

Psych

The Story of the Human Mind

PAUL
BLOOM



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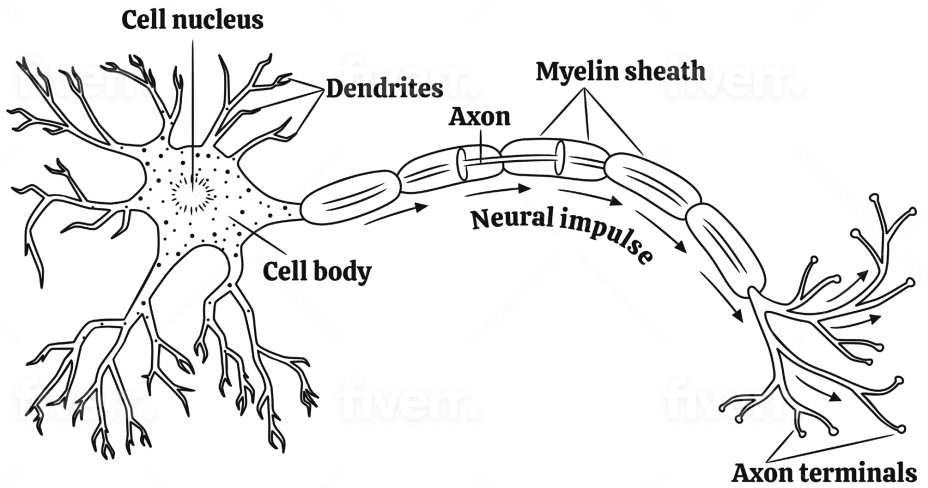
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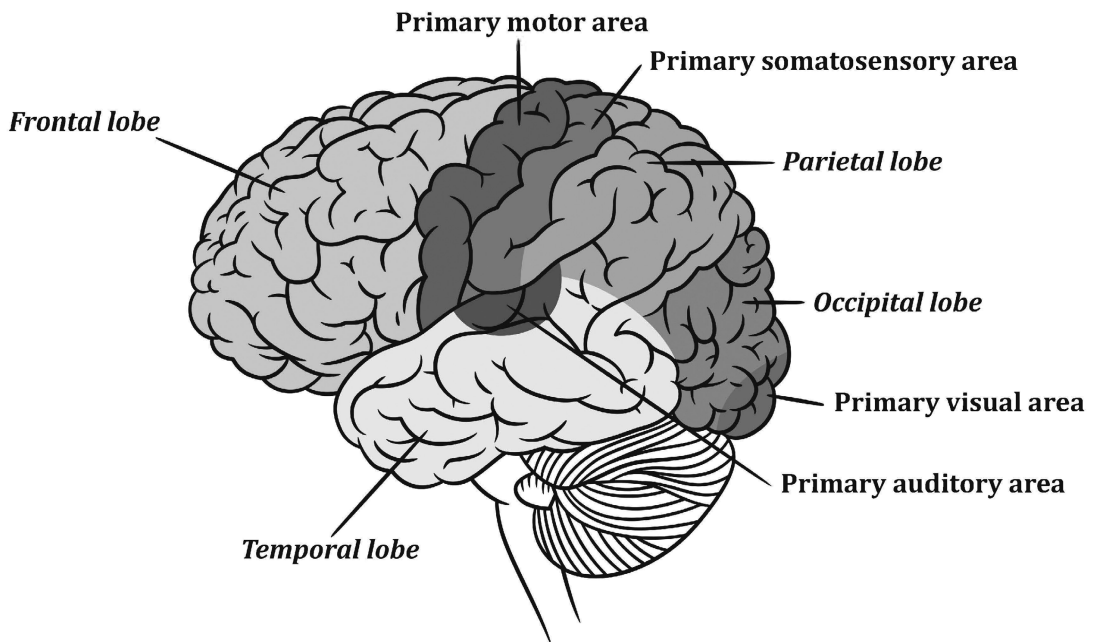
“Brain Makes Thought”

Sentient Meat

Below are the parts of a neuron.



