

Sharoni Shafir - Learning, Memory, & Optimal Foraging in Anolis Lizards

Optimal Foraging Models

- 1) Prey Choice - which to choose
- 2) Patch Choice - when to leave
- 3) Provisioning - how much to bring back to nest
- 4) Sit & Wait - do you chase prey?

Anolis -

Ground / tree trunk

- how far to go for prey?



- how to maximize  $E/T$  = net energy gain  
 - if you want to pick radius 'r' to pursue -- complicated solution

ANALYTICAL SOLUTION

RULE OF THUMB

-  $r_2$  is  $E/T_{pursuit} > E/T_i$

ANALYTICAL

REDS KNOWLEDGE OF ABUNDANCE

RULE OF THUMB

REQUIRES MEMORY

LEARNING EXPERIMENT

- can learn to go to box w/ sphere displayed

MODEL -> How much <sup>MEMORY</sup> LEARNING NEEDED

- only a little

FORAGING

- what is cutoff distance
- step function is predicted

- IS VISUAL ACUITY IMPORTANT?

- ① cutoff distance is step fcn
- ② cutoff distance bigger for bigger prey
- ③ when abundance is high... cutoff distance low
- ④ cutoff distance adjusts quickly