SAVANTS · EPISODE 26

Administrator Mode: The Total Metacognition Savant

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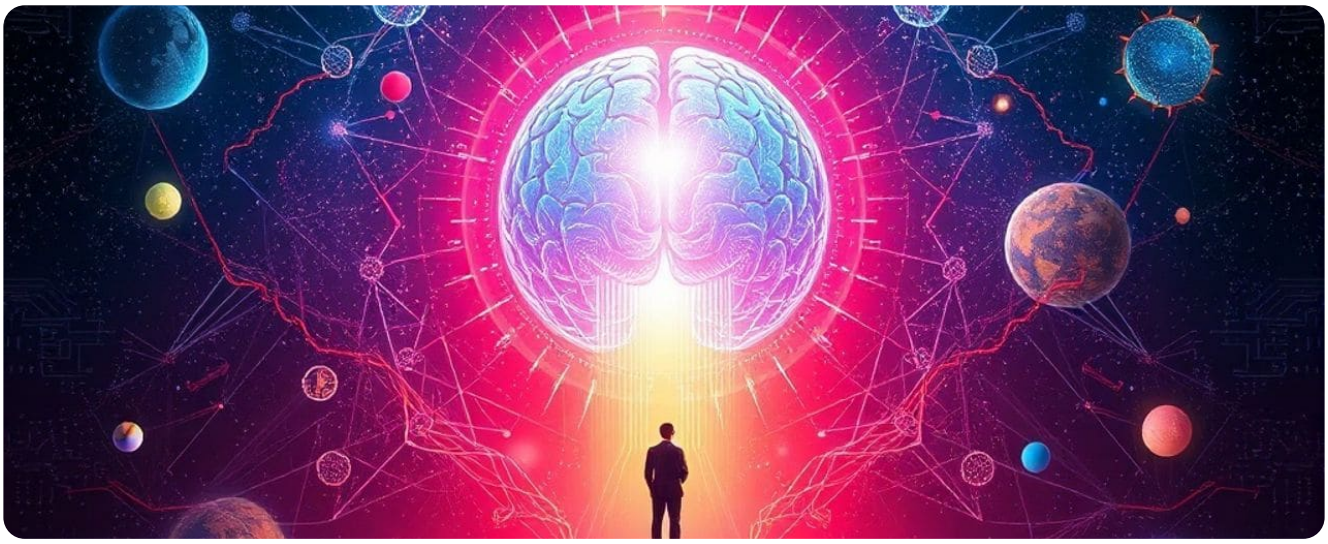

Hello everyone and welcome back to 'Savants', where we unravel the mysteries of extraordinary minds! We've talked about musical savants, mathematical savants, artistic savants, people who can recall every detail of their lives, or those who build complex architectural models in their minds. But today, I want us to go one step further, to something that, while theoretical, clues suggest could be the pinnacle of cognitive self-mastery: the total metacognition savant.

Imagine for a moment that your brain is an incredibly powerful computer. Most of us use this computer to browse the internet, write documents, or play games, but we only have access to the 'user interface'. We don't see the source code, we can't adjust internal processes in real-time, nor optimize system performance at will. Now, think of a total metacognition savant as someone who not only has access to the 'user interface', but also to the 'administrator mode'.

What is metacognition? In simple terms, it's**thinking about how we think**. It's the ability to be aware of our own mental processes: how we learn, how we remember, how we solve problems, how we feel. It's knowing when we understand something and when we don't, and what strategy to use to improve that understanding. Most of us have a basic level of this. For example, when you realize you're daydreaming and tell yourself 'Get back to work!', that's metacognition.

Now, imagine someone who has this ability taken to the absolute extreme. A total metacognition savant would be a person with a granular, real-time understanding of each of their cognitive processes. It would

be like having an internal screen constantly displaying the state of their memory, attention, emotions, biases, and learning strategies. They wouldn't just be aware they are daydreaming, but they would know exactly*why*, which neural networks are involved, what stimuli distracted them, and how to reprogram their attention to maximize concentration.

