A Model of Consciousness and Spirituality

Frank Heile, Ph.D.
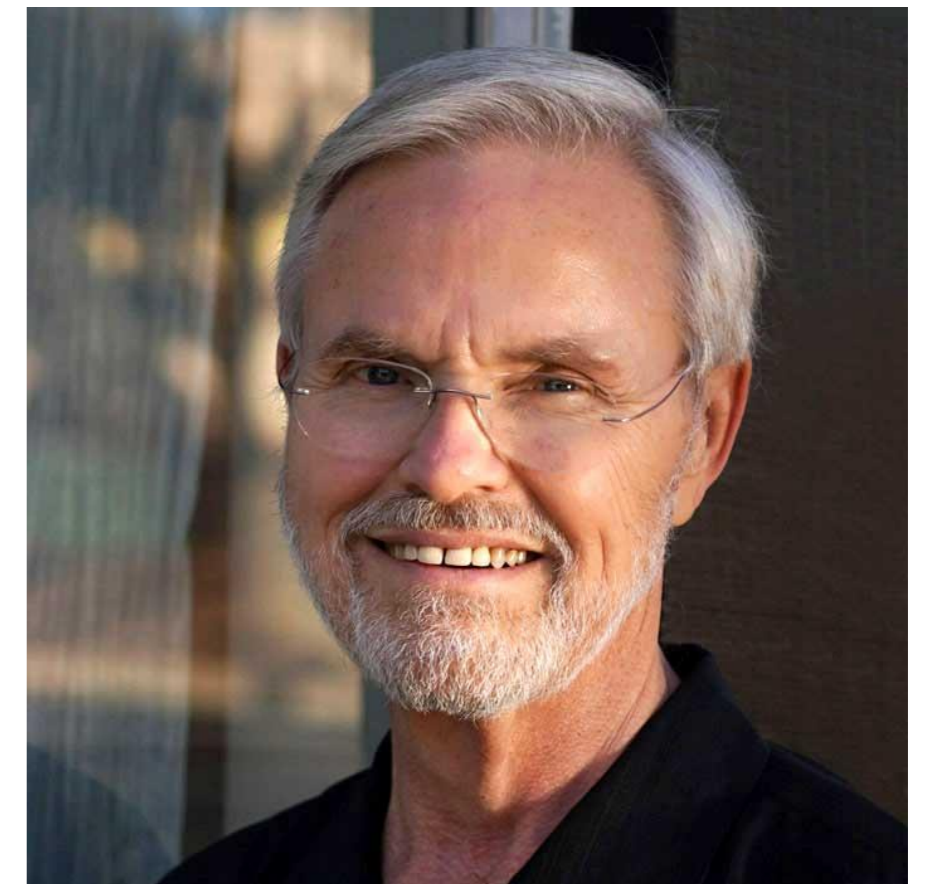
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Presented in Palo Alto, CA—May 25th, 2018

Updated July 14th, 2018

Model of Consciousness and Spirituality
Frank Heile, Ph.D.—Updated July 14th, 2018

To create this PDF, I started with the 73 PowerPoint slides of my May 25th presentation. Some of these slides became multiple pages in this PDF to show the various phases of animations on the slides. Many blocks of text in **blue**—like this text—were added as a summary of what was said verbally during the presentation. Then I went beyond the original presentation by adding many more details about the model, adding some new slides, and making significant improvements in several of the explanations of the original presentation! The result is this 199-page PDF.

I hope you find this PDF to be more understandable and more convincing than the original video of the talk.

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World Models & Agents

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**

By this definition, a **human** is an agent since it has goals, can sense the world, and can make changes to the world to achieve those goals.

The Good Regulator Theorem[1]:

A theorem from control theory says:
"Every Good Regulator of a System Must Be a Model of That System"

A "regulator" is an agent, and the "system" is the world where the agent is trying to achieve its goals. An agent is a "good agent" if it is often able to achieve its goals.

Note, it says the agent **will be a model**—this says there is a kind of 1-to-1 mapping between states of the agent and states of the world. This implies that the agent is exactly a single Model of the World.

The Good Regulator Theorem[1]:

This theorem means that:

⟹ A <u>Good Agent needs:</u>

❑ **A Model of the World.**

Since Humans are good agents, a human must have a Model of the World. This model will tell us about the current state of the world, right now, and it will also predict future states of the world. If the Human is considering some action to achieve a given goal, the World Model can predict if that action will or will not help achieve that goal. Thus, the World Model can help the Human pick the most effective action to achieve the goal.

[1] Conant & Ashby, Int. J. Systems Sci., 1970, vol. 1, No. 2, 89-97, "Every Good Regulator of a System Must Be a Model of That System"

The Good Regulator Theorem[1]:

This theorem means that:

⟹ A <u>Good Agent needs:</u>

❑ **A Model of the World.**

If the agent is part of the world it is changing, then it also needs a model of its presence in that world, which means it needs to have:

❑ **A Self-Model**

Since humans have a body which is part of the world, the Human, as an agent, needs a self-model. Thus, the **Human self-model** would include at least a model of the Human body.

(1) Conant & Ashby, Int. J. Systems Sci., 1970, vol. 1, No. 2, 89-97, "Every Good Regulator of a System Must Be a Model of That System"

Where Do We Live?

Are we ☐ **Humans** living in the **World?**

or,

Are we ☐ **Human Self-Models** living in our **Model of the World?**

I hope the following slides will convince you that we are Human self-models who live in and experience our Model of the World.

I will start by using colors to try to convince you of this...

There are three kinds of photoreceptors in the eye. Each kind is sensitive to different colors of light:

Do We Experience the **World** <u>**OR**</u> Our **Model of the World?**

Blue Light

Red Light

Green Light

Thus, the brain receives the equivalent of **three** different black-and-white images from the eyes—one for each of these three colors.

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

Blue Light

Red Light

Green Light

The brain gets these 3 images and constructs this:

Colors Exist Only in Our Model of the World

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

The colors we experience are **created by the brain**—colors do not exist out in the world. Some people are not convinced, they say, "Yes, the experience of color is constructed by the brain, but colors do tell us about the wavelengths of light out in the real world." They claim there is a one-to-one mapping from the wavelength of light to the color we experience. The following slides show this is not quite true. In some cases, the brain, on its own, just makes up the colors that we experience!

To see this, let's start with Edwin Land's 2-Color experiments…

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

Edwin Land's 2-Color Discovery[1]

Edwin Land is the inventor of the Polaroid instant color camera system.

He was doing an experiment using black and white slide film to take three photographs of a scene with three different colors of light, to produce three black and white grayscale transparent slides (like the three black and white images on the previous slides.)

He then setup three projectors using red, green, and blue filters to project these slides onto a screen. If all the images are lined up correctly, a full-color image is seen on the screen…

[1] http://www.greatreality.com/Color2Color.htm

This is the setup. After he finished one day, he was taking the system apart, he turned **off the blue** projector and **took out the green** filter...
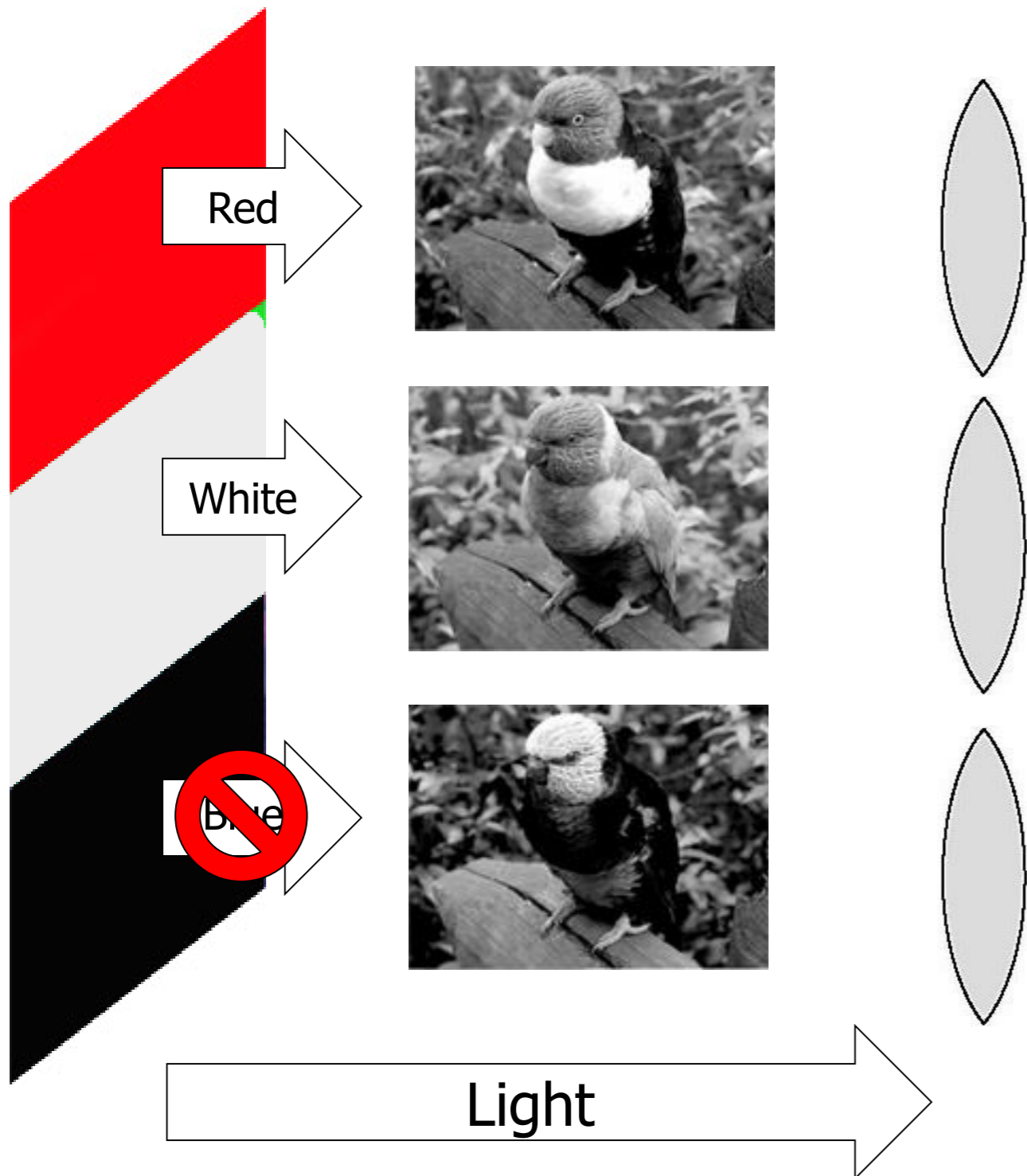

White Light

Red

Green

Blue

Light

(1) http://www.greatreality.com/Color2Color.htm

14
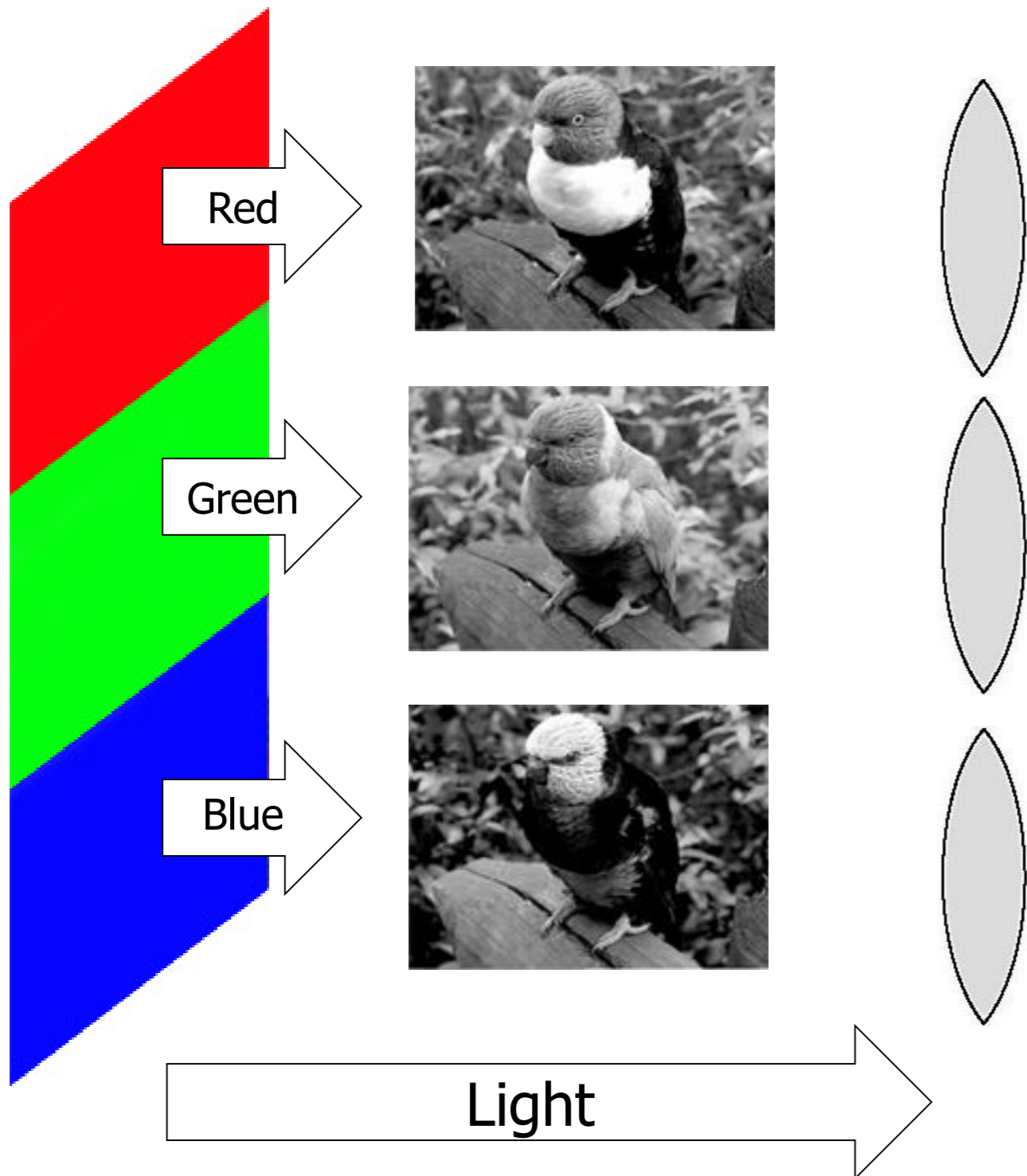
Edwin Land's 2-Color Discovery[1]

So, he had one projector projecting red light and one projecting white light. What do you think he would have seen with this setup?
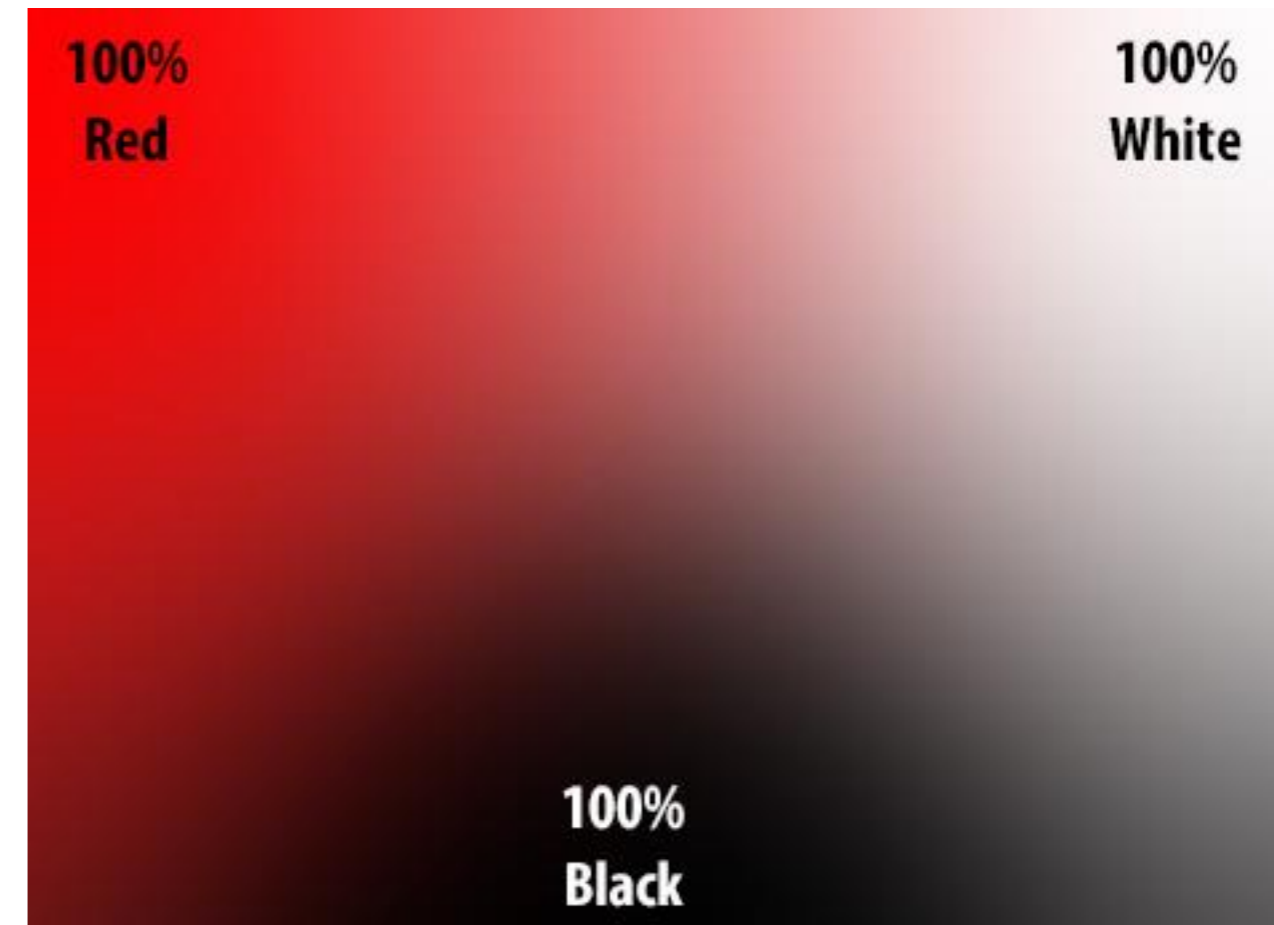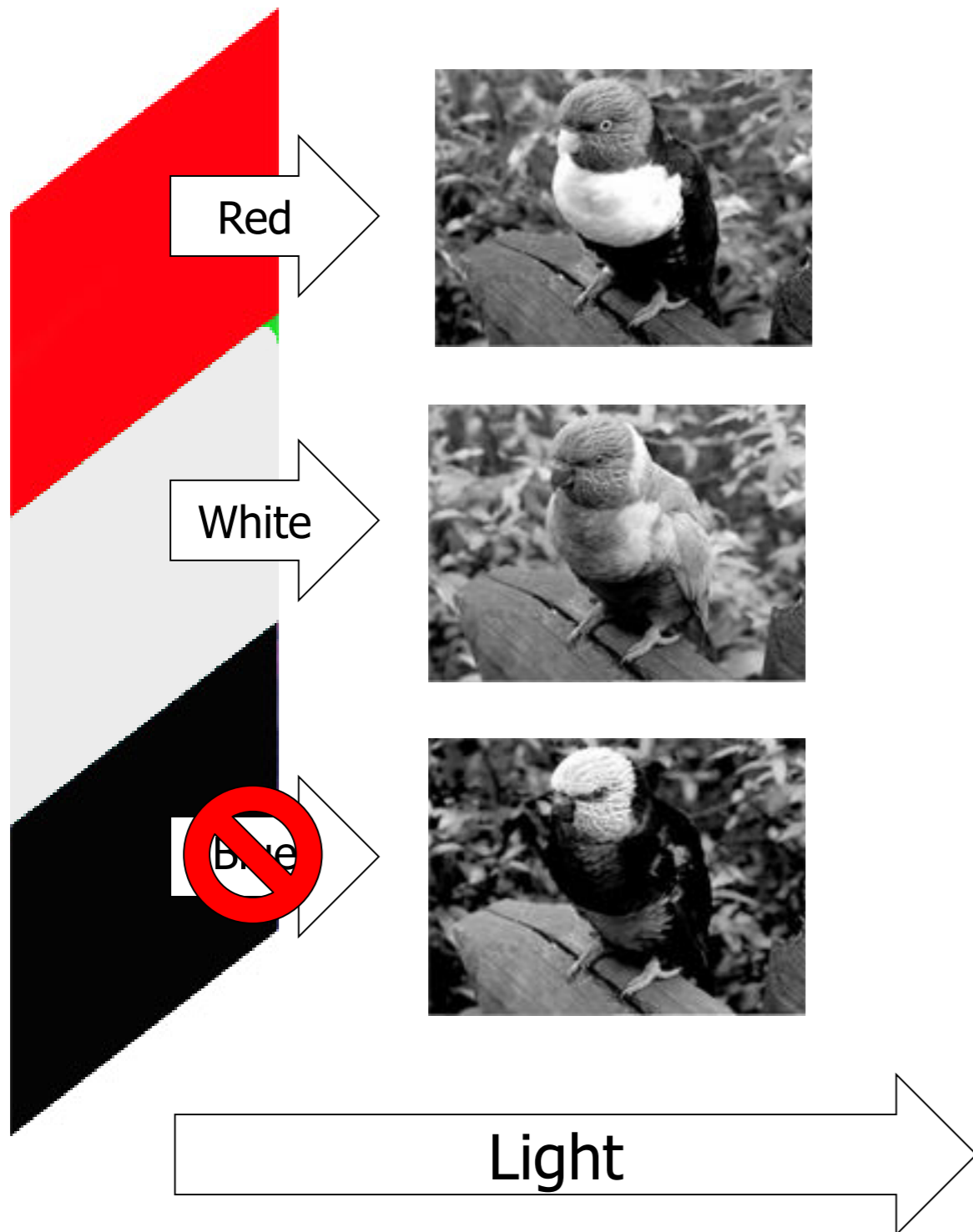
White Light

Red

White

~~Blue~~

Light

[1] http://www.greatreality.com/Color2Color.htm

Wouldn't each point on the image receive a mixture of either red light, white light, or no light (black)? Thus, shouldn't each point on the 2-color image have a color chosen from this image?

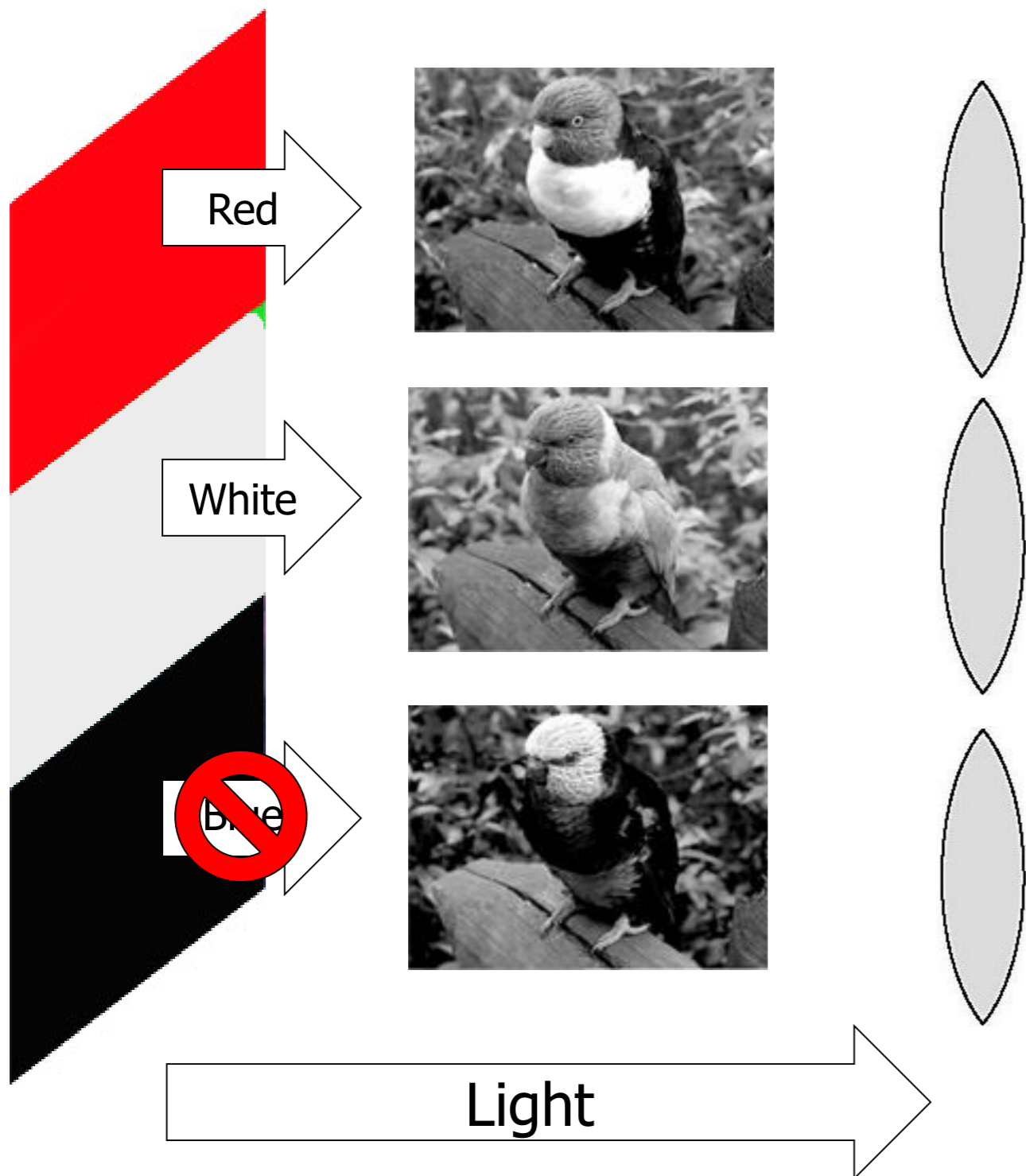White Light

Red

White

~~Blue~~

Light

100% Red

100% White

100% Black

The colors in this image have all possible ratios of red, white, and black.

Edwin Land's 2-Color Discovery[1]

White Light

Red

White

~~Blue~~

Light

Maybe they should have seen something like this?