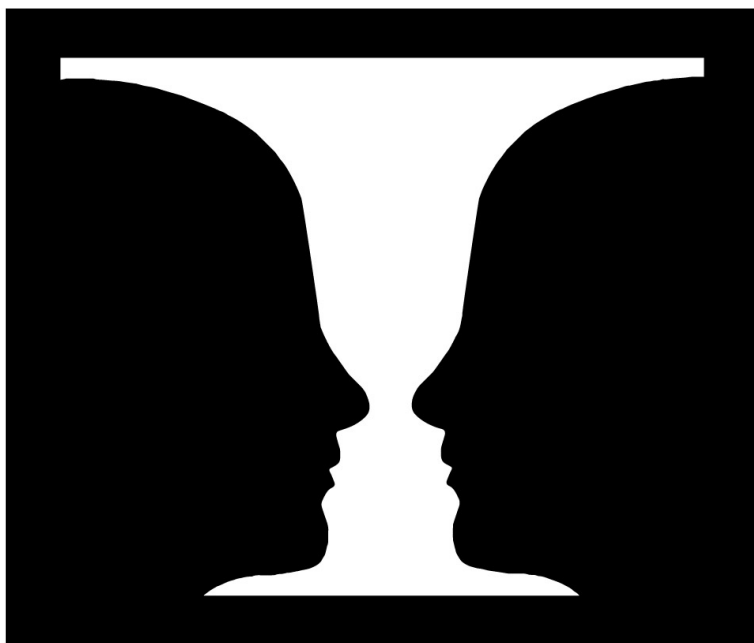
The cortex breaks down into different lobes. You have the frontal lobe (conveniently enough on the front), the parietal lobe, the occipital lobe, and the temporal (next to the temple!) lobe.



2

Consciousness

Psychologists have made discoveries about access consciousness (I'll just call it *consciousness* in what follows). One is that it is limited. We saw an example of this earlier; when a picture of a house is shown to one eye and a picture of a face is shown to the other, you can experience the house or the face, but not both. As another example, when you perceive the world, you typically see objects as standing out from a background—"figures" separate from a "ground." Usually, it's obvious which is which. But clever psychologists have invented displays that are ambiguous, where there's a reasonable way to see one part of the display as figure and the other as ground, but another reasonable way to see the opposite. Here's a classic example, developed by Edgar Rubin in 1915.



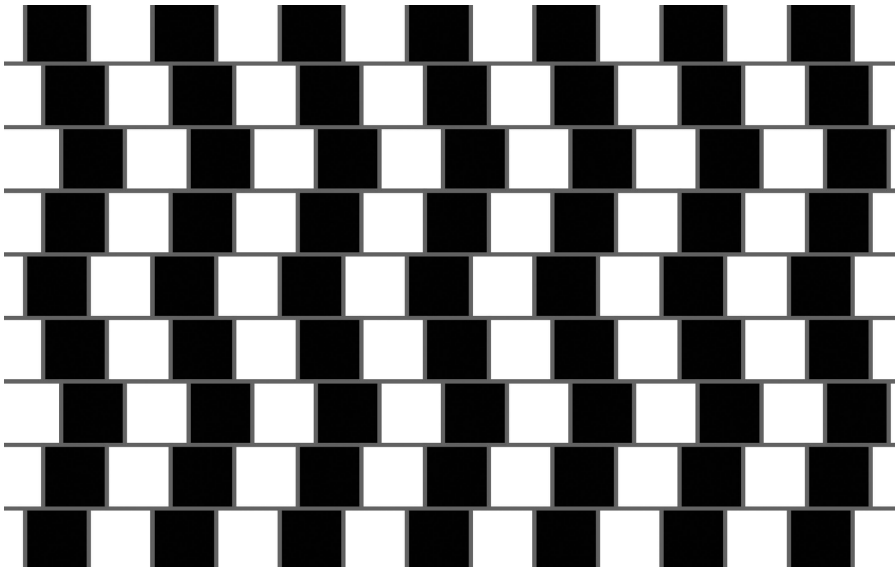
You can see this as two black faces looking at each other with a white background, or you can see this as a white vase with a black background. But again, you can't see both at the same time, and so the images will flit back and forth in your mind.

