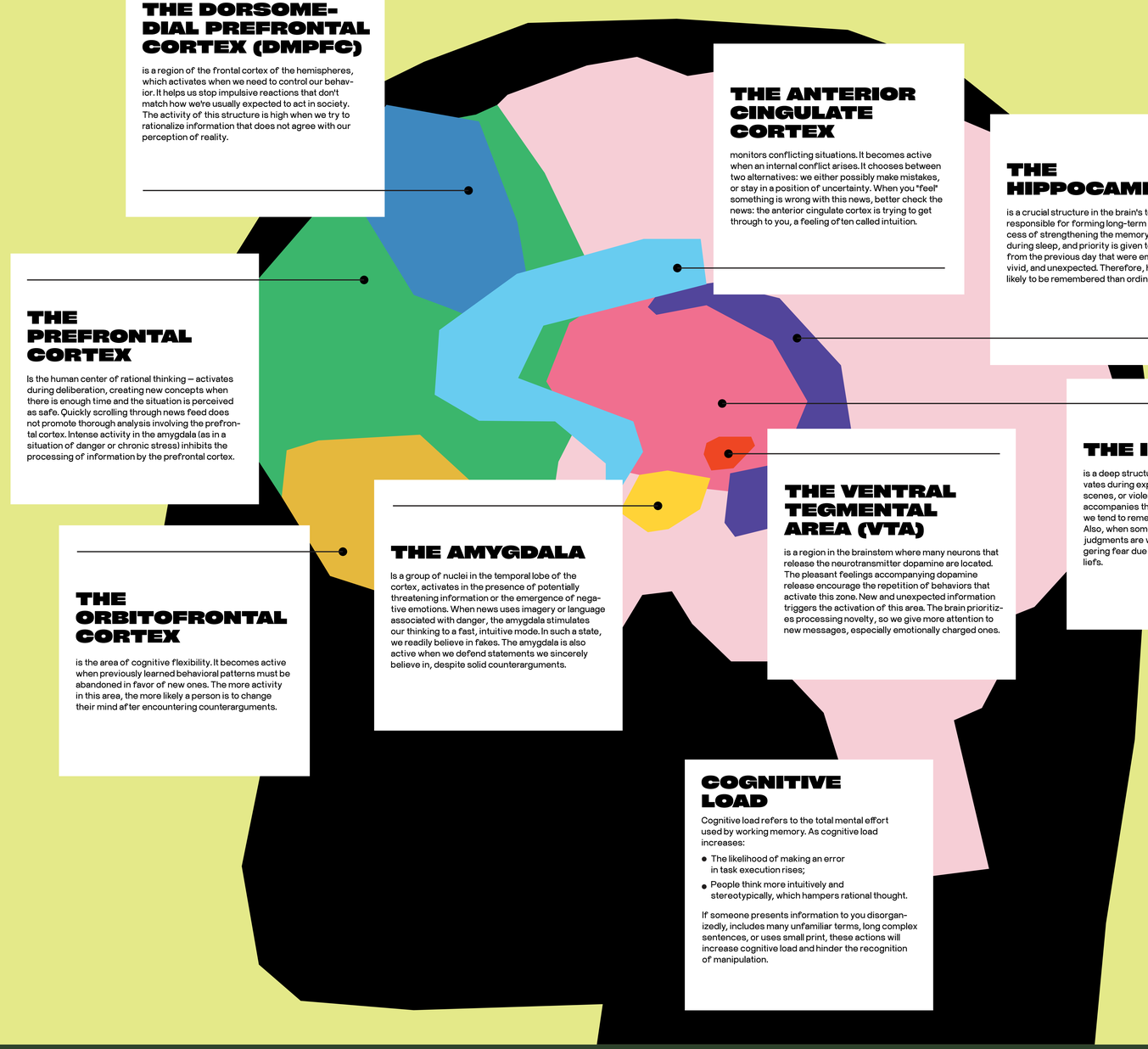
HOW OUR BRAIN REACTS TO MISINFORMATION

EVERY DAY WE RECEIVE TONS OF INFORMATION FROM VARIOUS SOURCES, MUCH OF WHICH IS INCORRECT AND MANIPULATIVE. WHY DO WE EASILY BELIEVE FAKE NEWS AND REJECT FACTS CONTRADICTING OUR BELIEFS? IS IT POSSIBLE TO AVOID THE TRAPS OF MANIPULATION AND MAKE A RATIONAL DECISION?

