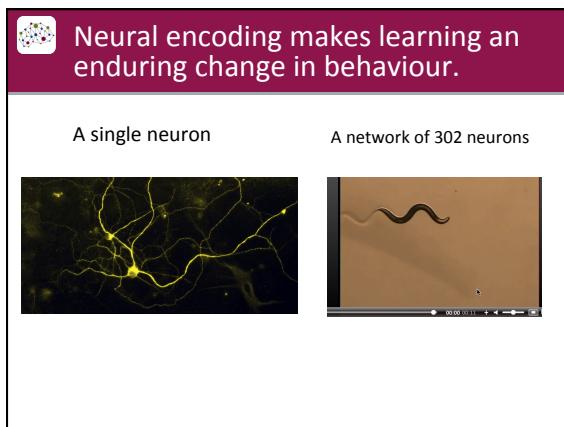
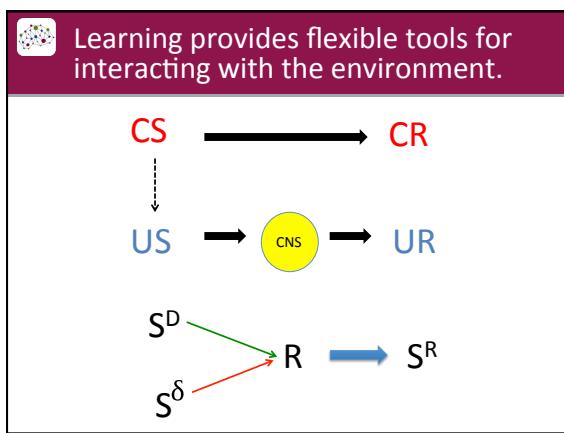


04-Problem Solving and Intelligence

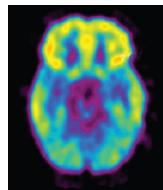


Complex brains give rise to problem solving abilities that confer an adaptive advantage. Nevertheless, humans are prone to biases that can prevent optimal decision making.





 Self-regulation: can you delay reward?




 How many ways can you think of for using a common object?



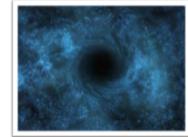
Functional fixedness: a bias limiting views to using an object only in the way it is traditionally used.

 Intelligence is a hypothetical construct that is difficult to measure.

Definition

Intelligence

- The cognitive ability of an individual to learn from experience, reason well, remember important information, and cope with the demands of daily living

The Myers-Briggs "Type Indicator (The Keirsey Temperament Sorter)			
E	S	T	J
Extraverted Dominant	Introverted Sensing	Thinking	Judging
I	N	F	P
Interiorized Receptive	Intuitive	Feeling	Perceiving

 <h1>Louisiana Literacy test (1964)</h1> <p>The State of Louisiana This test is to give to anyone who cannot prove a 5th grade education.</p> <p>Time limit: You are to do as many statements, working alone, within the time. Be careful in writing answer because failure of the test. You have 10 minutes to complete the test.</p> <ol style="list-style-type: none"> Draw a fine arrow around the number or letter of this sentence. Draw a fine arrow under the last word in this line. Cross out the longest word in this line. Draw a line around the shortest word in this line. Circle the first, first letter of the alphabet in this line. In the space below draw three circles, one inside (enveloped by) the other. Above the letter X make a small cross. Draw a line through the letter below that comes earliest in the alphabet. Z B W S D M K T F I P H C Draw a line through the two letters below that come last in the alphabet. Z B D W K M T F P H S Y In the first circle below write the first letter of the word beginning with "L". ( Cross out the number necessary, when making the number below one million. 1000000000 Draw a line from circle 2 to circle 5 that will pass below circle 2 and above circle 4. ( In the line below cross out each number that is more than 20 but less than 30. 31 16 48 29 53 47 32 27 38 26 20 25 	<p>14. Draw a line under the first letter after "B" and draw a line through the second letter after "T".</p> <p>a b c d e f g h i j k l m n o p q</p> <p>15. In the space below, write the word "wheel" backwards and place a dot over what would be the second letter should it have been written forward.</p> <p>16. Draw a triangle with a blackened circle that overlaps only its left corner.</p> <p>17. Look at the line of numbers below, and place on the blank, the number that should come next.</p> <p style="text-align: center;">2 4 6 _____</p> <p>18. Look at the line of numbers below, and place on the blank, the number that should come next.</p> <p style="text-align: center;">3 6 9 15 _____</p> <p>19. Draw in the space below, a square with a triangle in it, and within that same triangle draw a circle with a black dot in it.</p> <p>20. Spell backwards, forwards.</p> <p>21. Print the word upside down, but in the correct order.</p> <p>22. Place a cross over the tenth letter in this line, draw a line under the first space in this sentence, and circle the word "cross" in the second line of this question.</p> <p>23. Draw a circle in the shape of a hexagon. Divide it in half by drawing a straight line from its northern point to its eastern point, and then divide it once more by drawing a broken line from the middle of its western side to the middle of its eastern side.</p>
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Do humans behave rationally?

