

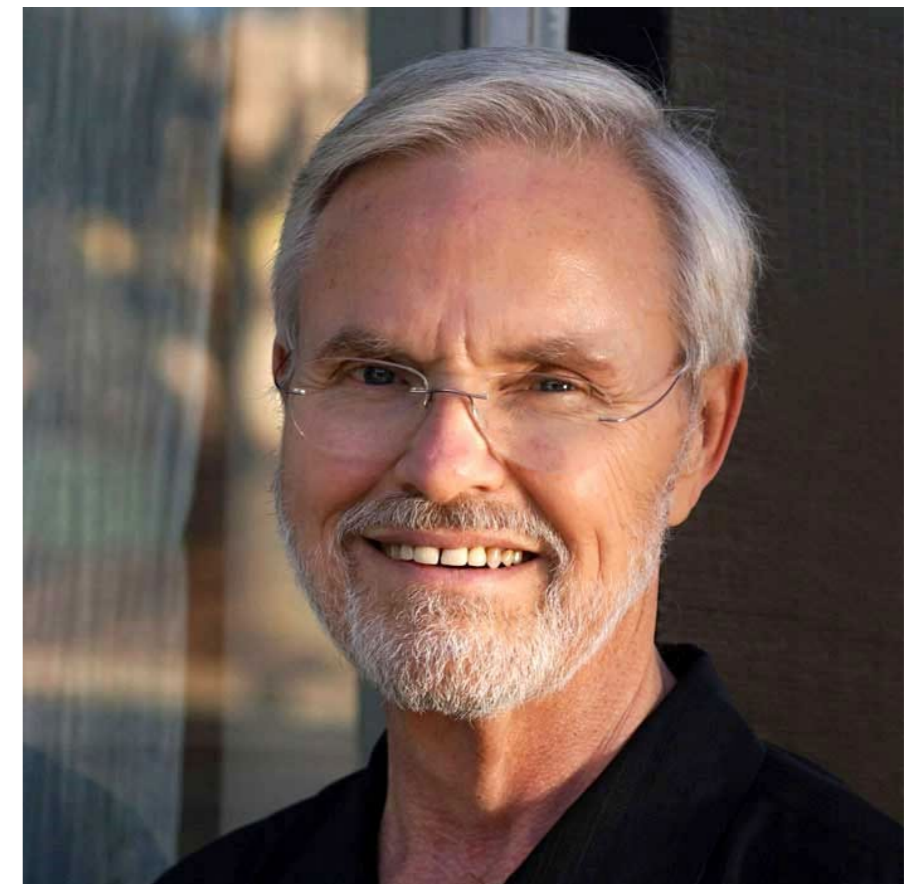
# Part 1: An Explanation of Consciousness



**Frank Heile, Ph.D.**

**January 9<sup>th</sup>, 2021**

**Presented at "The Stoa"**





# This Explanation is Based on Three Ideas:

1. The “Good Regulator Theorem”
  - Which proves that a good agent needs to have a model of the world where the agent operates
2. A Proposed Two-Agent model of the Human Brain
3. Attention Schema Theory of Consciousness
  - Proposed by Princeton Prof. Michael Graziano [1]

[1] (Graziano & Webb, 2015)



# Outline

- Agents and World Models
- The Two Agent Model
- Attention Mechanisms
- Applying Attention Schema Theory
- Possible Human Self-Models



# Agents and World Models





# Agents

An **Agent** is an **entity**, that

- Has **goals**,
- A way of **sensing** the **world**, and
- A way to make **changes** to the **world**  
to **achieve** those **goals**



# The Good Regulator Theorem:

A theorem from control theory says:

**“Every Good Regulator of a System  
Must Be a Model of That System”** [1]

- Therefore, a good agent **needs:**
  - **A Model of the World (WM)**
  - **If good agent is part of the world, simple and that agent needs **Self-Model (SE)****

[1] (Conant & Ashby, 1970)



# The Good Regulator Theorem:

- Each Human contains:
  - **A Model of the World** (WM)
    - A Sensory World Model,
    - An Abstract Conceptual World Model,
    - Memories of sensory and language inputs,
    - Many models of other humans they know and interact with, and
    - **A Self-model** of the human themselves

# Do We Experience the **World** OR Our Model of the World?



**Short Wavelength  
Blue Light**



**Long Wavelength  
Red Light**



**Medium Wavelength  
Green Light**



**Colors**  
Exist Only in  
Our Model of  
the World





# Color Illusion



Left Rectangle

Right Rectangle



# Color Illusion

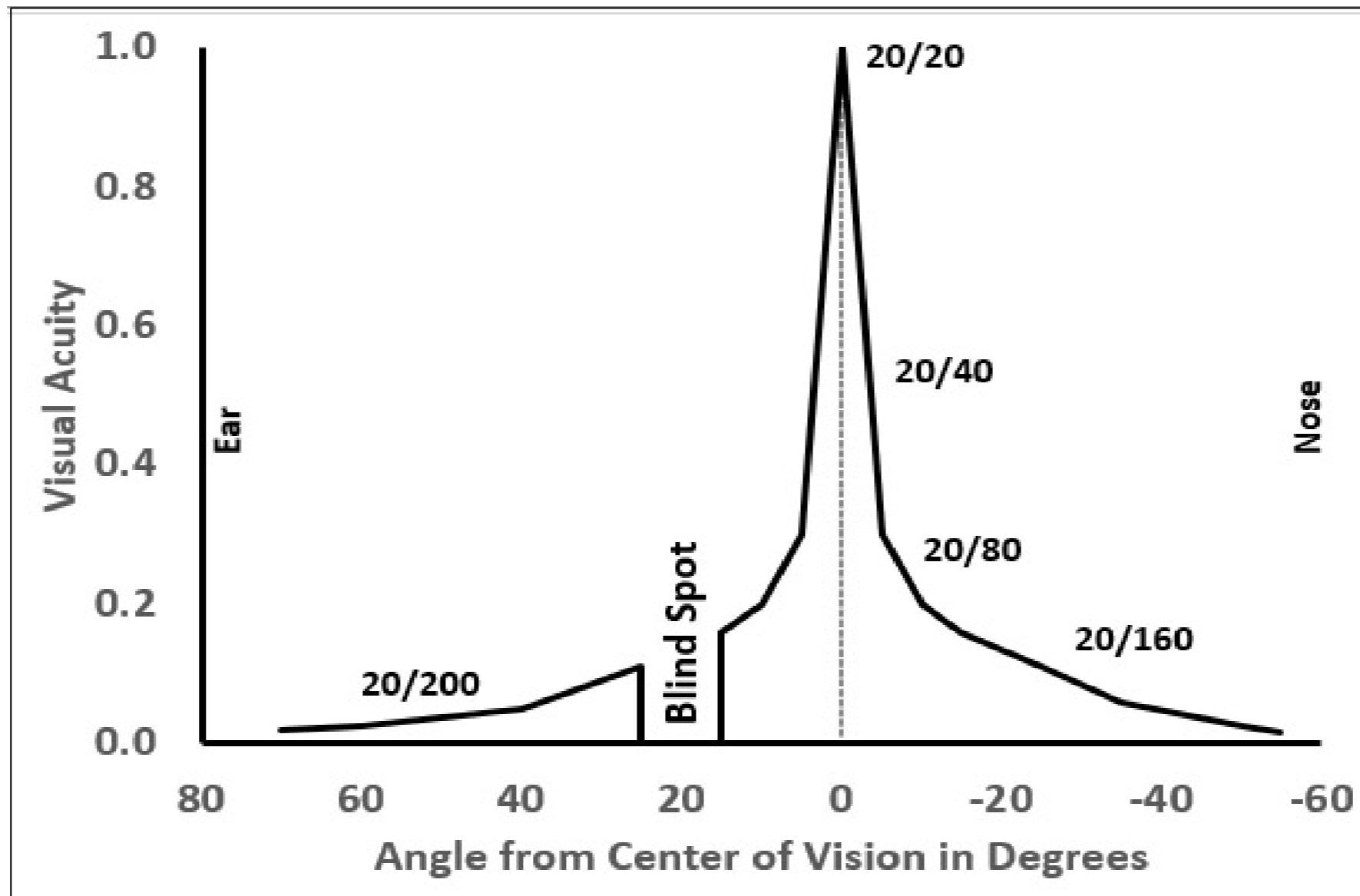


Left Rectangle

Right Rectangle

# What We Experience is **NOT** What the Eyes Send to the Brain

## Peripheral Visual Acuity vs Angle







# What We Experience is **Crisp and in Focus** **NOT** What the Eyes Send to the Brain







What We **Experience** is

**NOT** What the **Eyes** Send to the Brain







# What We Experience is **the World Model**, **NOT** What the Eyes Send to the Brain







What We Experience is **the World Model**,  
**NOT** What the Eyes Send to the Brain

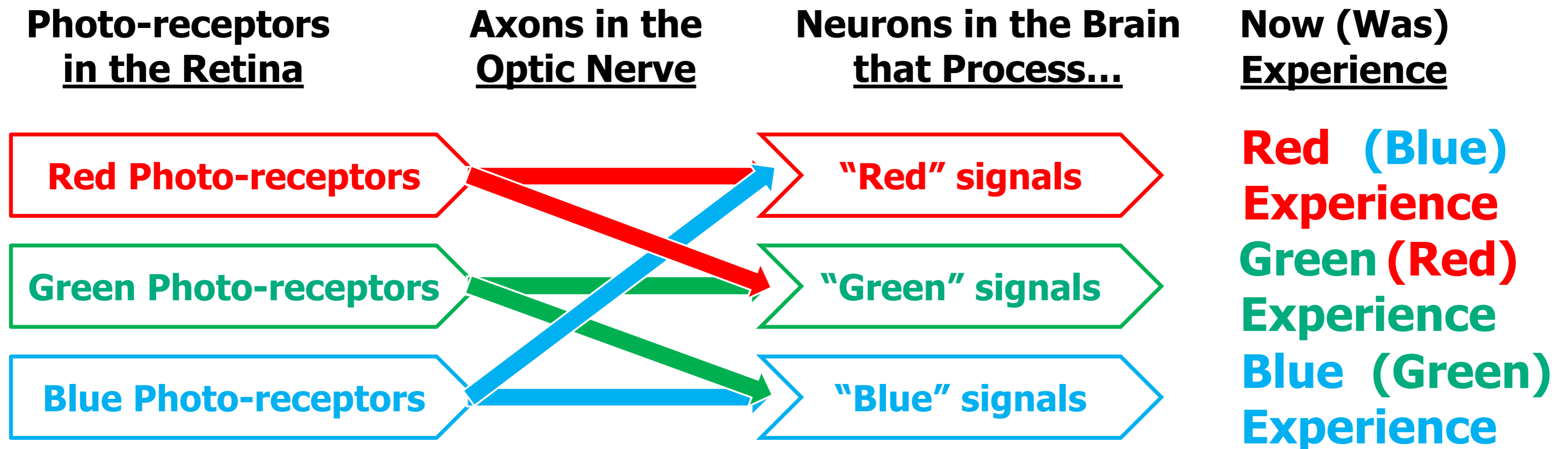
Another Example:

**Rapid Eye Saccades...**



# Every Sensory Experience is Arbitrary

- In vision, the experience of color is arbitrary :





# Every Agent Maintains a Model of the World

- Each sensory **experience** is, effectively, the “**label**” for a particular aspect of the model:
  - “**Red,**” “**Green,**” & “**Blue**” visual experiences are approximate “**labels**” for “**wavelengths of light**”
  - “**Warm,**” & “**Cool**” touch experiences are “**labels**” for “**temperatures of surfaces**”
  - The experience of our **body** is the experience of our own **self-model** in the **model of the world**



Therefore

We are **human self-models**  
*living in* and *experiencing*  
our **model of the world**

**Perception is the Experience**  
of our **World Model**



# Two Agent Model



# The Two Agent Model:

- **Controller:**
  - Controls the Body
- **Modeler:**
  - Creates the World Model





# The Two Agent Model:

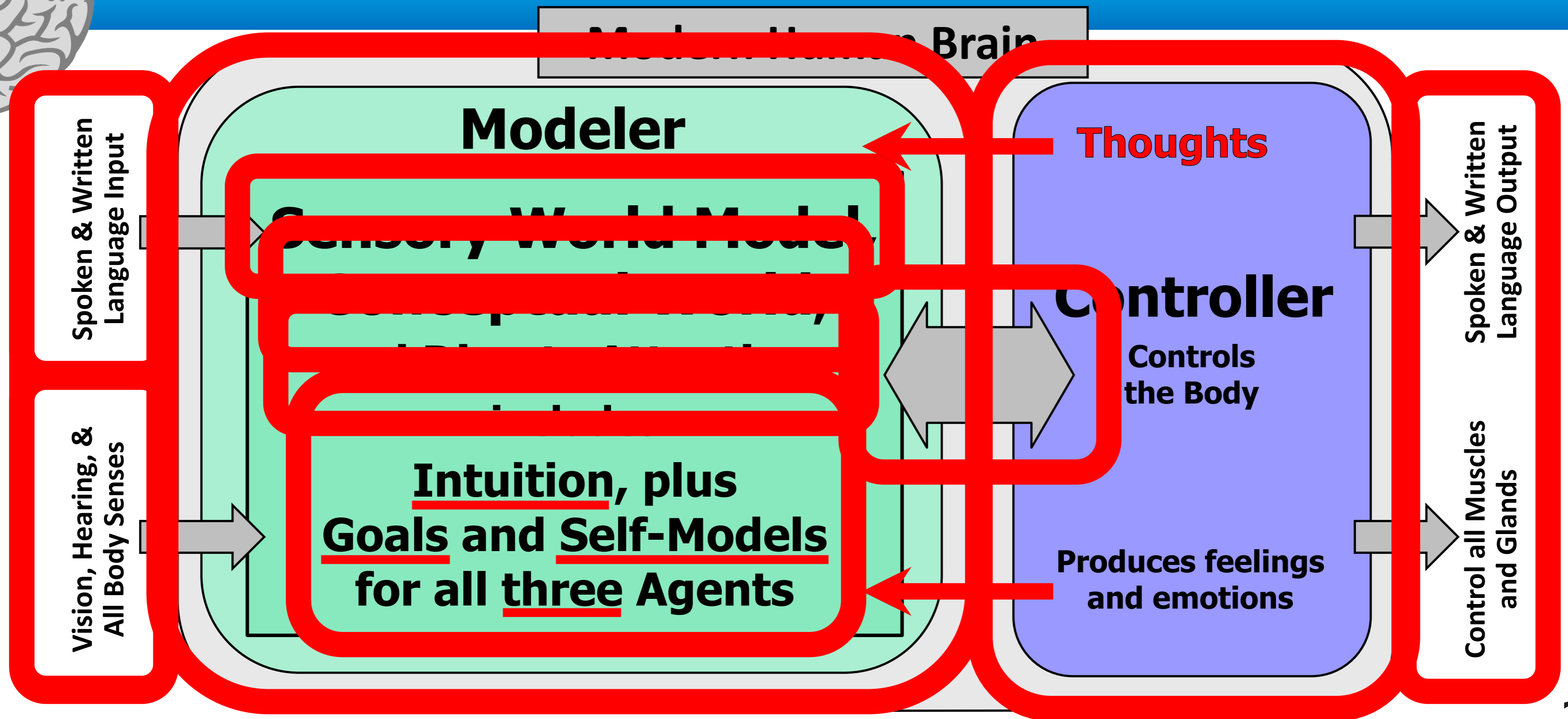
- **Controller:** Controls the Body
  - Produces all **behaviors** and **speech**
  - Produces the **inner voice** or **inner visualizations** that we experience
  - Produces the **feelings** and **emotions** that we experience



# The Two Agent Model:

- The **Modeler** is required by the Good Regulator Theorem
  - The **Modeler** includes:
    - Sensory model of the world
    - **Abstract Conceptual World**
  - Directs **attention** appropriately
- A continuum from low-level Sensory concepts to the Conceptual World

# The Two Agent Model of the Human Brain





# Attention Mechanisms



# Directing Attention and Awareness

- **Directing Attention to an Object** results in an **Experience of Awareness** of that **Object**
- This is the **Focal Attention Mechanism** that gives the **Focal Awareness Experience**



# Focal Attention and Focal Awareness



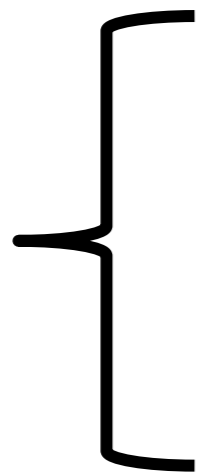




## 2 Models of the Focal Attention Mechanism

1. The **Focal Attention Schema** is a simplified model of the **Focal Attention Mechanism**
  - This model is required by the Good Regulator Theorem
  - This **Focal Attention Schema** includes:
    - The modality
    - The locations of the attention targets
    - Any specific features attended
2. The **Focal Model** is the contents of awareness