TO EVALUATE THE TRUTHFULNESS OF INFORMATION, IT IS NECESSARY TO MAKE AN EFFORT TO VERIFY IT IN RELIABLE SOURCES, ANALYZE HOW MUCH IT CONTRADICTS OUR WORLDVIEW, AND ENSURE THAT WE HAVE AVOIDED FALLING INTO THE TRAP OF NUMEROUS COGNITIVE BIASES. LET'S LOOK AT THE CRITICAL BRAIN STRUCTURES IN PROCESSING INFORMATION FROM NEWS FEEDS.



THE DORSOMEDIAL PREFRONTAL CORTEX (DMPFC)

is a region of the frontal cortex of the hemispheres, which activates when we need to control our behavior. It helps us stop impulsive reactions that don't match how we're usually expected to act in society. The activity of this structure is high when we try to rationalize information that does not agree with our perception of reality.

THE ANTERIOR CINGULATE CORTEX

monitors conflicting situations. It becomes active when an internal conflict arises. It chooses between two alternatives: we either possibly make mistakes, or stay in a position of uncertainty. When you "feel" something is wrong with this news, better check the news: the anterior cingulate cortex is trying to get through to you, a feeling often called intuition.

THE HIPPOCAMPUS

is a crucial structure in the brain's temporal lobe, responsible for forming long-term memory. The process of strengthening the memory trace occurs during sleep, and priority is given to those events from the previous day that were emotionally charged, vivid, and unexpected. Therefore, hype news is more likely to be remembered than ordinary news.

THE PREFRONTAL CORTEX

Is the human center of rational thinking – activates during deliberation, creating new concepts when there is enough time and the situation is perceived as safe. Quickly scrolling through news feed does not promote thorough analysis involving the prefrontal cortex. Intense activity in the amygdala (as in a situation of danger or chronic stress) inhibits the processing of information by the prefrontal cortex.

THE INSULA

is a deep structure in the brain's cortex, which activates during experiences of pain, viewing repulsive scenes, or violence. A negative emotional response accompanies the excitation of the insula. Therefore we tend to remember news with such content better. Also, when someone tries to persuade you that your judgments are wrong, this activates the insula, triggering fear due to the potential change in your beliefs.

THE VENTRAL TEGMENTAL AREA (VTA)

is a region in the brainstem where many neurons that release the neurotransmitter dopamine are located. The pleasant feelings accompanying dopamine release encourage the repetition of behaviors that activate this zone. New and unexpected information triggers the activation of this area. The brain prioritizes processing novelty, so we give more attention to new messages, especially emotionally charged ones.

THE ORBITOFRONTAL CORTEX

is the area of cognitive flexibility. It becomes active when previously learned behavioral patterns must be abandoned in favor of new ones. The more activity in this area, the more likely a person is to change their mind after encountering counterarguments.

THE AMYGDALA

Is a group of nuclei in the temporal lobe of the cortex, activates in the presence of potentially threatening information or the emergence of negative emotions. When news uses imagery or language associated with danger, the amygdala stimulates our thinking to a fast, intuitive mode. In such a state, we readily believe in fakes. The amygdala is also active when we defend statements we sincerely believe in, despite solid counterarguments.

COGNITIVE LOAD

Cognitive load refers to the total mental effort used by working memory. As cognitive load increases:

- The likelihood of making an error in task execution rises;
- People think more intuitively and stereotypically, which hampers rational thought.

If someone presents information to you disorganizedly, includes many unfamiliar terms, long complex sentences, or uses small print, these actions will increase cognitive load and hinder the recognition of manipulation.

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