While we don't have a documented case of a 'total metacognition savant' in the classic sense, modern science gives us clues that this is more than a fantasy. People who practice deep meditation for decades, users of certain psychedelic compounds under supervision, or even some individuals with certain neurological conditions, have reported glimpses of this super-awareness. Fleeting moments where the 'self' dissolves and one can observe the flow of one's own mind as if an external, impartial, and fully informed observer.

So, if these glimpses are possible, what would neuroscience say about the possibility of a brain being able to operate sustainably in this 'administrator mode', with total control and understanding of itself? What brain mechanisms underlie this elusive and fascinating ability?

The question that gnaws at us is: how could a brain operate sustainably in this 'administrator mode', with total control and understanding of itself? What brain mechanisms could make it possible? To understand this, let's first delve a little deeper into metacognition and then see where science finds these 'windows' into states of expanded consciousness.

Metacognition: The Architect of the Mind

Metacognition is not a single ability, but a set of interconnected processes that allow us to monitor and control our own cognition. Think of it as the 'architect' of your mind. It includes:

- **Metacognitive knowledge:**This is knowing about your own cognitive abilities. For example, knowing that you're good at remembering faces but not names, or that you learn better by listening than by reading.

- **Metacognitive regulation:**This is the ability to control and adjust your cognitive processes. When you're studying for an exam and realize you're not understanding, you change your strategy: you read slower, make a summary, look for a different explanation. That's regulation.

- **Metacognitive experience:**These are the subjective feelings that accompany your thoughts, such as the feeling of 'knowing it but not remembering it' (the 'tip-of-the-tongue' phenomenon) or the confidence in your answer to a question.

In the brain, these abilities are strongly associated with the**prefrontal cortex**, especially the dorsolateral part, which is crucial for planning, decision-making, and working memory. The**anterior cingulate cortex**also plays a role in error detection and the regulation of cognitive conflict. In a total metacognition savant, these areas would not only function optimally but would have unprecedented connectivity and efficiency, allowing for a constant and extremely detailed feedback loop on every aspect of mental functioning.

The Total Metacognition Savant in Action: A Hypothesis

Imagine this savant. Their learning would be exponential. They wouldn't just memorize information, but they would understand and optimize their own memorization method in real-time. Their decisions would be exceptionally rational, as they would be aware of their own cognitive biases (like confirmation bias or the anchoring effect) and could actively correct them. Their emotional intelligence would be profound, not only understanding the emotions of others but having a crystal-clear understanding of the origin and dynamics of their own emotions, being able to regulate them with astonishing precision.

They would be masters of attention, capable of directing their focus with laser precision, without distractions. Procrastination, doubt, indecision would be almost non-existent, because they would have a constant 'bird's-eye view' of their mental map and their goals.

Glimpses of the Peak: Evidence of its Possibility

Although the 'total metacognition savant' is a theoretical concept, science has given us intriguing clues that such levels of awareness and control are, at least temporarily, attainable for the human mind. These clues come primarily from two sources:

1. Deep Meditation and Contemplative Practices

For centuries, ancient traditions like Buddhism, Zen, or Yoga have cultivated meditation practices designed to increase self-awareness. Modern science has begun to validate the effects of these practices at the brain level:

- **Mindfulness:**Mindfulness meditation trains people to observe their thoughts and feelings without judgment, which is a direct form of metacognition. Studies with experienced meditators have shown structural and functional changes in key brain areas for metacognition, such as the prefrontal cortex and the insula. For example, increased cortical thickness has been observed in these regions, suggesting greater neuronal density or connectivity.

- **Detached observation:**Advanced meditators often report the ability to 'disengage' from their thoughts, seeing them as transient objects in the mind, rather than identifying with them. This is an extraordinary level of metacognitive awareness, where the 'observer' and the 'observed' are clearly

differentiated. It's like the computer scientist who can see the code without being immersed in its execution.