(1) http://www.greatreality.com/Color2Color.htm
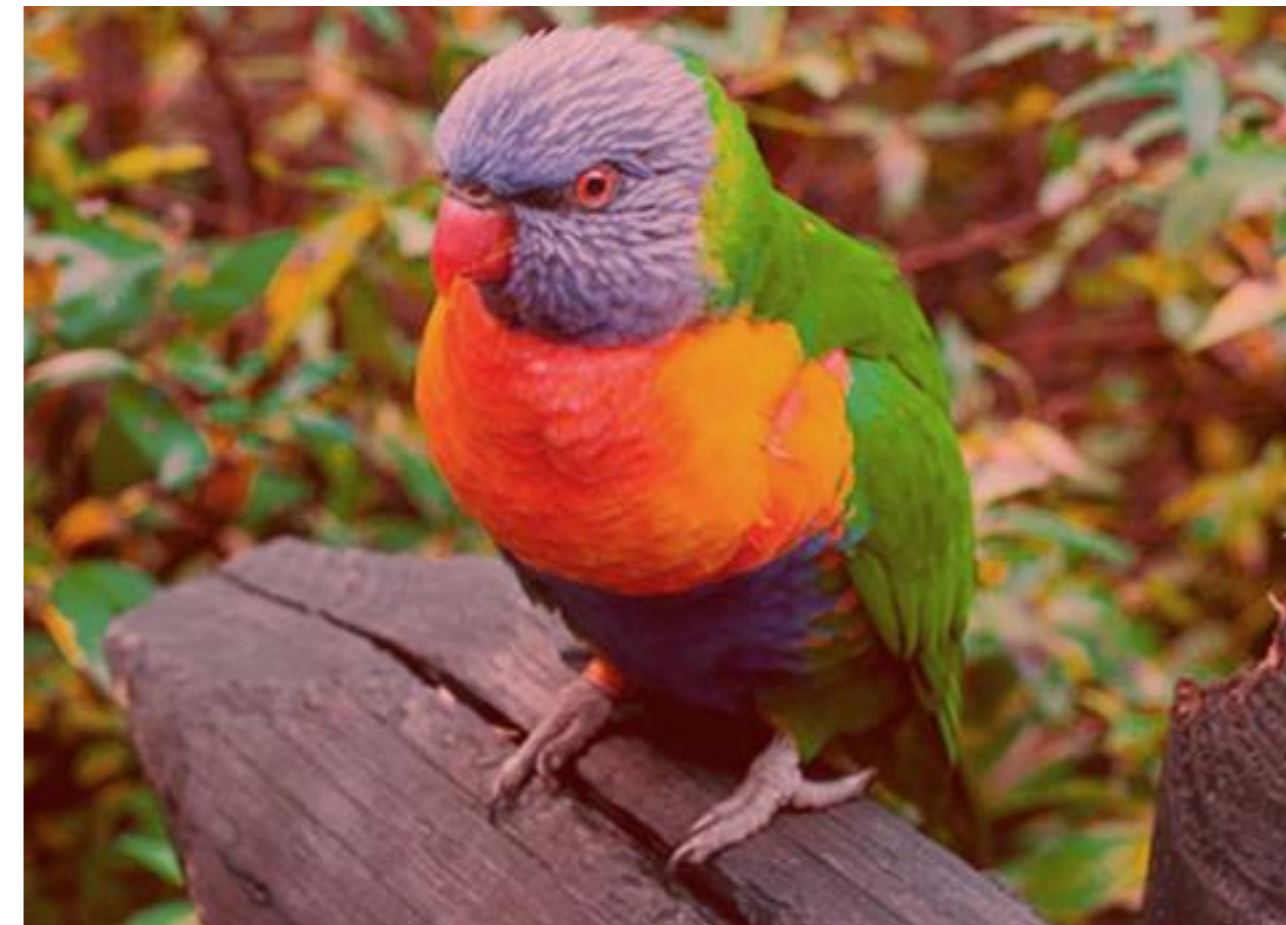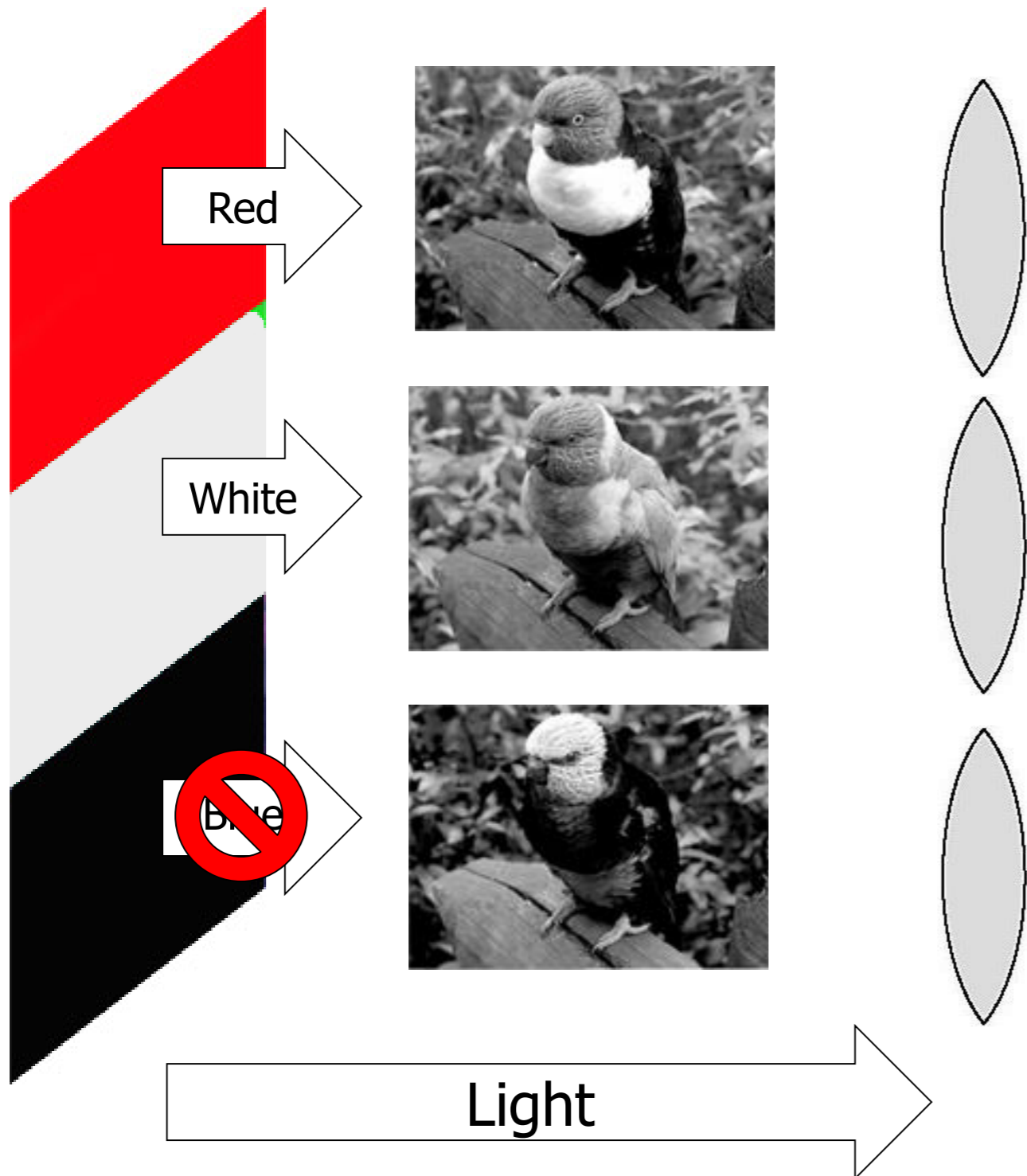
Instead, Edwin's assistant saw this! He asked Edwin: "**Where did all the colors come from?**" …because they both saw colors like these:

White Light

Red

White

Blue

Light

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Edwin Land's 2-Color Discovery[1]

These colors were not as saturated as the full-color image,...

White Light

Red

Green

Blue

Light

[1] http://www.greatreality.com/Color2Color.htm
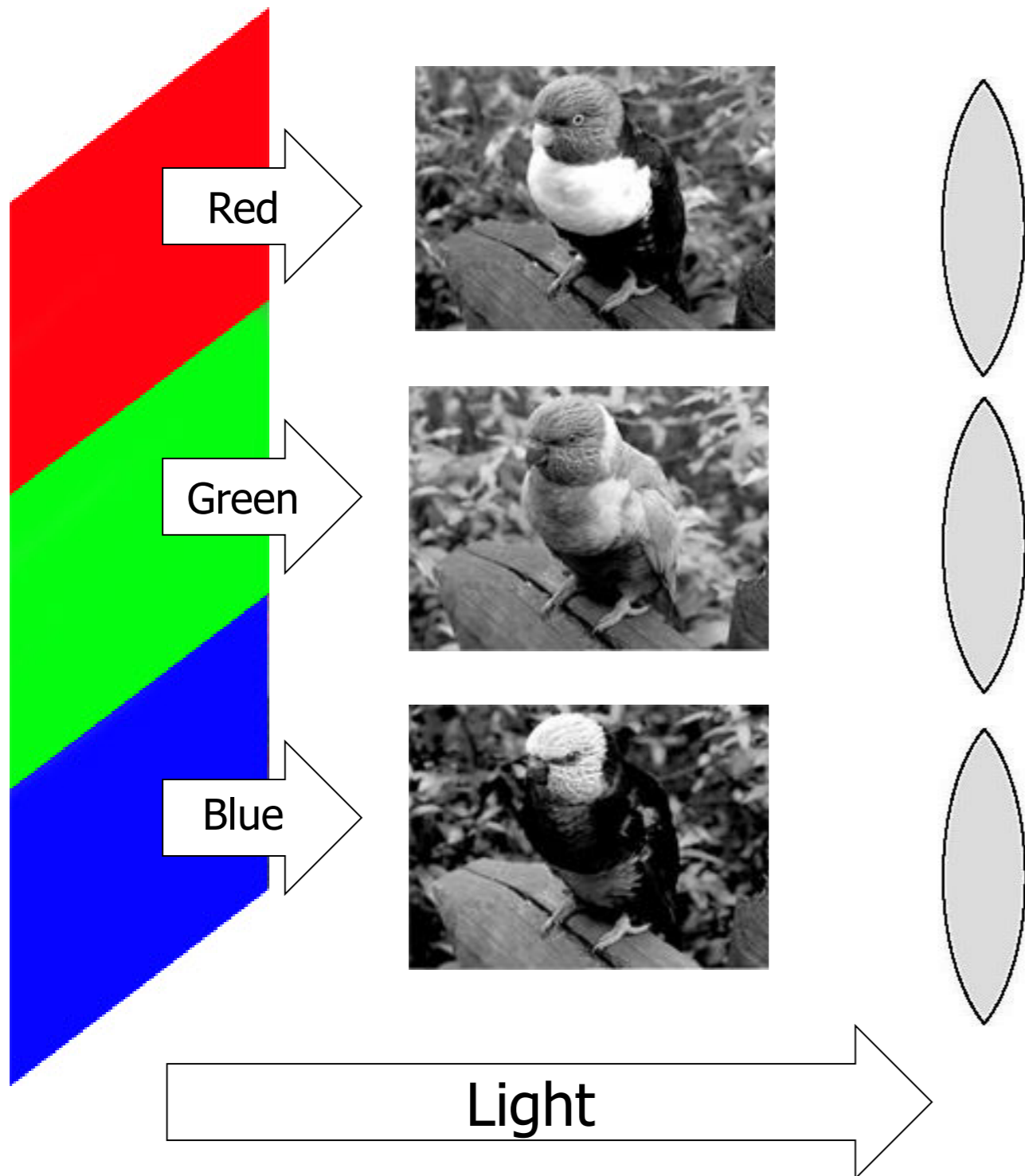
Edwin Land's 2-Color Discovery[1]

…but there were definitely yellows, greens, and blues in the image. This shows that the experience of color is **not** determined by the wavelength of the light coming into the eye.

White Light

Red

White

Blue

Light

[1] http://www.greatreality.com/Color2Color.htm

Color Illusion

Apparently, color is the World Model's best <u>interpretation</u> of the overall visual scene that takes into account the wavelength of light plus many other factors, such as an estimation of the color of the light source, how color gradients vary across su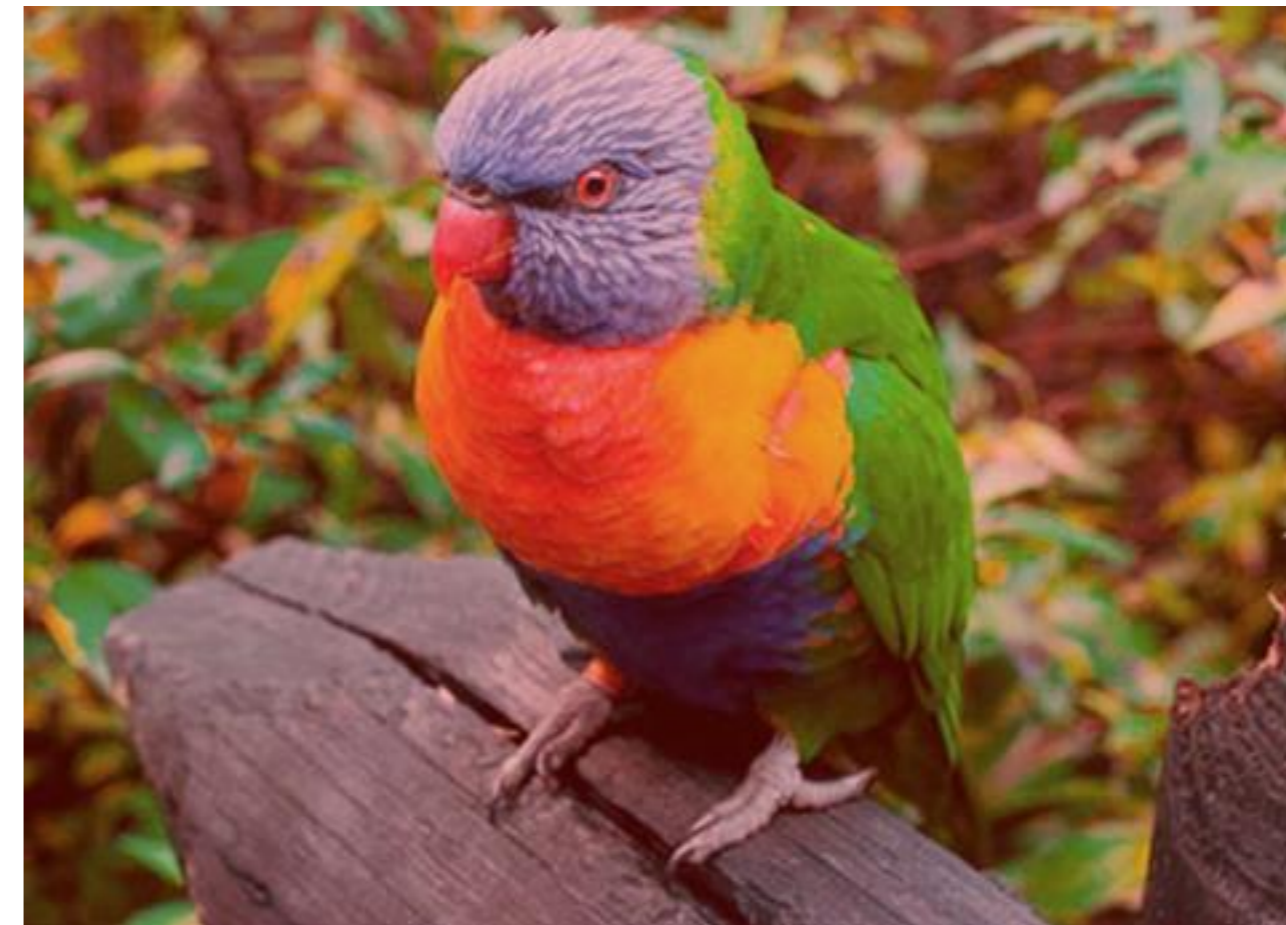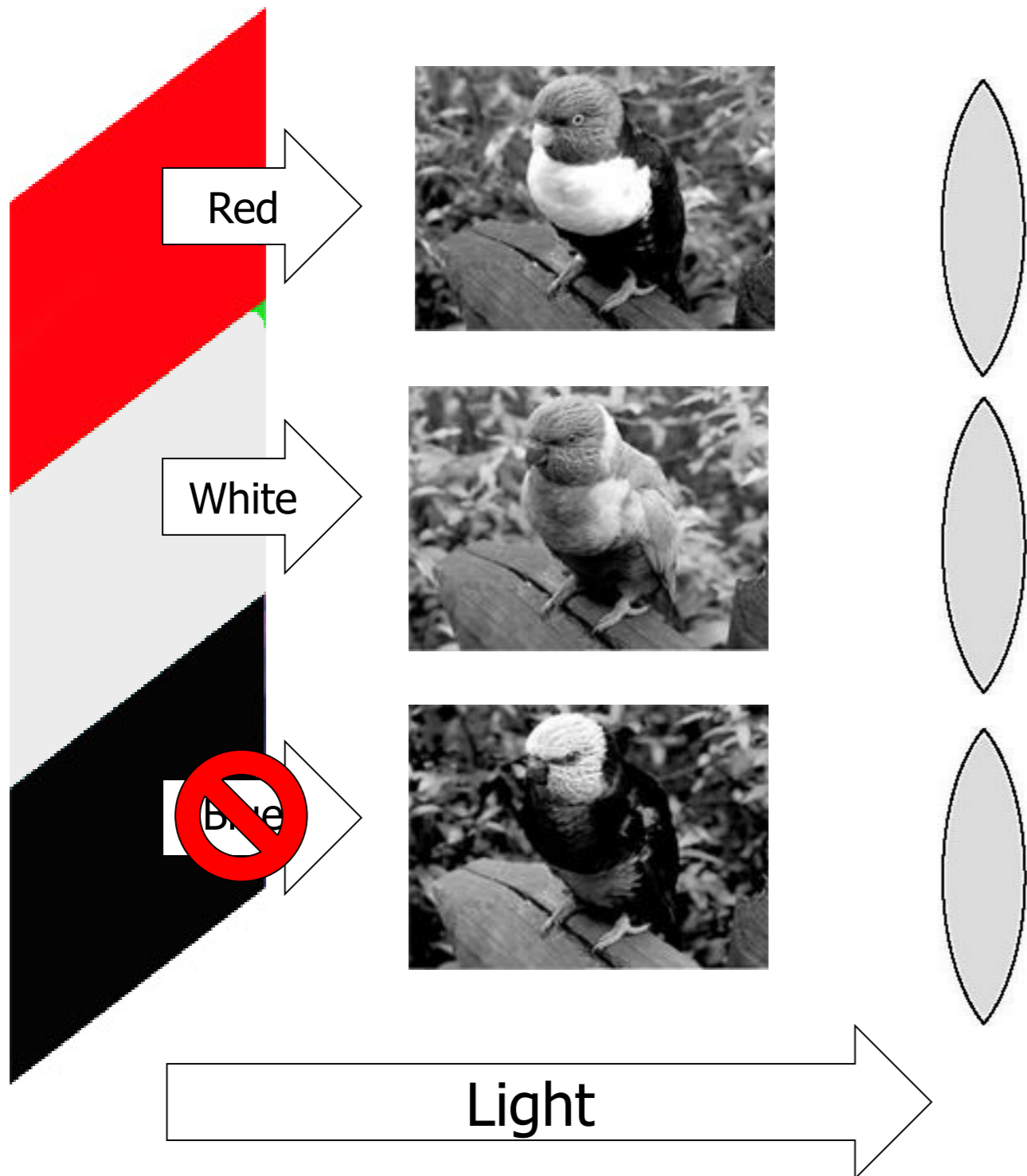rfaces of 3D physical objects, and perhaps even previous experience with similar scenes. My claim is that the World Model is **NOT** just using the wavelengths of light entering the eye to produce the color experience.

By the way, I had to fake the "2-color image" of the bird, since I would have needed two different projectors in this room to recreate the actual effect for you during this presentation. However, there is a Color Illusion that illustrates my claim; and you can experience the illusion directly right here and right now.

See the next slide…

Color Illusion

In this image, do the left and right rectangles appear to be different colors? To my eye, they do look different—the left is blue-green, and the right is yellow-green. However, they are actually, **exactly** the same color of green!
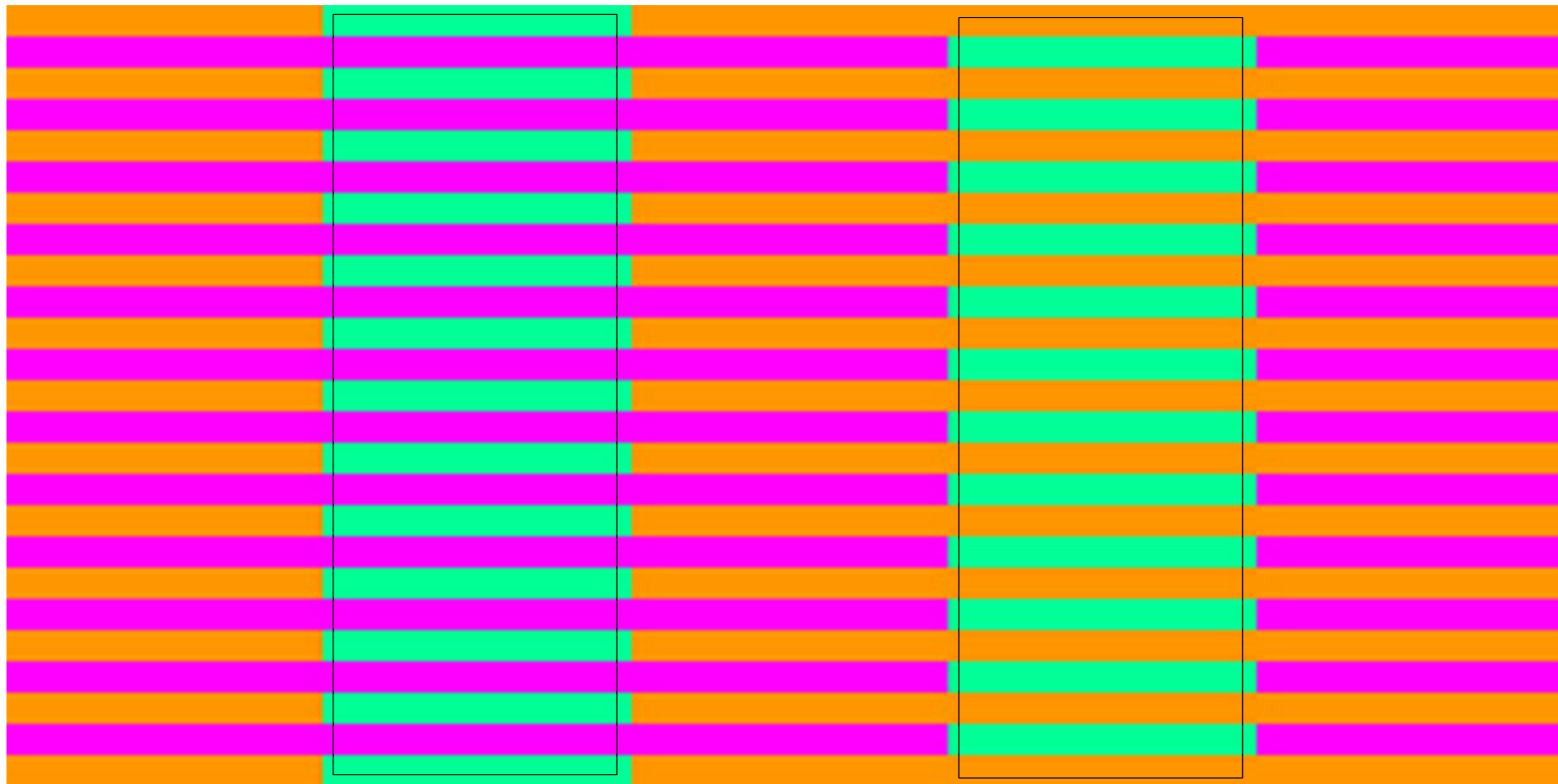
Left Rectangle

Right Rectangle

Color Illusion

To prove they are the same, I have erased the purple and orange stripes where they overlap the two rectangles. Here you see the rectangles are the same color. The RGB values of that green color are shown here: (R, G, B vary from 0 ⇒ 255)

Red   =   0
Green = 149
Blue   = 255
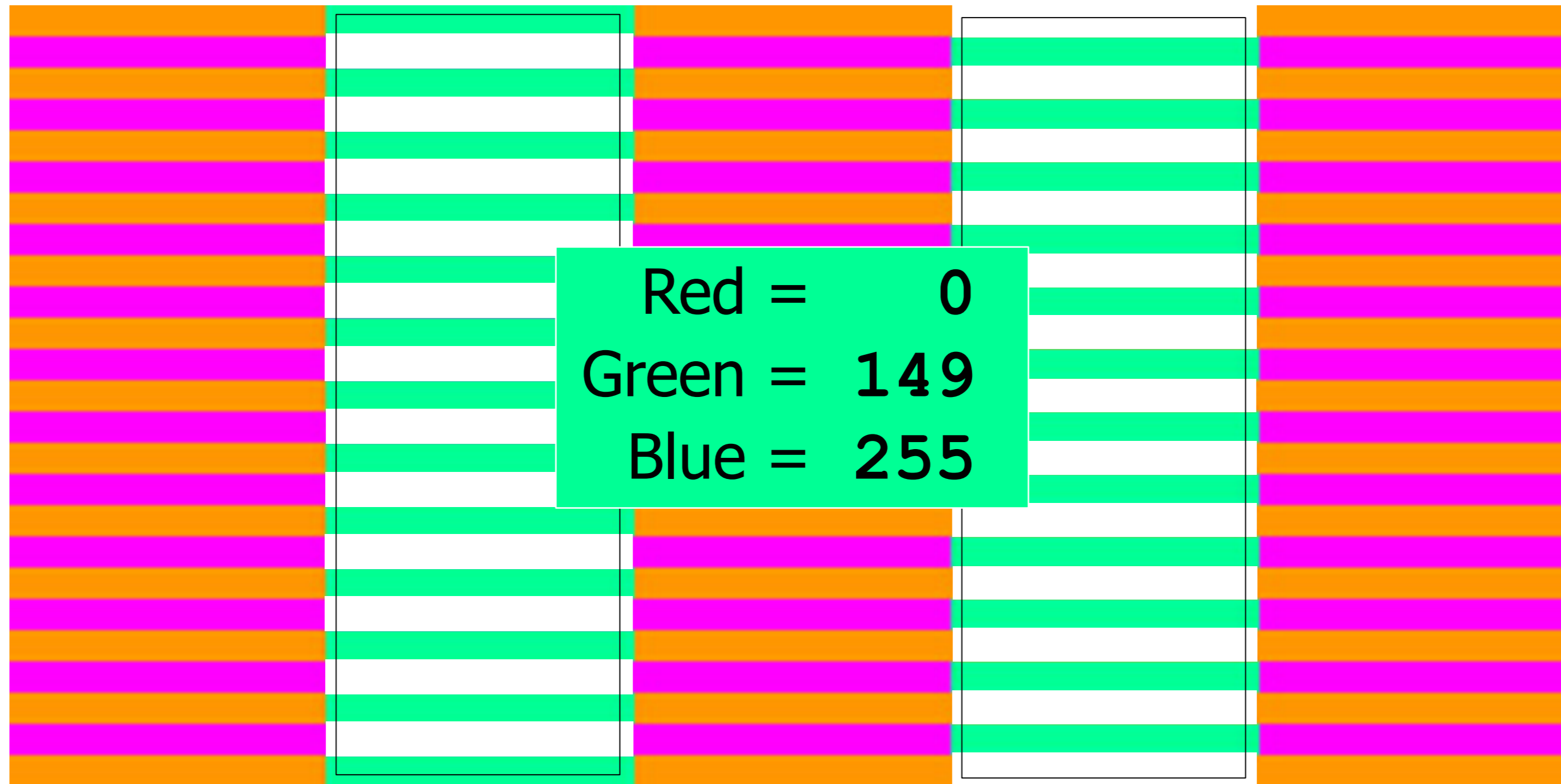
Left Rectangle

Right Rectangle

Color Illusion

Here we go back to the original image. I wanted to measure how different these two colors are, so I created a thick border around each rectangle and made the thick border match the inner color experience…
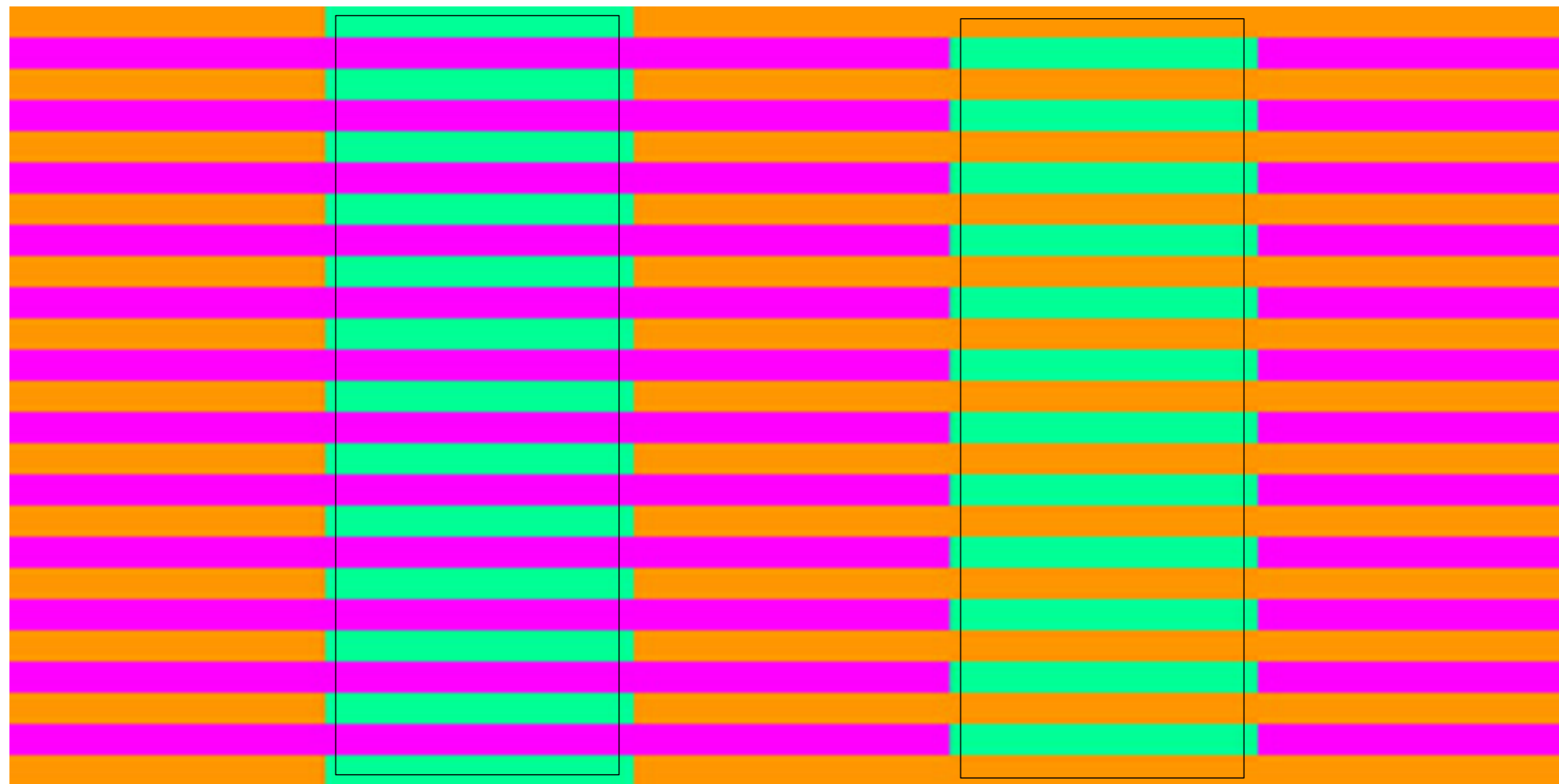
Left Rectangle   Right Rectangle

Color Illusion

To my eyes, these borders match the interior colors. Do they match for you?