7

The World in Your Head

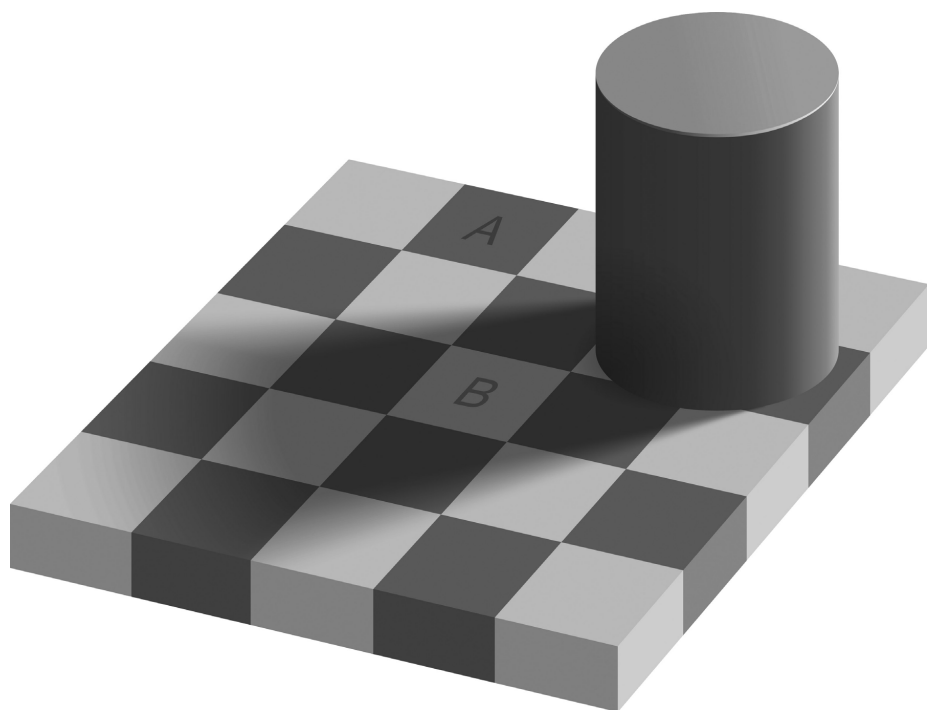
The Big Picture

In the picture below—known as the café wall illusion—the horizontal lines are straight, but they don't look that way. This illusion and countless others show that we can get things wrong in systematic ways.



Sensation and Perception

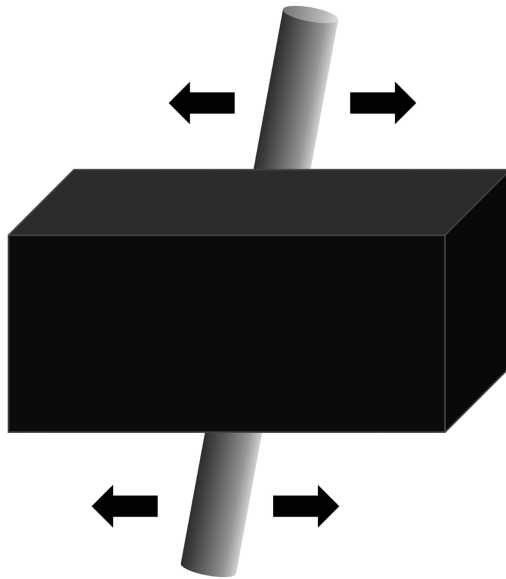
As a dramatic illustration of how context influences perceptual experience, consider this example from cognitive scientist Edward Adelson. Look at the tiles marked A and B.



A looks darker than B. Is this because A is sending less light to your eye than B? Nope, they are producing the same amount of light; they are the same color on the screen or on the page. (If you don't believe me, cover up the image so that only the two tiles are showing.)