- **Flow State:**Although not meditation per se, the flow state, where one is completely immersed and focused on a task, also involves high metacognition. There's a constant implicit monitoring of performance and an automatic, almost effortless adjustment. Total metacognition savants could operate in a global and constant 'flow mode'.

These findings suggest that the human brain has the plasticity to develop neural networks that support exceptional metacognition.

2. Psychedelic Compounds and Altered States of Consciousness

In recent decades, research with psychedelic substances like psilocybin or LSD has re-emerged, revealing profound effects on consciousness. Although controversial and not without risks, reports of experiences under these substances often include:

- **Ego dissolution:**An experience where the sense of a separate 'self' fades, allowing for objective observation of one's own thoughts and emotions without the usual self-reference. This is an extreme and temporary form of metacognitive detachment.

- **New perspectives on thought patterns:**Users report unusual clarity about their mental habits, biases, fears, and motivations, often described as if they were seeing the 'source code' of their own mind.

- **Increased brain connectivity:**Neuroimaging studies have shown that psychedelics can increase connectivity between brain networks that do not normally communicate directly, which could facilitate greater information integration and amplified metacognition.

It's important to emphasize that these experiences under psychedelics are transient and must be studied in controlled clinical settings. They do not imply that these substances create a 'savant', but they do demonstrate the brain's intrinsic capacity to access much deeper states of self-awareness than we normally experience.

3. Exceptional Cases of High Cognitive Function and Autism

Although a total metacognition savant is hypothetical, there are individuals with high-functioning autism who show unusual levels of introspection and a deep understanding of their own thought processes. For example, some can describe in great detail how their brain processes sensory information differently, or how their thought patterns differ from neurotypical individuals. While this is not 'total metacognition', it suggests that certain brain configurations can favor a very advanced type of self-analysis.

The Brain Map of 'Administrator Mode'

What neural networks might be involved in this 'administrator mode'? It wouldn't be a single region, but an orchestra of networks working in perfect synchrony:

- **Default Mode Network (DMN):** This network is active when our mind wanders or we engage in self-referential thoughts (thinking about the past, the future, oneself). In a total metacognition savant, the DMN wouldn't shut down, but would be 'monitored' by other networks, allowing for conscious observation of its activities without being drawn into them.
- **Executive Control Network (ECN):** Involved in directed attention, decision-making, and problem-solving. A hyper-efficient ECN would allow the total metacognition savant to direct their attention to any aspect of their mind and adjust it.
- **Insular Cortex:** This region is involved in interoceptive awareness, i.e., the perception of internal bodily states. Total metacognition would go beyond the cognitive, including a deep awareness of bodily sensations and their relationship with emotional and mental states.

In essence, the total metacognition savant would have superior 'meta-connectivity', where all these networks not only communicate efficiently, but information about their internal functioning is accessible to consciousness in a way that is unimaginable for us.

The Cost of Internal Omniscience

If this capacity is possible, why isn't it more common? Perhaps there's a cost. Operating constantly in 'administrator mode' could be cognitively exhausting. It requires an enormous amount of brain resources. Perhaps evolution has endowed us with an efficient system where much of the processing is automatic and unconscious, freeing our consciousness to interact with the external world.

The 'ignorance' of some of our own internal processes could be, paradoxically, an adaptive advantage, allowing us to function without the information overload of a brain in full 'administrator mode'.

A Final Reflection

The total metacognition savant remains an ideal, a hypothetical pinnacle of self-awareness and cognitive control. But neuroscience's incursions into the realms of meditation, altered states of consciousness, and existing savant abilities invite us to dream of a future where perhaps, through a deeper understanding of our own brain, we can unlock, even if partially, our own 'administrator modes'. The human mind is a universe to explore, and each episode brings us a little closer to its brightest stars.