On the next slide, I will completely erase the original Color Illusion image, and fill in each rectangle with the border color…

Left Rectangle

Right Rectangle

Color Illusion

So, these are the colors we experienced in the original Color Illusion image…
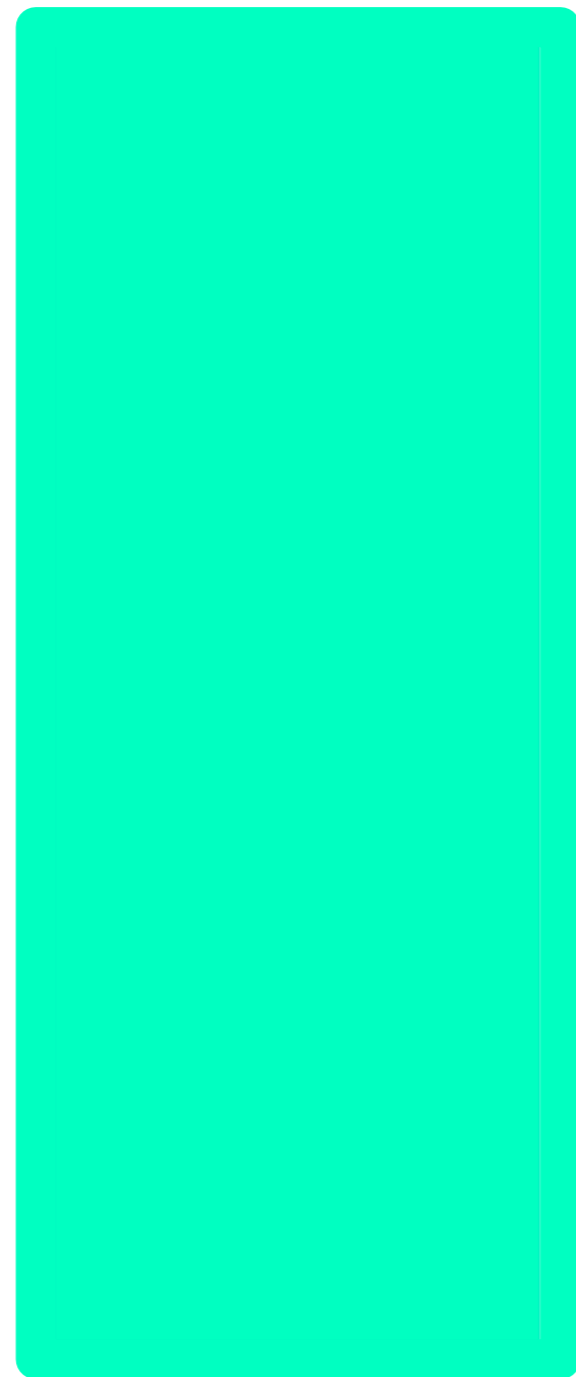
Left Rectangle
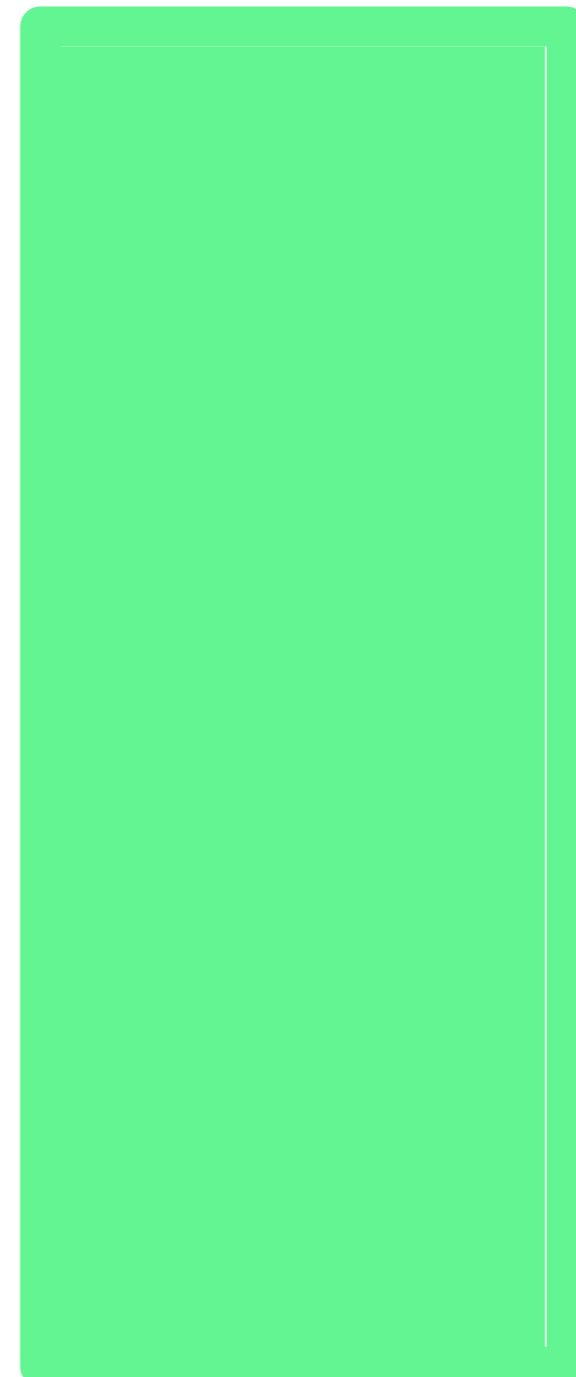
Right Rectangle

Color Illusion

Left Color

Actual Color

Right Color

Red = 0
Green = 255
Blue = 243

Red = 0
Green = 149
Blue = 255

Red = 98
Green = 146
Blue = 245

Left Rectangle

Right Rectangle

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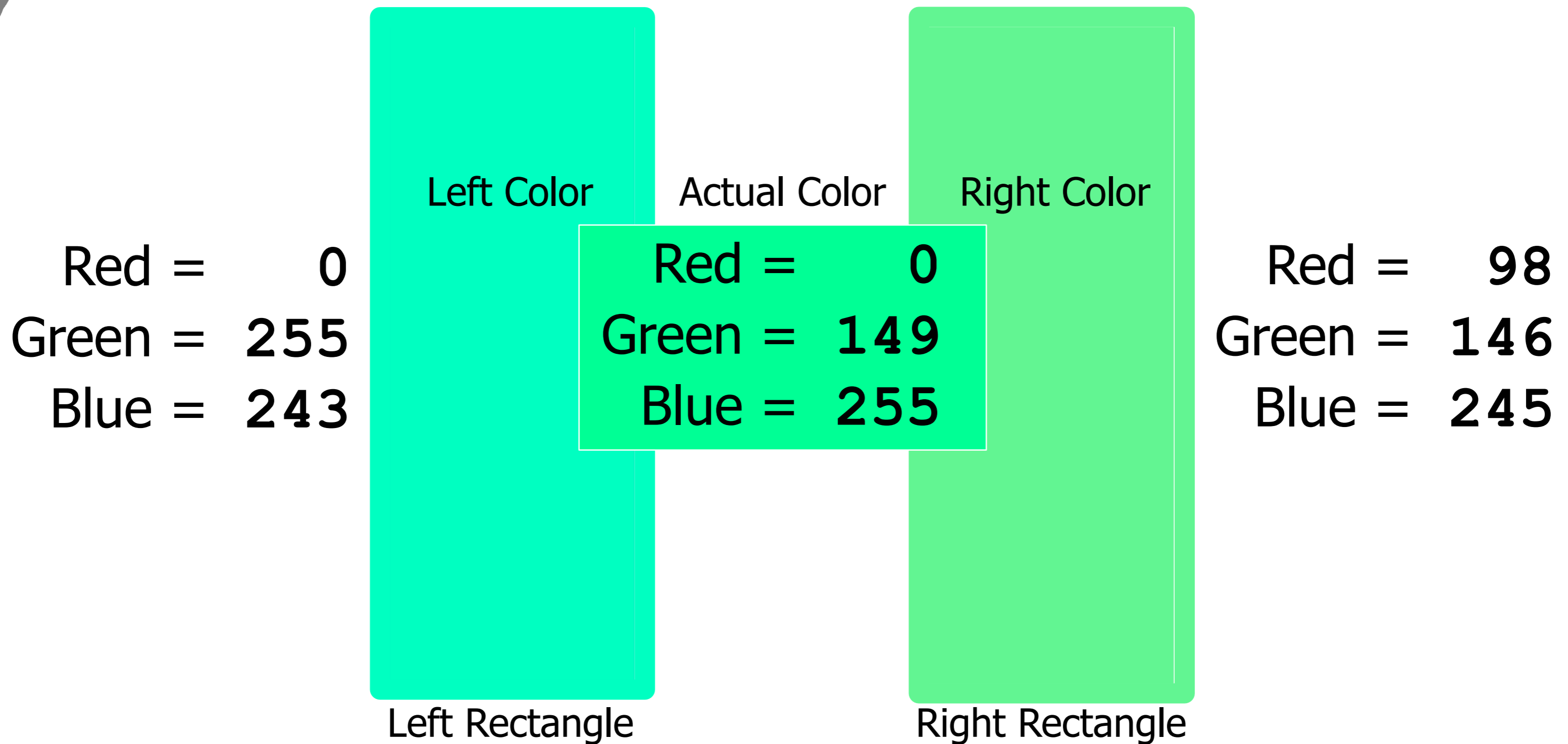
Color Illusion

The left color is significantly greener than the actual color, and the right is redder. Thus, the brain is experiencing colors that don't match the actual wavelengths of light received by the eye (which is equivalent to the RGB values of the actual color). Apparently, the purple and orange bars in the Color Illusion image changed the experienced color!

Left Experienced Color   Actual Color   Right Experienced Color

Red = 0   Red = 0   **+98 →**   Red = 98

Green = 255   **←+106**   Green = 149   Green = 146

Blue = 243   Blue = 255   Blue = 245

The next slides show some other (non-color) reasons why our visual experiences do not match what the eyes are sending to the brain!

Left Rectangle   Right Rectangle

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

We experience the entire world as crisp and in-focus even though our peripheral visual acuity drops rapidly as you move from the center of vision to the periphery.

At 10 degrees we could not legally drive, and in the periphery, we would be legally blind. In addition, there is also a blind spot!

Yet, when we look out at the world, we experience this...

Peripheral Visual Acuity vs Angle
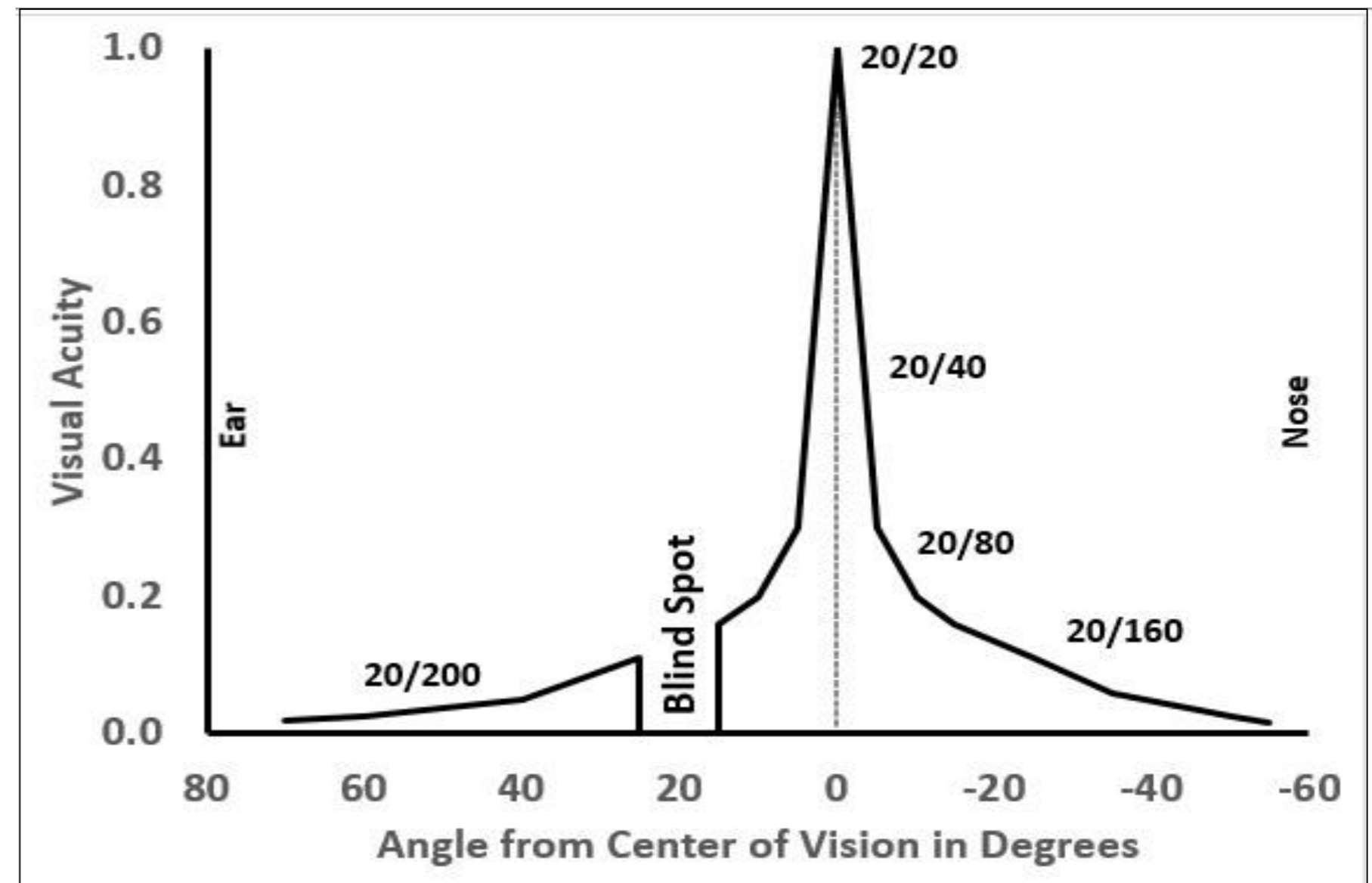
What We **Experience** is **NOT** What the Eyes Send to the Brain

Keep your eyes on the **green star**, and experience that the entire scene seems to be crisp and in-focus.

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

Yet, **this** is what the eyes send to the brain! Even with one eye closed* we still do not see the blind spot!

Blind Spot

* The blind spot is in different locations in each eye, so with two eyes open, each eye could "fill-in" the other eye's blind spot.

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

The reason why we experience this is because **we experience the World Model**, not the information our eyes send to the brain!

The World Model knows that the entire world is always crisp and in-focus, so it makes up a crisp and in-focus **experience** for the periphery of the World Model. Similarly, the blind spot is filled with an experience that matches the visual information that surrounds the spot.

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

Another Example:

Rapid Eye Saccades…

A rapid eye saccade is when the eyes quickly shift from one fixation point to another fixation point. When we do this, the image on the retina of the eye shifts dramatically, yet, our experience is that the world is stationary. This is because 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 effect is that we are momentarily blind while the eyes are rapidly "saccading," and yet we do not experience that blindness. You can experience that you are blind during a saccade by getting close to a mirror and fixating first on the left eye and then on the right eye, shifting back and forth several times. You will not experience the eyes moving at all since you are blind whenever the eyes are moving.

If you want to "catch" the experience of your eyes moving, use the forward-facing camera of your cellphone as a mirror, then put the cellphone up close to your eyes and do the same experiment. Because of the electronic processing delay of the cellphone, you will be able to experience the final part of your eye's saccading motion. This shows that if we were not blind during a saccade, we would **see the world moving**.34

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

All these effects show that all our visual experience is of the **visual World Model**, not an experience of what the eyes are sending to the brain.

The same thing applies to all our experiences. For example, the auditory experience of the beauty of a musical performance is created by the brain. The air pressure at the ear as a function of time would be a very erratic rapidly changing waveform—it wouldn't have a "beautiful" property. Even if we look at a frequency domain analysis of the sound, we still don't find that "beauty." The beauty of the sound is created by the brain—just at the beauty of colors are created by the brain.

Similarly, the sense of touch of our hand touching our leg is the experience of the brain's model of the hand touching the model of the leg…

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Therefore...

We are **self-models** *living in* and *experiencing* our **Model of the World**

If you disagree with this conclusion, please contact me and explain **why**. This will really help me see the flaws in my argument and may help me provide more convincing evidence in future presentations, and in the book.

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Frank Heile, Ph.D.—Updated July 14th, 2018

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Three-Agent Model

The Human is an agent. I propose decomposing the human agent into three sub-agents to gain insights about consciousness in general, and about the different kinds of human conscious awareness that we might experience. This model will also explain the origin, purpose and efficacy of spirituality.

The Three-Agent Model:

- **Thinker**
  - General Problem Solver

    Solving problems may require moving the body using thoughtful behavior.

- **Doer**
  - Controls the Body

    ...using automatic behaviors. The Doer also executes the Thinker's thoughtful behaviors.

- **Experiencer**
  - Creates the World Model

    ...that is used by both the Thinker and Doer.

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Thinker & Doer are **Consistent** with <u>Other</u> **Experimentally Derived** Cognition Models

In the field of Psychology: **Dual Process Theory**[1]	
Thinker	**System 2**: slow, deliberative, explicit, & conscious
Doer	**System 1**: fast, intuitive, implicit, & subconscious

➤ [1] **Daniel Kahneman** popularized **Dual Process Theory** in his 2011 book, "***Thinking, Fast and Slow.***"

The way psychologists determine whether System 1 (the Doer) or System 2 (the Thinker) is active, is by designing a multiple-choice test question where the intuitive answer is the wrong answer. If an answer seems right, even very smart and educated subjects will tend to go with that first, quick, and easy intuitive answer. It takes thoughtful effort and time, to actually think through to the correct answer.

Thinker & Doer are **Consistent** with <u>Other</u> **Experimentally Derived** Cognition Models

In the field of Psychology: **Dual Process Theory**[1]	
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[1] **Daniel Kahneman** popularized **Dual Process Theory** in his 2011 book, "***Thinking, Fast and Slow.***"

The result is that, in most cases, large majorities (~75%) of all groups tested will tend to give the wrong, intuitive Doer answer.

It turns our that many of the kinds of questions with "wrong" intuitive answers are about probability—apparently humans have lousy intuitive knowledge about probability. See https://en.wikipedia.org/wiki/Conjunction_fallacy for an example (this is the Conjunction fallacy / "Linda problem").

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Thinker & Doer are **Consistent** with <u>Other</u> **Experimentally Derived** Cognition Models

<u>*Neuroscience:*</u> **Action-Outcome/Stimulus-Response Model**[2]

Thinker	Action-Outcome contingency system / Associative Network
Doer	Stimulus-Response habit system / Sensorimotor Network

[2] Yin & Knowlton, (2006) The role of the basal ganglia in habit formation. Nat. rev. Neuro. 7. 464-76

The "Action-Outcome" (AO) system tries to determine what action will produce the desired outcome; therefore this is goal-directed behavior. AO actions correspond to thoughtful behavior determined by the Thinker.

Stimulus-Response (SR) habits are one kind of automatic behavior produced by the Doer. (Other kinds of automatic Doer behavior would include instincts, emotion motivated behaviors and reflexes.)

Thinker & Doer are **Consistent** with <u>Other</u> **Experimentally Derived** Cognition Models

In the field of

<u>*Neuroscience:*</u> **Action-Outcome/Stimulus-Response Model**[2]	
Thinker	Action-Outcome contingency system / Associative Network
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[2] Yin & Knowlton, (2006) The role of the basal ganglia in habit formation. Nat. rev. Neuro. 7. 464-76

Using rodents as experimental subjects, neuroscientists were able to determine the different neural circuits involved in both AO and SR systems. They have also shown how repeated AO behaviors can become SR habits. AO behaviors are obviously goal-directed, and hence SR habit behaviors can also be considered to be goal-directed (i.e., in a sense, when a behavior becomes a habit, the Doer has effectively copied the Thinker goal).

Given a Thinker and a Doer

- ## The **Experiencer** is **<u>required</u>** by the Good Regulator Theorem

The Good Regulator Theorem requires that both the Thinker and Doer have a World Model. Theoretically, each of the agents could contain their own separate World Model. However, that would be very wasteful of brain resources and may produce worse results since these two models may be inconsistent. Therefore, we hypothesize that a single agent, the Experiencer, constructs the World Model used by both the Thinker and Doer. In humans, the Experiencer uses approximately the back 60% of the brain (the sensory input and association areas) to compute this World Model. Next, we present a block diagram of the three-agent model:

The Three-Agent Model of the Human Brain

Modern Human Brain

Experiencer

Thoughtful Speech

Thinker

Conceptual & Sensory Model of the World

including the

Body Model &

Goals and Self-Models of the 4 Agents

Problem Solver

Slow

Spoken & Written Language Input

Vision, Hearing, & All Body Senses

Fast & Wide

Doer

Controls the Body

Automatic Speech

Spoken & Written Language Output

Control all Muscles and Glands

45
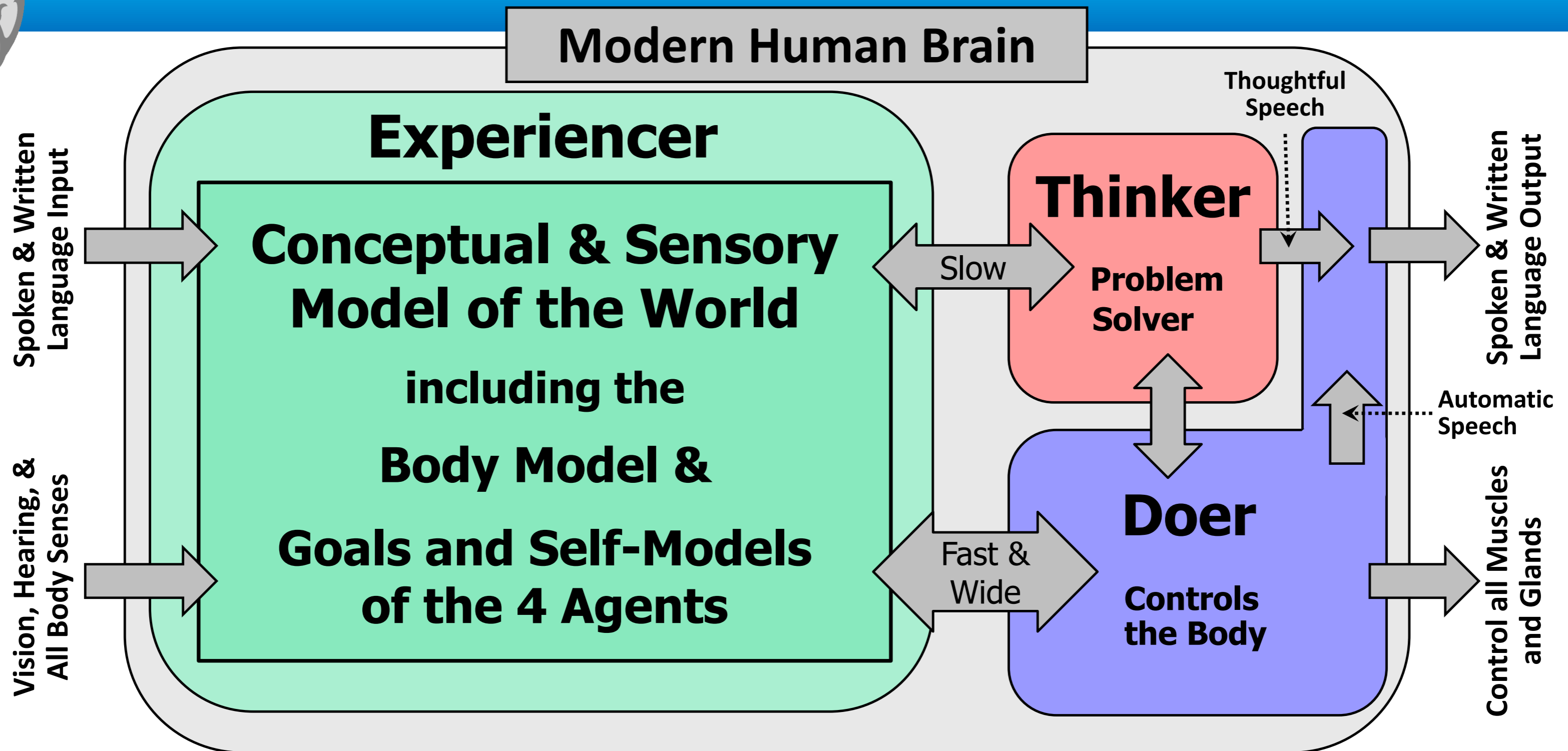
The Thinker is the general problem solver which produces **thoughtful speech** and **thoughtful behavior**.

The Doer controls the body which includes the Thinker's thoughtful behavior and speech, plus the Doer's own **automatic behavior** and **automatic speech**.

The great majority of all speech and behavior is automatic. During the talk, I said, "I hope the Doer does this talk since it will be smoother and have fewer hesitations!"

