Your Consciousness as the Arbitrator of Conflict

How Subcortical Disagreements Are Resolved.

Are you consciously responsible for all the decisions you make? Are your actions a result of your "free will"? The answer may surprise you!

We do have consciousness. Our awareness of this is in the frontal lobe. The frontal lobe is the location of our executive functions. It is where we plan, organize, initiate, self-monitor, control one's responses, cognition, allows us to do the hard thing when it is right, and lastly tells the motor system what to do.

The frontal lobe is the "captain that steers the ship" and "makes you do the hard thing when it is the right thing to do".

How Subcortical Disagreements Are Resolved.

But we also have subcortical regions that function in a subconscious state. New sensory input first passes through these subcortical nuclei on their way to the thalamus (our conscious brain).

Each subcortical nuclei processing a unique sensory modality. Creating a memory and assigning a value to these memories. As new sensory input arrive, they are first integrated with our subconscious subcortical memories before being passed onto the frontal lobe, the site of our executive functions.

But wait! Where is the output for the sensory input made? Was it really made by our conscious frontal lobe. *Or is the executive branch simply allowing us to take credit for a decision already made or highly influenced by the subconscious subcortical nuclei*.

How Subcortical Disagreements Are Resolved.

So, what happens if two sub-cortical regions do not agree and there is a conflict?

I want to lose weight, but I want to eat the donuts.

In this case, each subconscious decision passes their output to the executive branch. Now the executive branch must become the "arbitrator" and decide the best output.

If unable to decide or simply overwhelmed by the task, (because of low glucose levels or lack of sleep) then the frontal lobe goes into a panic state and allows the limbic system to "steer the ship".

How Subcortical Disagreements Are Resolved.

We can demonstrate this phenomena of conflict resolution with a simple slide presentation. Conflict resolution is the local of the anterior cingulate gyrus! Also, the area for empathy. How are these two characteristics related?

Move through the following slides rapidly and allow only one second per slide. Ask someone to say the color of the word and not the name of the word.

So, what is happening under the hood? The color and the word are two different modalities processed in different areas of the brain. Each nuclei send their output to the executive branch. We just created a conflict and now the conscious brain must become the arbitrator

After watching the slide presentation, have a class discussion to share examples of decisions you made recently and how sub-cortical regions may have influenced the decision. (Remember, our value judgments are also stored in these subcortical tissues.)

Red

White

Yellow

Blue

White

Brown

Red

Green

Blue

White

Is the Claustrum the Site of Consciousness?

The claustrum receives major inputs from limbic, subcortical and cortical structures and sends outputs to the entire cortical mantle, most notably regions of the frontal cortex that drive executive functions.

This network connectivity profile positions the claustrum as a limbic–sensory-motor interface, which suggests that a primary function of the claustrum is to *integrate limbic and sensory information to direct and sustain attention towards behaviorally relevant, salient stimuli during the awake state.*

What is the function of the salience network of the brain?

The salience network is a collection of regions of the brain that select which stimuli are deserving of our attention.

The network has key nodes in the insular cortex and is critical for detecting behaviorally relevant stimuli and for coordinating the brain's neural resources in response to these stimuli.