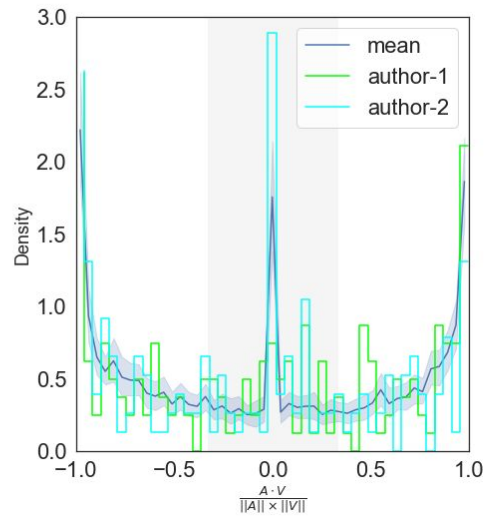
MYSTERY  
PRIZE?











# Further reading

1. Cohen, Jonathan D., Samuel M. McClure, and Angela J. Yu. "Should I stay or should I go? How the human brain manages the trade-off between exploitation and exploration." *Philosophical Transactions of the Royal Society B: Biological Sciences* 362.1481 (2007): 933-942.
2. Krebs, John R., Alejandro Kacelnik, and Peter Taylor. "Test of optimal sampling by foraging great tits." *Nature* 275.5675 (1978): 27-31.
3. Wilson, Robert C., et al. "Humans use directed and random exploration to solve the explore–exploit dilemma." *Journal of Experimental Psychology: General* 143.6 (2014): 2074.