**Arrow  
Location**



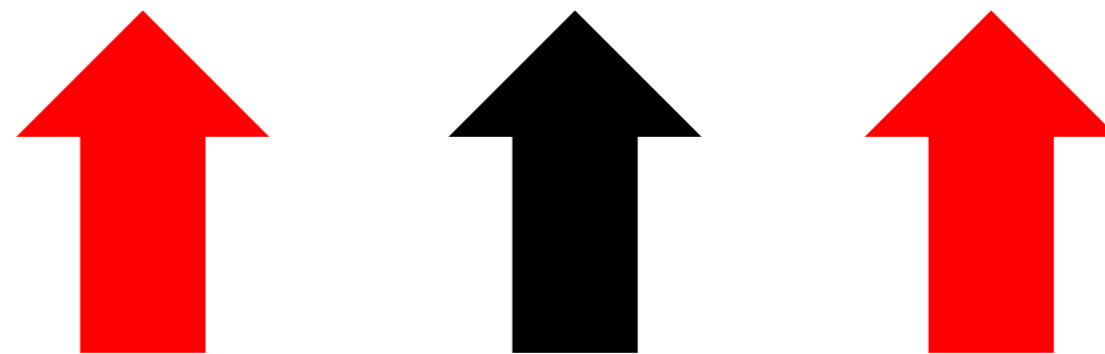


# Focal Attention and Focal Awareness

World Model  
(WM):



Focal Attention  
Schema (FAS):





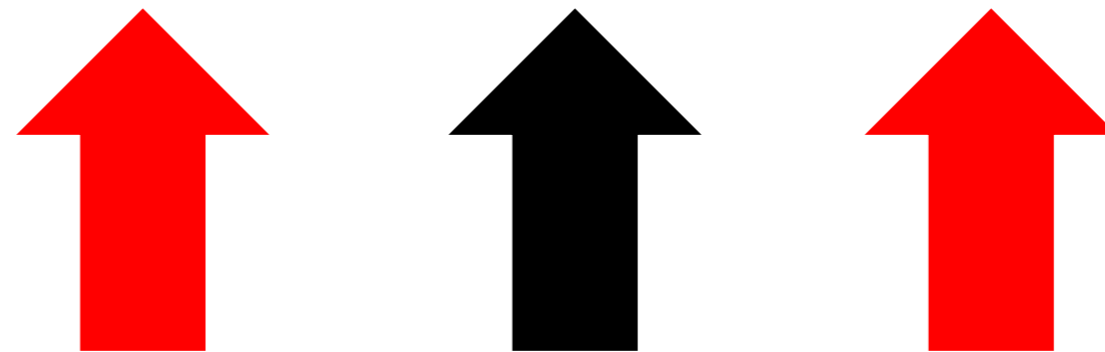


# Focal Attention and Focal Awareness

Focal Model  
(FM):



Focal Attention  
Schema (FAS):





# Focal Attention and Focal Awareness

- The **Focal Attention Schema** is a simplified model of the **Focal Attention Mechanism**
- The **Focal Attention Mechanism** gives us the **Focal Awareness Experience**
- Attention Schema Theory says that:
  - The **Focal Attention Schema** is a simplified model of the **Focal Awareness Experience**



# Attention Schema Theory

- The **Focal Attention Schema** is a simplified model of the **Focal Awareness Experience**

# Attention Schema Theory

- The **Focal Attention Schema** is a simplified model of the **Focal Awareness Experience**





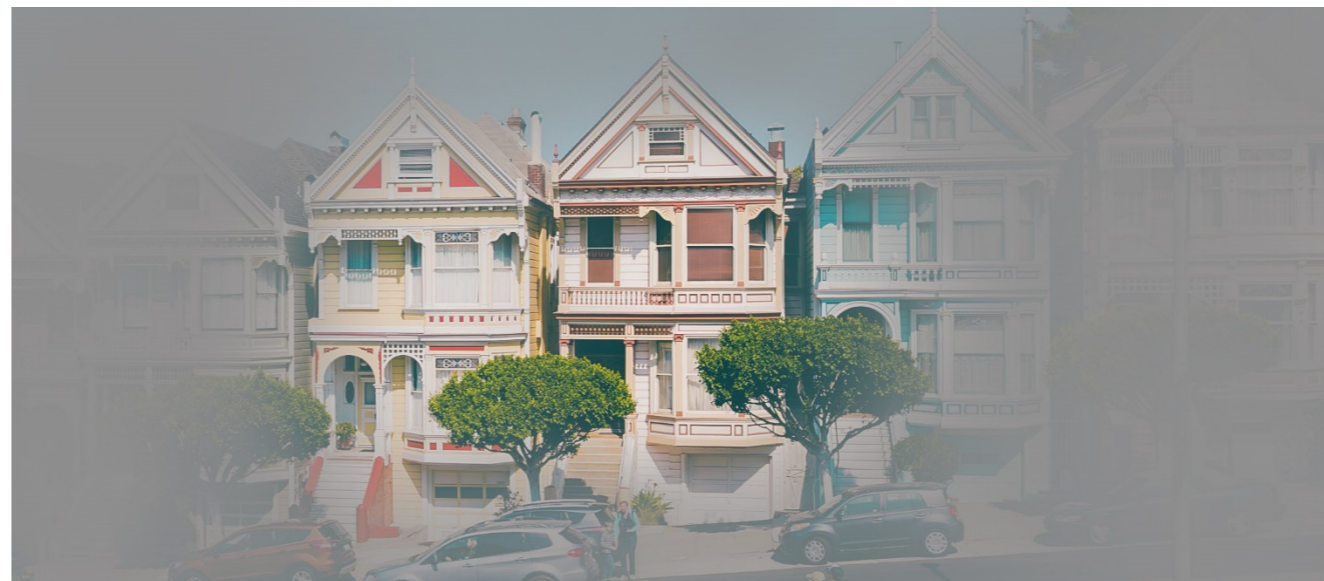
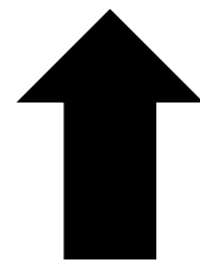
# Focal Awareness vs Diffuse Awareness





# Focal Attention Mechanism Models

- Directing **Focal Attention to Objects** gives **Focal Awareness** which involves:
  - The **Focal Attention Schemas** and
  - Awareness of the **Focal Models**

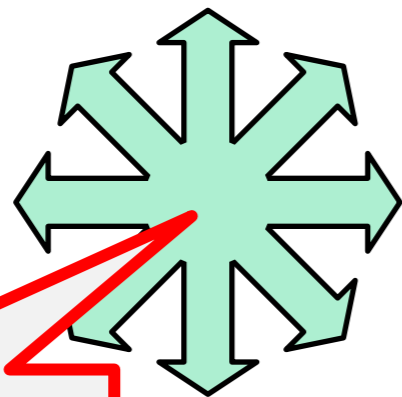




# Propose Diffuse Attention Mechanism Models

- Directing **Diffuse Attention** to the **World** gives **Diffuse Awareness** which involves:
  - The **Diffuse Attention Schema** and
  - Awareness of the **World Model**

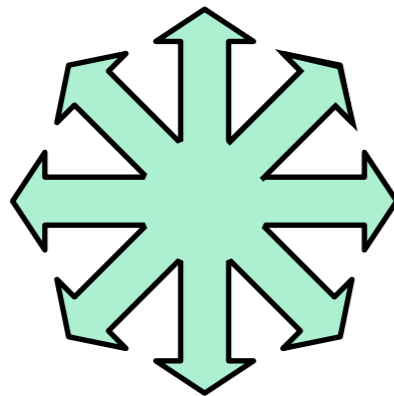
**Hypothesis**



# The Modeler's "Complete World" Model

## Diffuse Attention Mechanism

### Diffuse Attention Schema



**DAS**

### World Model



**WM**

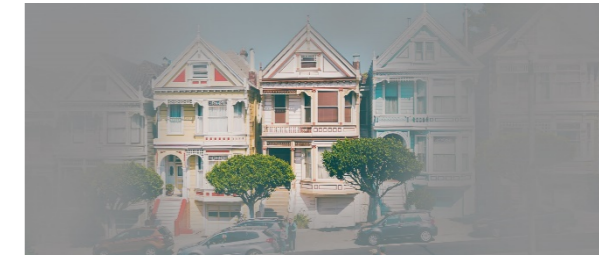
## Focal Attention Mechanism

### Focal Attention Schema



**FAS**

### Focal Model



**FM**

The "Complete World"





# Diffuse Attention and Diffuse Awareness

- The **Diffuse Attention Schema** is a simplified model of the **Diffuse Attention Mechanism**
- The **Diffuse Attention Mechanism** gives us the **Diffuse Awareness Experience**
- **Extend Attention Schema Theory** to say:
  - The **Diffuse Attention Schema** is a simplified model of the **Diffuse Awareness Experience**



# Extended Attention Schema Theory

- The **Diffuse Attention Schema** is a simplified model of the **Diffuse Awareness Experience**



# Extended Attention Schema Theory

- The **Diffuse Attention Schema** is a simplified model of the **Diffuse Awareness Experience**







# Types of Attention:

- **Top-Down Focal Attention Mechanism**
  - Attention Target chosen by the **Controller**
- **Bottom-Up Focal Attention Mechanism**
  - Attention Target chosen by the **Modeler**
- The Modeler uses the **Diffuse Attention Mechanism** to find BU attention targets

**Hypothesis**



# The Diffuse Attention Mechanism

- ⇒ □ Produces the Diffuse Awareness Experience
- ⇒ □ Finds Bottom-Up Focal Attention Targets
- ⇒ □ Updates the World Model based on the current sensory inputs

**Hypothesis**

All three “actions” **require** that **attention** is paid to the **entire World Model!**

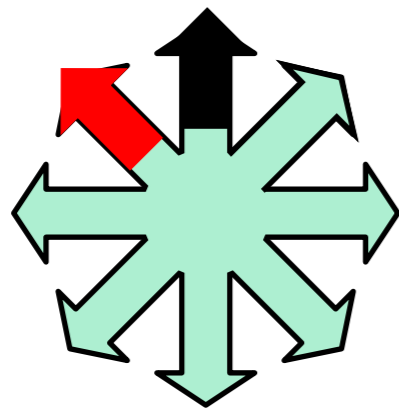


# The Modeler's "Complete World"

## Diffuse Attention Mechanism

Updates the World Model  
Finds BU Focal Attention Targets  
Produces the Diffuse Awareness Experience

### Diffuse Attention Schema



**DAS**

### World Model

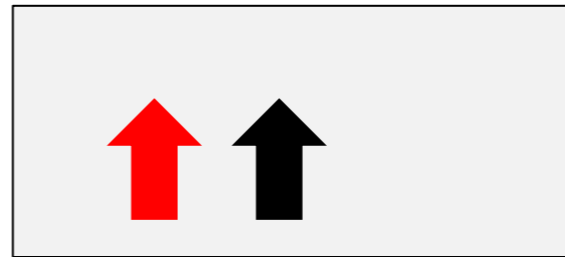


**WM**

## Focal Attention Mechanism

Implements TD and BU Focal Attention  
Produces the Focal Awareness Experience

### Focal Attention Schema



**FAS**

### Focal Model

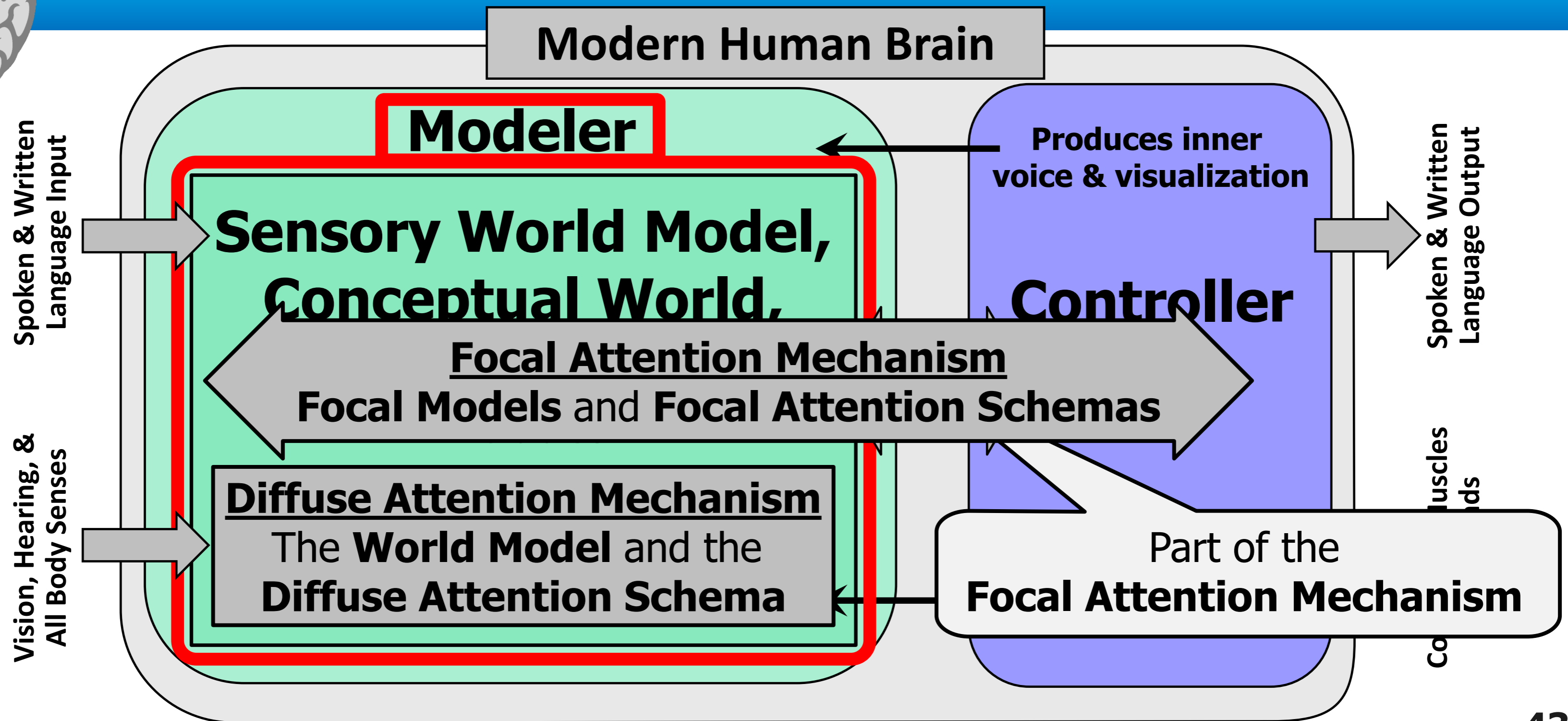


**FM**

The "Complete World"



# The Attention Mechanisms





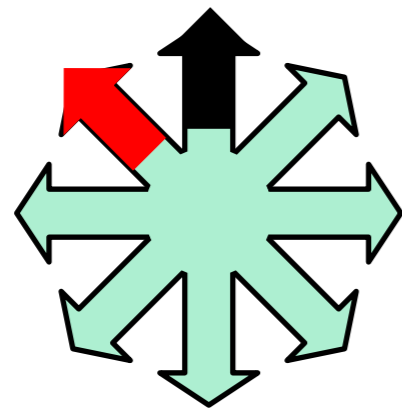
# The Modeler's "Complete World"

