

My Sources for Anatomy of a Lie

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01:00 CH.1 We love info

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05:18 Ch.2 Why we lie

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Scientists have measured the amount of data that enter the brain and found that an average person living today processes as much as 74 GB in information a day (that is as much as watching 16 movies), through TV, computers, cell phones, tablets, billboards, and many other gadgets. Every year it is about 5% more than the previous year [1]. Only 500 years ago, 74 GB of information would be what a highly educated person consumed in a lifetime, through books and stories.

<https://kids.frontiersin.org/articles/10.3389/frym.2017.00023>

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5:27 “we like to believe in lies”

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07:24 Ch.3 Building the tower

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7:58

<https://www.ncbi.nlm.nih.gov/books/NBK20367/#:~:text=Specialized%20sensory%20neurons%20respond%20to,brain%20separately%20deciphering%20each%20message.>

However, our brain is continuously processing signals sent through our eyes, ears, nose, mouth, and skin. In addition to the traditional five senses, scientists now recognize other kinds of sensations, including pain, pressure, temperature, joint position, and movement. Specialized sensory neurons respond to input from the environment. This input is then transmitted to the brain as electrochemical signals. In the brain, signals are received in categories. Thus the processing of sensory input begins with specific regions in the brain separately deciphering each message. Subsequently, multiple types of sensory input are integrated, thus allowing the mass of information to be interpreted into an appropriate (motor) response.

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8:50

"Working memory" versus "long term memory" here - the computer analogy would be RAM versus Hard drive. A lot of information comes in and we use it for like 15 seconds and then discard but some stuff makes it through all the way to our Tower.

Working memory is the small amount of information that can be held in mind and used in the execution of cognitive tasks, in contrast with long-term memory, the vast amount of information saved in one's life. Working memory is one of the most widely-used terms in psychology. I

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4207727/#:~:text=Working%20memory%20is%20the%20small,widely%20used%20terms%20in%20psychology.>

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Brain regions involved in this "filtering" of sensory input to determine long term memory

Explicit Memory:

Hippocampus

Neocortex

Amygdala

Implicit memory:

Basal ganglia

cerebellum

working memory:

prefrontal cortex

<https://qbi.uq.edu.au/brain-basics/memory/where-are-memories-stored>

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<https://www.nature.com/articles/s41467-023-44295-8>

Enhanced memory for emotional experiences is hypothesized to depend on amygdala-hippocampal interactions during memory consolidation. Here we show using intracranial recordings from the human amygdala and the hippocampus during an emotional memory encoding and discrimination task increased awake ripples after encoding of emotional, compared to neutrally-valenced stimuli. Further, post-encoding ripple-locked stimulus similarity is predictive of later memory discrimination. Ripple-locked stimulus similarity appears earlier in the amygdala than in hippocampus and mutual information analysis confirms amygdala influence on hippocampal activity. Finally, the joint ripple-locked stimulus similarity in the amygdala and hippocampus is predictive of correct memory discrimination. These findings provide electrophysiological evidence that post-encoding ripples enhance memory for emotional events.

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What a "memory" literally is:

Scientists have long known that recording a memory requires adjusting the connections between neurons. Each memory tweaks some tiny subset of the neurons in the brain (the human brain has 100 billion neurons in all), changing the way they communicate. Neurons send messages to one another across narrow gaps called synapses. A synapse is like a bustling port, complete with machinery for sending and receiving cargo—neurotransmitters, specialized chemicals that convey signals between neurons. All of the shipping machinery is built from proteins, the basic building blocks of cells.

One of the scientists who has done the most to illuminate the way memory works on the microscopic scale is Eric Kandel, a neuroscientist at Columbia University in New York City. In five decades of research, Kandel has shown how short-term memories—those lasting a few

minutes—involve relatively quick and simple chemical changes to the synapse that make it work more efficiently. Kandel, who won a share of the 2000 Nobel Prize in Physiology or Medicine, found that to build a memory that lasts hours, days or years, neurons must manufacture new proteins and expand the docks, as it were, to make the neurotransmitter traffic run more efficiently. Long-term memories must literally be built into the brain's synapses. Kandel and other neuroscientists have generally assumed that once a memory is constructed, it is stable and can't easily be undone. Or, as they put it, the memory is "consolidated."