Brain

Thoughtful
Speech

Thinker

Problem
Solver

Doer

Controls
the Body

Spoken & Written
Language Output

Automatic
Speech

Control all Muscles
and Glands
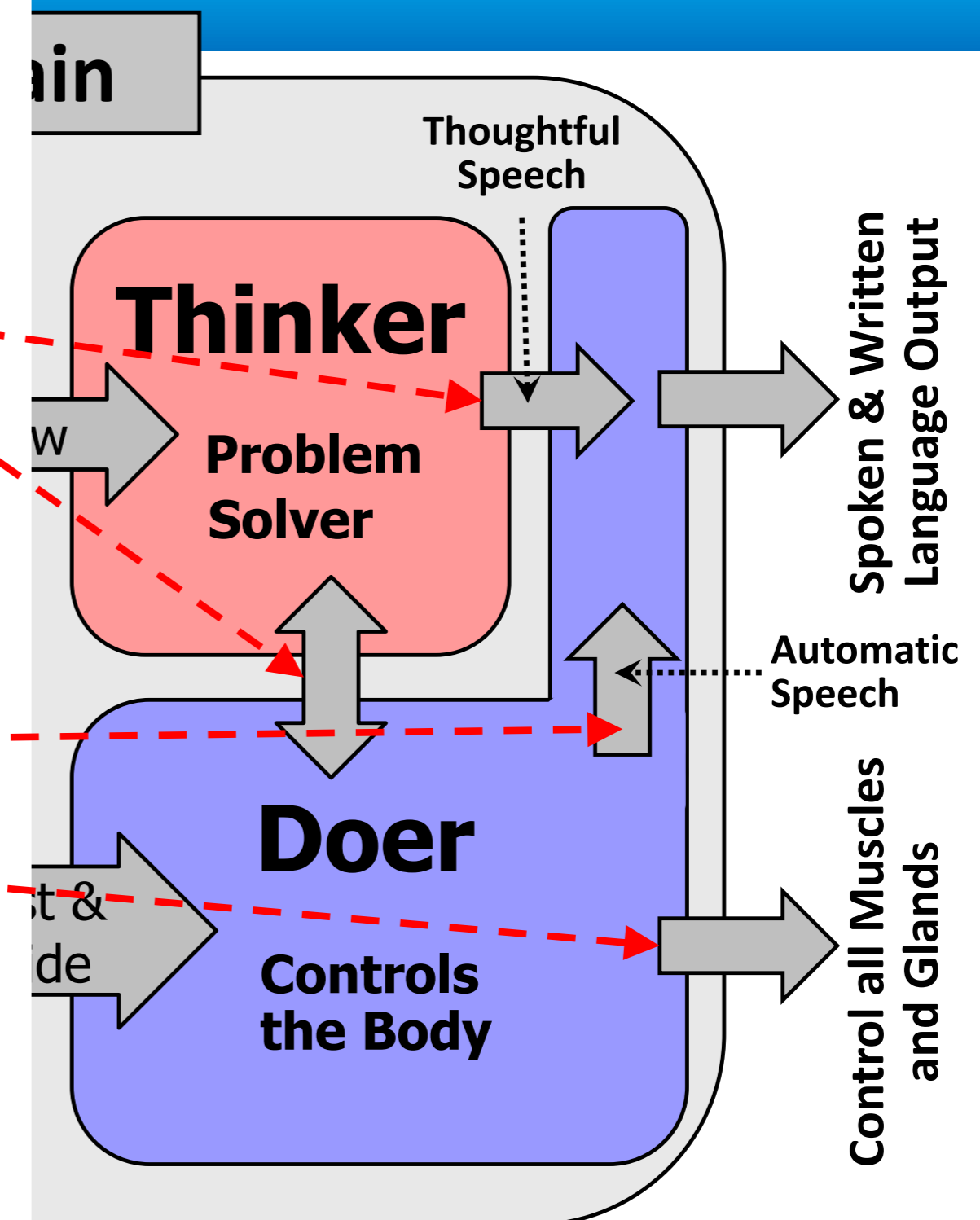
The Thinker-Experiencer interface is a low bandwidth "serial" connection for a two-way stream of concepts plus the "inner voice"—so it is "Slow."
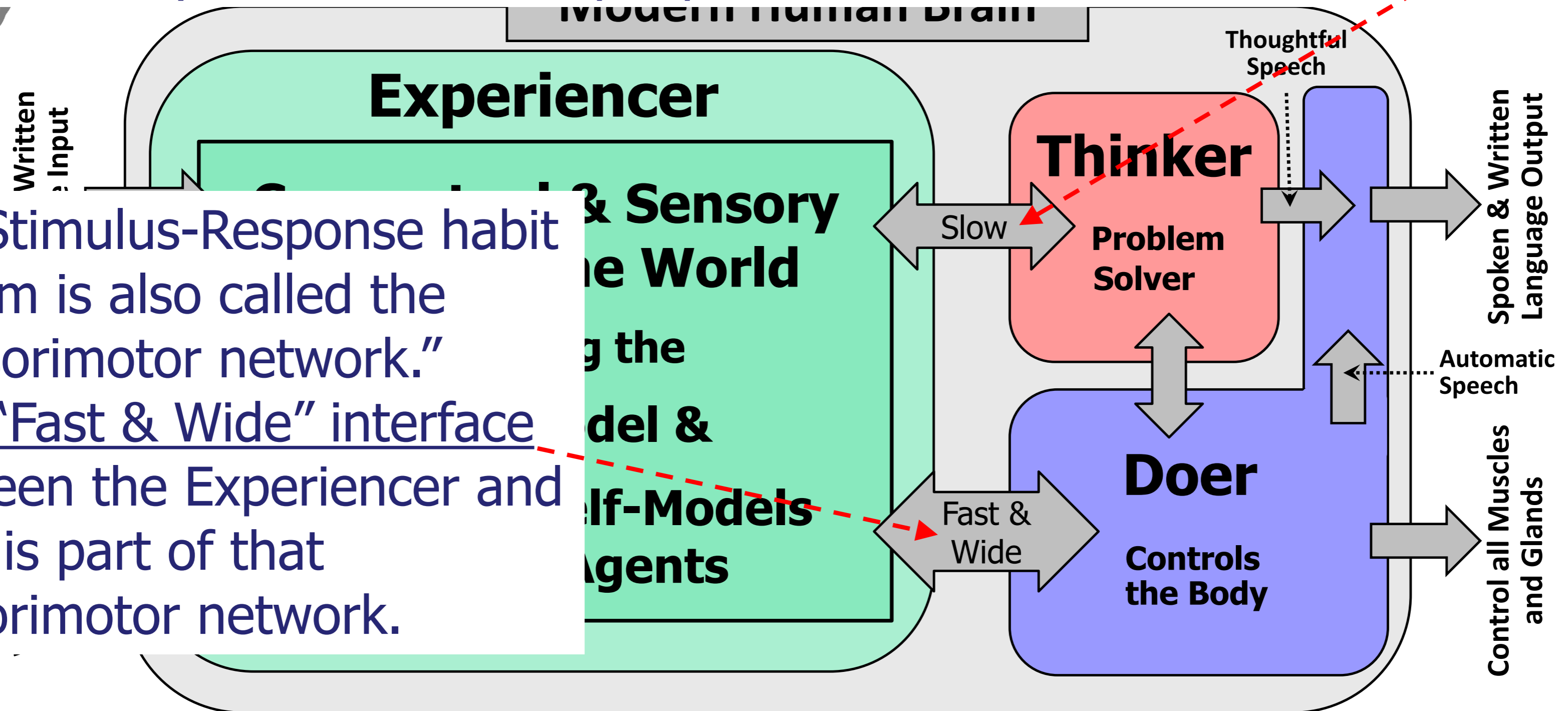
Modern Human Brain

Experiencer

Conceptual & Sensory ... the World

... g the

... del &

... elf-Models
... Agents

Thinker

Problem Solver

Slow

Thoughtful Speech

Spoken & Written Language Output

Written ... Input

Doer

Controls the Body

Fast & Wide

Automatic Speech

Control all Muscles and Glands

The Stimulus-Response habit system is also called the "sensorimotor network."
This "Fast & Wide" interface between the Experiencer and Doer is part of that sensorimotor network.

The Three-Agent Model of the Human Brain

Spoken & Written Language Input

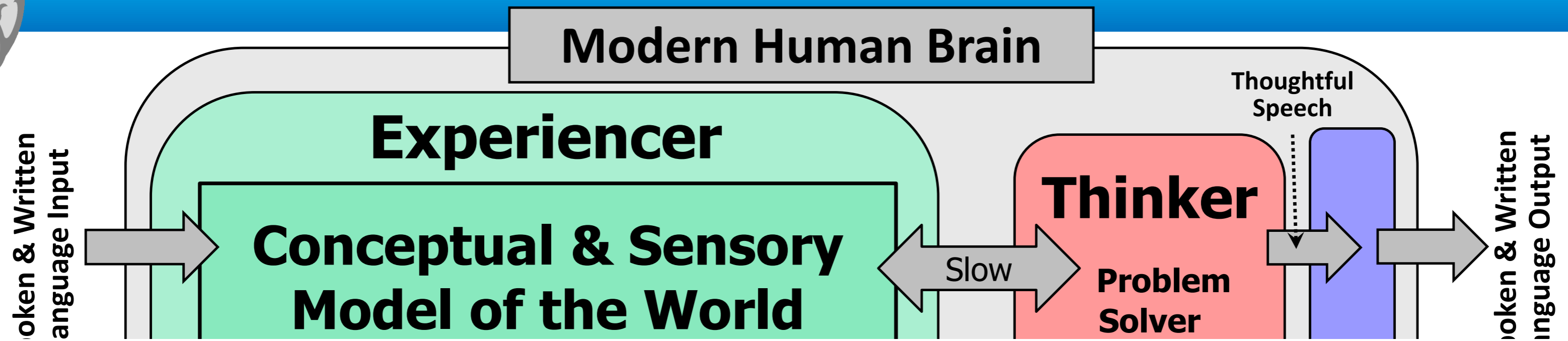**Vision, Hearing, & All Body Senses**

The Experiencer creates both **conceptual** and **sensory** models of the world. These are not two different kinds of models—there is really only one model which has sensory models at one end the spectrum and high-level conceptual models at the other end. For example, the visual sensory system first detects edges, then it connects multiple edges together to create a surface and connects multiple surfaces together to produce objects. These edges, surfaces, and objects are all concepts, and concepts continue all the way up to faces, predators and prey; and finally, to all kinds of **totally abstract concepts**.

Spoken & Written Language Output

Automatic Speech
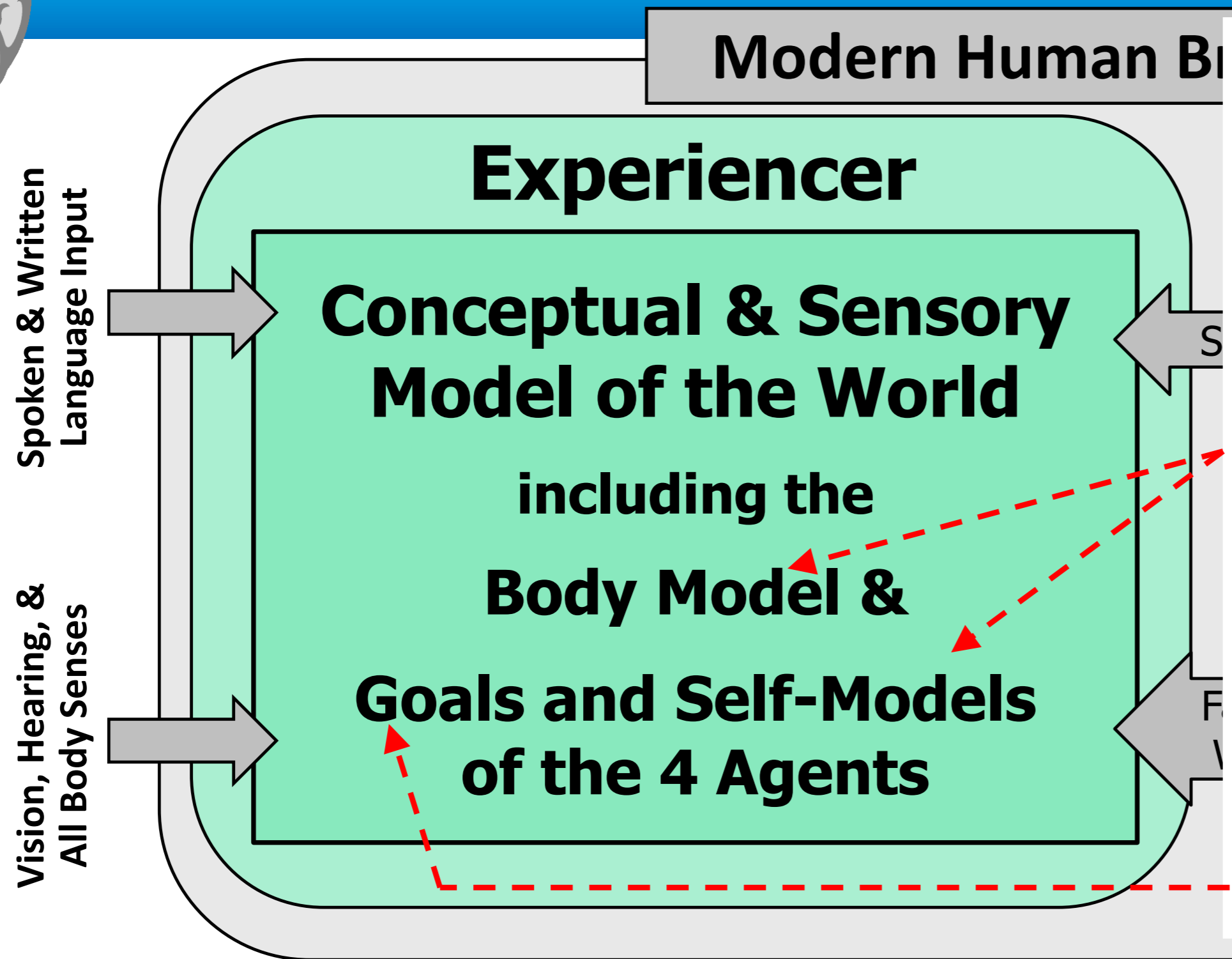
Control all Muscles and Glands

The Three-Agent Model of the Human Brain

Modern Human Brain

Spoken & Written Language Input

Experiencer

Conceptual & Sensory Model of the World

Slow

Thinker

Problem Solver

Thoughtful Speech

Spoken & Written Language Output

The World Model has a sensory and conceptual representation of the current state of the physical world. It also contains a conceptual representation of the current state of the conceptual world (which includes non-physical, purely abstract concepts). The World Model predicts future states of either world based on the possible planned activity of the Thinker or Doer. The past sensory and conceptual history of the world is also included in the World Model.
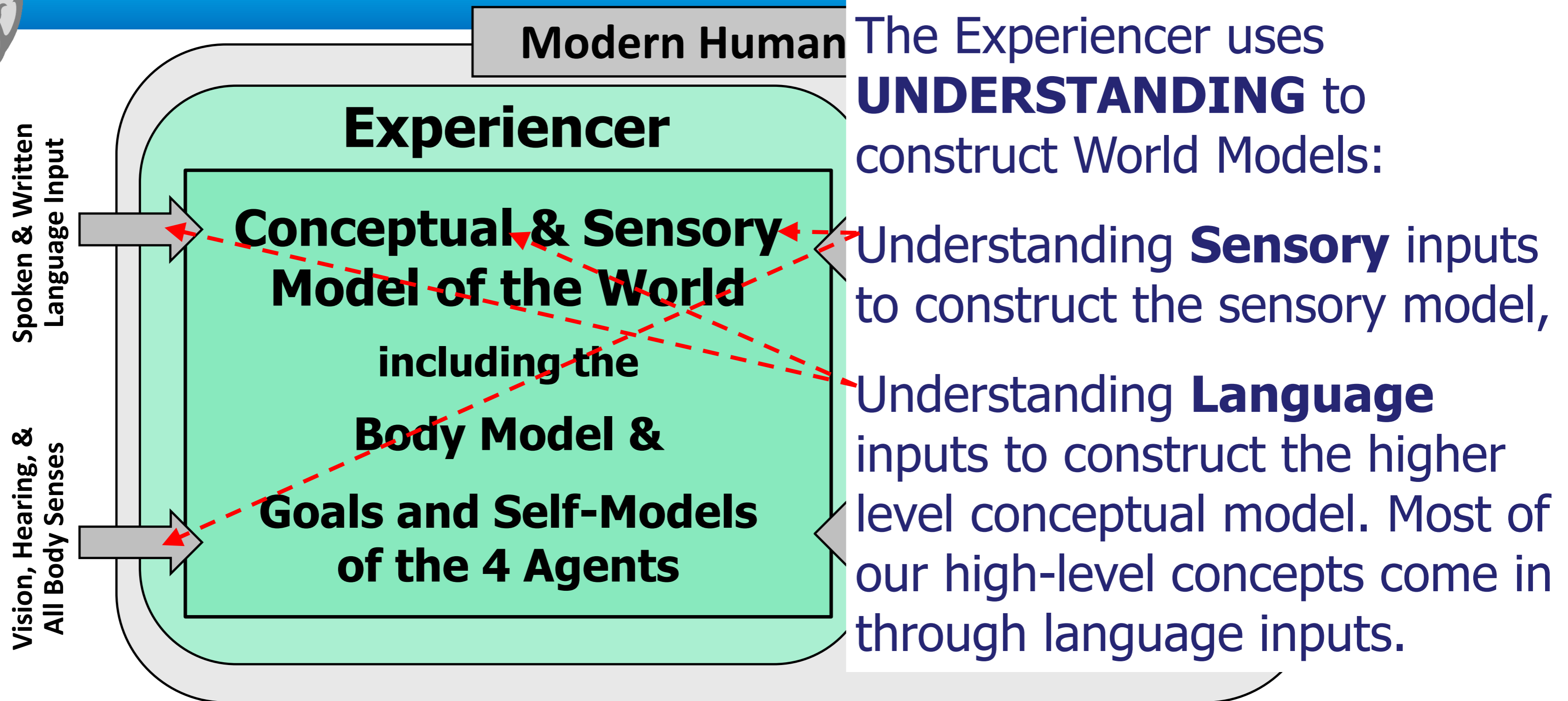
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The Three-Agent Model of the Human Brain

Modern Human Br...

Experiencer

Conceptual & Sensory Model of the World

including the

Body Model &

Goals and Self-Models of the 4 Agents

Spoken & Written Language Input

Vision, Hearing, & All Body Senses

The World Model would include the model of the body and the self-models for all four agents (the Human as an agent, plus the Thinker, Doer, and Experiencer).

It also includes the goals for all the agents since the Experiencer uses goals to direct bottom-up attention.
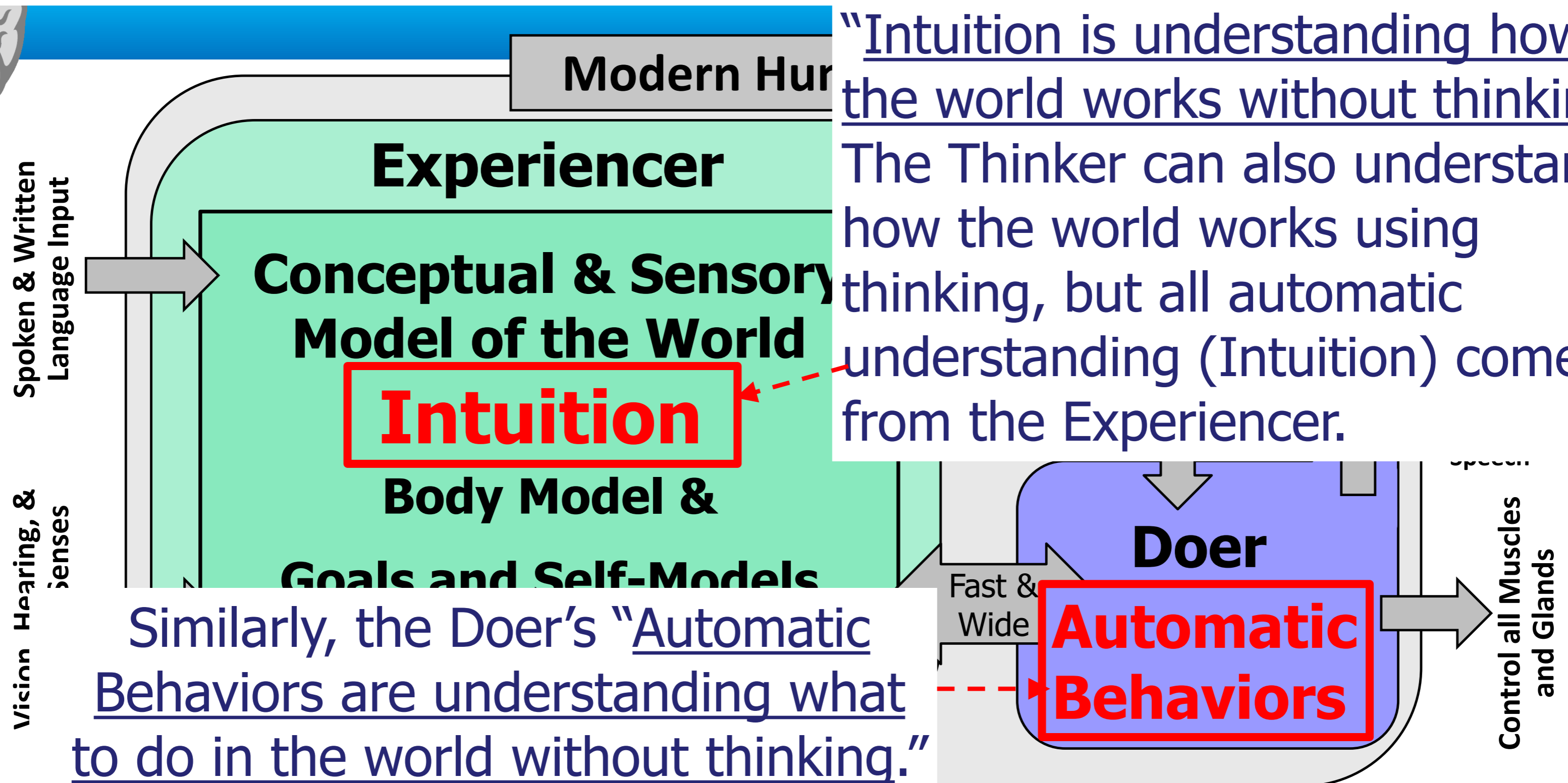
The Three-Agent Model of the Human Brain

Modern Human

Experiencer

Conceptual & Sensory Model of the World

including the

Body Model &

Goals and Self-Models of the 4 Agents

Spoken & Written Language Input

Vision, Hearing, & All Body Senses

The Experiencer uses **UNDERSTANDING** to construct World Models:

Understanding **Sensory** inputs to construct the sensory model,

Understanding **Language** inputs to construct the higher level conceptual model. Most of our high-level concepts come in through language inputs.

Intuition is also an example of understanding—here is my definition:

"Intuition is understanding how the world works without thinking." The Thinker can also understand how the world works using thinking, but all automatic understanding (Intuition) comes from the Experiencer.

Modern Hur...

Experiencer

Conceptual & Sensory Model of the World

Spoken & Written Language Input

Intuition

Body Model &

Goals and Self-Models

Vision Hearing, & ...enses

Fast & Wide

Doer

Automatic Behaviors

Control all Muscles and Glands

Similarly, the Doer's "Automatic Behaviors are understanding what to do in the world without thinking."

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Other Connections between the Thinker, Doer, and Experiencer are:

- **Top-down attention**: Thinker or Doer → Experiencer

- **Bottom-up attention**: Experiencer → Doer & Thinker

- **Inner voice/visualizations**: Thinker → Experiencer

- **Emotions & feelings**: Doer → Experiencer

- **Planned motor actions**: Doer → Experiencer

Other Connections

❑ **Top-down attention**: Thinker or Doer → Experiencer

❑ **Bottom-up attention**: Experiencer → Doer & Thinker

There are two kinds of attention: Top-down attention is where the choice of the attention object comes from either the Thinker or Doer. Bottom-up attention is where the object of attention is chosen by the Experiencer.

Paying attention to an object gives the Thinker and Doer extra detailed information about that object. It is the Experiencer which actually pays attention to the object, and it is the Experiencer that then gives that extra detailed information about the object to both the Thinker and Doer.

Other Connections

❏ **Top-down attention**: Thinker or Doer → Experiencer

❏ **Bottom-up attention**: Experiencer → Doer & Thinker

Paying attention to a ball you are trying to catch is an example of Doer directed top-down attention. If an unexpected event occurs (e.g., a loud sound), the Experiencer uses bottom-up attention to let the Thinker and Doer know about the event, so they can do whatever action is appropriate.

Noticing a goal object (such as ice cream) is also bottom-up attention initiated by the Experiencer—therefore the Experiencer needs to know about all the agents' goals—so it can watch for the goal objects.

Other Connections

❑ **Inner voice/visualizations**: Thinker → Experiencer

The inner voice or inner visualizations are created by the Thinker and experienced by the Experiencer. These are the conscious "verbal or visual" thoughts that we can experience when trying to solve problems. There are also many additional unconscious processes (or other kinds of "thoughts") that can occur in the Thinker, Doer or Experiencer, but when I say "thoughtful," I am referring to the **conscious thoughts** by the Thinker.

A thoughtful Thinker behavior, for example, has a **preceding conscious intention** to perform that behavior. On the other hand, the Doer's automatic behavior occurs **without** a preceding conscious intention.

Other Connections

❑ **Emotions & feelings**: Doer → Experiencer

Emotions and Feelings are created by the Doer and experienced by the Experiencer. This is an evolutionarily ancient mechanism that can also motivate automatic behaviors.

A (too) simple model of emotions is that they are associated with goal "objects." Emotions can be positive if the goal object is desired, or negative if the goal object is to be avoided (i.e., attachments or aversions). An example of an emotion motivated behavior is when someone threatens my family—a flash of anger can quickly and automatically motivate aggressive behavior to protect them. This automatic behavior comes from the Doer before the Thinker even has the time to think about it.

Other Connections

❑ **Planned motor actions**: Doer → Experiencer

The Doer must tell the Experiencer about any planned motion of the body since moving the body will result in changes to sensory experience. The Experiencer needs to know if these changes come from the environment or from the pre-planned motion of the body.

For example, when a hand is moved to grab an object, the Experiencer will know when to expect the appropriate sense of touch in that hand. If that touch occurred without the Doer telling the Experiencer about a planned hand motion, the Experiencer would be surprised by the unexpected touch and use bottom-up attention to tell the Thinker and Doer about the (possibly dangerous) object unexpectedly touching the hand!

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Sources of the Three Agent's Goals:

would include:

Evolution

Creating

Copying

The goals of the overall **Human** agent would be a combination of the goals for the three sub-agents.

Sources of the Agent's Goals: **Evolution**

Evolution has given the **Doer** a large number of goals. The three major categories of evolutionary goals are survival, reproduction and being social. Survival goals would include getting food, water, shelter, etc. Humans are very social animals, so we also have many social goals.

The only evolutionary goal for the **Thinker** is to solve problems. It has just this one goal because the Thinker has evolved to handle problems the Doer cannot handle—i.e., new situations that evolution didn't anticipate.

The only evolutionary goals for the **Experiencer** are to create a sensory and conceptual World Model and to direct attention appropriately.

Sources of the Agent's Goals: **Creating**

Agents can create new goals or create sub-goals to help achieve an important goal. For example, when I was in High School, my Thinker created the goal for me to become a physicist. To achieve that goal, my Thinker created several sub-goals, such as reading books on physics, taking as many math and physics courses as I could, and applying to undergrad and graduate universities that have strong physics programs.

When I was much younger, my Thinker also created a goal of "I must always be right!" So, if someone says I am wrong, I (the Thinker) will argue with them to get them to agree that I am right.

Sources of the Agent's Goals: **Copying**

Agents can also copy goals from another agent. For example, my Doer apparently copied my Thinker's goal of "I must always be right!" So, if the Doer detects that someone says I am wrong, the Doer will use anger to try to protect me from the criticism (and to deter future criticism).

When the Thinker's repeated thoughtful behavior becomes the Doer's habitual, automatic behavior, the Doer has implicitly copied the Thinker's goal. After all, if the Thinker's thoughtful repeated behavior achieved some particular goal, the corresponding Doer's habitual behavior will also achieve that same goal—effectively, that goal is now a Doer's goal.

An example of this process would be learning to play the piano. In the beginning, the Thinker's goal is to sight-read music and to play the piano.

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Sources of the Agent's Goals: **Copying**

So the Thinker slowly and painfully decodes the note markings on the paper to determine which finger should be used to play which key on the piano. Initially, the result doesn't sound very good. After many months (or years) of practice, this whole process finally becomes one of the Doer's automatic habitual behaviors! The outcome is a beautiful musical performance. Clearly, the Doer has successfully copied the Thinker's goal of sight-reading music and playing the piano.

The Thinker can also copy the Doer's pro-social goals and try to be a social person. However, the Doer's pro-social goals will be stronger than the Thinker's copy of the pro-social goals—especially since the Thinker is usually the more selfish and self-centered agent, so the pro-social goals of the Thinker will not be as strong as the Doer's pro-social goals.

Human and Sub-Agent Self-Models

Remember, an agent's self-model is a **model** of the agent's presence in the world where the agent is making changes.

Self-Models	
Thinker	**I/Me/My** (autobiographical self + simple body model)
Doer	**Body Schema** (the model of the physical body)
Experiencer	(Explained Later)
Human	*Some combination of the three sub-agent self-models shown above*

Human and Sub-Agent Self-Models

Thinker = I/Me/My:

Since the Thinker mostly works in the realm of the conceptual World Model, the Thinker's self-model would be the conceptual model of itself in that conceptual World Model. I use the name "I/Me/My" for the Thinker's self-model—this very complex concept would include the autobiographical narrative history of me plus a description of my goals, my friends and family, and my future plans—everything I know about "me."

The Thinker also thinks he controls the body, so the Thinker's I/Me/My self-model will also include a simple version of a body model so that the Thinker can plan its thoughtful behaviors.

Human and Sub-Agent Self-Models

Doer = Body Schema:

Since the Doer controls the body and since the body is contained in the world, you might think the Doer's self-model would be the "body." However, a self-model needs to be a model—therefore, the Doer's self-model is the brain's model of the physical body—neuroscientists call this the "Body Schema." (A "Schema" is defined as a "representation or plan.") Note that the Body Schema is an extremely detailed and accurate model of the physical body. This Body Schema is much more detailed and accurate than the simple body model of the Thinker.

Besides being the Doer's self-model, another reason why the Doer needs this Body Schema is so that it can accurately and precisely control the body.

Experiencer = (Explained Later):

An agent needs to have a self-model if the agent is part of the world where it is making changes. On this basis, it seems the Experiencer does not need to have a self-model since the Experiencer does not perform any actions in the real world and is not physically present in the real world. However, we will see later that the Experiencer does have a self-model—but for now, we will just label this self-model as "(Explained Later)!" *(Preview: the self-model will turn out to be the Attention Schema!)*

Human = (…combination…):

The Human agent is composed of the Thinker, Doer, and Experiencer agents, Thus, the Human self-model will be some combination of the Thinker, Doer, and Experiencer self-models.

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Human and Sub-Agent Self-Models

Self-Models	
Thinker	**I/Me/My** (autobiographical self + simple body model)
Doer	**Body Schema** (the model of the physical body)
Experiencer	(Explained Later)
Human	*Some combination of the three sub-agent self-models shown above*

Model of Consciousness and Spirituality
Frank Heile, Ph.D.—Updated July 14th, 2018

www.SpiritualityExplained.com

Spirituality

To explain Spirituality, we first need to define Spirituality, and I have an equation for that!

What is Spirituality?

❑ My Equation is:
Spirituality = Religion − Dogma − Politics

- An example of **Dogma** would be a "book" where every word of the book must be believed by every member of the religion.
- An example of **Politics** would be how a religion proselytizes and tries to convert the entire world to their religion.

This is a negative definition of spirituality—what spirituality is not. A positive definition of spirituality is shown on the next slide…

What is Spirituality?

Let's define Spirituality by a list of Spiritual practices that are used in many different spiritual traditions.