## Diffuse Attention Mechanism

Updates the World & finds BU Focal Targets

**Only the Modeler has  
Diffuse Awareness**

**Diffuse Attention  
Schema**



**DAS**

**World  
Model**



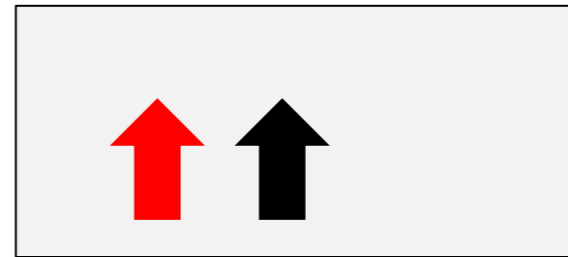
**WM**

## Focal Attention Mechanism

is used for both TD & BU Focal Attention

**Controller & Modeler can  
have Focal Awareness**

**Focal Attention  
Schema**



**FAS**

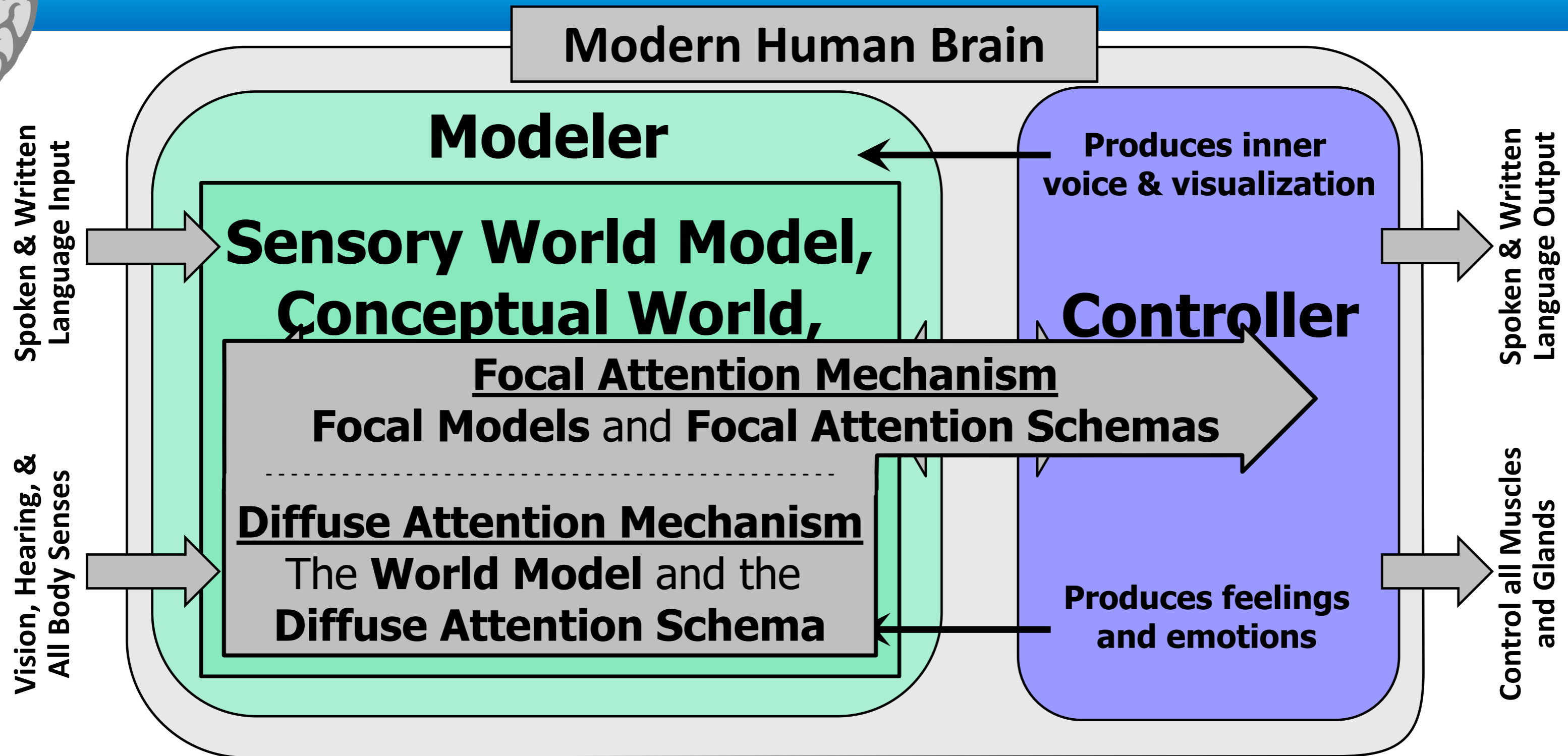
**Focal  
Model**



**FM**

**The "Complete World"**

# Focal & Diffuse Mechanism are Connected

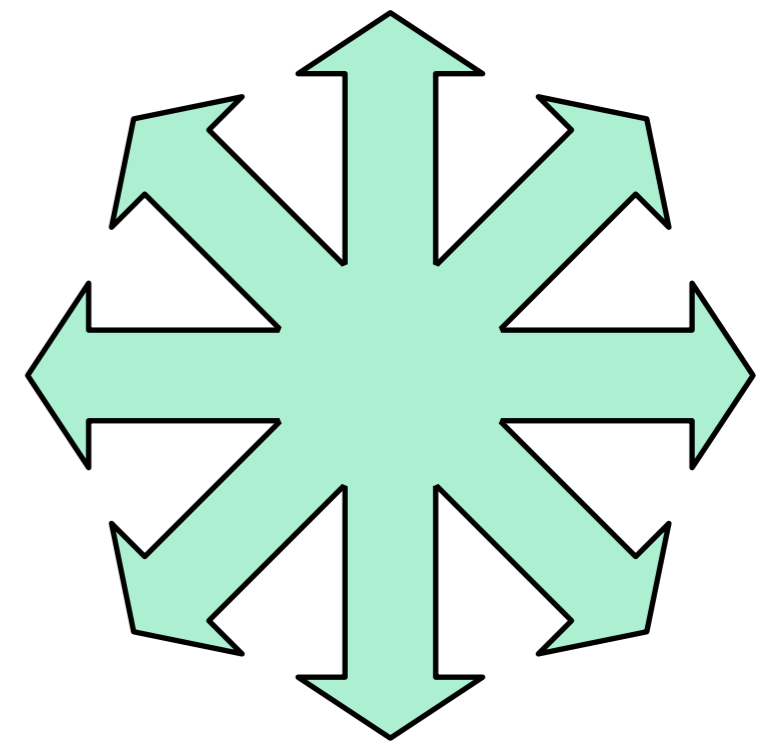






# Awareness

- **All these Diffuse Attention Schema** arrow locations determine **all possible** attention targets
- Each of these possible attention target locations can **directly affect the World Model!**
- The World Model **never changes** without the **possibility** of the Controller having **awareness** of **WHY** the World Model has changed





# Awareness of Brain Processes?

- Only the brain processes that can **directly affect** the **World Model** are **candidates for awareness!**
  - That's why all of the **Modeler is unconscious** except for the actual **World Model** itself
    - We are **aware** of the **sensory** and **language** inputs, **only when** they directly change the **World Model**. Hence, all the internal **Modeler** processing is **unconscious**.



# Awareness of Brain Processes?

- Only the brain processes that can **directly affect** the **World Model** are **candidates for awareness!**
  - All of the **Controller** is **unconscious except** for **Thoughts, Feelings** and **Emotions**
    - This is because **Thoughts, Feelings** and **Emotions** are inputs to the **Modeler** that can change the **World Model**





# Focal Attention Mechanism Summary:

- ❑ **Implements** both Top-Down and Bottom-Up Focal Attention
- ❑ Produces **Focal Awareness Experiences**
- ❑ Per **Attention Schema Theory**
  - ❑ The **Focal Attention Schema** is a model of the **Focal Awareness Experience**



# Diffuse Attention Mechanism Summary:

- **Updates** the World Model
- **Finds** Bottom-Up Focal Attention Targets
- Produces **Diffuse Awareness Experience**
- Per **Extended Attention Schema Theory**
  - The **Diffuse Attention Schema** is a model of the **Diffuse Awareness Experience**



# Applying Attention Schema Theory





# Controller's Self-Model has two parts:

- In the Abstract Conceptual World Model:
  - **I/Me/My** = The conceptual autobiographical narrative self model
- In the Sensory World Model:
  - **Body Schema** = The sensory model of the physical body



# Self-Models

- **Controller's Self-Model:**  
I/Me/My + Body Schema

- **Modeler's Self-Model:**

?



# Modeler's Self-Model in the Complete World

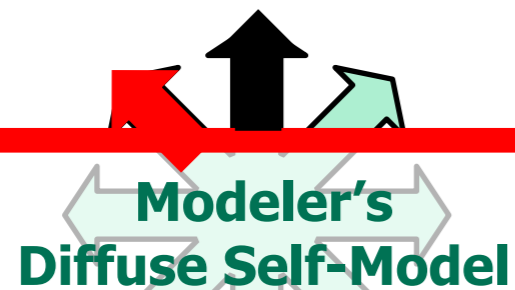
## In the Diffuse Attention World

### Diffuse Attention Mechanism

Updates the World & finds BU Focal Targets

Only the Modeler has Diffuse Awareness

### Diffuse Attention Schema



**DAS**

### World Model



**WM**

## In the Focal Awareness World

### Focal Attention Mechanism

...directs both TD & BU Focal Attention

Controller & Modeler can have Focal Awareness

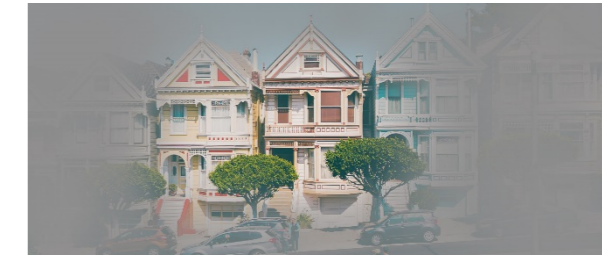
### Focal Attention Schema

Modeler's Focal Self-Model



**FAS**

### Focal Model



**FM**

The "Complete World"





# Self-Models

- ❑ **Controller's Self-Model:**  
I/Me/My + Body Schema
- ❑ **Modeler's Self-Model:**  
Focal Attention Schema (for Focal Awareness) +  
Diffuse Attention Schema (for Diffuse Awareness)



# Self-Models for the Three Agents:

<b>"Focal Awareness" Self-Models</b>	
<b>Controller</b>	<b>I/Me/My + Body Schema</b>
<b>Modeler</b>	<b>Awareness (AKA Focal+Diffuse Attention Schemas)</b>
<b>Human</b>	<i>Some combination of the Controller And Modeler self-models shown above</i>




# Attention Schema Theory (AST)

- AST says an agent is “aware” **only** if it has a Focal or Diffuse Attention Schema [1]
- Only the Modeler has a Focal Attention Schema or a Diffuse Attention Schema.
  - **Only** the Modeler has **conscious awareness all by itself!**

[1] (Graziano, 2016)





# To get 3 Conscious “Agents” we need to **add the Modeler** to the other Agents

- **Modeler Consciousness = Modeler Only**
  - Using the Modeler Self-model = Awareness
- **Controller Consciousness = Controller + Modeler**
  - Using the Controller’s Self-model = I/Me/My + Body Schema
- **Human Consciousness = Controller Consciousness + Modeler Consciousness**
  - Using a Human Self-model that is a combination of the Controller and Modeler Self-models in various proportions



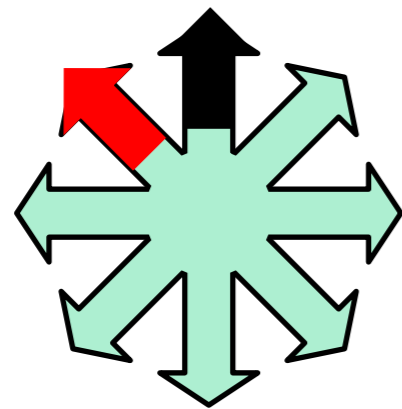
# Define Fundamental Consciousness

## Diffuse Attention Mechanism

Updates the World & finds BU Focal Targets

**Modeler's  
Diffuse Awareness**

**Diffuse Attention  
Schema**



**DAS**

**World  
Model**



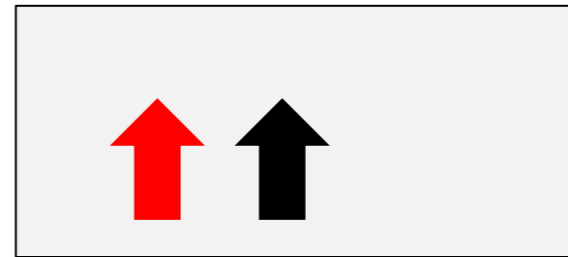
**WM**

## Focal Attention Mechanism

is used for both TD & BU Focal Attention

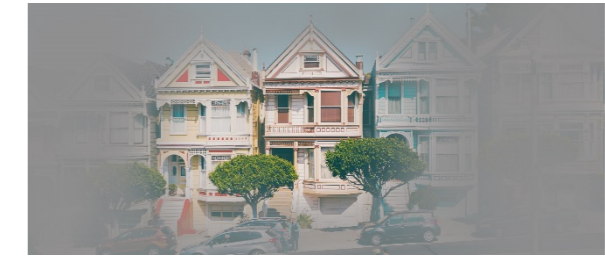
**Modeler's  
Focal Awareness**

**Focal Attention  
Schema**



**FAS**

**Focal  
Model**



**FM**

The **"Complete World"**

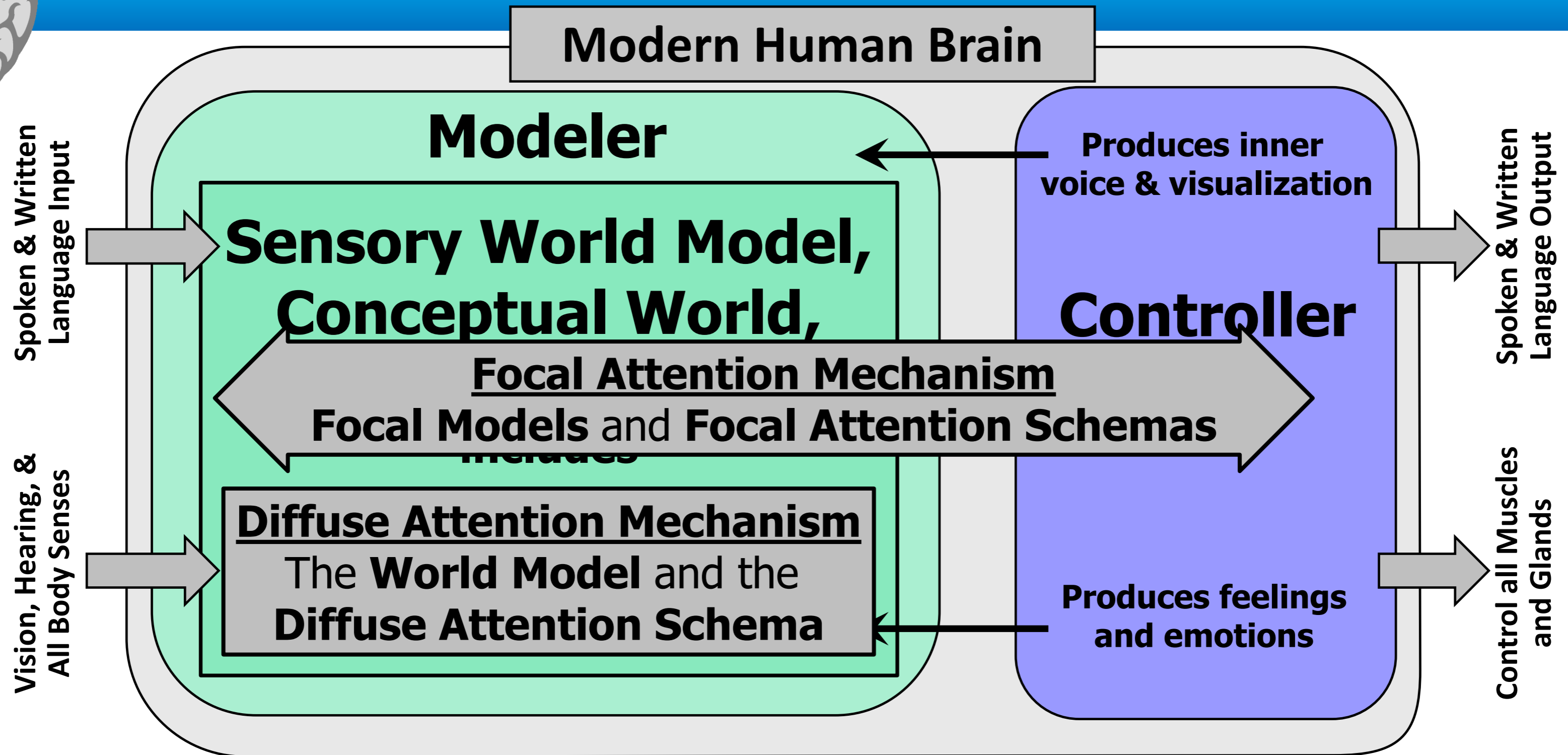


# Ned Block's Phenomenal Consciousness vs Access-Consciousness

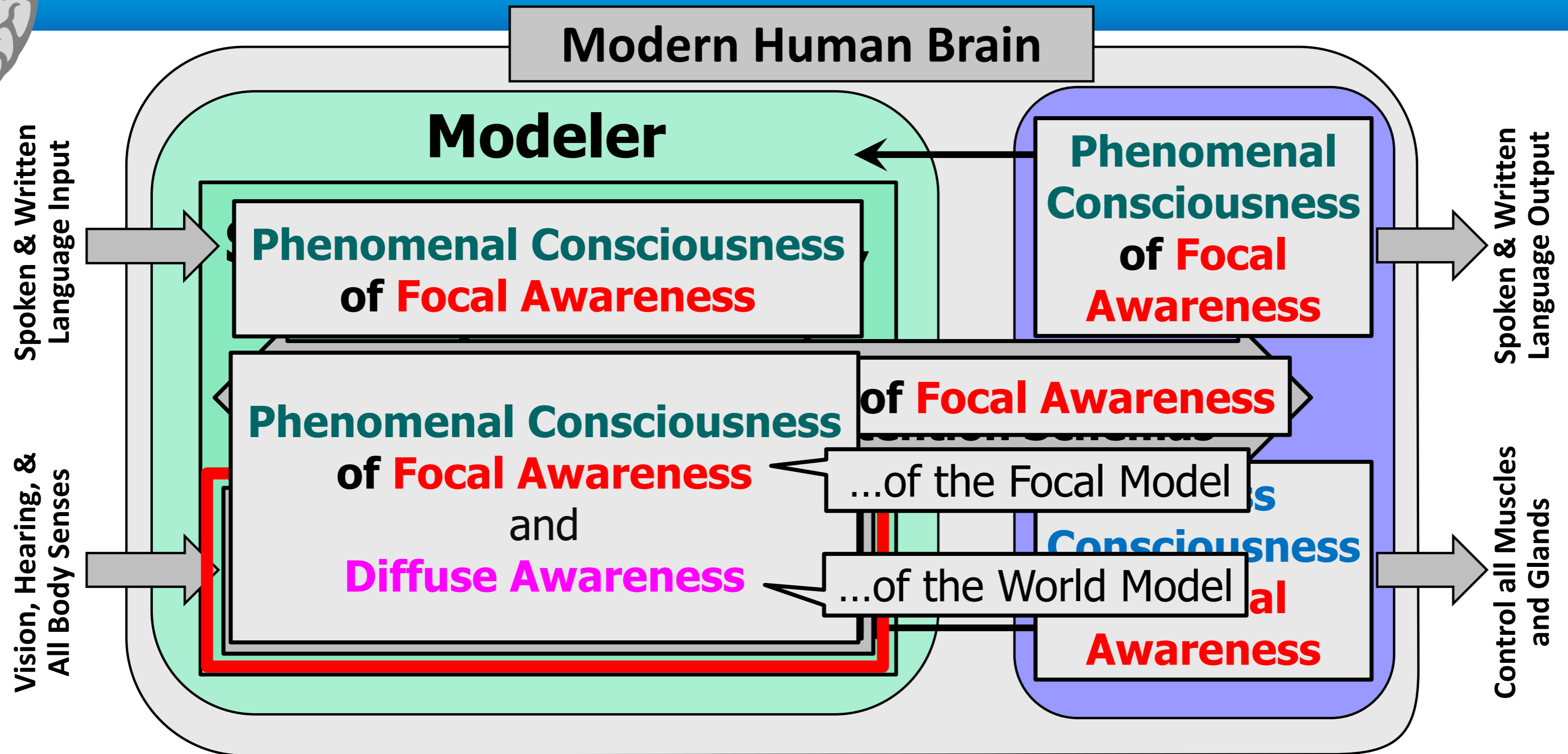
- **Phenomenal Awareness** is experience;
  - The phenomenally conscious aspect of a state is what it is like to be in that state—i.e. the **qualia**
- **Hard Problem:** Explaining why there is “something it is like” for a subject in a **conscious** experience.