According to this view, the brain's memory system works something like a pen and notebook. For a brief time before the ink dries, it's possible to smudge what's written. But after the memory is consolidated, it changes very little. Sure, memories may fade over the years like an old letter (or even go up in flames if Alzheimer's disease strikes), but under ordinary circumstances the content of the memory stays the same, no matter how many times it's taken out and read. Nader would challenge this idea

<https://www.smithsonianmag.com/science-nature/how-our-brains-make-memories-14466850/>

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9:21

"By default, people will believe anything they see or hear," said Stephan Lewandowsky, a cognitive psychologist at the University of Bristol who specializes in understanding how people respond to corrections of misinformation. In our day-to-day lives, "that makes a lot of sense because most things that we're exposed to are true," he said. (WASHPO)

<https://www.washingtonpost.com/wellness/2022/11/03/misinformation-brain-beliefs/>

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9:56

Enhanced memory for emotional experiences is hypothesized to depend on amygdala-hippocampal interactions during memory consolidation. Here we show using intracranial recordings from the human amygdala and the hippocampus during an emotional memory encoding and discrimination task increased awake ripples after encoding of emotional, compared to neutrally-valenced stimuli. Further, post-encoding ripple-locked stimulus similarity is predictive of later memory discrimination. Ripple-locked stimulus similarity appears earlier in the amygdala than in hippocampus and mutual information analysis confirms amygdala influence on hippocampal activity. Finally, the joint ripple-locked stimulus similarity in the amygdala and hippocampus is predictive of correct memory discrimination. These findings provide electrophysiological evidence that post-encoding ripples enhance memory for emotional events.

<https://www.nature.com/articles/s41467-023-44295-8>

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10:04

Emotional Tagging: The amygdala, a part of the brain involved in emotional processing, plays a crucial role in tagging incoming information with emotional significance. High-stakes information often triggers a stronger emotional response, leading to what's known as emotional arousal. This arousal enhances the salience of the memory, making it more likely to be remembered.

Enhanced Encoding: Information related to identity and safety often involves high levels of stress or emotion, which can enhance the encoding process. The brain prioritizes these experiences because they are vital for survival or deeply intertwined with personal identity. This leads to stronger and more durable memories. For instance, traumatic events can lead to extremely vivid and persistent memories, a phenomenon known as "flashbulb memories."

Prioritization in Memory Storage: High-stakes information is more likely to be rapidly processed and stored in long-term memory due to its relevance and emotional content. The hippocampus and amygdala work together to ensure that these important memories are efficiently consolidated, often prioritizing them over less critical information.

Increased Retrieval: Memories related to identity and safety are more accessible and are retrieved more frequently. This frequent retrieval helps to reinforce these memories, keeping them more active in the neural network of the brain. The relevance of these memories to an individual's ongoing survival and social interactions also means they are updated and reinforced through social and self-reflective processes.

Impact on Behavior and Decision-Making: Because these memories are highly relevant to survival and identity, they have a stronger influence on behavior and decision-making. The brain uses these memories to predict potential threats and benefits, influencing future choices and actions in similar situations.

Potential for Distortion: While high-stakes information is generally well remembered, the strong emotions associated with it can also lead to distortions.

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Memories can also be classified according to their behavioral manifestation, which reflect the use of distinct underlying networks, or memory systems. For example, a major distinction is between explicit (e.g. declarative) and implicit (e.g. procedural) memories [7, 8]. Declarative memories are memories that can be consciously recalled such as those of facts, people and events, whereas procedural memories are those that store information about skills, for example, driving a car, riding a bike or playing piano. While declarative memories are known to critically engage the medial temporal lobe, and particularly the hippocampus, procedural memories critically recruit the cerebellum. Despite this distinctions, memories are often complex and made from experiences that involve multiple memory systems interacting with each other.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4246028/>

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10:21 Ch.4 Repetition

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10:56

Major Cities Chief Association, via ABC News

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10:05

Crime Statistics

Homicide Stats in 3 Largest US cities ABC News reporting data from NYPD, LAPD, CPD

<https://abcnews.go.com/US/us-stats-show-violent-crime-dramatically-falling-rising/story?id=108042096>

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11:17

The FBI quarterly uniform crime report published on Tuesday indicates a widespread decrease in violent crime during 2023 compared to the previous year, as well as a 13% decline in homicides relative to 2022.