❑ Defined by **Spiritual Practices** such as:

Prayer

Meditation

Forgiveness

Living in the "Now"

Gratitude

Surrender

Acceptance

Trust

In a few slides, we will examine each of these practices and show how and why each spiritual practice "works."

When and How Did Spirituality Start?

❑ Hypothesis:

Spirituality developed around <u>40K to 100K</u> years ago when human consciousness <u>*changed*</u>

At ~100K years ago, humans began to intentionally bury their dead (with grave goods included)—perhaps indicating a belief in life after death.

At ~40K years ago, humans carved figurines that could be interpreted as a fertility goddess—perhaps indicating beliefs in gods.

Consciousness Change was Facilitated by:

Modern Language

Which allowed the development of:

A Conceptual Model of the Sensory World

Consciousness Change was Facilitated by:

My model is that our language vocabulary grew slowly over time. Modern Chimpanzees have approximately 30 call signs—some vocal and some gestures. Modern English has ½M words, and the average modern human has a 10K to 30K word vocabulary.

Our last common ancestor with the great apes was ~6M years ago. So, my model is that over the past 6M years our vocabulary gradually grew from about 30 words to a ½M words. My guess is that by 100K years ago our vocabulary would have grown enough to allow us to describe the entire physical world—we would have had a word for each kind of object in the world, (rock, tree, animal, mom, dad…), along with words for all the actions we can perform, (walk, run, sit, cut, hit…). So, by ~100K years ago, we could construct conceptual (word) models of the physical world.

In fact, by 100K years ago we probably had created the "I/Me/My" abstract concept for ourselves—and perhaps Humans began identifying with I/Me/My instead of just identifying with the body (i.e., the Body Schema).

This has consequences: if I am a body and my father is a body, then when my father's body dies, my father is dead. However, if I identify with I/Me/My, then to me, my father would be the conceptual "You/You/Your" (the equivalent of I/Me/My for others). Even when my father's body dies, his You/You/Your concept is active and "alive" in my mind and other's minds.

This could be the origin of humanity's belief in life after death—the conceptual model of "my father" will still be "alive" in our conceptual worlds after his body has died. Consequently, I decide I should bury his body with grave goods for him to use in this (conceptual) "afterlife."

Consciousness Change was Facilitated by:

By 40K years ago many additional words for completely abstract concepts would have been created (e.g., the "God" concept used for the fertility goddess). At this point the Human identification with "I/Me/My" would have been complete—we are no longer just our bodies!

So, now we are living in a completely new kind of world, a completely abstract conceptual world that no other animal has ever lived in before!

Which allowed the development of:

An Internal World Model Composed of Mostly Abstract Concepts

"Who We Are" Changed:

❑ Ancient Humans identified with **the Doer**
...up until approximately 100K years ago.

❑ Modern Humans identify with **the Thinker**
...this might have started around 100K years ago and
was a full and complete identification by 40K years ago.

> # This caused problems that Spirituality Fixes!

Living in this **completely abstract conceptual world** is not easy!

The **Problem** that Spirituality **Fixes**:

Is the Thinker!

The Thinker is the **Problem** that Spirituality **Fixes**:

The Thinker is great for producing science and technology, and giving us our very high standard of living, but it is not good at living life.

To a hammer, everything is a nail, and to a "problem solver," everything is a problem! This leads to a negative and critical attitude toward life.

If there is no problem to solve, then that is a problem! The Thinker first looks to see if there is something it can criticize in the present moment. If there is nothing to criticize, it will look for a problem in either the past or the future. Thus, the Thinker will revisit problems from the past (which often results in reactivating a resentment), or it will look for potential problems to solve in the future (which can trigger fears).

The Thinker is the **Problem** that Spirituality **Fixes**:

My meditation teacher said that this "living in the past or future" is "rehashing or rehearsing." Thus, the Thinker is often having conversations with people who are not in the room—figuring out what I should have said to someone in the past or deciding what I will say when I see that person again in the future.

The Thinker is often arguing with reality by saying things like "This should not have happened." This can lead to a contradictory World Model—the sensory model says this thing did happen, but the conceptual model says this thing should not have happened.

The Thinker is the **Problem** that Spirituality **Fixes**:

A negative emotion can be a problem for the Thinker to solve— "How do I make sure that this never happens again?" Positive emotions are also a problem— "How do I make sure this happens all the time?" Thus, the Thinker can also turn a positive emotion into a negative emotion, such as fear—if it worries about the positive emotion going away.

I will show that spirituality (in the form of the various recommended spiritual practices) can help to solve this Thinker problem—spirituality will allow us to have less suffering and more well-being in our lives.

We must keep the Thinker for science, technology, and organizing our civilization, but let's just not use it so much for living life!

Spirituality can be either **Theistic** or **Non-theistic**

Examples of non-theistic spiritual paths would include Tibetan Buddhism, and Chinese Daoism. Examples of theistic spiritual paths are Christianity, Judaism, Islam, and Alcoholics Anonymous (AA).

The concept of "god" could have come about when the Thinker was just first becoming the dominant agent in Humans. The weaker Thinker could have noticed the "Doer + Experiencer" as a presence that has more power than the Thinker and could have identified that presence with "god."

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Spirituality Fixes the Thinker Problem

I suggest that the Experiencer is probably the best candidate for the "god" concept. After all, many theistic religions believe that "god" created the world. We have seen that the "world" that we live in and experience is actually the Model of the World created by the Experiencer! Therefore, "god," the Experiencer, did create the world!

Another reason to identify "god" with the Experiencer, is that my proposed hypothetical "Wise Intuitive Attention Mechanism" explains how "god," the Experiencer, can answer certain kinds of prayers—such as the prayers of alcoholics (in AA) for recovery from alcoholism. (This mechanism will be described later in this section.)

Spirituality Fixes the Thinker Problem

The story of Adam and Eve in the bible could be referring to the time when the Thinker first became the dominant agent in Humans. When Adam and Eve were in the paradise of Eden, they had a Doer dominated conscious-ness, and everything went smoothly, especially in social situations. Taking the bite of the tree of the knowledge of good and evil would be when the Humans started to identify exclusively with the Thinker.

The Thinker is, after all, the agent that judges almost everything as "good" or "bad," so the first eating of the fruit of the "tree of the knowledge of good and evil" seems to describe the time when the Human conscious became dominated by the Thinker. This caused Humans to be cast from...

Spirituality Fixes the Thinker Problem

…the paradise of Eden, and to suffer in the Thinker dominated world—as we have seen, the Thinker can create a lot of suffering!

This same kind of analysis can be applied to other Bible passages (and to the writings of other religions). Another example from Genesis: when God brought all animals and birds to Adam, so he could name them—this describes when "god," the Experiencer, helps Adam, the Thinker, generate the nouns needed to create the first conceptual word model of the physical world.

To show how spirituality fixes the Thinker problem, we will now go through the list of spiritual practices and show how each practice helps to ameliorate the Thinker problem…

How do Spiritual Practices Fix the Thinker Problem?

- ❑ **Meditation**
- ❑ **Surrender and Prayer**
- ❑ **Living in the "Now"**
- ❑ **Forgiveness and Acceptance**
- ❑ **Trust**
- ❑ **Gratitude**

How do **Spiritual Practices** **Fix** the Thinker **Problem?**

❑ **Meditation**

Some forms of meditation suggest letting go of "thoughts" (the Thinker's inner voice)—to let the thoughts dissipate rather than holding onto and rethinking them. For example, one practice suggests metaphorically putting the thought on a raft and letting them float away down a tranquil river.

Other forms of meditation suggest paying close attention to sensory experiences. This would include practices that suggest scanning all parts of the body for whatever experience is currently active. Another practice, called "noting," is to just notice the current (bottom-up) sensory sensation, thought or feeling and then let go of it—then notice the next sensation, etc.

How do **Spiritual Practices** **Fix** the Thinker **Problem?**

❑ **(cont'd)…Meditation**

All of these meditation practices can be viewed as ways to decrease identification with the Thinker and to increase identification with the Doer (the body) or especially the Experiencer.

❑ **Surrender**

Surrender could represent the Thinker giving up his illusion of control (yes, it is ONLY an illusion of control). For example, the 1st step in AA is for the Thinker to admit it cannot use "willpower" to stop the addiction to alcohol. This surrender helps to lessen identification with the Thinker—the source of "willpower."

How do **Spiritual Practices** **Fix** the Thinker **Problem?**

❑ **Prayer**

Prayer could be seen as the Thinker asking "God" (the Experiencer) for help. Again, this decreases identification with the Thinker.

❑ **Living in the "Now"**

Living in the "now" is what the Experiencer does all the time. It is always updating its World Model based on the current sensory or language input. This World Model can predict future states of the world, but it only does this on demand by the Thinker and Doer. The Thinker, on the other hand, is often rehashing the past and rehearsing the future. Thus, living in the now facilitates identification with the Experiencer instead of the Thinker.

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How do **Spiritual Practices** **Fix** the Thinker **Problem?**

❑ **Forgiveness**

Forgiveness is the antidote for the resentments caused by the Thinker trying to solve problems in the past. If I can truly forgive the person for the harm they caused me in the past, then the Thinker will not have to revisit that problem over and over again.

My favorite forgiveness saying is that "Forgiveness is giving up all hope of a better past" (Jack Kornfield). If the past can be accepted exactly as it is, then there is no problem for the Thinker to try to fix in the past.

How do **Spiritual Practices** **Fix** the Thinker **Problem?**

❑ **Acceptance**

Acceptance is the antidote for the fear caused by the Thinker trying to solve problems in the future. This can also be acceptance of the present moment, just as it is—i.e., not arguing with reality as the Thinker is prone to do. Acceptance is something the Experiencer does all the time—it never rejects a sensory input—it accepts all sensory input all the time.

My favorite acceptance saying is from the Indian guru, Krishnamurti. Someone asked him, "What is your secret for enlightenment?" His reply was, "You see, I don't mind what happens." His secret is the acceptance of everything that happens without judgment!

How do Spiritual Practices Fix the Thinker Problem?

❑ Trust

This is trusting that the future will be OK. For theistic paths, this would also be trusting God—that I will be OK if I turn my will and life over to the care of God. Trust means that situations the Thinker judges to be "bad" will turn out OK eventually.

❑ Gratitude

Gratitude is going a step beyond acceptance or trusting. It implies being thankful for whatever happens, no matter what the Thinker would say about it. This again would decrease identification with the Thinker.

How do **Spiritual Practices** **Fix** the Thinker **Problem?**

- ❑ **Meditation**
- ❑ **Surrender and Prayer**
- ❑ **Living in the "Now"**
- ❑ **Forgiveness and Acceptance**
- ❑ **Trust**
- ❑ **Gratitude**

All these practices work by reducing identification with the Thinker or by mitigating the suffering caused by the Thinker.

How do all these practices change the Human self-model? See the next slide!

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Human Self-Model Changes Due to Spiritual Practices

Ancient Humans mostly identified with the Doer, Modern Humans mostly with the Thinker, even though the Doer and Experiencer do most of the work of living! This shows the "ego" and self-centered nature of the Thinker.

Ancient Human

Human **self-model:**

Doer self-model

Thinker self-model

Modern Non-Spiritual

Human **self-model:**
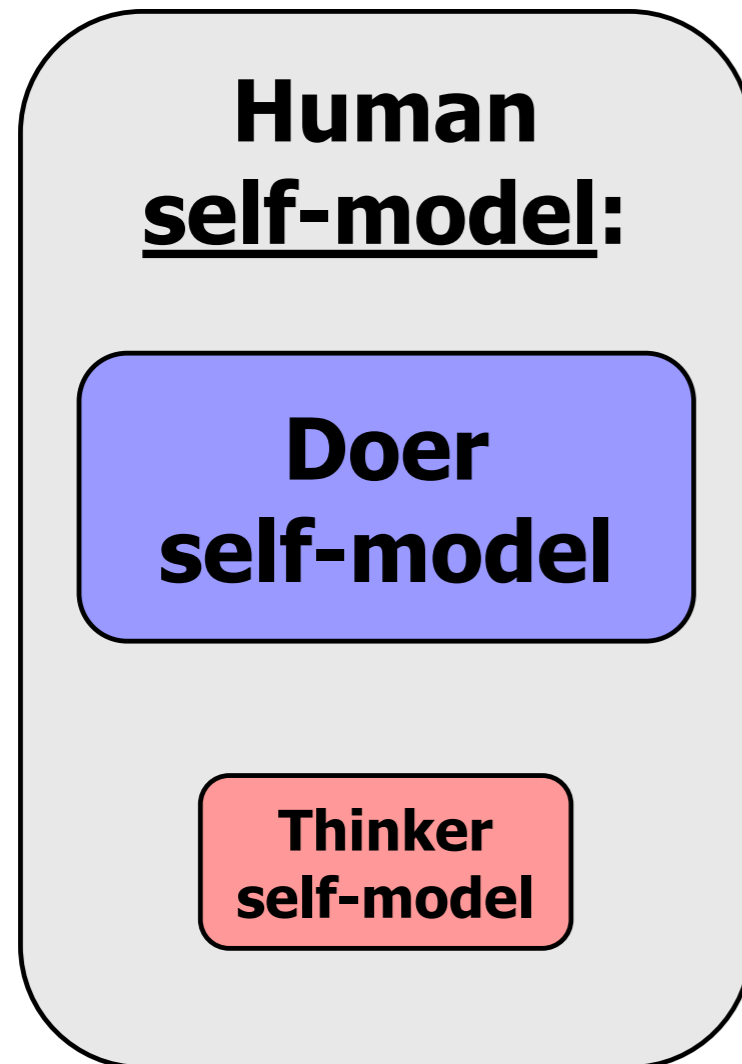
Thinker self-model
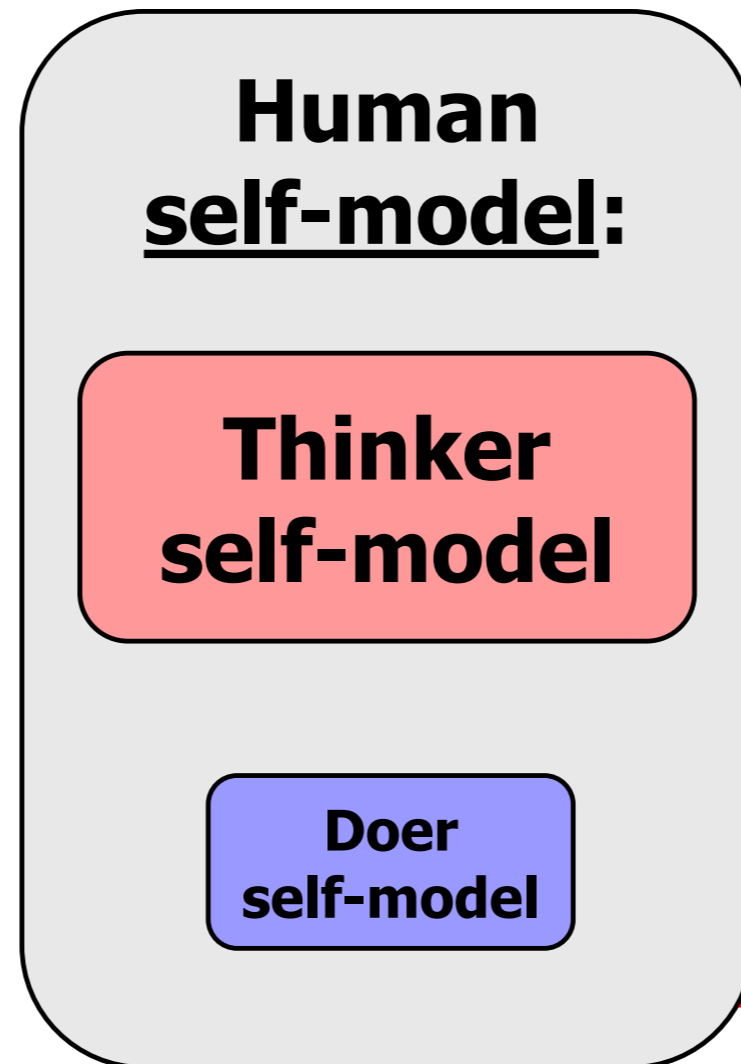
Doer self-model

Thinker takes all the credit

Doer and Experiencer do most of the work of living

With spiritual practices, the Modern Human may still mostly identify with the Thinker, but the Doer and Experiencer may together compose more than 50% of the Human self-model. Thus, the Spiritual Human may have more balance in the representation of all three of the agents in the overall Human self-model.

Modern Non-Spiritual

Human self-model:

Thinker self-model

Doer self-model

Modern Spiritual

Human self-model:

Thinker self-model

Experiencer self-model

Doer self-model

Furthermore, for theistic spiritual paths, the Experiencer correspond to the feeling of connection to "God." Many of these paths talk about how the intuitive thought may be the way God communicates to man. Thus, identifying the "Experiencer" as "God" makes sense since the Experiencer is the source of intuition.

Modern Non-Spiritual

Human self-model:

Thinker self-model

Doer self-model

Modern Spiritual

Human self-model:

Thinker self-model

Experiencer self-model

Feeling of Connection to "God"

Doer self-model

Social Goals and Spiritual Virtues & Vices

Comparing spiritual virtues and spiritual vices, we see that:

Spiritual virtues enable smoother social relations	Spiritual vices cause social friction and conflict
Spiritual Virtue	**Spiritual Vice**
Love	Hate (or Hatred)
Altruism (or Selflessness)	Selfishness
Forgiveness	Resentment (or Blame or Regret or Guilt)
Humility	Arrogance (or Pride or Self-centeredness)
Compassion (or Empathy)	Indifference
Fairness (or Justice)	Unfairness (or Injustice)
Acceptance	Rejection (or Judging)
Patience	Impatience

Social Goals and Spiritual Virtues & Vices

Since the Doer has prosocial goals built-in by evolution, you would expect the Doer to more frequently behave in a way that is consistent with the spiritual virtues rather than the spiritual vices. The Doer will sometimes use a spiritual vice to try to achieve a more important goal (such as survival or reproduction), but its default is the spiritual virtues.

Now, the Thinker can copy the Doer's prosocial goals and try to behave virtuously in social situations. However, only having a copy of the Doer prosocial goals means that these prosocial goals may not be as important to the Thinker as they are to the Doer. Further, the Thinker is, by far, the more selfish and self-centered agent—just look at its "name:" I/Me/My! (Another name for the Thinker is the "Ego.") Thus, we can see that practicing spiritual virtues is a kind of antidote for the Thinker's self-centeredness.

Social Goals and Spiritual Virtues & Vices

Finally, as a problem solver, it is possible that the Thinker may decide that some particular person is a "problem"—in that case, the Thinker is not likely to be virtuous when encountering this "problem person!" In other words, the Thinker holds grudges and resentments.

In summary, the Doer is more likely to behave virtuously whereas the Thinker is more likely to engage in spiritual vices. So, if other spiritual practices (like meditation) decrease identification with the Thinker, our behavior may automatically become more spiritually virtuous.

Of course, many spiritual paths actively and directly advocate for practicing the spiritual virtues and avoiding the spiritual vices. This will also have the effect of decreasing identification with the Thinker.

Social Goals and Spiritual Virtues & Vices

New Topic: Many theistic religions claim that God can help us with our problems. If "God" is really "just" the Experiencer, how can it help us? After all, the Experiencer doesn't "do" anything in the external world. The only "action" the Experiencer performs is to direct attention. I will now present a hypothesis about how the Experiencer, itself, can change the way the Experiencer directs "attention" and that this can, in fact, help us with some of our problems.

Hypothesis: The Wise Intuitive Attention Mechanism

will explain how the Experiencer can help us with our "problems."

❑ Can explain AA recovery:

- ❑ Thinker **surrenders** and asks Experiencer for **help** with addiction

- ❑ Experiencer uses **wise intuition** to **decrease attention** paid to alcohol

❑ Can decrease other "suffering."

❑ Can explain AA recovery:

The example I will use to demonstrate this mechanism is recovery from alcoholism in Alcoholics Anonymous (AA is a theistic spiritual tradition).

First, I will describe my model of addiction using "Fred." In high school "Fred" began to drink in social situations. When he drank at a party, he found he would be more outgoing, feel more at ease and less self-conscious. So, Fred's Thinker sets up a goal to drink at parties.

That was working well, so Fred extended it to non-party situations also. At this point, the Doer made a copy of the Thinker's drinking goal.

The Wise Intuitive Attention Mechanism

❑ Can explain AA recovery:

With a Doer goal to drink, Fred found himself drinking even if the Thinker made the decision to not drink today. This happened when someone set a drink in front of Fred—the Experiencer noticed the drink and used bottom-up attention to inform the Doer that the drink was there. The Doer then picked it up and drank it before the Thinker could even think about whether it should or should not have the drink.

Furthermore, when the negative consequences of drinking convince the Thinker to stop drinking, the Thinker would still find its inner voice obsessing about whether he should drink or not.

❑ ## Can explain AA recovery:

The problem is the Thinker has two contradictory goals, one to drink and one to not drink—and the drinking goal is more powerful than the not drinking goal. This strong drinking goal also explains the frequent obsessive thoughts about drinking. For example, after a fight with his girlfriend, Fred notices obsessive thoughts about how drinking would help—since drinks helped to deal with negative emotions in the past.

Fred finally gets desperate—the negative effects of drinking are very apparent, and he really wants to stop drinking—but he cannot. So, he joins Alcoholics Anonymous to help him stop drinking.

The first step in AA asks Fred to "admit he is powerless over alcohol." The 2nd & 3rd steps ask Fred to turn his will and life over to his Higher Power.

❑ Can explain AA recovery:

　　❑ Thinker **surrenders** and asks Experiencer for **help** with addiction

Translating Steps 1, 2 & 3 to this model: The Thinker has two contradictory goals, to drink and to not drink; and the Doer also has the goal to drink. Since the Thinker has found he cannot stop drinking on his own, he asks the Experiencer (the Higher Power or God) to help with the goal of not drinking. This triggers the _Wise Intuitive Attention Mechanism_—this trigger happens when the Experiencer notices both the contradictory goals and the request for the Experiencer (God) to help the Thinker not drink.

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The Experiencer uses Wise Intuition to understand that if the Experiencer paid less attention to alcohol, it could help both the Thinker and Doer achieve the goal of not drinking. If the Experiencer doesn't notify the Doer about the drink placed in front of him, the Doer will not pick it up and drink it. When the Experiencer pays less attention to alcohol, it will help decrease the Thinker's obsessive thoughts about drinking since thoughts dissipate more rapidly when less attention is paid to them.

- Experiencer uses **wise intuition** to **decrease attention** paid to alcohol

All this allows the alcoholic to avoid taking that first drink, one day at a time. The other 9 steps of the 12-step program are about doing other spiritual practices to help decrease identification with the Thinker and hence to decrease Fred's selfishness and self-centeredness.

This same mechanism can help with other problems that cause suffering. For example, Buddhism claims that suffering comes from attachments and aversions. Attachments are Thinker/Doer goals to get something and aversions are goals to avoid something. So, this same mechanism can help decrease the Buddhists' suffering that comes from those problematic positive and negative goal objects:

- ❑ Experiencer uses **wise intuition** to **decrease attention** paid to *any problematic goal objects.*
- ❑ Can decrease other "suffering."

Model of Consciousness and Spirituality
Frank Heile, Ph.D.—Updated July 14th, 2018

www.SpiritualityExplained.com

Attention Schema Theory

To explain Attention Schema Theory, we
first define the "Attention Schema."

Definitions:

❑ **<u>Body Schema</u>** is a model of the **body**

The physical body is contained in the world, and the Body Schema is the model of the physical body—Thus, the Body Schema is part of the World Model. Remember, the Body Schema is also the Doer's self-model.

❑ **<u>Attention Schema</u>** is a model of our **current state of attention**

There is a neurological mechanism that uses the firing of neurons in the brain to direct attention—that is **not** the Attention Schema. The Attention Schema is the **model** of what that neural mechanism is doing—it points to the objects that are the current targets of attention.

Attention Schema, Worlds, & World Models

Now, let's look at the effect of attention on World Models...

World:

or

World Model:

This image of houses represents the "real" world, and it also represents our visual Model of the World. (Since you see colors in this image, it must be our World Model since colors don't exist in the real world.)

Attention Schema, Worlds, & World Models

When you direct your eyes to an object, such as the center house on the previous image, your central visual attention (and the Attention Schema) will be directed at that object (see the black arrow on the following pages). It is possible to keep your eyes fixated on one object while you direct your peripheral visual attention to other objects—all without moving your eyes. If you haven't done this before, try this now—pick an object to stare at and then move peripheral visual attention around without moving your eyes.

On the following pages, this peripheral visual attention will be indicated by red arrows below some of the houses. On these pages, always keep your central visual attention on the center house (indicated by the black arrow) and direct your peripheral visual attention to the right or left house as indicated by the red arrows.

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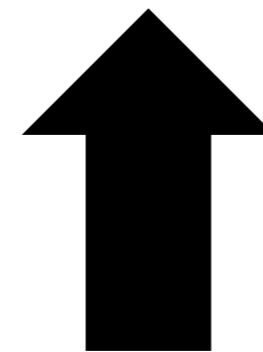
Now direct peripheral visual attention to the house on the right.

World:

or

World
Model:

Attention
Schema:

Attention Schema, Worlds, & World Models

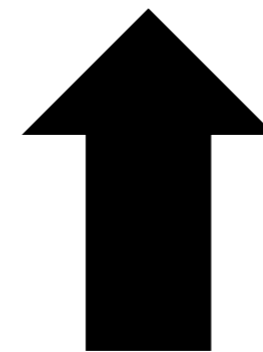Now, switch peripheral visual attention to the house on the left.

World:

or

World Model:

Attention Schema:

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Attention Schema, Worlds, & World Models

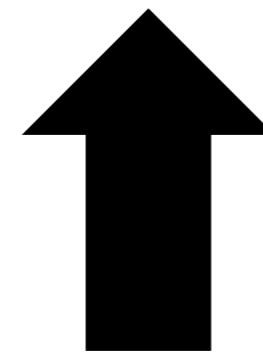Drop peripheral attention and just keep your eyes on the center house only.

World:

or

World
Model:

Attention
Schema:

As you directed your peripheral visual attention to the right and left, did the world itself change? Certainly not. Did your <u>visual experience</u> of the World Model change? I say, "no, it did not"—it always matched the world.

But something changed. When peripheral attention was directed to the house on the right or left, I could see more details about those houses. So, directing attention somehow amplifies the signal and makes more detailed information available for the Thinker or Doer to use. I define this "object" that changed as the Current Representation of the World (CRW). Therefore, as attention is directed around the world, the CRW changes to show additional detailed information that the Thinker and Doer can use.

On the next pages, we show how the CRW changes as central and peripheral visual attention are directed to the different houses.