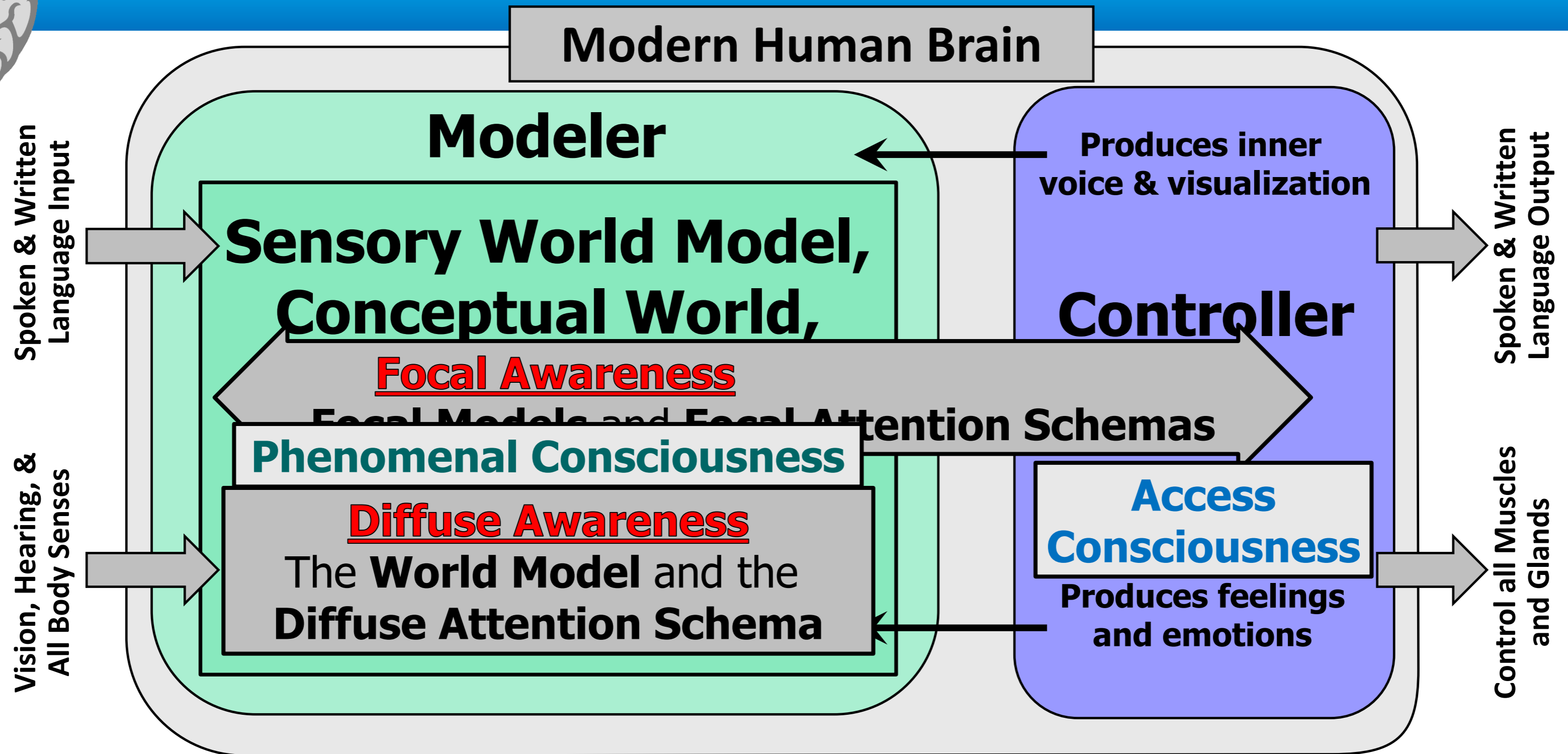
# Ned Block's Phenomenal Consciousness vs Access-Consciousness



# Ned Block's Phenomenal Consciousness vs Access-Consciousness



# Ned Block's Phenomenal Consciousness vs Access-Consciousness





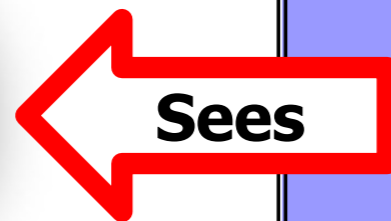
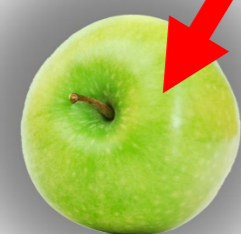




**Hard Problem:** Explaining why there is “something it is like” for a subject in a conscious experience.

□ **From the Controller’s Point of View:**

The Green Color Experience seems like it is Out Here



Sense  
Organs



I/Me/My

The Body

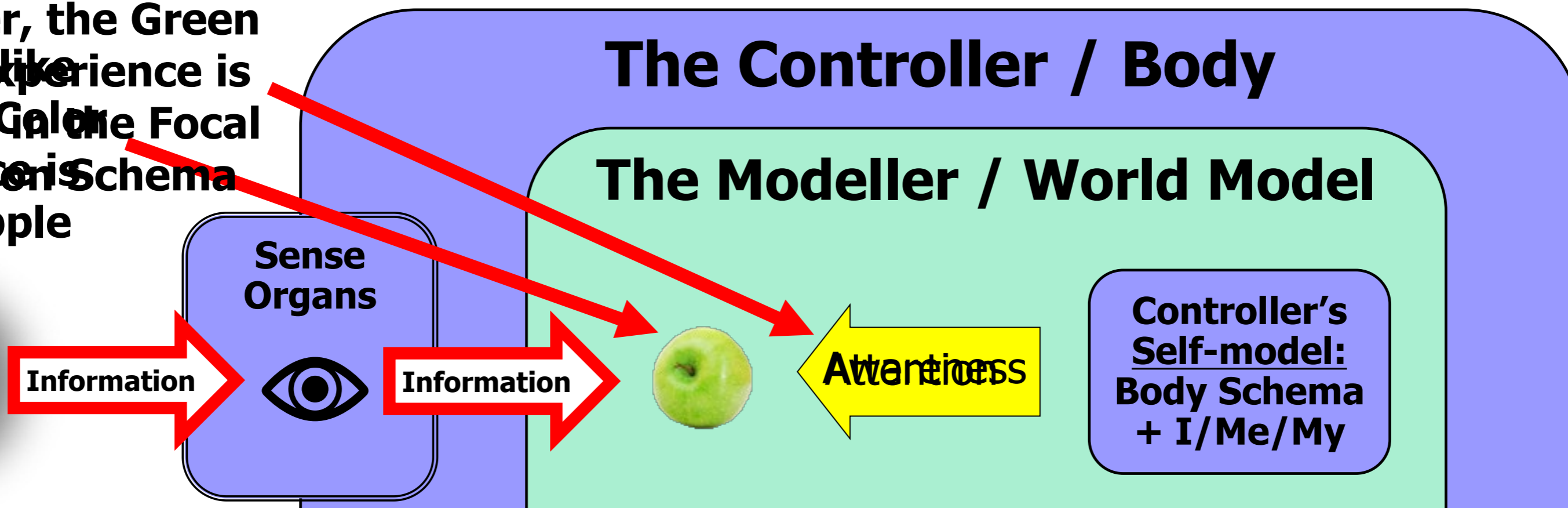
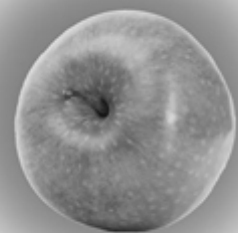
This is HARD to explain:  
How can an “experience”  
exist out in the world?



**Hard Problem:** Explaining why there is “something it is like” for a subject in a conscious experience.

□ **The Truth:**

However, the Green  
It ~~can~~ ~~is~~ like  
the ~~Quality~~ ~~of~~ the Focal  
Experience is  
Attention Schema  
on the apple



**This is EASIER to explain: “green” is the label for the color property of the object, but the “experience” is in the FAS in the Complete World—it is not even in the actual World Model at all!**

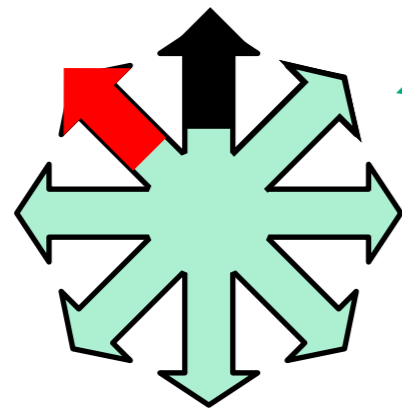


# The Modeler's "Complete World"

## Diffuse Attention Mechanism

### The Apple Object

#### Diffuse Attention Schema



**DAS**

#### World Model

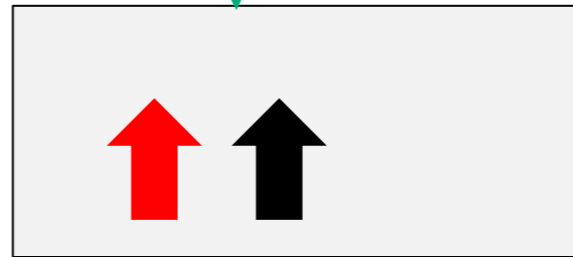


**WM**

## Focal Attention Mechanism

### Green Color Experience

#### Focal Attention Schema



**FAS**

#### Focal Model



**FM**

The "Complete World"



# Attention Schema Theory (AST) <sup>[1]</sup>

- Attention Schema Theory says the **Attention Schema** is a model of **Awareness**
- The **Focal Attention Schema** is a model of **Focal Awareness** of the **Focal Model**
- The **Diffuse Attention Schema** is a model of **Diffuse Awareness** of the **World Model**

**Awareness comes from:**

**Self-model + the Attention Schema + the Model**

<sup>[1]</sup> (Graziano & Webb, 2015)

# Focal Attention Model of Awareness



**Attention  
Schema  
Theory Model  
of Awareness:**

Self-  
Model

+

Focal Attention  
Schema

+

Focal  
Model

**In Sensory  
Experiences:**

Self-  
Model

+

Experience of  
Focal **Awareness**

+

Focal  
Model

**In Words:**

**I**

am **Aware** of

the **Object**

# Diffuse Attention Model of Awareness



**Attention  
Schema  
Theory Model  
of Awareness:**

Self-  
Model

+

Diffuse Attention  
Schema

+

World  
Model

**In Sensory  
Experiences:**

Self-  
Model

+

Experience of  
Diffuse **Awareness**

+

World  
Model

**In Words:**

**I**

am **Aware** of

the **World**





# Agent Focal Awareness Models Considered:

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>SM + FAS + "the Object"</b>
<b>Of Concepts</b>	<b>SM + FAS + "the Concept"</b>
<b>Of Self</b>	<b>SM + FAS + SM</b>

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Agent Focal Awareness Models Considered:

**Focal Awareness Model = SM + FAS + FM**

**Of Objects**

**SM + "aware" + "the Object"**

**Of Concepts**

**SM + "aware" + "the Concept"**

**Of Self**

**SM + "aware" + SM**

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Agent Focal Awareness Models Considered:

**Focal Awareness Model = SM + FAS + FM**

**Of Objects**

**SM + "aware" + "the Object"**

**Of Concepts**

**SM + "recognizes" + "the Concept"**

**Of Self**

**SM + "aware" + SM**

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Controller's Focal Awareness: (in words)

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>"I/Me/My" + "am aware of" + "the Object"</b>
<b>Of Concepts</b>	<b>"I/Me/My" + "recognizes" + "the Concept"</b>
<b>Of Self</b>	<b>"I/Me/My" + "am aware of" + "I/Me/My"</b>

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**





# Controller's Focal Awareness: (in words)

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>"I am aware of the Object"</b>
<b>Of Concepts</b>	<b>"I recognize the Concept"</b>
<b>Of Self</b>	<b>"I am aware of Me"</b>

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Controller's Focal Awareness: (in qualia or sensory representations)

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>[Body Schema] + [aware] + [Object]</b>
<b>Of Concepts</b>	<b>[Body Schema] + [recognizes] + [Concept]</b>
<b>Of Self</b>	<b>[Body Schema] + [aware] + [Body Schema]</b>

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Modeler's Focal Awareness: (w/ SM=FAS) (in qualia or sensory representations)

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>[FAS] + [aware] + [Object]</b>
<b>Of Concepts</b>	<b>[FAS] + [aware] + [Concept]</b>
<b>Of Self</b>	<b>[FAS] + [aware] + [FAS]</b>

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Modeler's Focal Awareness: (w/ SM=FAS) (in qualia or sensory representations)

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>[aware] + [aware] + [Object]</b>	<i>Self-less Awareness</i>
<b>Of Concepts</b>	<b>[aware] + [aware] + [Concept]</b>	
<b>Of Self</b>	<b>[aware] + [aware] + [aware]</b>	

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**





# Modeler's Focal Awareness: (w/ SM=FAS) (in qualia or sensory representations)

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>[aware] + [Object]</b>	<i>Self-less Awareness</i>
<b>Of Concepts</b>	<b>[recognizes] + [Concept]</b>	<i>Self-less Recognition</i>
<b>Of Self</b>	<b>[aware]</b>	

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Modeler's Focal Awareness: (w/ SM=FAS) (in qualia or sensory representations)

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>[aware] + [Object]</b>	<i>Self-less Awareness</i>
<b>Of Concepts</b>	<b>[recognizes] + [Concept]</b>	<i>Self-less Recognition</i>
<b>Of Self</b>	<b>[awareness of awareness]</b>	<i>Self-less, Location-less, Object-less Awareness</i>

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Modeler's Focal Awareness: (w/ SM=FAS) (in qualia or sensory representations)

**Focal Awareness Model = SM + FAS + FM**

<b>Of Objects</b>	<b>[aware] + [Object]</b>	<i>Self-less Awareness</i>
<b>Of Concepts</b>	<b>[recognizes] + [Concept]</b>	<i>Self-less Recognition</i>
<b>Of Self</b>	<b>[presence]</b>	<i>Self-less, Location-less, Non-Physical Existence</i>

**SM=Self-Model**

**FAS=Focal Attention Schema=Awareness**

**FM=Focal Model**



# Modeler's Diffuse Awareness: (in qualia or sensory representations)

**Diffuse Awareness Model = SM + DAS + "Object"**

<b>Of WM</b>	<b>[SM] + [DAS] + [WM]</b>
<b>Of Concepts</b>	<b>Not applicable</b>
<b>Of Self</b>	<b>[SM] + [DAS] + [SM]</b>

**SM=Self-Model (=DAS)**

**DAS=Diffuse Attention Schema=Awareness**

**WM=World Model**





# Modeler's Diffuse Awareness: (in qualia or sensory representations)

**Diffuse Awareness Model = SM + DAS + "Object"**

<b>Of WM</b>	<b>[DAS] + [DAS] + [WM]</b>
<b>Of Concepts</b>	<b>Not applicable</b>
<b>Of Self</b>	<b>[DAS] + [DAS] + [DAS] + [WM]</b>

**SM=Self-Model (=DAS)**

**DAS=Diffuse Attention Schema=Awareness**

**WM=World Model**



# Modeler's Diffuse Awareness: (in qualia or sensory representations)

**Diffuse Awareness Model = SM + DAS + "Object"**

<b>Of WM</b>	<b>[DAS] + [WM]</b>
<b>Of Concepts</b>	<b>Not applicable</b>
<b>Of Self</b>	<b>[DAS] + [WM]</b>

**SM=Self-Model (=DAS)**

**DAS=Diffuse Attention Schema=Awareness**

**WM=World Model**



# Modeler's Diffuse Awareness: (in qualia or sensory representations)

**Diffuse Awareness Model = SM + DAS + "Object"**

**Of WM**

**Other**

**[Awareness] + [World]**

*Self-less Awareness  
of the World Model*

**Of Concepts**

**Not applicable**

**Of Self**

**Self**

**[Awareness] + [World]**

*Self-less Awareness  
of the World Model*

**Nonduality is said to occur when one experiences  
that the Self / Other distinction is an illusion**



# Modeler's Diffuse Awareness: (in qualia or sensory representations)

**Diffuse Awareness Model = SM + DAS + "Object"**

Of WM

**World**

[Awareness] + [World]

*Self-less Awareness  
of the World Model*

Of Concepts

*An equivalent way of experiencing "Nonduality"  
is to experience that: **[The World and I are ONE]***

Of Self

**I**

[Awareness] + [World]