Bounded Rationality

Cognitive limitations prevent humans from being fully rational

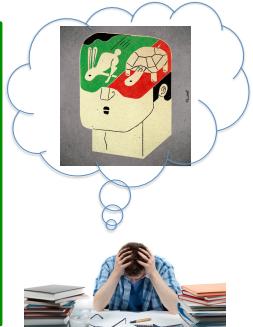
Biases

Mistakes that influence judgment

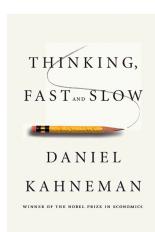
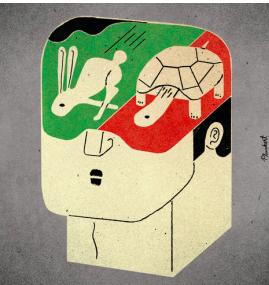
A cartoon illustration of a person with a large blue bow tie and a checkered shirt, looking very confused with hands on their head. They are holding a newspaper that says "in-for-ma'-tion." The background is red.

The image consists of two parts. On the left is the book cover for "Thinking, fast and slow" by Daniel Kahneman. The cover is white with the title in a large, flowing, black script font at the top. Below the title is a drawing of a pencil with a small sketch of a rabbit on its eraser. Underneath the pencil, the author's name, "DANIEL KAHNEMAN", is printed in a simple, black, sans-serif font. At the bottom of the cover, the text "WINNER OF THE NOBEL PRIZE IN ECONOMICS" is written in a very small, thin font. On the right is a stylized illustration of a human head in profile, facing right. The head is split vertically down the middle. The left hemisphere is green and contains a white drawing of a rabbit. The right hemisphere is red and contains a white drawing of a turtle. The background behind the head is dark grey.

 Durable learning takes effortful System 2 thinking.

Passively view web module Passively highlight textbook Take verbatim notes Memorize given examples for concepts	 Pause and review web module Self-test on textbook Summarize notes Create novel examples for concepts
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 Thinking, fast and slow.

 Rank the following causes of death from most common to least common:

- Terrorist attacks
- Air travel accident
- Struck by lightning
- Fireworks
- Car Crashes





Anchoring influences judgments.

Anchoring – The bias to be affected by an initial anchor, even if the anchor is arbitrary.

10 – 100 – 200?



The size of your anchor does matter.



Make the call.

A disease outbreak is expected to kill 600 people. Two alternative drugs have been developed. Which should you distribute? Assume that the exact scientific estimates of the drug consequences are as follows:



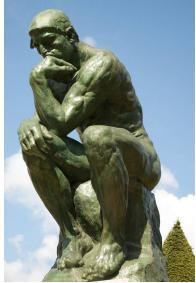
Problem Solving: How do you make decisions?



 What is Rational Decision Making?

Bazerman and Moore (2013)

1. Define the problem
2. Identify criteria necessary to judge
3. Weigh the criteria
4. Generate alternatives
5. Rate each alternative
6. Compute optimal decision



 'Decision architecture' accounts for human bias to trigger higher participation rates.

1 ORGAN DONOR CAN SAVE 8 LIVES.

IT ONLY TAKES 2 MINUTES FOR YOU TO REGISTER.

Opt-in Policy
4% → 44%

Opt-out Policy
85% → 99%