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Before showing the CRW, recall that this is the original visual World Model

World:

or

World
Model:
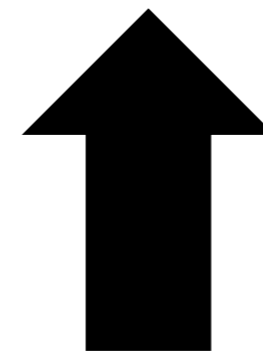
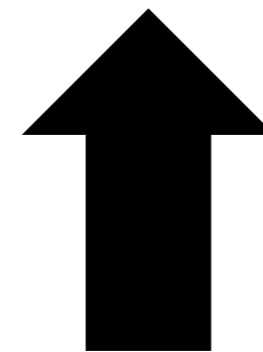Attention
Schema:

Current Representation of the World (CRW)

Central house only

Current Representation of the World (CRW):

Attention Schema:

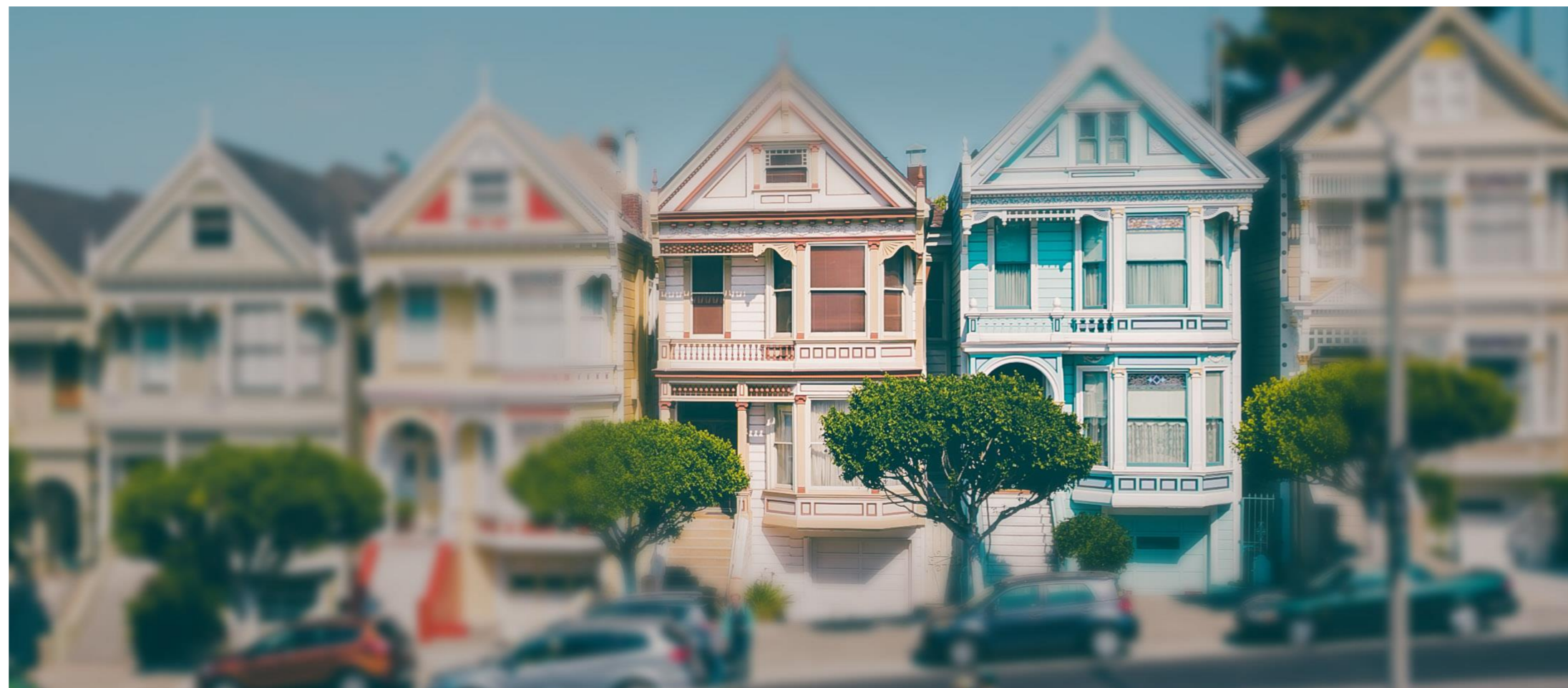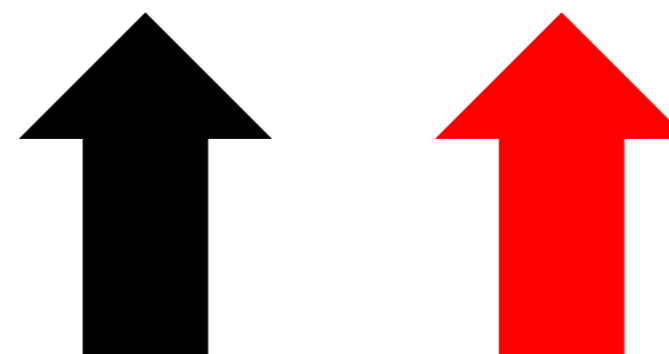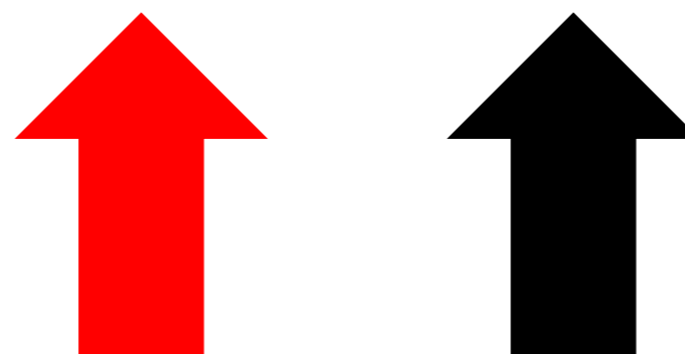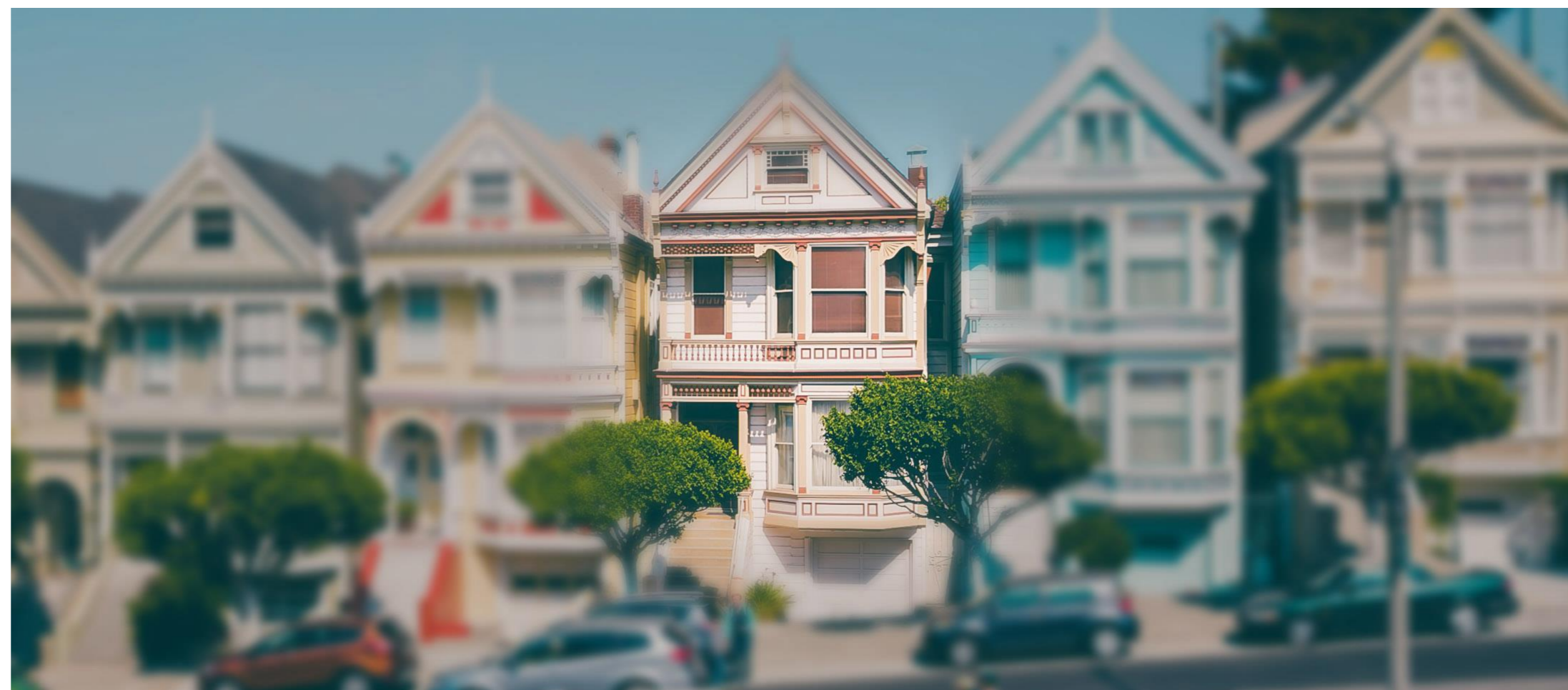## Central house plus the right house

Current Representation of the World (CRW):

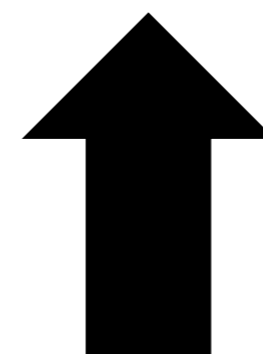Attention Schema:

Central house only

Current Representation of the World (CRW):

Attention Schema:

Consider these three objects together: the **WM, AS,** and **CRW.**

Experiencer's Self-Model is the Attention Schema

World Model	**Attention Schema**	**Current Representation of the World**
WM	**AS**	**CRW**
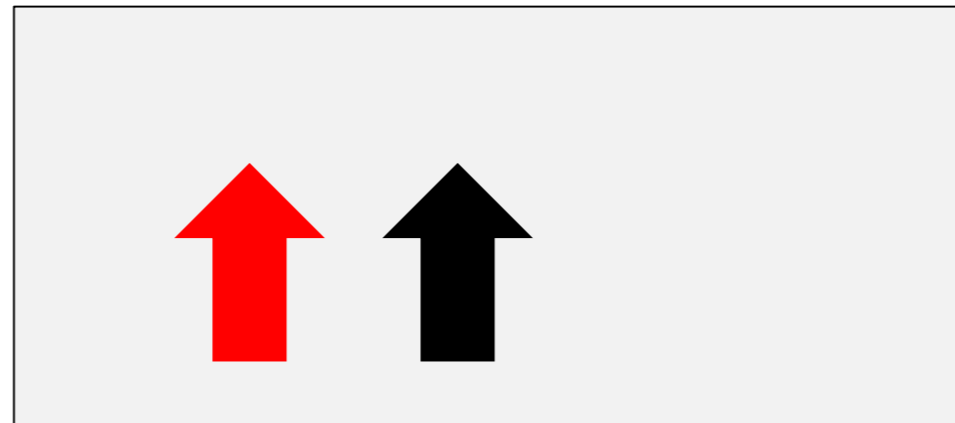
Experiencer's Self-Model is the Attention Schema

Let's look closely at these three objects: **WM, AS and CRW**.

The **CRW** is the object given to the Thinker and Doer since they need the extra detailed information available in the CRW to do what they want to do in the real world.

Similarly, the **AS** is also needed by the Thinker and Doer since they need to know where attention is being directed.

Finally, the **WM** is supposed to match the "Real World," and it **IS** the world that we experience. So, all three of these objects, the **WM, AS** and **CRW,** are required, and they are all continuously updated by the Experiencer.

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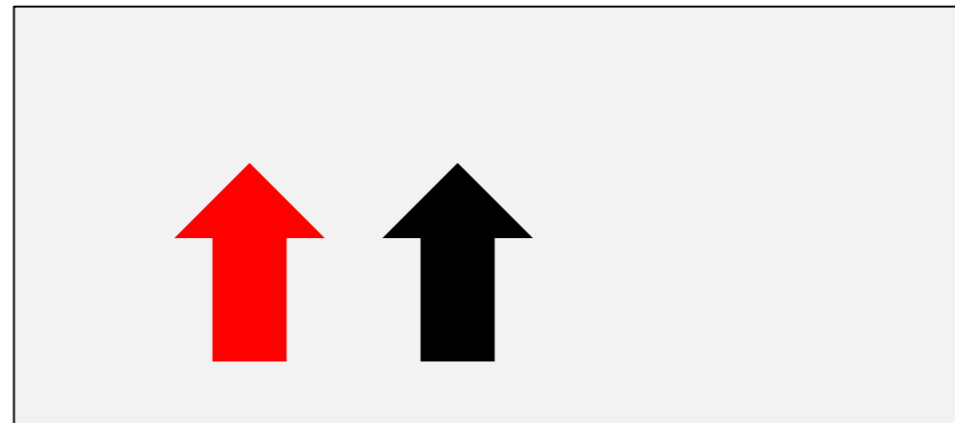So, let's define the "**Complete World**" to be this triplet: (**WM, AS, CRW**).

World Model	Attention Schema	Current Representation of the World
WM	**AS**	**CRW**

The **"Complete World"** object

Experiencer's Self-Model is the Attention Schema

Recall that the Doer's self-model, the Body Schema, is the model of the Doer's body in the physical world (which is the world where the Doer mostly operates). Similarly, the Thinker's self-model is the I/Me/My concept in the conceptual world (which is the world where the Thinker mostly operates).

Similarly, the world where the Experiencer mostly operates is this Complete World, and its presence in this Complete World is the exactly the AS—which is also how the Experiencer makes changes in this world.

Therefore, the **Attention Schema** (AS) is the **Experiencer's self-model** in this Complete World object.

So, now we can update the Experiencer slot in the Agent self-model table.

Human and Sub-Agent Self-Models

We **update** the Experiencer's self-model from "(**Explained Later**)" to "**Attention Schema**."

Self-Models	
Thinker	**I/Me/My** (autobiographical self + simple body model)
Doer	**Body Schema** (the model of the physical body)
Experiencer	**Attention Schema**
Human	*Some combination of the three sub-agent self-models shown above*

Now, we turn our "*attention*" to the actual Attention Schema Theory!

Attention Schema Theory (AST):[1]

Attention Schema Theory is an evolutionary and neuropsychological **model of conscious awareness** that was proposed by a Princeton University neuroscientist, Professor Michael Graziano. This theory is a materialist theory of consciousness which proposes that brains construct subjective awareness as a schematic model of the process of attention.

The next two slides contain Figure 1A and 1B from Graziano's paper referenced below[1]. All the **black** text on these slides are excerpts of the very long Figure 1 caption—the only changes were to use my notation (SM, AS, and CRW) instead of the notions used in that paper.

[1] Graziano & Webb, (2015) *The attention schema theory: a mechanistic account of subjective awareness.* Front. Psych., *6*, 500

Attention Schema Theory (AST):[1] Fig 1A

(A) Visual **attention** is captured by the image of an apple.

❑ This is **information**, not **awareness**

CRW = Current Representation of the World

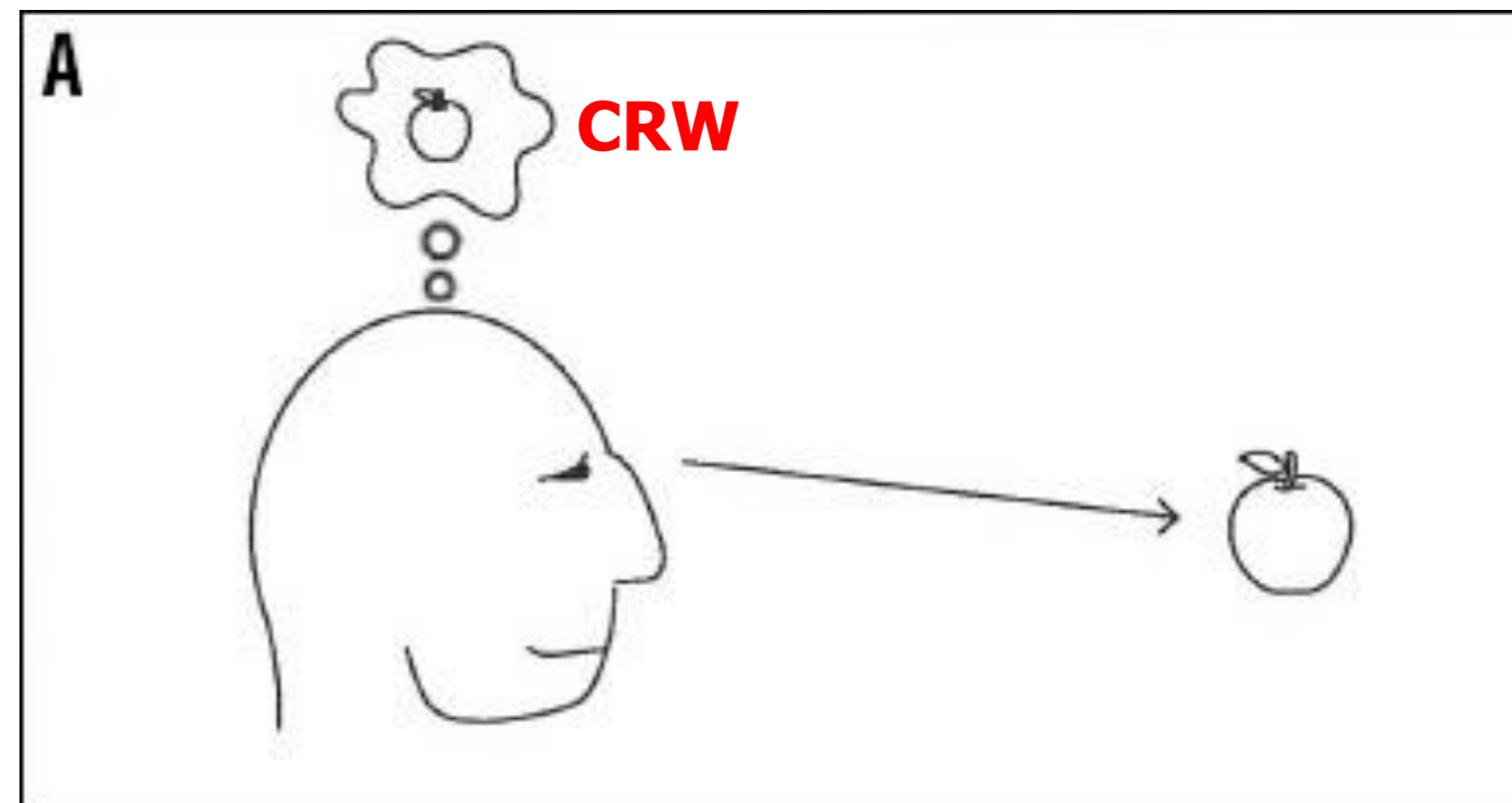To get subjective awareness (instead of information) two additional models are needed: AS & SM

[1] Graziano & Webb, (2015) *The attention schema theory: a mechanistic account of subjective awareness.* Front. Psych., *6*, 500
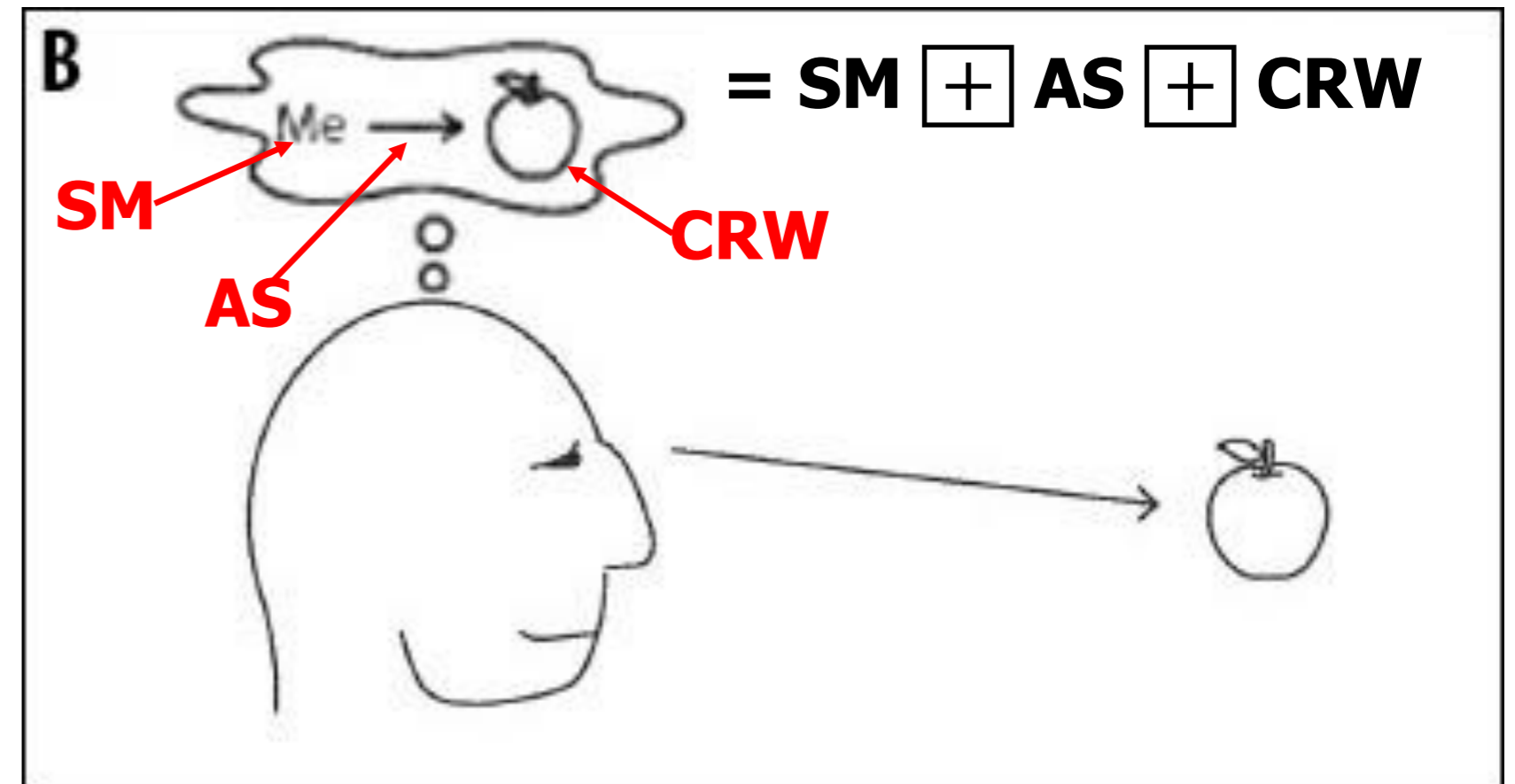
Attention Schema Theory (AST): Fig 1B

(B) Subjective **awareness** requires additional models, such as:

- Visual stimulus [**CRW**]

- Self-model [**SM**]

- Attention Schema [**AS**]

  - **AS** links **SM** and **CRW** together

The overall **model of awareness** is:

SM $+$ **AS** $+$ **CRW**

= **SM** $+$ **AS** $+$ **CRW**

Only the Experiencer is Conscious according to AST!

Attention Schema Theory (AST):

Part of Graziano's evidence for AST is that it can explain several neurological phenomena where the actual attention mechanism and the AS are out of synch. Please read his paper for more information.

Many people think that subjective awareness "feels" like it is non-physical and therefore consciousness cannot be explained by the laws of physics.

AST's explanation is that the Attention Schema (AS) is a completely abstract concept—abstract concepts are concepts that do not refer to physical objects. Therefore, since the AS is not a part of the physical world, we have this feeling that awareness must be non-physical.

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Attention Schema Theory (AST):

Graziano also claims that the only conscious animals are animals that can direct attention and that therefore have an AS. He gives an example of a hydra[1] which is a small aquatic animal that has a tube and long tentacles. Hydras only have one kind of behavior when they are touched—they contract into a small ball shape. Thus, the hydra does not have different reactions depending on where it is touched, so it must not have an AS.

That is why I claim that only the Experiencer is conscious—since only the Experiencer has an AS. To get the Thinker and Doer to be truly conscious agents, these agents would have to be combined with the Experiencer.

Therefore, of the three sub-agents:

Only the Experiencer is Conscious according to AST!

[1] https://www.theatlantic.com/science/archive/2016/06/how-consciousness-evolved/485558/ 134

For each of the three agents, we now use Attention Schema Theory to see what happens when the agent is paying attention to an object, such as an apple.

Agent Awareness Models

Thinker Awareness Model

The Thinker's self-model is the **I/Me/My**. Since the Thinker is mostly conceptual, it would say in words "**I am aware of the apple**."

"I/Me/My" + "am aware of" + "the Apple"
(in words)

I/Me/My

Attention Schema

The brain's model of Actual Attention

Actual
Attention

CRW

The brain's neurological mechanism using neurons firing to pay attention.

Doer Awareness Model

The Doer's self-model is the **Body Schema.** Since the Doer is mostly sensory, it would experience the "**[Body aware apple]**" qualia*.

[Body] + [aware] + [apple]
(in sensory representations)

Body Schema

Attention Schema

Actual Attention

CRW

* **Qualia** is the philosopher's term for a sensory experience, such as the redness of red.
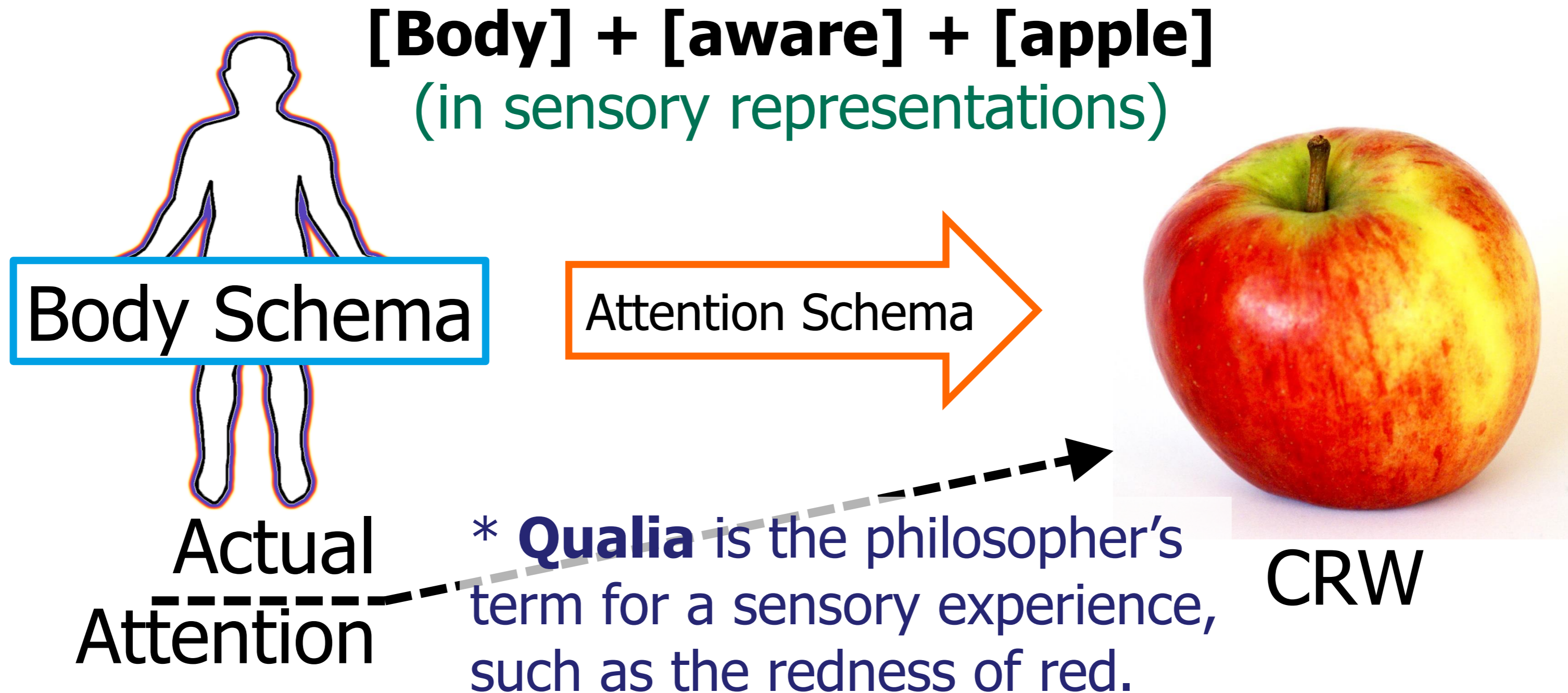
Experiencer Awareness Model

The Experiencer's self-model is the **Attention Schema**.

This diagram makes it look like the 1st AS points to the 2nd AS, and that the 2nd AS is pointing to the Apple.

Attention Schema →

Attention Schema →

Actual Attention

CRW
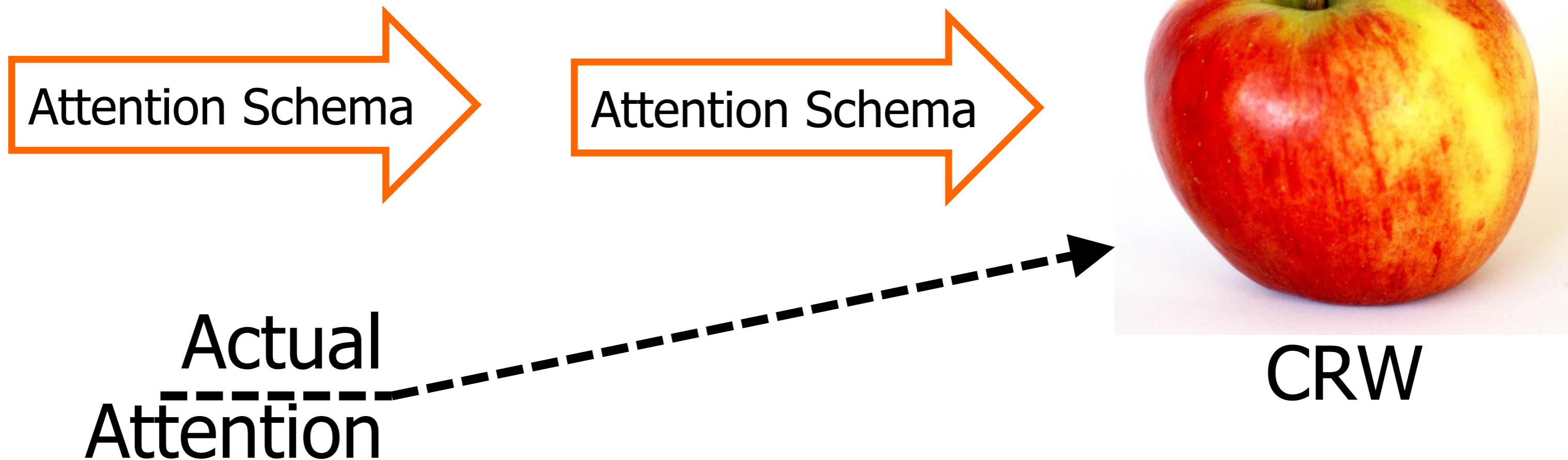
However, both Attention Schemas are pointing to the Apple. Since the 1st AS is not pointing to the 2nd AS these two Attention Schemas are really the same AS, and they can be **merged**.