*Self-less Awareness  
of the World Model*

**Nonduality is said to occur when one experiences  
that the Self / Other distinction is an illusion**





# Fundamental Consciousness is Self-less

## Diffuse Attention Mechanism

Source of: **Phenomenal Consciousness**

Modeler's Self-less

Diffuse Awareness

Diffuse Attention  
Schema

World  
Model

Diffuse Self Awareness gives

a sense of **Nonduality!**

[No Subject-Object Distinction  
*or* The World and "I" are ONE]

**DAS**

**WM**



## Focal Attention Mechanism

Copy of: Phenomenal Consciousness

Modeler's Self-less

Focal Awareness

Focal Attention  
Schema

Focal  
Model

Focal Self Awareness gives

a sense of **Presence!**

[Self-less, Location-less,  
Non-Physical Existence]

**FAS**

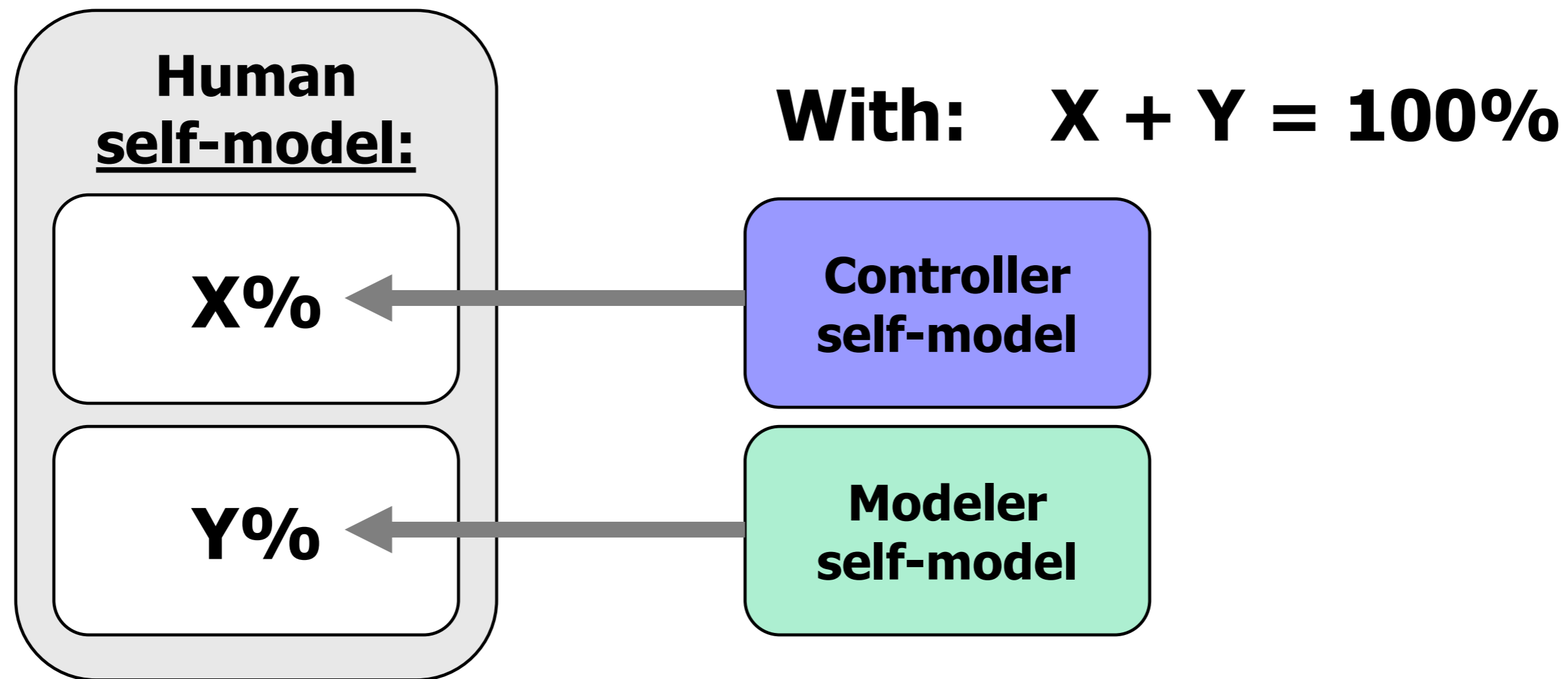
**FM**

The **"Complete World"**



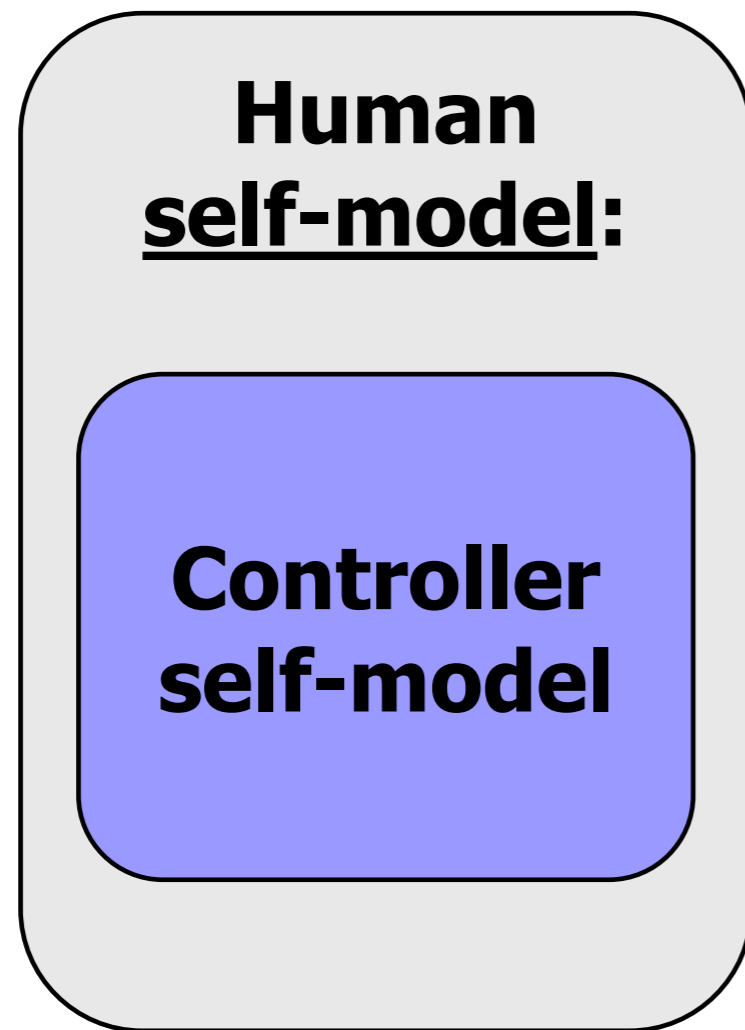
# Possible Human Self-Models

# Possible Human Agent Self-Models



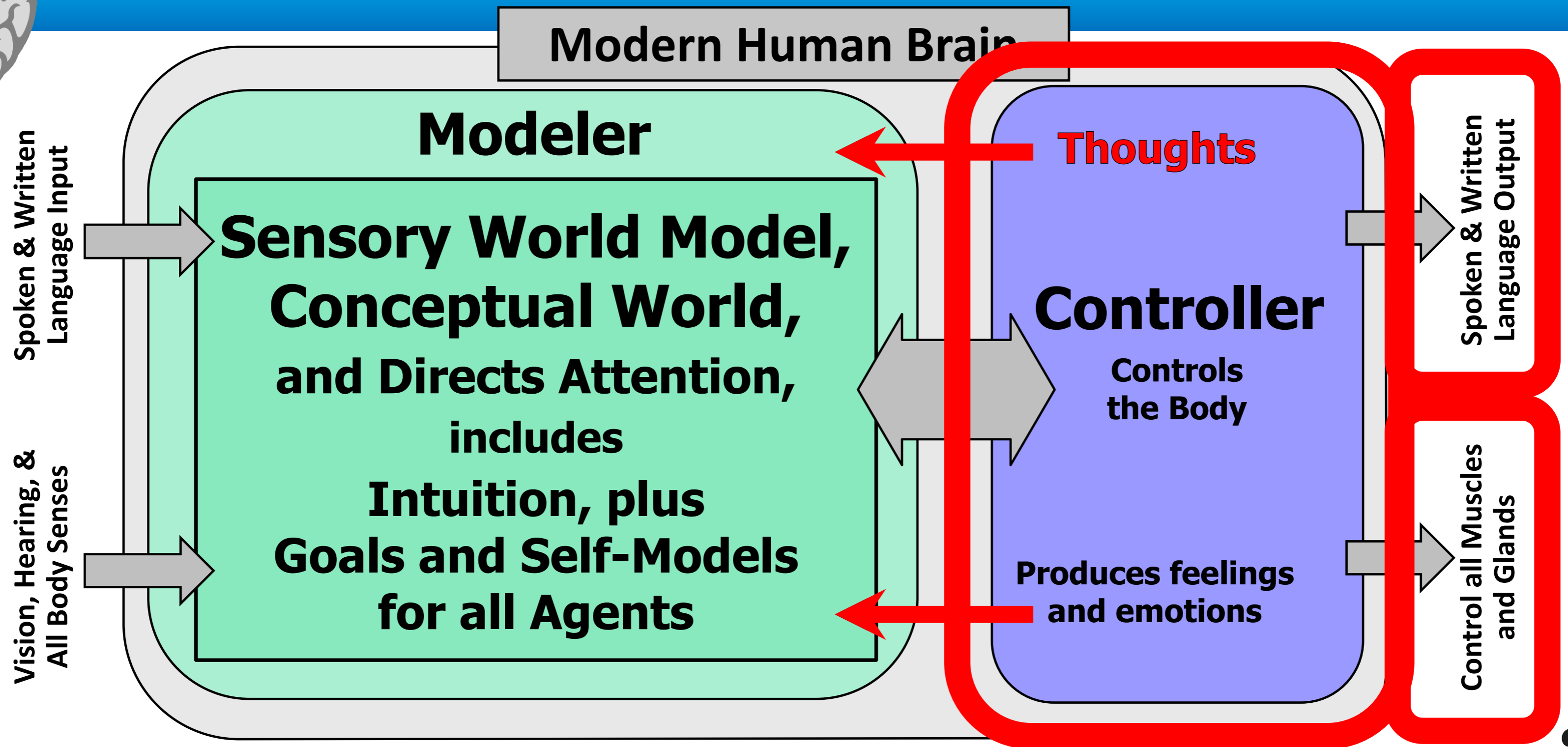
# Possible Human Agent Self-Models

Most Normal  
Modern Humans





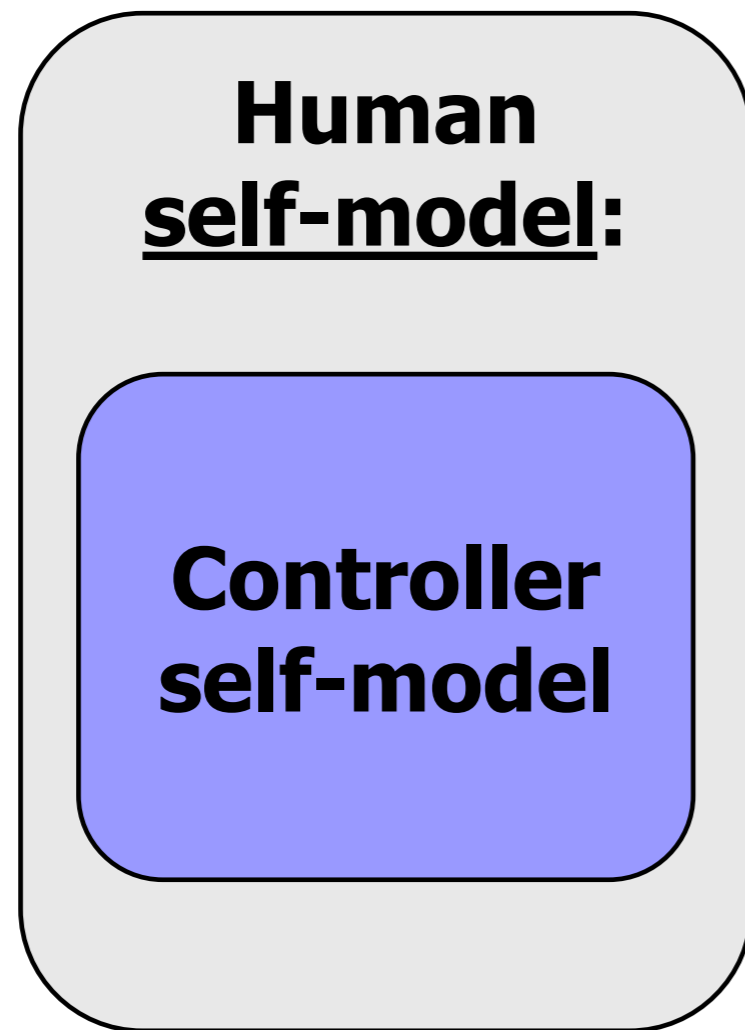
# The Two Agent Model of the Human Brain



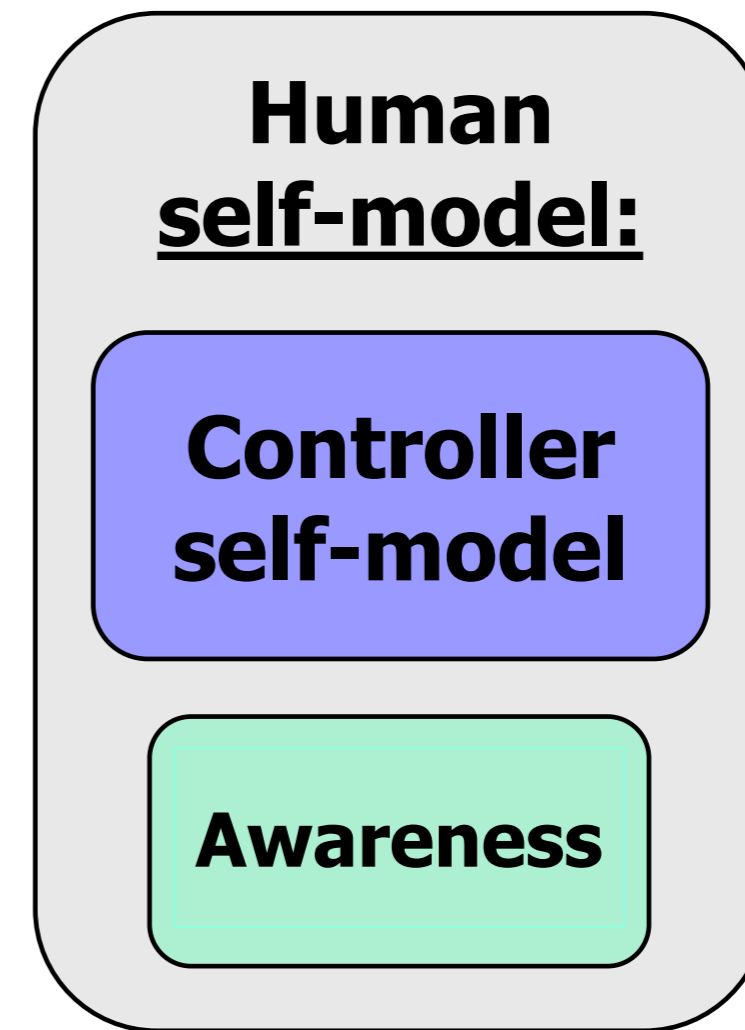


# Possible Human Agent Self-Models

Most Normal  
Modern Humans



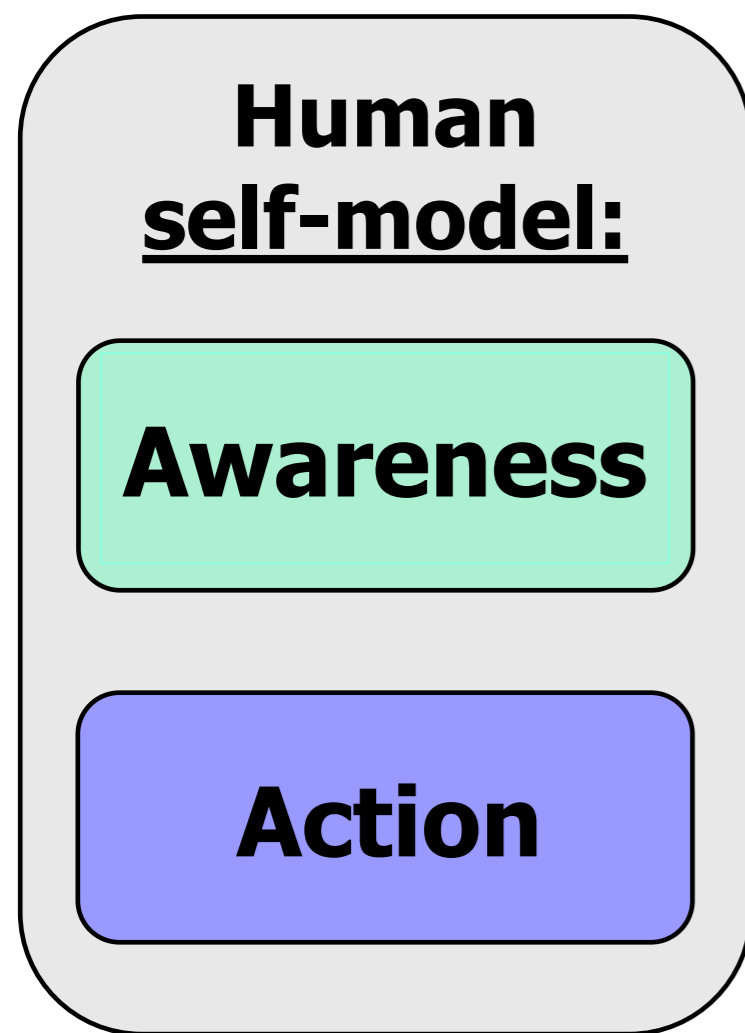
With Some  
Meditation Practice



# Flow State + Enlightened States



## Flow State



- ❑ Transient **Flow State**:
  - ❑ A loss of reflective **self-consciousness**
  - ❑ Intense concentration on the **now**
  - ❑ **Merging** of action and awareness
- ❑ More persistent **Enlightened States**:
  - ❑ Self-less awareness (Nonduality)
  - ❑ Presence
  - ❑ No sense of agency