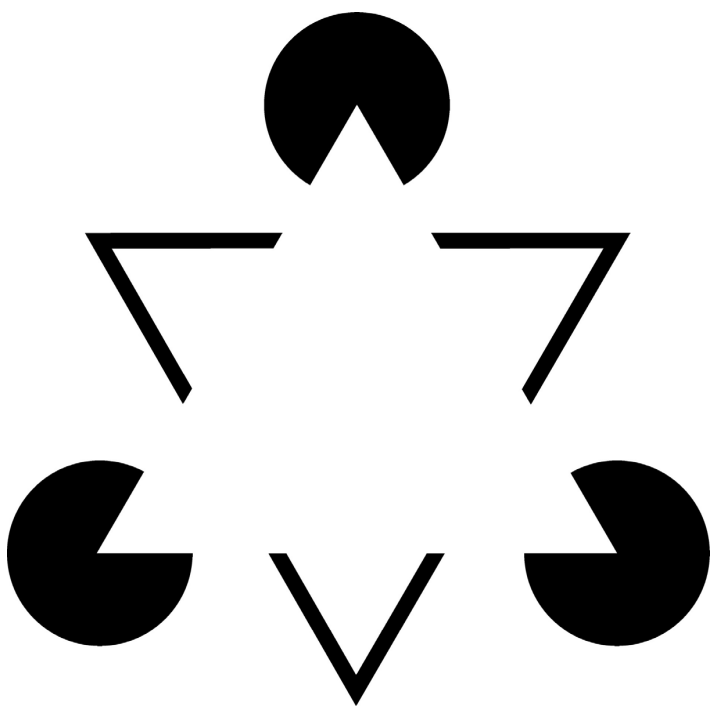
So why do they look different? Because B is in shadow. Since shadows make surfaces darker, your brain compensates and you perceive it as brighter.

Or consider the scene below. It's perfectly possible that you are looking at a complex figure with three pieces: a block, and two separate moving bars, one on top and one on the bottom.



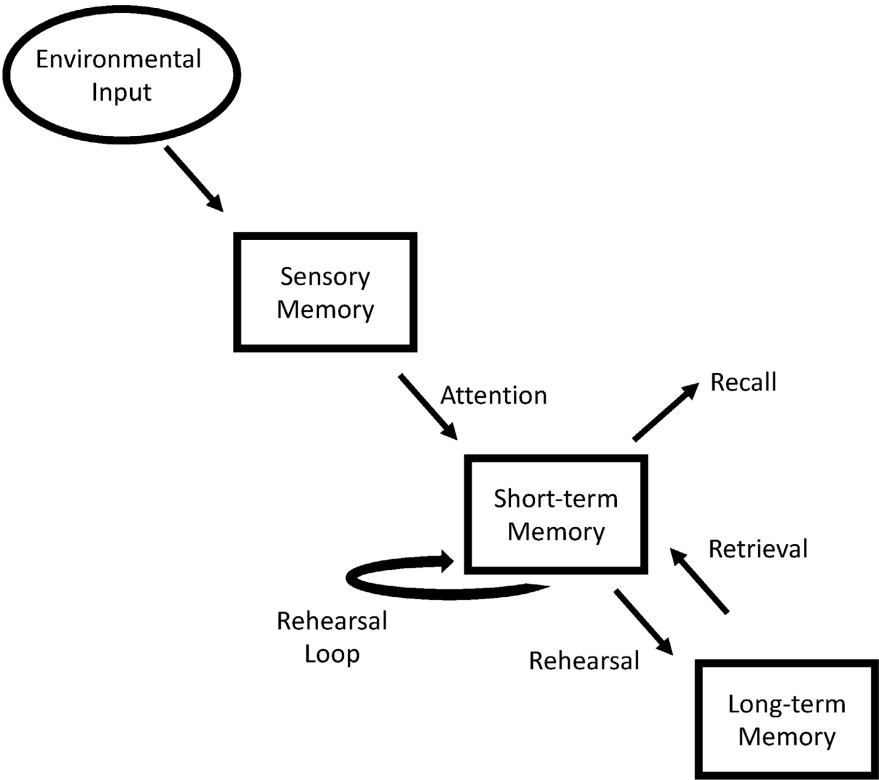
But this is unnatural. It would be quite the coincidence for two different bars to line up so nicely and move together in such perfect synchrony—and the mind assumes that there are no coincidences. So, guided by the Gestalt principle of *good continuation*, we see this as a single bar with its middle hidden behind the block. (Babies, when shown this display, also see it as one bar, not two.)