Attention Schema

Attention Schema

Actual
Attention

CRW
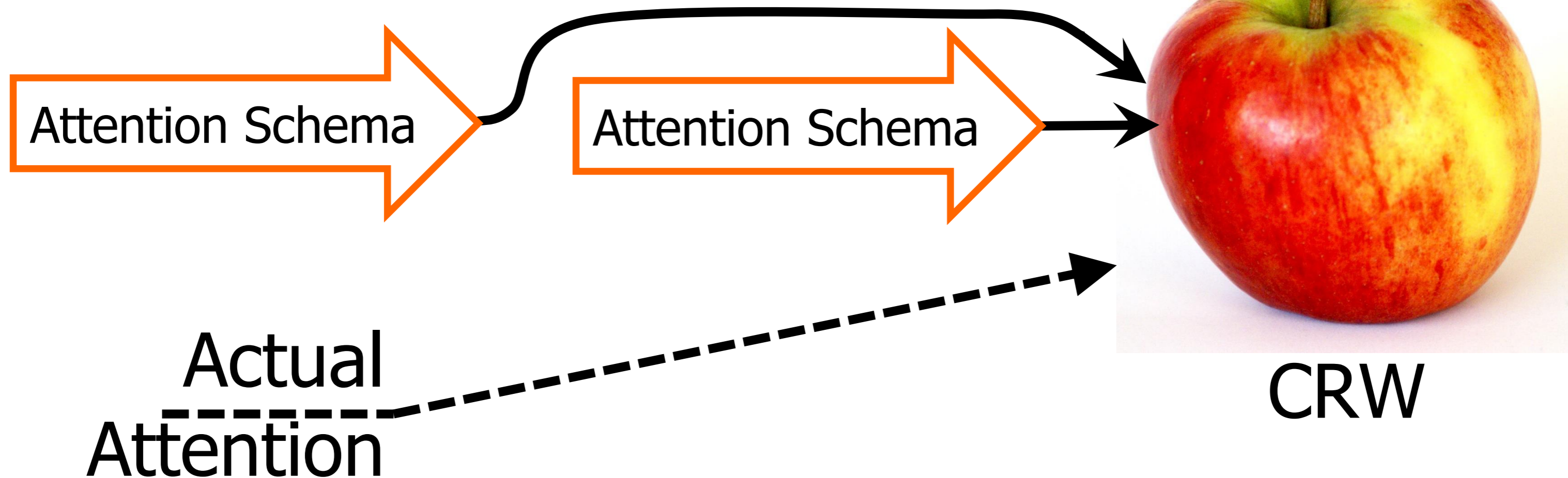
Experiencer Awareness Model

This means the "self-model" slot of the awareness model is **empty**.
Hence, AST predicts a kind of "**selfless**" awareness for the Experiencer.

[aware] + [apple]
(in sensory representations)

Selfless Awareness

Attention Schema

Actual Attention

This is a **new kind** of qualia—a selfless awareness of the apple.

CRW

Experiencer Awareness Model

Attention Schema Theory and these three examples demonstrate that the "Attention Schema" is, essentially, a synonym for "awareness."

- For the Thinker, the AS was the same as the word "aware."

- For the Doer, the AS was the same as a body-based sensory experience of being aware.

- And for the Experiencer, the AS results in a selfless sensory experience of being aware.

Thus, the Attention Schema is the same as "Awareness." Therefore, we can again update the Experiencer slot in the Agent self-model table...

Updating the Experiencer Self-Model

Now we can add "**Awareness**" as a synonym for the Experiencer's **Attention Schema** self-model.

Self-Models	
Thinker	**I/Me/My** (autobiographical self + simple body model)
Doer	**Body Schema** (the model of the physical body)
Experiencer	**Awareness** (AKA Attention Schema)
Human	*Some combination of the three sub-agent self-models shown above*

Updating the Experiencer Self-Model

Think about that! Every time you experience being aware of something, that feeling of awareness is an experience of your Attention Schema—you are experiencing the brain's model of the actual neurological attention mechanism! That feeling of awareness is also the self-model of the Experiencer, so whenever you experience being aware, you are experiencing the Experiencer's model of itself—you have a direct connection to the Experiencer itself—whenever you are aware!

|	
Experiencer	**Awareness** (AKA Attention Schema)
Human	*Some combination of the three sub-agent self-models shown above*

For each of the three agents, we now use Attention Schema Theory to see what happens when the agent is paying attention to itself—in other words when attention is directed to the agent's own self-model.

Agent Self-Awareness Models

When attention is directed at the self-model of the agent, the Attention Schema will point from the agent's self-model back to the same agent's self-model.
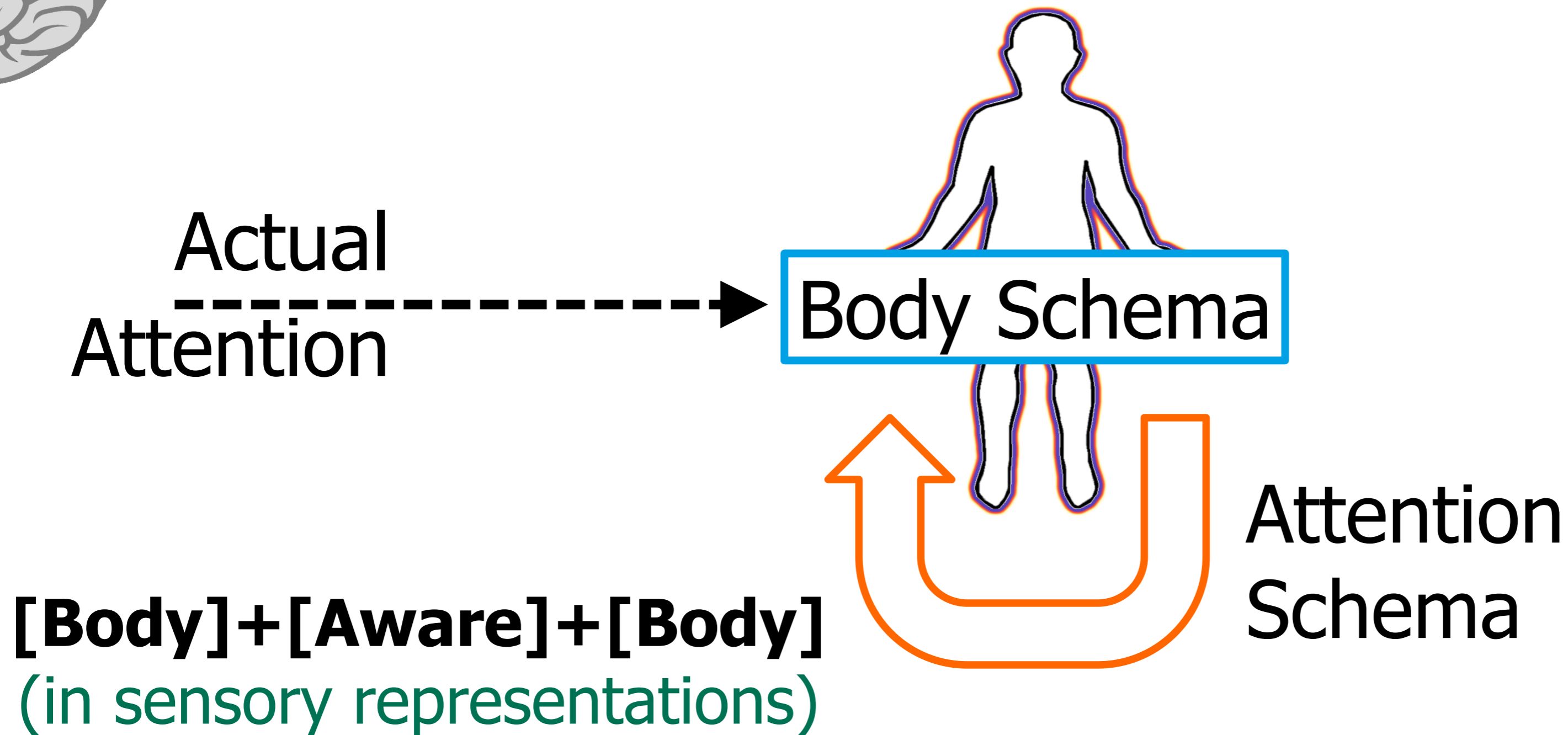
Thinker Self-Awareness

The Thinker's self-model is the **I/Me/My**. Since the Thinker is mostly conceptual, it would say in words "**I am aware of me**."

Actual
Attention - - - - - - - - - - - - - - - ➤ I/Me/My

"I"+"am aware of"+"Me"
(in words)
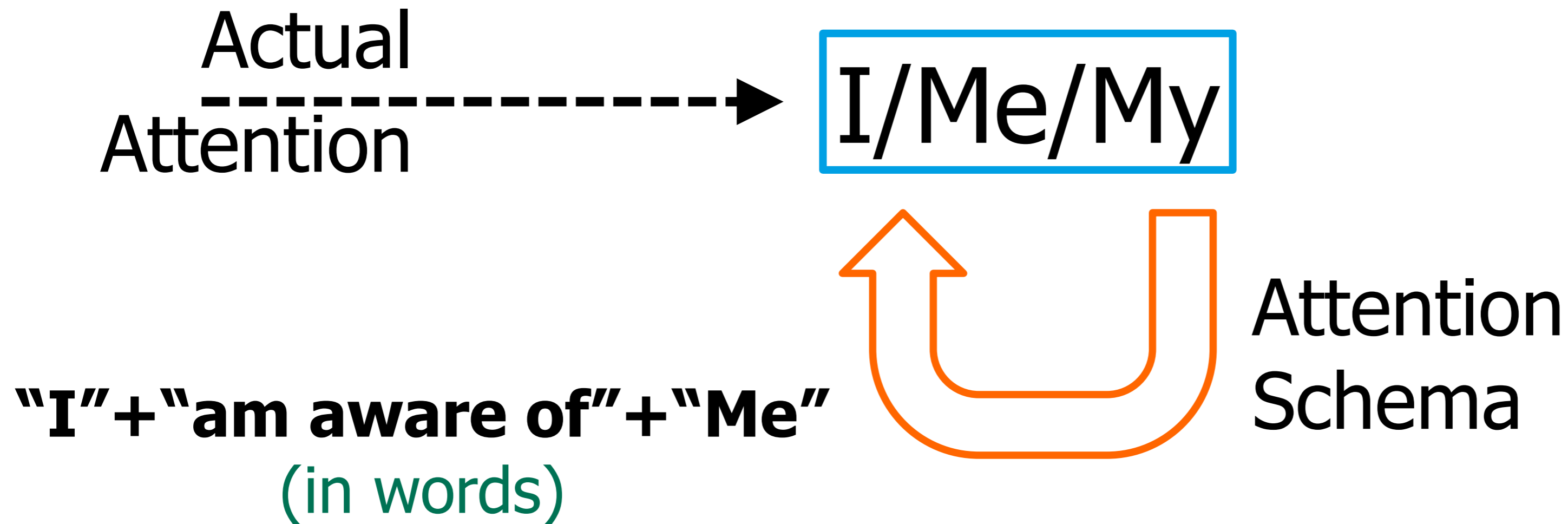
Attention
Schema

Doer Self-Awareness

The Doer's self-model is the **Body Schema.** Since the Doer is mostly sensory, it would experience a "**[Body Aware Body]**" qualia.

Actual
Attention
---------------->
Body Schema

Attention
Schema

[Body]+[Aware]+[Body]
(in sensory representations)

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Experiencer Self-Awareness

The Experiencer's self-model is the **Attention Schema**.

Again, the two Attention Schemas look like they point to each other; however, they really are pointing to themselves…

Actual Attention
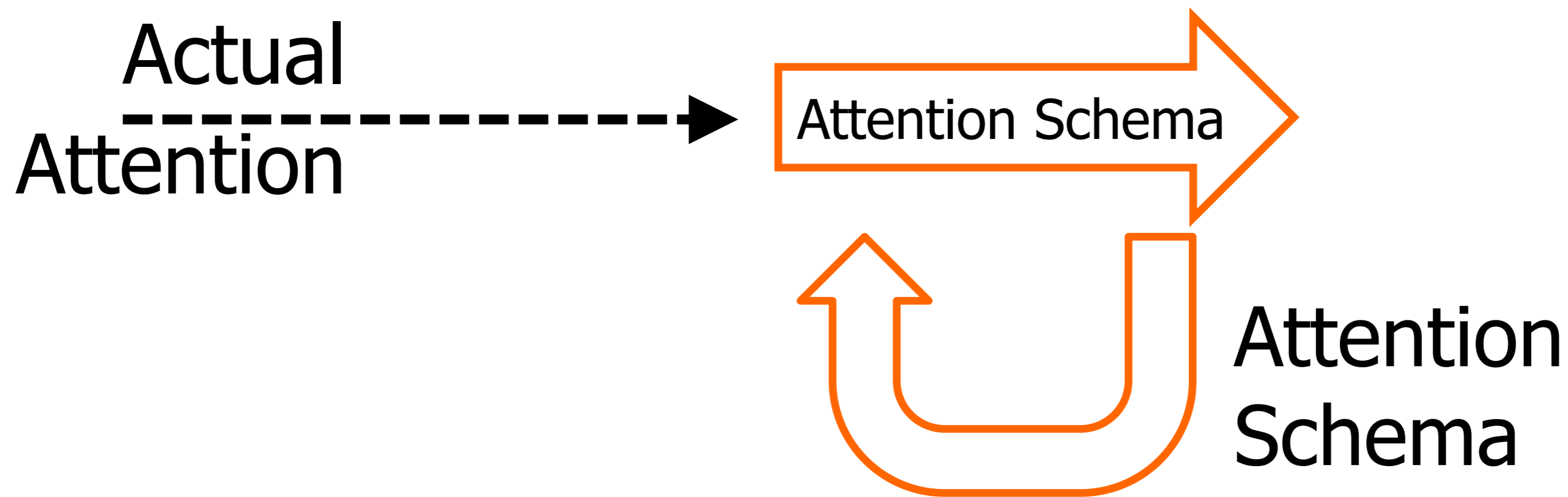
Attention Schema

Attention Schema

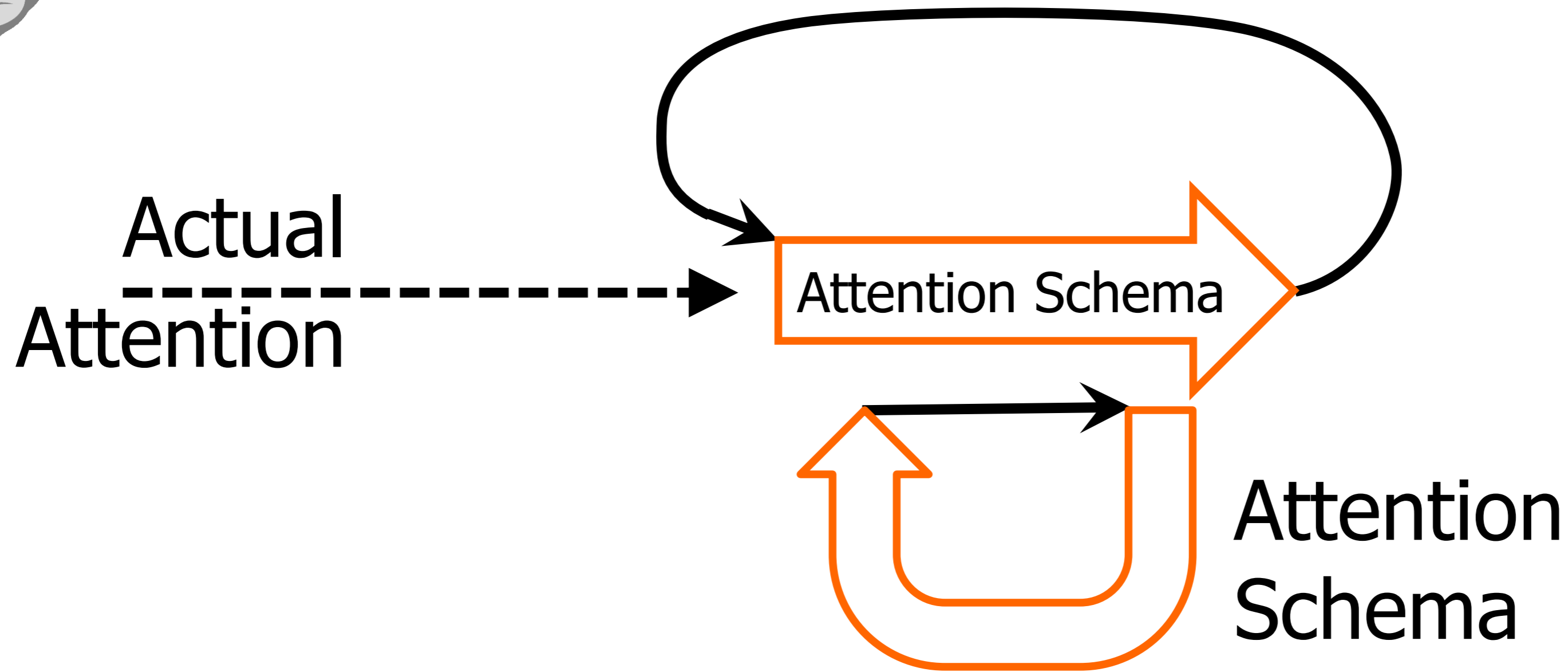…like this. Thus, these two Attention Schemas are equivalent to just one Attention Schema that points to itself…

Actual
Attention

Attention Schema

Attention
Schema

…like this. Remember, the Attention Schema here is also just awareness itself. So, the Experiencer paying attention to its own self-model would experience being "aware of awareness."

Actual
Attention

Attention
Schema
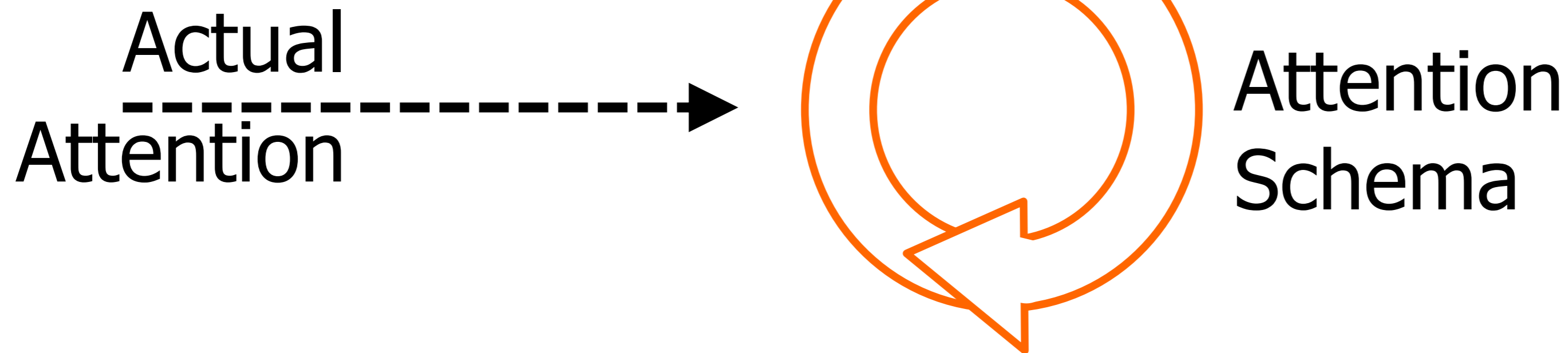
This is very unusual! The AS is an abstract concept that is just pointing to itself, and this loop of AS is not connected to anything in the physical world.

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Thus, this being "aware of awareness" just exists, and whenever it is being *looked at* (with attention), it will be found. This could be experienced as a non-physical sense of "presence" ("non-physical" since the AS is a purely abstract concept).

Actual
-------------->
Attention

Attention
Schema

[Presence]

or

[Aware of]+[Awareness]
(in sensory representations)

Perhaps, this is what religions call the non-physical "soul?"

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Experiencer Self-Awareness

Note that when you experience this sense of "Presence" (or of being "Aware of Awareness"), there would be **NO other sensory experience** of any kind. For most of us, this would be a difficult state to achieve.

Actual
- - - - - - - - - - - - - - →
Attention

[Presence]

or

[Aware of]+[Awareness]

(in sensory representations)

However, very experienced meditators do report this kind of "**internal absorption**" state.

For inexperienced meditators, it would be easier to be "aware of awareness of an object"—which we explore on the next slide.

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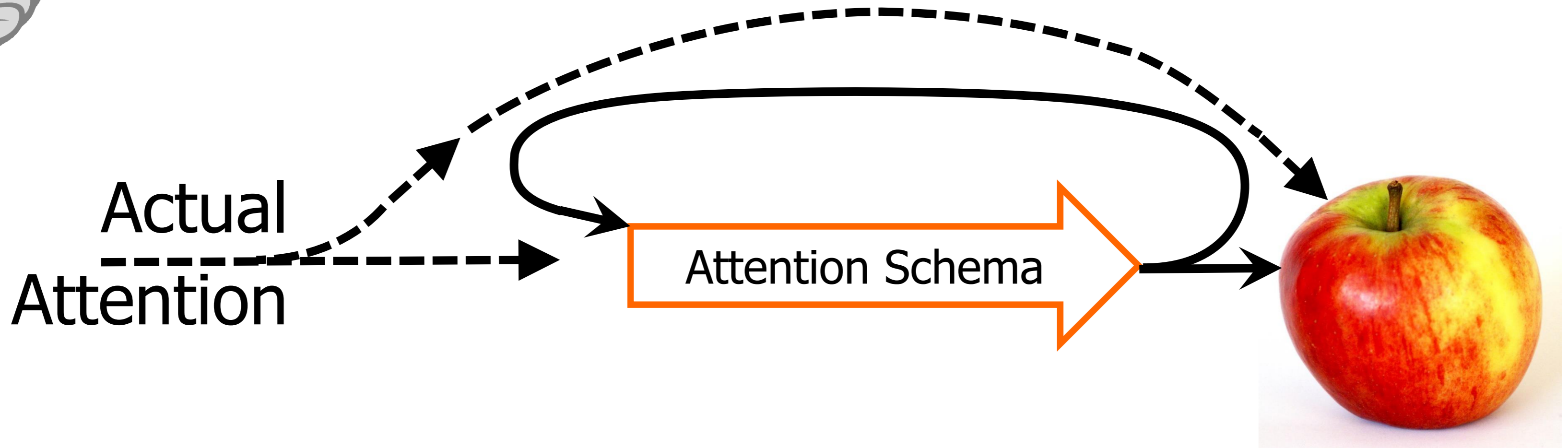
Here, the actual attention mechanism will point to both the Attention Schema and to the object (an apple in this case). Therefore, the Attention Schema will point to both itself and to the apple.

This results in a loop of Attention Schema and a branch of Attention Schema that also points to the apple.

Actual
Attention

Attention
Schema

[Presence]+[Awareness]
(in sensory representations)

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For the **Experiencer**, this would be experienced as a sense of "**Presence**" and as an "**Awareness**" (of the apple).

Awareness Models for the Agents:

This is a summary of the **agent** awareness models. However, the Thinker and Doer, by themselves are not conscious. To make a conscious Thinker and Doer, must be combined with the Experiencer...

Awareness Model = SM ⊞ AS ⊞ CRW	
Thinker	"I/Me/My" + "am aware of" + "the Apple" (in words)
Doer	[Body]+[aware]+[Apple] (sensory representations)
Experiencer	[aware]+[Apple] (sensory representations)

SM=Self-Model   **AS**=Attention Schema   **CRW**=Current Representation of the World

Three Kinds of Consciousness for 3 Agents

Here, **TC** = Thinker + Experiencer, **DC** = Doer + Experiencer,
EC = Experiencer, and **Human** = TC + DC + EC.

Conscious Awareness Models		
Thinker Consciousness	**(TC)**	**"I am aware of X"** (expressed in words)
Doer Consciousness	**(DC)**	**[Body]+[aware]+[X]** (sensory experience)
Experiencer Consciousness	**(EC)**	**[aware]+[X]** (sensory experience)

Human Consciousness will be some combination of these **three models**.

Model of Consciousness and Spirituality
Frank Heile, Ph.D.—Updated July 14th, 2018

www.SpiritualityExplained.com

The Human agent self-model is composed of a mixture of the Thinker self-model, the Doer self-model, and the Experiencer self-model.

This part of the presentation explores how the overall Human conscious would change as the mixture of the Thinker, Doer, and Experiencer self-models in the Human self-model change.

Kinds of Consciousness

Note that all four self-models (Human, Thinker, Doer, and Experiencer) are part of the Experiencer's sensory World Model. To change the Human self-model, the Experiencer will need to attain some insight, conclusion, understanding or have an experience that a change is needed. In other words, a conceptual Thinker argument (like this presentation) will not be enough—the Experiencer, itself, must experience that the Human self-model needs to be changed in some way—that's why something like meditation is required to change the Human self-model.
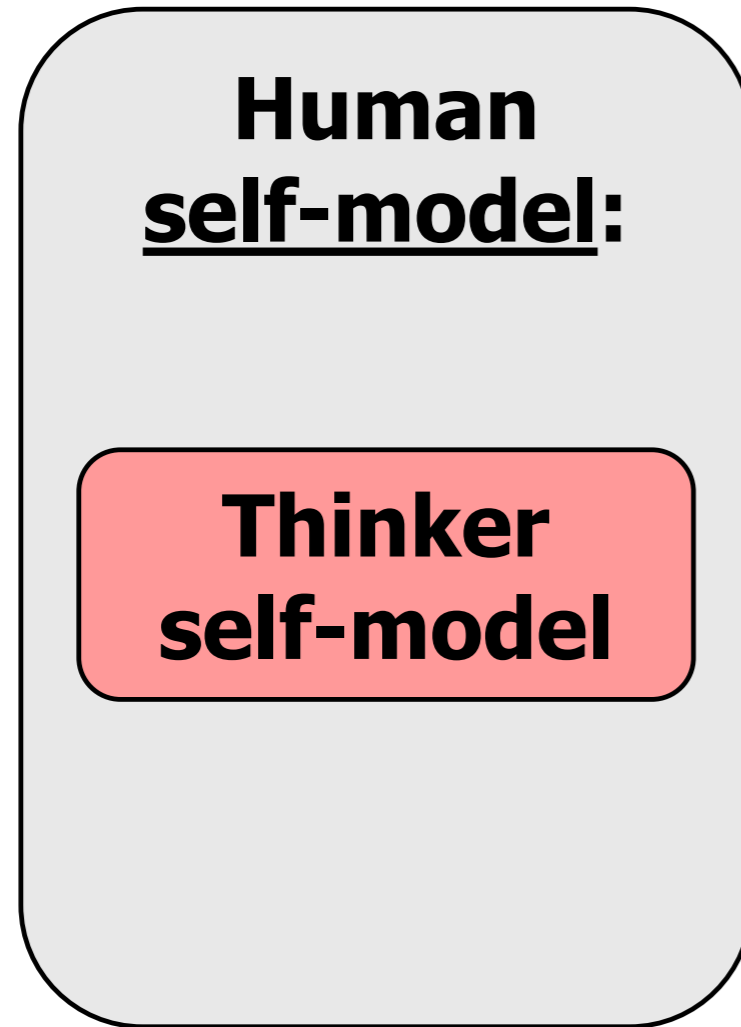
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Modern Humans

❑ Identify (almost) totally with the Thinker

Modern Humans identify with the Thinker because the Thinker continually shouts that "**We are I/Me/My**"—probably from the age of 2 on! The Thinker takes credit for everything the Human does, including all the actions the Doer performs and any insights or intuitions from the Experiencer. So, the Thinker is convinced that the Thinker is who we are and its insistence on that is what makes the Experiencer set the Human self-model to mostly the Thinker self-model.

Identification with the Thinker then makes the Thinker's inner voice very important **-** it must be obeyed!