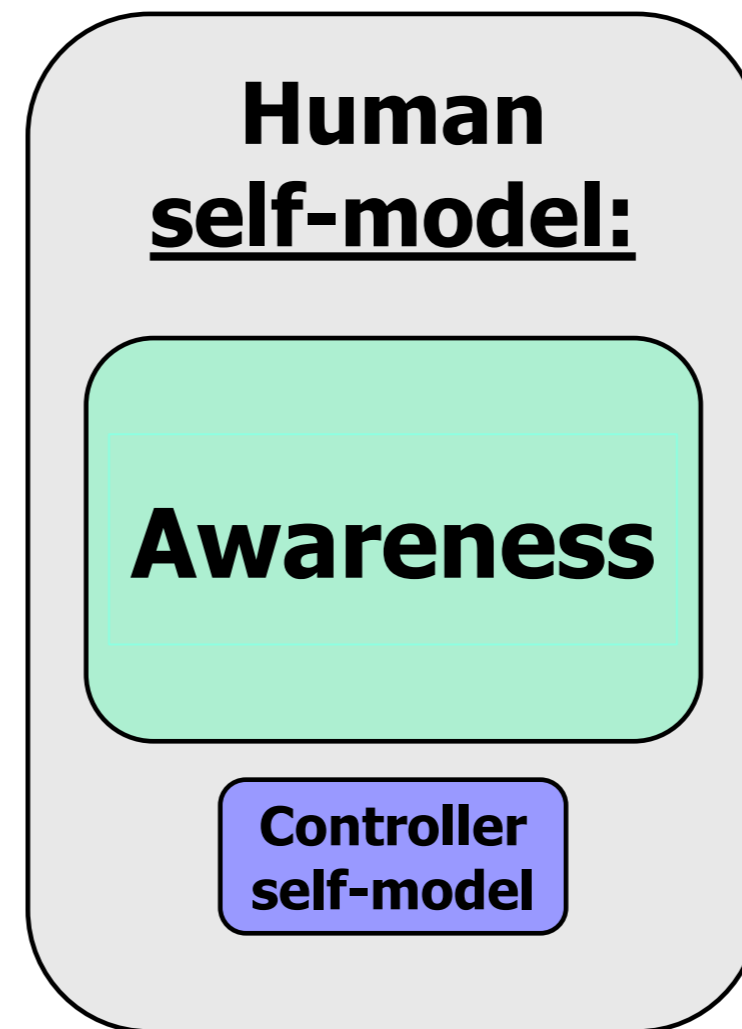
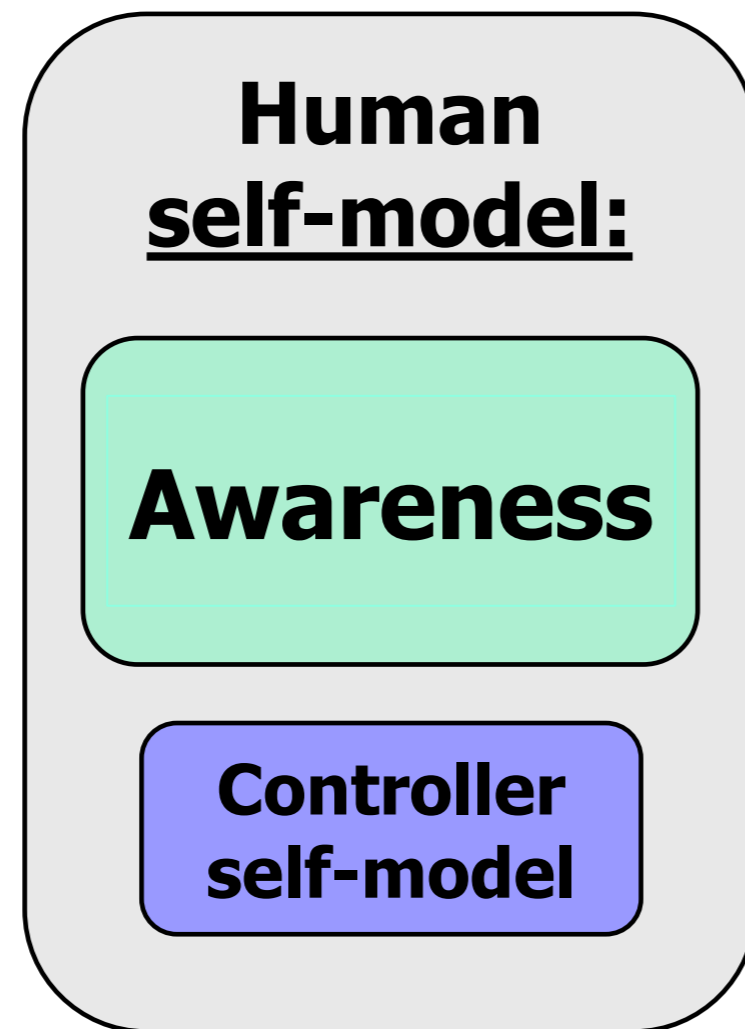
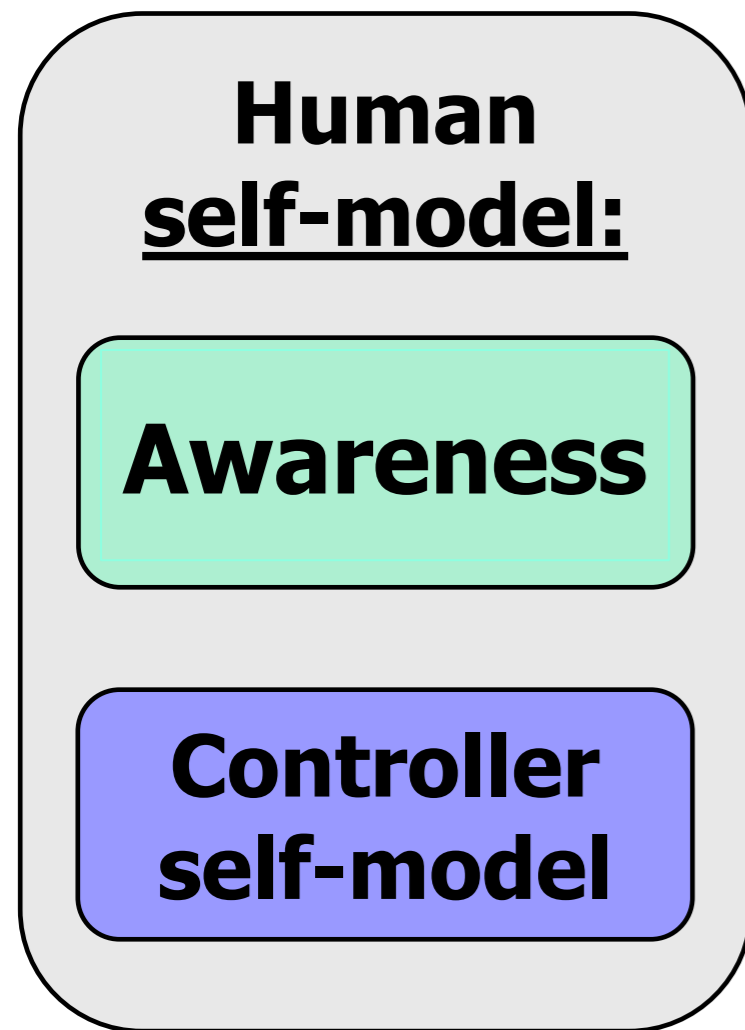
# Flow State + Enlightened States



Flow State

Early Enlightened States...

Fully Enlightened State

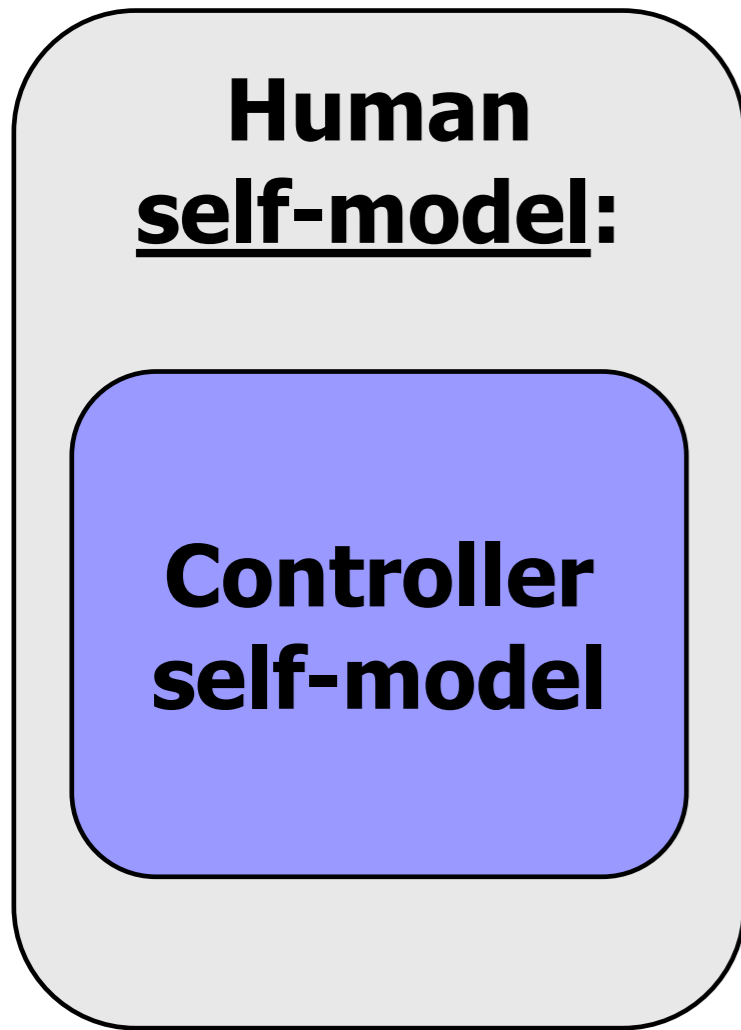




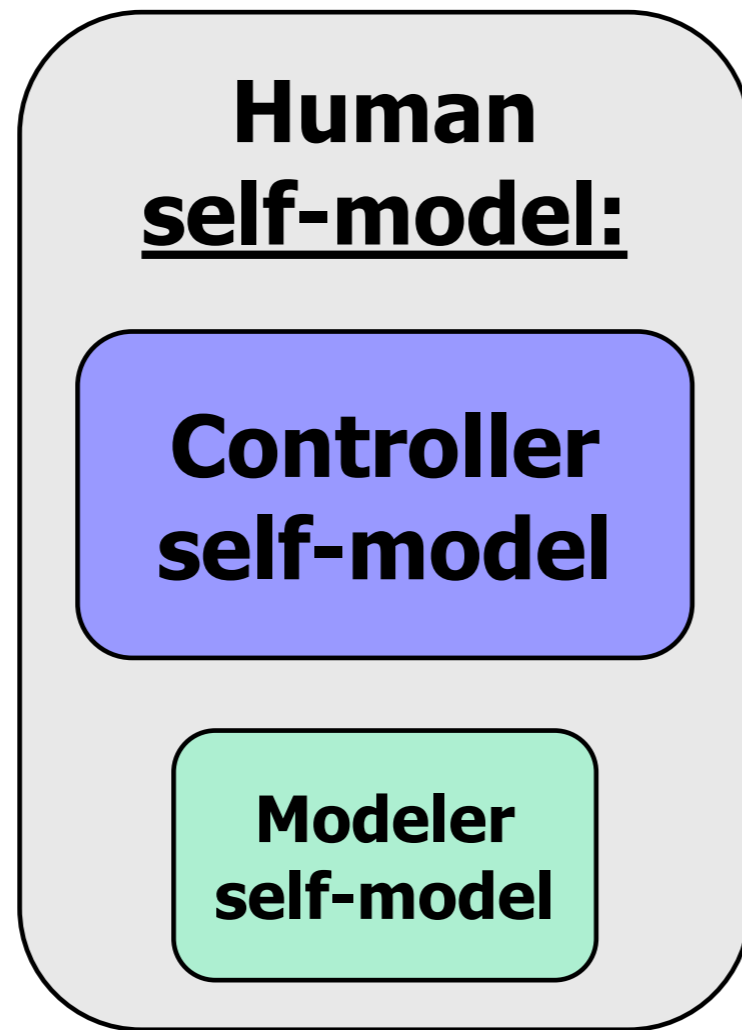


# Who Are You?

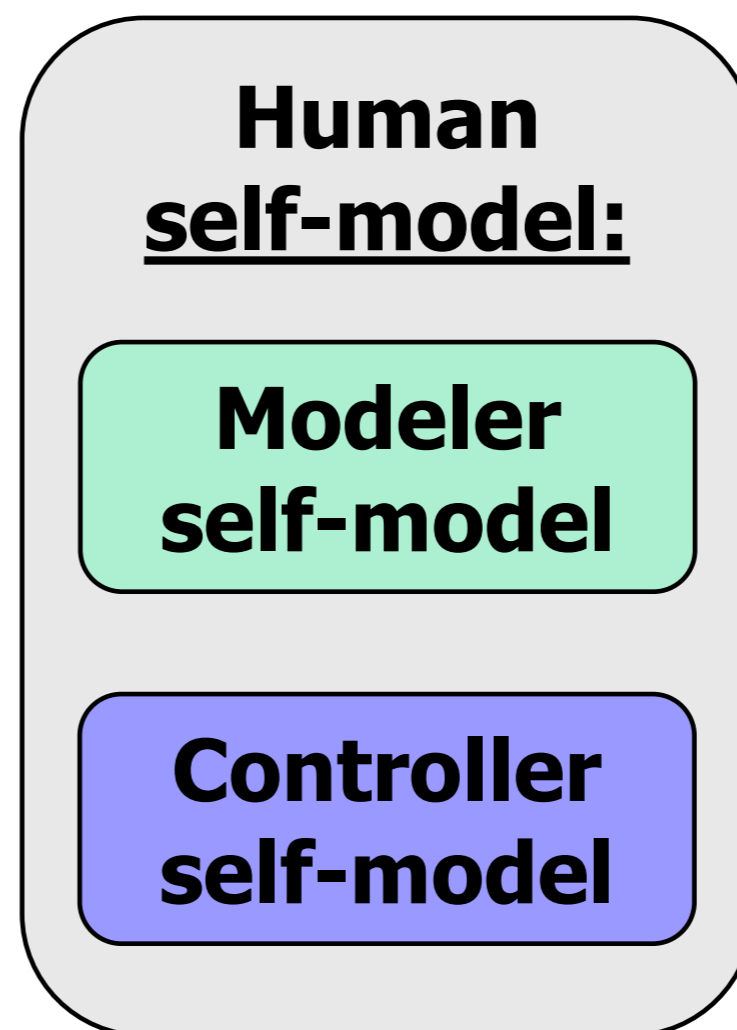
Modern Human



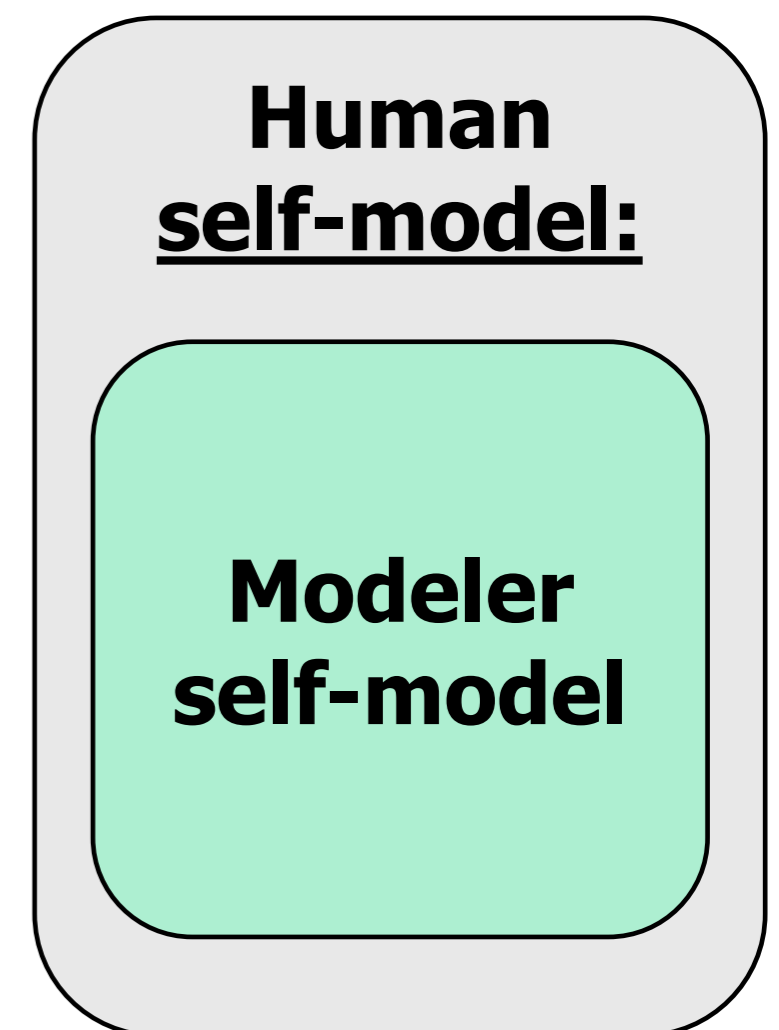
...With Meditation



Flow State



Enlightened State



You control the body, you produce speech, thoughts, and feelings; and you only have Focal Awareness.