A clever perceptual psychologist can set up scenes where the Gestalt principles motivate the perception of a form that isn't there. On the following page is the Kanizsa Triangle illusion. This is consistent with a triangle lying on top of three circles, and it makes so much sense that there is a real triangle there that the mind puts one in, creating an object even though no such thing actually exists.



Memory

Here is the standard model of memory. This model is simplified, but it is a useful place to begin.

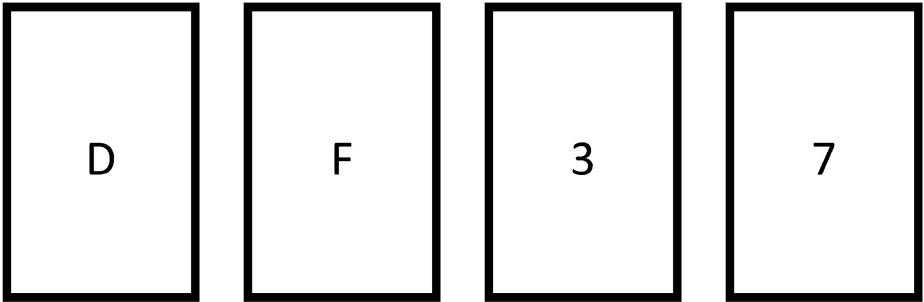


8

The Rational Animal

Here are four cards. Each has a number on one side and a letter on the other side. You only see one side; the other is hidden.

Now consider this rule:



If a card has a D on one side, it has to have a 3 on the other side.

Which of the cards above do you have to turn over to see if the rule is satisfied?

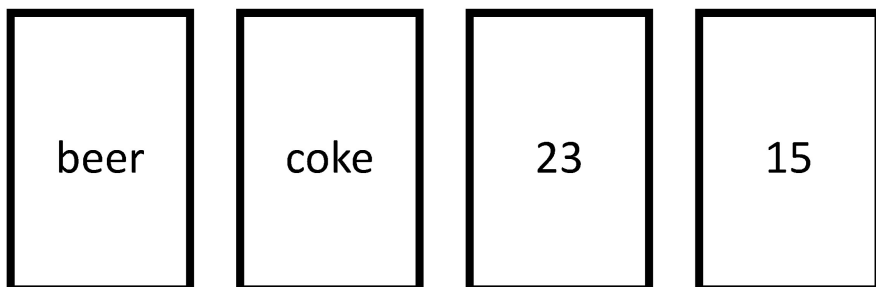
Most people answer D, and it is right—if you turn the D and there's not a 3 on the other side, the rule isn't satisfied. But what else did you choose? If you chose 3, you're mistaken. (The rule doesn't say anything about cards with 3s on one side; the other side could be a D or not a D, it doesn't matter.) The other right card to turn over is the 7. If the other side of the 7 is a D, then the rule is false. But only about 10 percent of people get this right.

Often our performance improves when the same problems are framed in more natural ways—natural in the sense of matching the conditions in which our minds have evolved, and natural in the sense of meshing with everyday experience. Consider again the Wason Selection Task, and remember how hard it was to confirm the rule “If a card has a D on one side, it has to have a 3 on the other side.” But now phrase the same problem in a way that has more real-world context. You are a bouncer at a bar and the rule is,

If someone is drinking beer, they have to be over twenty-one.

These cards tell us someone’s age on one side and what they’re drinking on the other. Which of the cards below do you have to turn over?

Most people get this right—you have to check the person drinking beer *and* the person who is fifteen. Translated into a real-world context, this becomes much easier.



13

Uniquely You

One well-known personality test is the Rorschach Inkblot, where a person describes what they see in an ambiguous figure like the one below. (Fun fact: the inventor of this test, Hermann Rorschach, was obsessed with inkblots; his nickname in school, in Switzerland, was . . . *Klex*, or “inkblot”!)



Acknowledgments

Psych is based in part on my Introduction to Psychology course, but it also brings together many of the ideas that I've developed over my career as a research psychologist and writer of six books. So, in a sense, I've been working on this project for my whole professional life. It would be impossible to acknowledge all the friends, colleagues, and students who have influenced me on this journey, and I'm not going to try. But I do owe some special thanks to those who helped me turn all of this into a book.

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