<https://abcnews.go.com/US/us-stats-show-violent-crime-dramatically-falling-rising/story?id=108042096>

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Violent crime overall was down 6%.

The AP, Whitehurst, "US violent crime decreased in 2023, continuing to reverse pandemic-era spike, FBI data shows", 2024

<https://apnews.com/article/crime-fbi-violence-murder-8f47df4e8cf1917e6d8032e19dc1b4c9>

Cities with populations over one million saw an 11% decrease in violent crime.

FBI Crime Data Explorer, 2023

<https://cde.ucr.cjis.gov/LATEST/webapp/#/pages/explorer/crime/quarterly>

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12:00

This illusory truth effect arises because people use peripheral cues such as familiarity (a signal that a message has been encountered before)³⁶, processing fluency (a signal that a message is either encoded or retrieved effortlessly)^{37,38} and cohesion (a signal that the elements of a message have references in memory that are internally consistent)³⁹ as signals for truth, and the strength of these cues increases with repetition. Thus, repetition increases belief in both misinformation and facts^{40,41,42,43}. Illusory truth can persist months after first exposure⁴⁴, regardless of cognitive ability⁴⁵ and despite contradictory advice from an accurate source⁴⁶ or accurate prior knowledge^{18,47}.

Ecker, U.K.H., Lewandowsky, S., Cook, J. et al. 2022

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Repeated information is often perceived as more truthful than new information. This finding is known as the illusory truth effect, and it is typically thought to occur because repetition increases processing fluency. Because fluency and truth are frequently correlated in the real world, people learn to use processing fluency as a marker for truthfulness.

Hassan and Barber, "The effects of repetition frequency on the illusory truth effect", 2021

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8116821/>

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12:50

Both studies revealed that following correction-containing news reports, participants struggled to refute mismatching memory probes, especially when they referred to initial misinformation (as opposed to mismatching probes with novel information).

Andrew Gordon, Susanne Quadflieg, Jonathan C.W. Brooks, Ullrich K.H. Ecker, Stephan Lewandowsky,
Keeping track of 'alternative facts': The neural correlates of processing misinformation corrections, *NeuroImage*,
Volume 193,
2019,
Pages 46-56,

<https://www.sciencedirect.com/science/article/abs/pii/S1053811919301879>

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"Not only can belief in misinformation lead to poor judgements and decision-making, it also exerts a lingering influence on people's reasoning after it has been corrected — an effect known as the continued influence effect."

"A tacit assumption of the information deficit model is that false beliefs can easily be corrected by providing relevant facts. However, misinformation can often continue to influence people's thinking even after they receive a correction and accept it as true. This persistence is known as the continued influence effect (CIE)85,86,87,88."

Ecker, U.K.H., Lewandowsky, S., Cook, J. et al. The psychological drivers of misinformation belief and its resistance to correction. *Nat Rev Psychol* 1, 13–29 (2022).

<https://doi.org/10.1038/s44159-021-00006-y>

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14:13

Gordon, Andrew & Brooks, Jonathan & Quadflieg, Susanne & Ecker, Ullrich & Lewandowsky, Stephan. (2017). Exploring the Neural Substrates of Misinformation Processing. *Neuropsychologia*. 106. 10.1016/j.neuropsychologia.2017.10.003.

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Instead, the falsehood and its correction coexist and compete to be remembered. Brain imaging studies conducted by Lewandowsky and his colleagues found evidence that our brains store both the original piece of misinformation as well as its correction.