Modern Human

**Human self-model:**

**Controller self-model**

...With Meditation

**Human self-model:**

**Controller self-model**

**Modeler self-model**

Flow State

**Human self-model:**

**Modeler self-model**

**Controller self-model**

Enlightened State

**Human self-model:**

**Modeler self-model**

You control the body, you produce speech, thoughts, and feelings; and **you only have Focal Awareness.**

Modern Human

**Human self-model:**

**Controller self-model**

...With Meditation

**Human self-model:**

**Controller self-model**

**Modeler self-model**

Flow State

**Human self-model:**

**Modeler self-model**

**Controller self-model**

Enlightened State

**Human self-model:**

**Modeler self-model**

You control the body, you produce speech, thoughts, and feelings; and **you recognize that you are Awareness.**

Modern  
Human

**Human  
self-model:**

**Controller  
self-model**

...With  
Meditation

**Human  
self-model:**

**Controller  
self-model**

**Awareness**

Flow  
State

**Human  
self-model:**

**Modeler  
self-model**

**Controller  
self-model**

Enlightened  
State

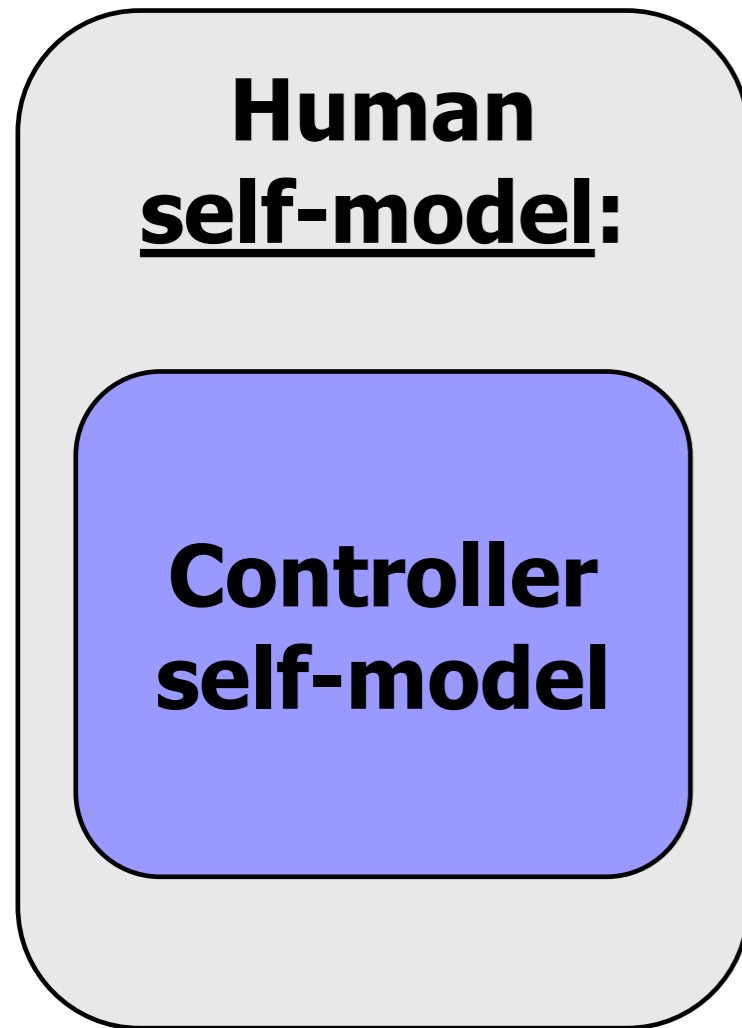
**Human  
self-model:**

**Modeler  
self-model**

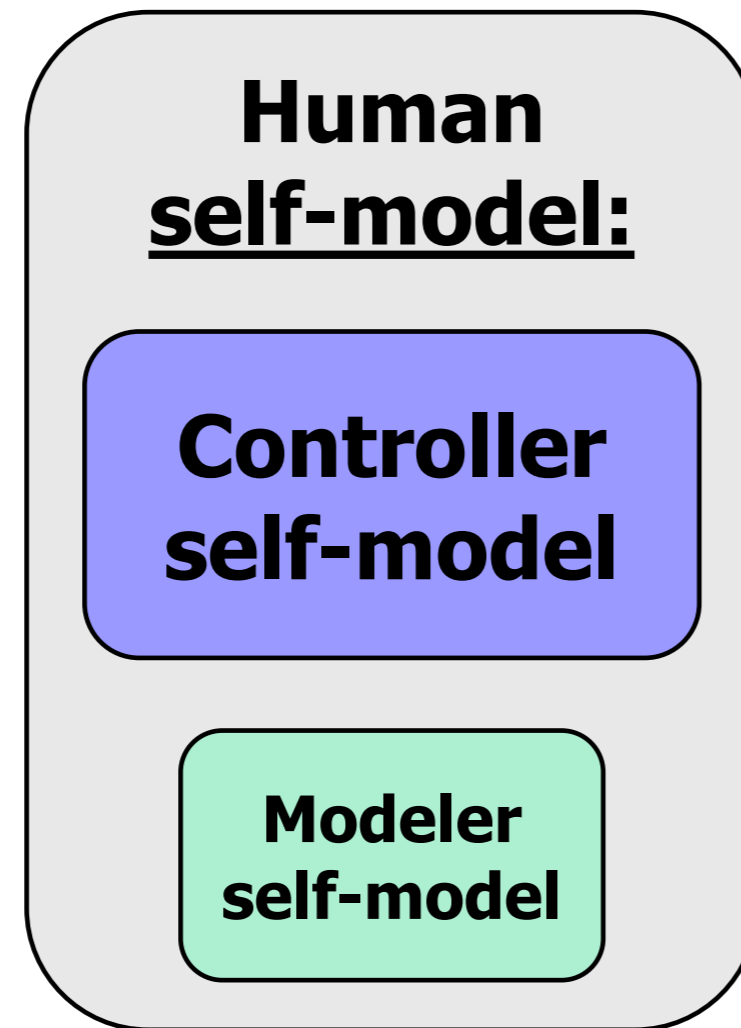


Your **Awareness** is totally **absorbed** by the current task, and your Actions and Awareness are balanced and completely unified.

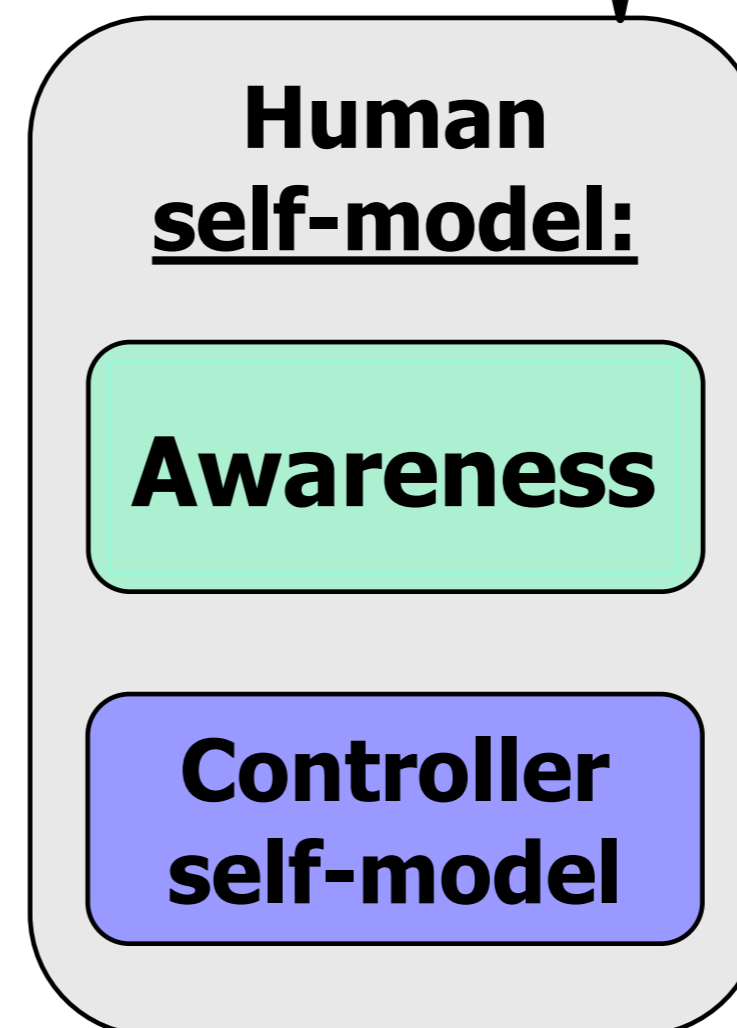
Modern Human



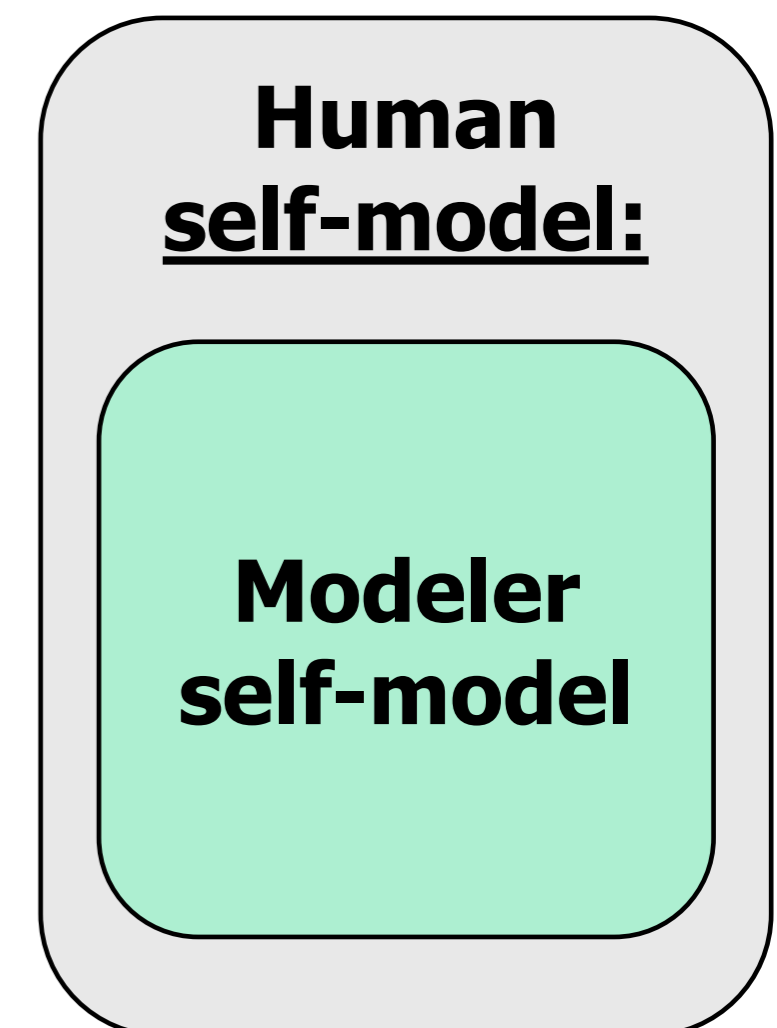
...With Meditation



Flow State

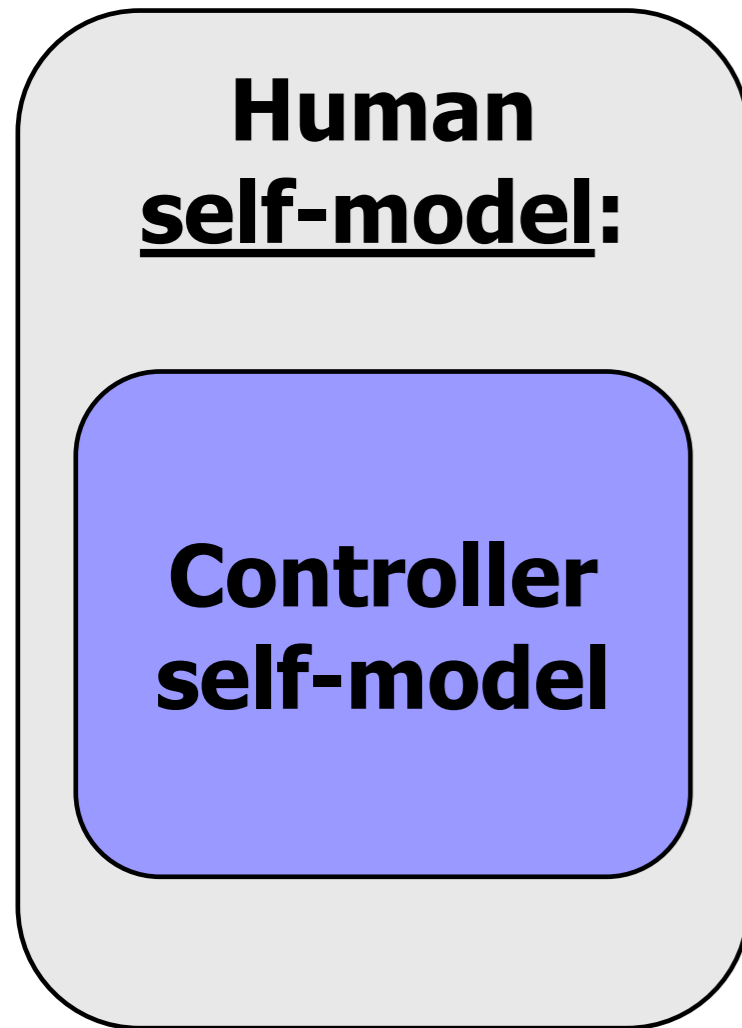


Enlightened State

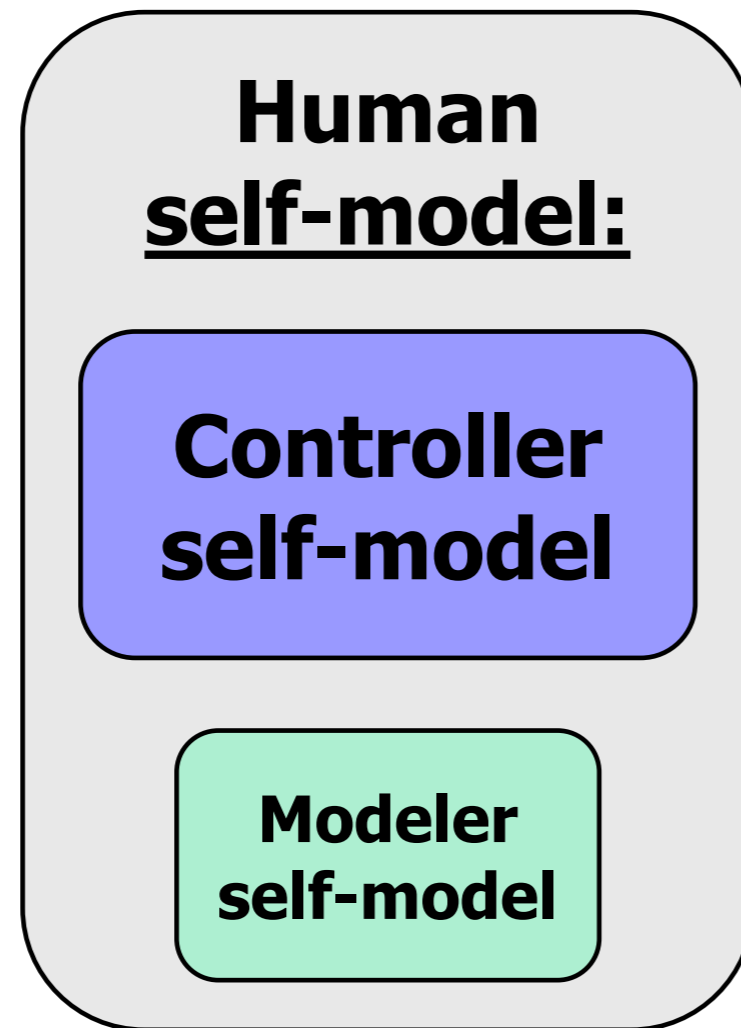


You are **Awareness**, and you are **aware** of the body moving, of speech, thoughts and feelings, **but** you have no sense of **agency**.