<https://www.washingtonpost.com/wellness/2022/11/03/misinformation-brain-beliefs/>

underlying study: <https://www.sciencedirect.com/science/article/abs/pii/S1053811919301879>

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14:42 Trump Clips

https://www.youtube.com/watch?v=hql8OnlRjBU&t=28s&ab_channel=WashingtonPost

I MADE A SPEECH. I LOOKED OUT THE FIELD WAS... IT LOOKED LIKE A MILLION, MILLION AND HALF PEOPLE

https://www.youtube.com/watch?v=8_96hZQ4wOg&t=470s&ab_channel=FactbaseVideos

EVEN THE MEDIA SAID THE CROWD WAS MASSIVE. SO FINALLY. THAT WAS A BIG - ALL THE WAY BACK DOWN TO THE WASHINGTON MONUMENT - WHAT WAS SUPPOSED TO BE RAIN TURNED OUT NOT TO BE RAIN IT WAS BEAUTIFUL.

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15:48

Zhang, H., Skelin, I., Ma, S. et al. Awake ripples enhance emotional memory encoding in the human brain. Nat Commun 15, 215 (2024). <https://doi.org/10.1038/s41467-023-44295-8>

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15:50 Ch. 5 Confirmation

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Immigration Statistic

19:14

21:45

Years shown by fiscal calendar starting on Oct. 1

Source: Office of Homeland Security Statistics

Via Washington Post

<https://www.washingtonpost.com/immigration/2024/02/11/trump-biden-immigration-border-compare/>

The 2022 fiscal year set a record of 2.2 million illegal border crossings. These numbers do not include crossings at official checkpoints. Including those, migrant crossings in the 2023 fiscal year hit a record high.

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US giving Hamas funding claim

23:30

Post Paints Misleading Picture of Biden's Financial Support for Israel and Palestinians

By Robert Farley

Posted on October 11, 2023

<https://www.factcheck.org/2023/10/post-paints-misleading-picture-of-bidens-financial-support-for-israel-and-palestinians/>

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Trump abortion claim

24:27

POST <https://ghostarchive.org/archive/fSsI4>

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more details from snopes from <https://www.snopes.com/fact-check/trump-doctors-abortion/>

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The Washington Post noted that the GOP released a 2022 memo that explicitly stated, "Republicans DO NOT want to throw doctors and women in jail" as well as "Mothers should be held harmless under the law." The memo was presented as a Republican attempt to counter what the party called Democrats' "lies" about their abortion positions. However, numerous GOP-sponsored bills from that time did threaten doctors with jail.

<https://www.snopes.com/fact-check/trump-doctors-abortion/>

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Zelensky Yacht Claim

25:55

Despite being false, the story reached members of the US Congress, where leaders say any decision on further aid to Ukraine will be delayed until next year.

"I think the notion of corruption came up because some have said we can't do it, because people will buy yachts with the money," Mr Tillis said. "[Mr Zelensky] disabused people of those notions."

<https://www.bbc.com/news/world-us-canada-67766964>

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29:37 Ch.6 An easier way

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30:50

<https://hbr.org/2013/02/break-your-addiction-to-being>

That's partly due to another neurochemical process. When you argue and win, your brain floods with different hormones: adrenaline and dopamine, which makes you feel good, dominant, even invincible. It's the feeling any of us would want to replicate. So the next time we're in a tense situation, we fight again. We get addicted to being right.

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31:54 Ch.7 What to do

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34:05

<https://drive.google.com/file/d/1sgRbrv8HhxzyE025r2vUDnYDzaFcQ3oD/view?usp=sharing>

ABSTRACT. Some warnings and other public health interventions have been found to produce effects opposite to those intended. Researchers employing a variety of methods have observed these boomerang effects in connection with interventions in a number of different contexts. One possible explanation for such boomerang effects lies in the theory of psychological reactance, roughly defined as the state of being aroused in opposition to perceived threats to personal choice. In particular, some consumer reactions described in research on alcoholic beverage warnings, alcohol edu-

cation efforts, and the minimum drinking age can be concisely explained in terms of psychological reactance. An obvious implication is that boomerang effects should be taken into account as one of the potential costs of launching a mass communication campaign or requiring a warning. In some cases (such as warnings about the health effects of alcohol abuse) there may be so little to be gained in terms of improved consumer knowledge that the potential cost of oppositional attitudes or behavior should receive substantial attention in the evaluation of proposed and current interventions.

Ringold, "Boomerange Effects in Response to Public Health Interventions: Some Unintended Consequences in the Alcoholic Beverage Market", 2002

Sharot, "The Influential Mind" 2017, 17

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