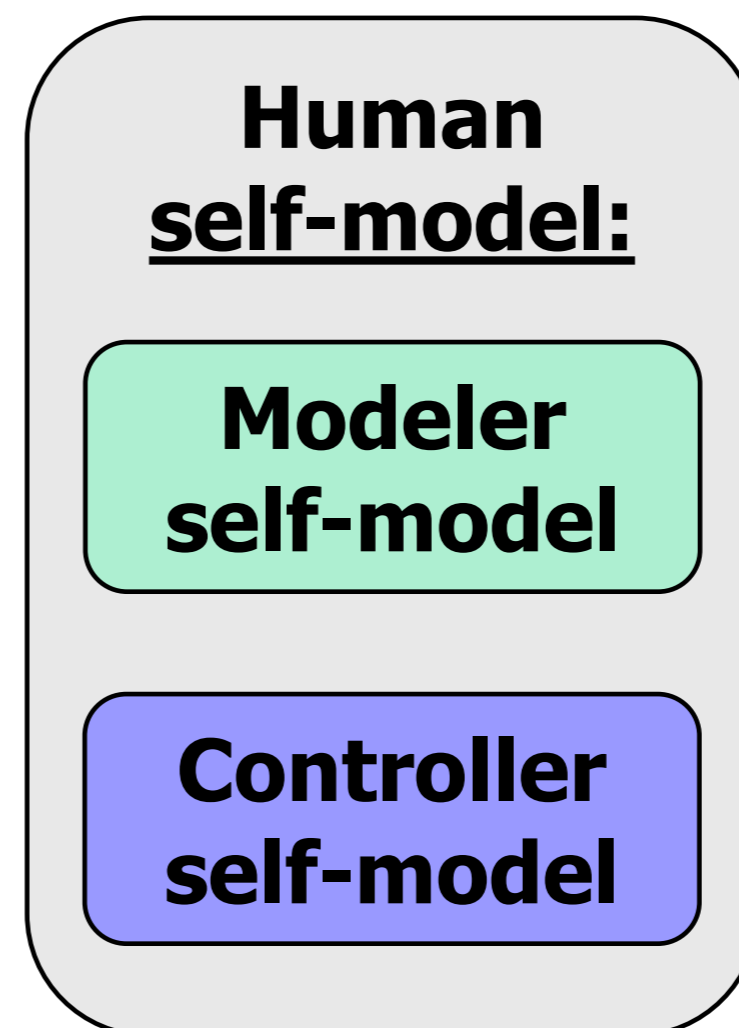
Modern Human



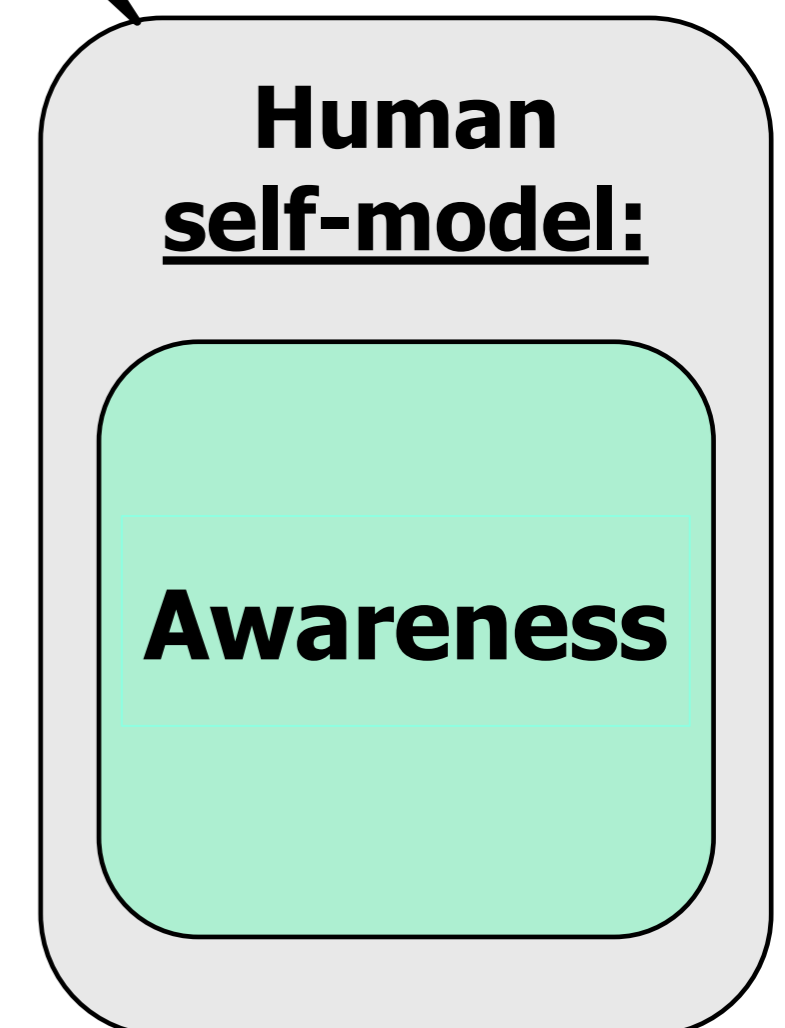
...With Meditation



Flow State



Enlightened State





# Fundamental Consciousness is the Fully Enlightened State

## Diffuse Attention Mechanism

Source of: **Phenomenal Consciousness**

Modeler's Self-less

Diffuse Awareness

**Diffuse Attention  
Schema**

**World  
Model**

Diffuse Self Awareness gives

a sense of **Nonduality!**

[No Subject-Object Distinction  
*or* The World and "I" are ONE]

**DAS**

**WM**



## Focal Attention Mechanism

Copy of: Phenomenal Consciousness

Modeler's Self-less

Focal Awareness

**Focal Attention  
Schema**

**Focal  
Model**

Focal Self Awareness gives

a sense of **Presence!**

[Self-less, Location-less,  
Non-Physical Existence]

**FAS**

**FM**

The **"Complete World"**



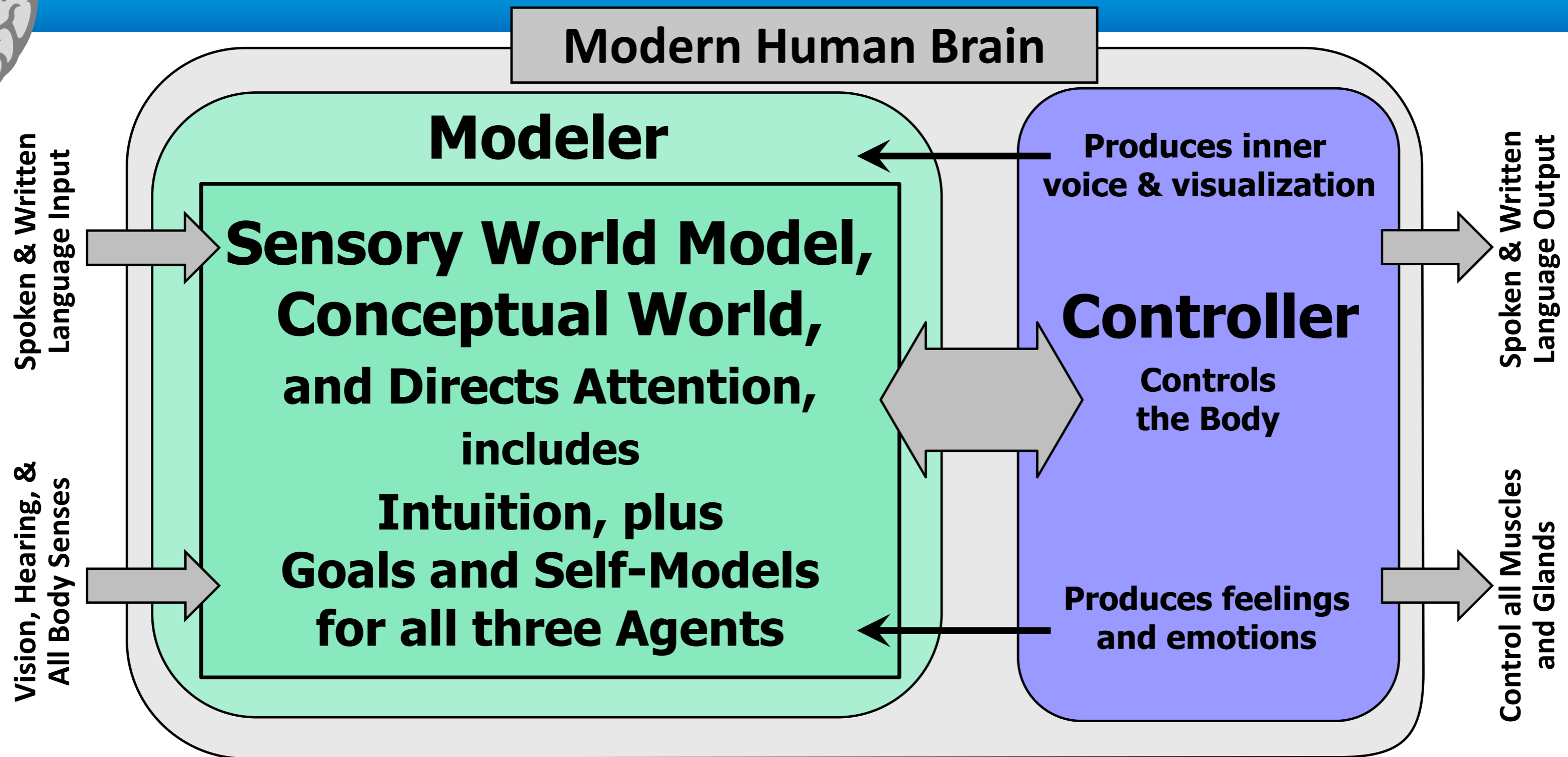
# Forms of Conscious Awareness Explained:

- The Distinction Between:
  - Phenomenal consciousness
  - Access-consciousness
- Solved the Hard Problem of Consciousness
- Modern human consciousness
  - The effect of Meditation on consciousness
- Flow state consciousness
- “Enlightened” conscious states (“presence” or “nonduality”)

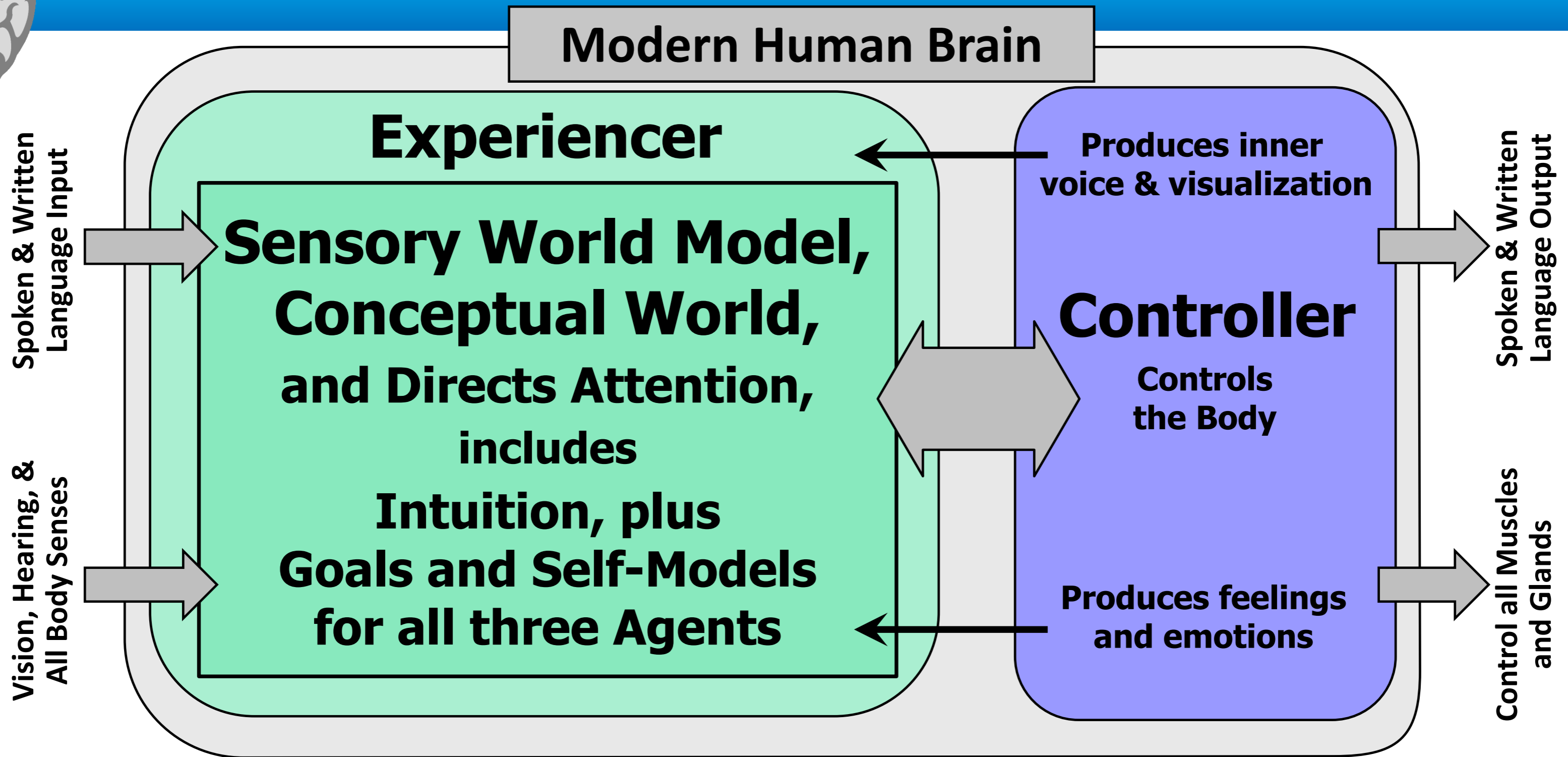
} NYU Philosophy  
Professor Ned Block



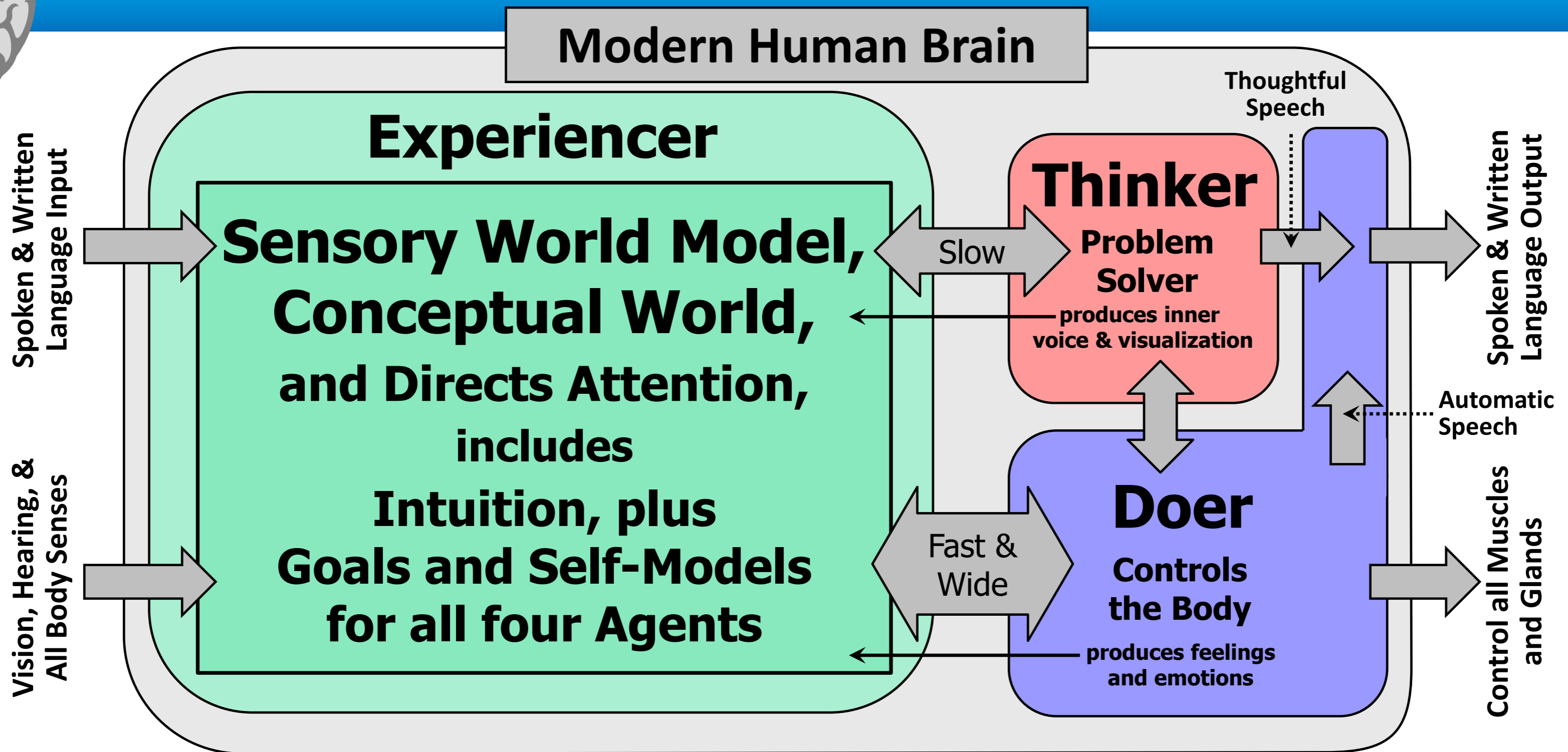
# Part 1: An Explanation of Consciousness



# Part 2: An Explanation of Spirituality



# Part 2: An Explanation of Spirituality





# Bibliography

- ❑ Conant, R. C. & Ashby, W. R., 1970. Every Good Regulator of a System Must Be a Model of That System. *Int. J. Systems Sci.*, 1(2), pp. 89-97.
- ❑ Graziano, M., 2016. A New Theory Explains How Consciousness Evolved. [Online] Available at: <https://www.theatlantic.com/science/archive/2016/06/how-consciousness-evolved/485558/> [Accessed 16 October 2018]
- ❑ Graziano, M. S. A. & Webb, T. W., 2015. The attention schema theory: a mechanistic account of subjective awareness. *Front. Psych.*, 6(500).





# The End

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- Contact me at: **frank@heile.org**



**The End!**