Modern Humans

❑ Identify (almost) totally with the Thinker

Human self-model:

| **Thinker self-model** |

Human self-model:

| **Thinker self-model** |

| **Doer self-model** |

Human self-model:

| **Thinker self-model** |

| **Doer self-model** |

| **Experiencer self-model** |

"Head only" like Mr. Spock (or me)
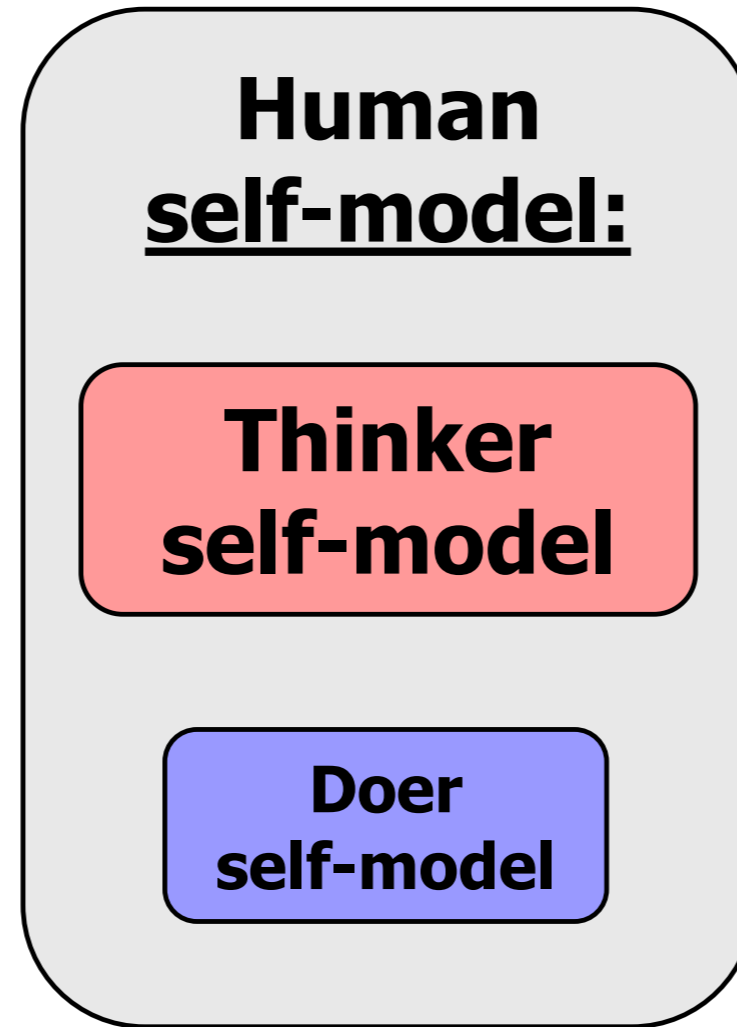
"Head + Heart" like Capt. Kirk (or my wife)
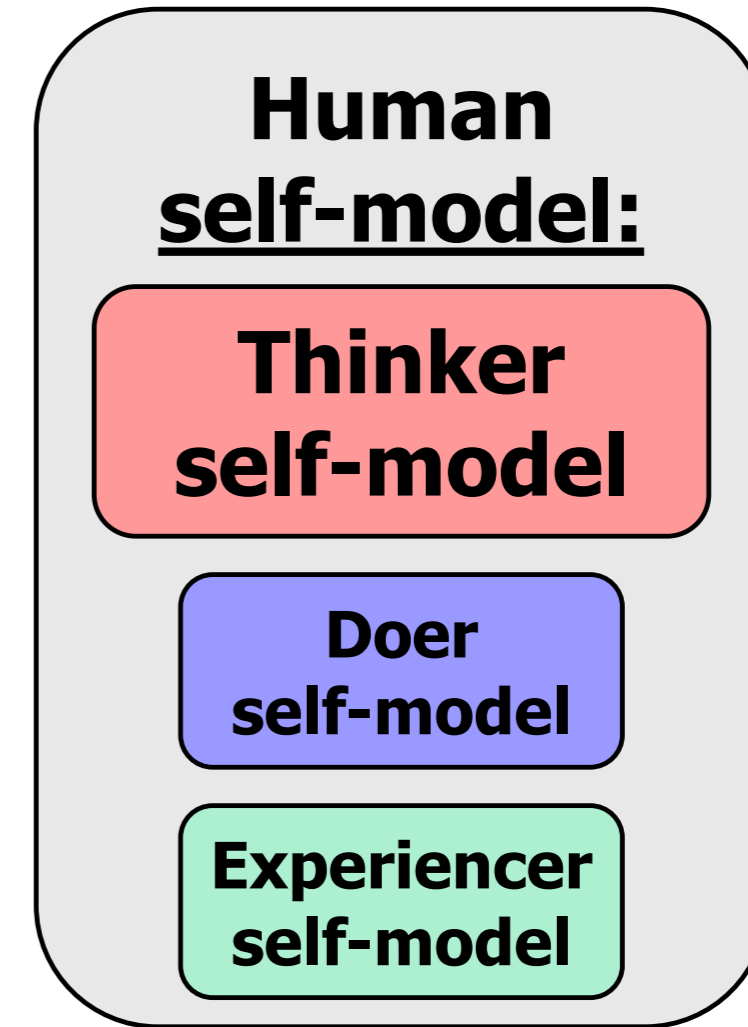
A more balanced spiritual Human

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Next, we will look at an **Animal** consciousness. To do this, we need to compare the **Human** three-agent model diagram to...

Modern Human Brain

Modern Human Brain

Spoken & Written Language Input

Vision, Hearing, & All Body Senses

Experiencer

Conceptual & Sensory Model of the World

including the

Body Model &

Goals and Self-Models of the 4 Agents

Slow

Fast & Wide

Thinker

Problem Solver

Doer

Controls the Body

Thoughtful Speech

Automatic Speech

Spoken & Written Language Output

Control all Muscles and Glands

160

Animal Brain

Animal Brain

Thoughtful Speech

Experiencer

Conceptual & Sensory Model of the World

including the

Body Model &

Goals and Self-Models of the 4 Agents

No Language Input

Vision, Hearing, & All Body Senses

Weaker Thinker

Problem Solver

Slow

Doer

Controls the Body

Fast & Wide

Only Automatic Signaling Output

Automatic Speech

Control all Muscles and Glands

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First, the **Animal Thinker** is **weaker** than the Human Thinker.
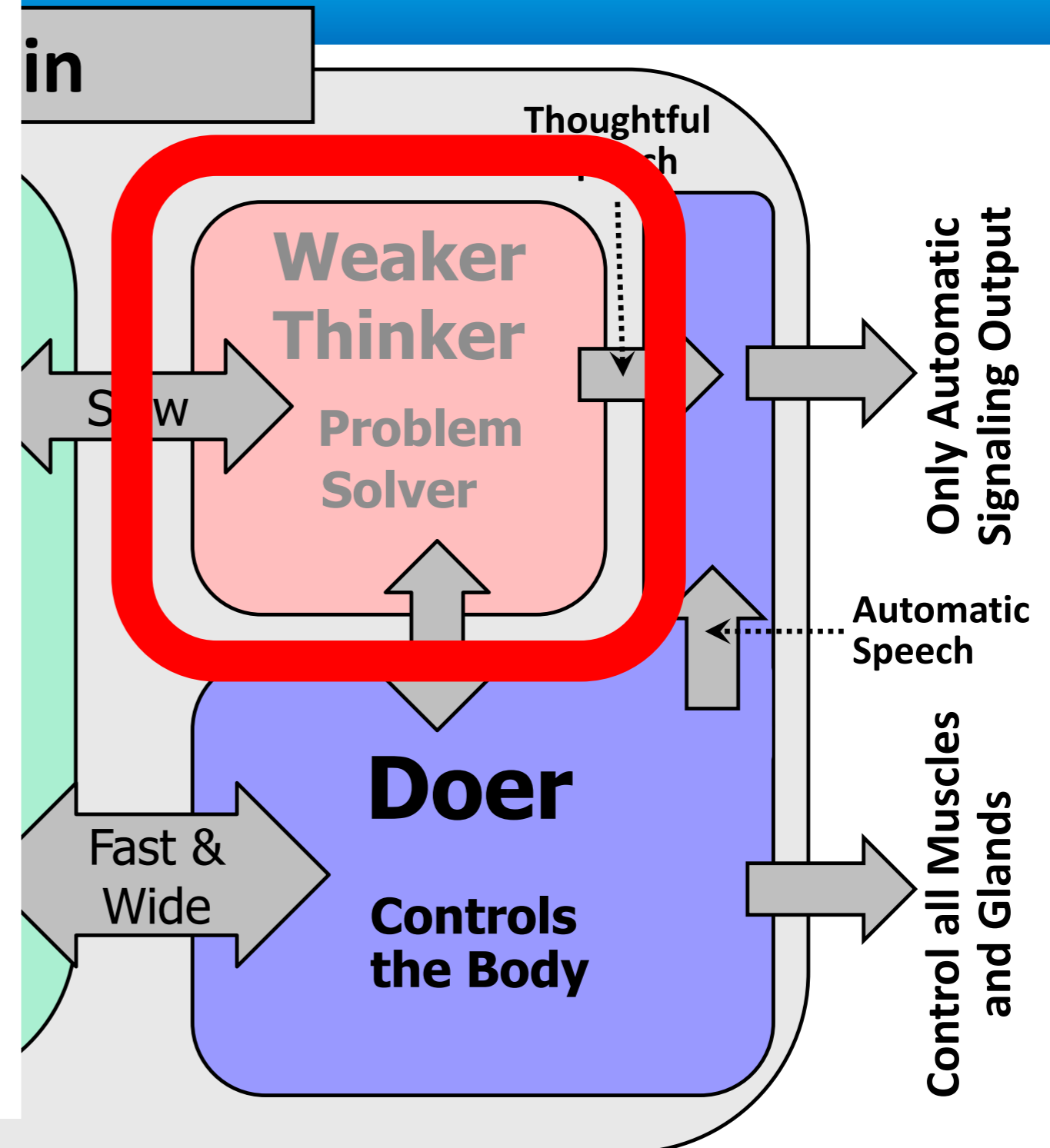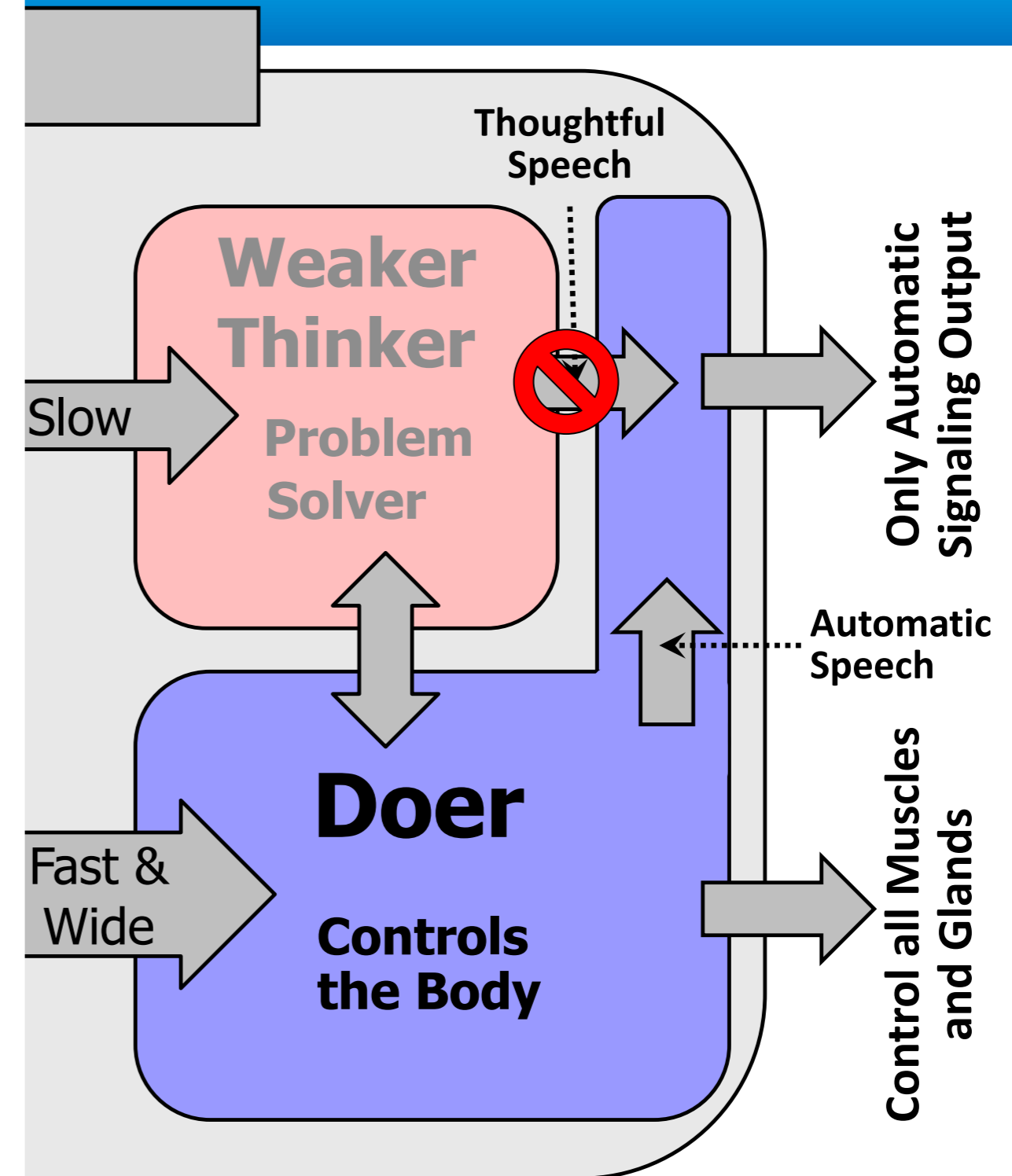
The Thinker is probably mostly implemented in the frontal lobes of the brain, and the human frontal lobes are a larger percentage of the human brain than the primate's frontal lobes percentage of the primate brain. Similarly, the primate's percentage is larger than most mammal's percentage. So, Animals have a Thinker, but it is weaker and less capable than the Human Thinker.

in

Thoughtful

Weaker Thinker

Problem Solver

Slow

Only Automatic Signaling Output

Automatic Speech

Doer

Controls the Body

Fast & Wide
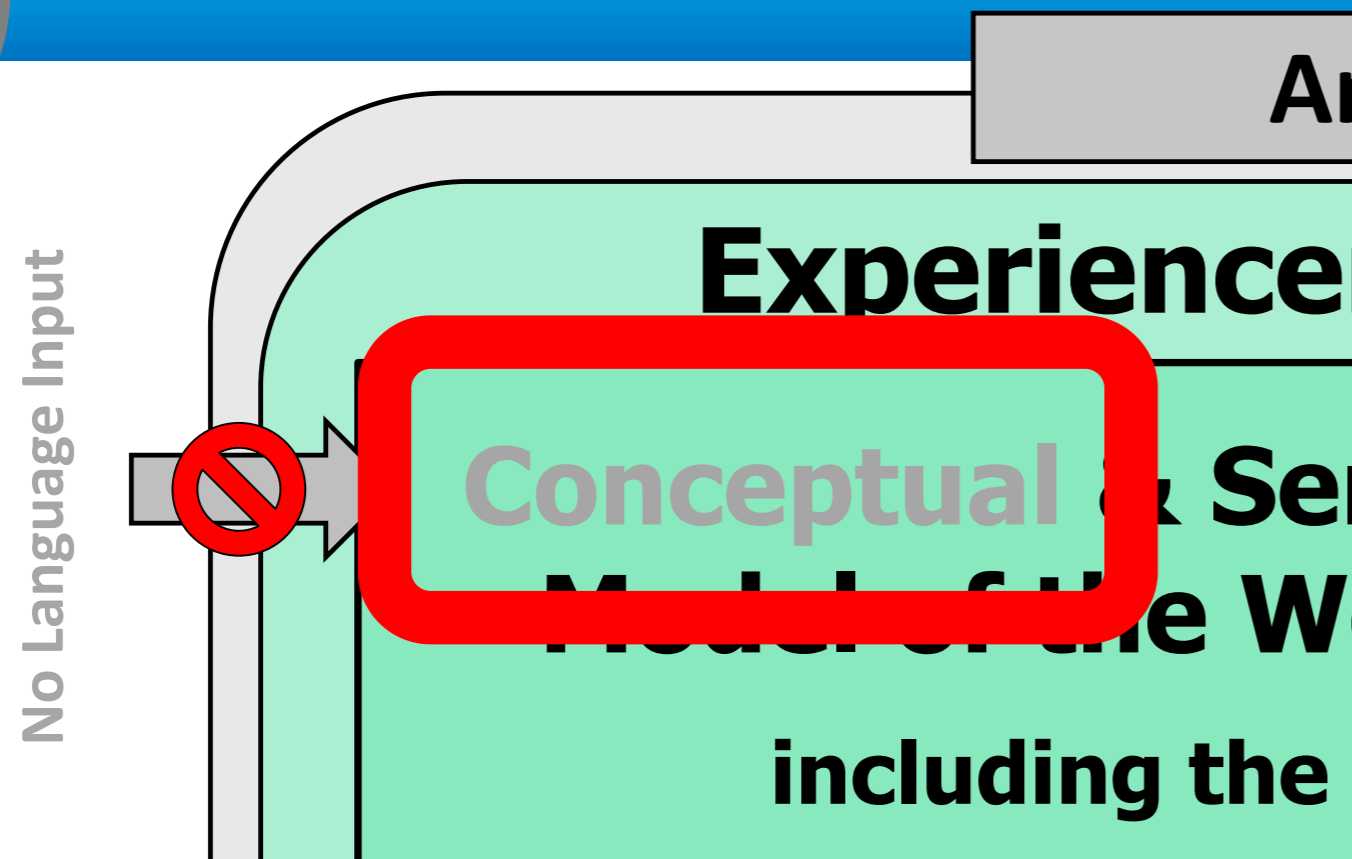
Control all Muscles and Glands

Further, Animals probably don't have **Thoughtful Speech:** When a chimp finds a tree with abundant fruit, it normally emits a vocal call, so the other members of his group can share the fruit. Jane Goodall hid some bananas and then she watched as one of the chimps found the bananas. That chimp's Thinker solved the problem of "How do I keep all the bananas for myself?" by putting his hand over his mouth to muffle the automatic "Here's a lot of fruit!" vocal call. His Thinker did not have "Thoughtful Speech" to suppress the vocal call itself, but the Thinker could control the hand to stop the call from being <u>heard</u> by others!

Thoughtful Speech

Weaker Thinker

Slow

Problem Solver

Only Automatic Signaling Output

Automatic Speech

Doer

Fast & Wide

Controls the Body

Control all Muscles and Glands

Animal Brain

No Language Input

Experience...

Conceptual & Se...
Model of the W...

including the

Most importantly, Animals do not have **language input**. This means the only concepts an Animal has are the concepts the Animal created in his own lifetime. An Animal can create concepts—after all the sensory system creates lots of low-level concepts.
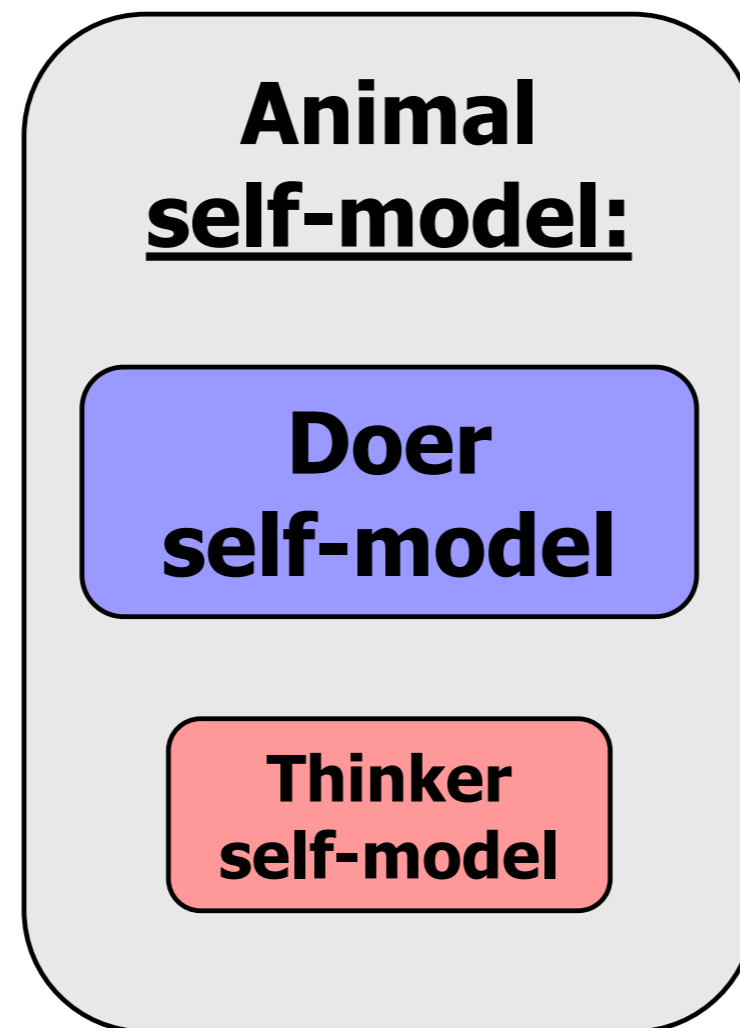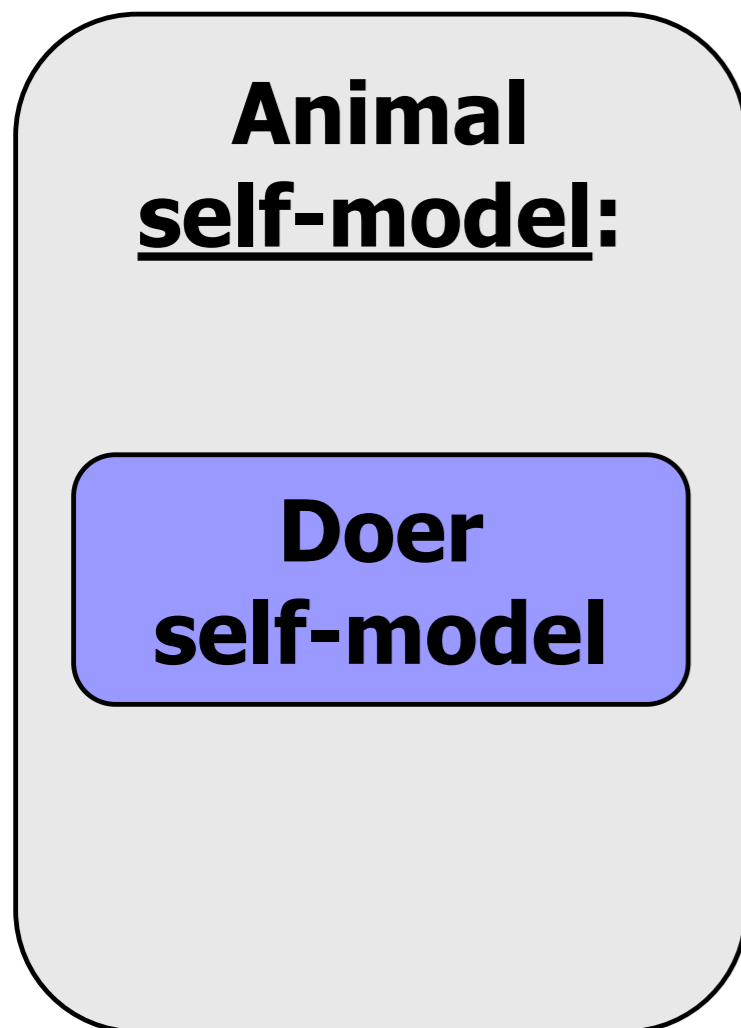
Modern Humans get most of their conceptual world through language input from other humans. We essential "inherit" the high-level conceptual world that was developed by many generations of humans teaching each other. This lack of a high-level conceptual world also causes the Animal Thinker to be <u>much less effective</u>—it simply cannot formulate, understand, or solve some problems since it doesn't have our high-level conceptual World Model.

Animals (or Ancient Humans)

❑ Identify (almost) totally with the Doer

Animal self-model:

> **Doer self-model**

Animal self-model:

> **Doer self-model**
>
> **Thinker self-model**

My hypothesis is that **Animals** or **Ancient Humans** would identify with the **Doer**.

Since Animals can create some concepts in their lifetime, some animals may have created an I/Me/My self-concept. My hypothesis is that only the most advanced Animals would have any significant amount of Thinker self-model in their overall Animal self-model.

Animals (or Ancient Humans)

❑ Identify (almost) totally with the Doer

Animal self-model:

Doer self-model

Animal self-model:

Doer self-model

Thinker self-model
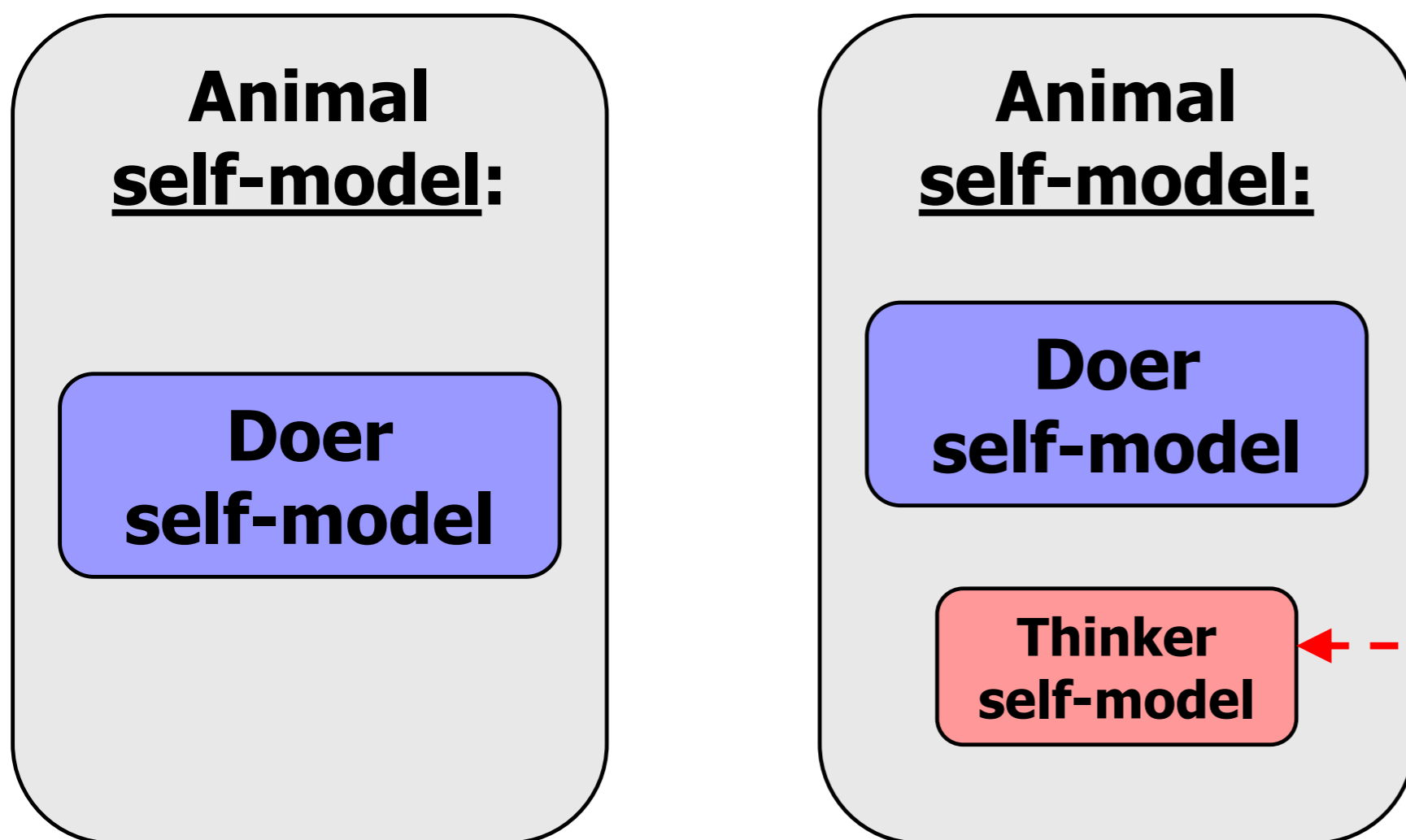
The fact that only humans, primates, elephants, and dolphins can pass the **"Mirror self-recognition test"** may indicate that these animals have a more sophisticated and powerful Thinker and that these animals (and only these animals) have an overall animal self-model that includes a significant amount of I/Me/My (Thinker) self-model component.

Animals (or Ancient Humans)

The **mirror self-recognition test** is where an animal is anesthetized, and its forehead is marked with paint. When the animal recovers from the anesthetic, it is given access to a mirror. If the animal then touches the mark on its forehead, that is taken as evidence that the animal perceives itself (rather than another animal) in the mirror. As I said, only humans, primates, elephants, and dolphins pass this mirror self-recognition test.

My hypothesis is that these animals have a significant I/Me/My self-model and that they have also developed a "You/You/Your" model for other members of their species. This provides them with a conceptual model for "self" and "other." Thus, they can understand that the way they see another's face is how others would see their face. This allows them to understand that the mark seen on the face in the mirror is what others would see if they look at their face—hence they pass the test!

...would be the...

❑ **Flow State:**

The flow state (being in "**flow**") is experienced when we are fully immersed in some activity. This state can be achieved by artists, musicians, athletes, and writers when they are deeply immersed in and concentrating on their artistic or athletic activity. However, flow can also be achieved by anyone who is deeply, fully, and completely immersed in an activity.

Anybody who has experienced this state would agree that it does not seem like the "normal" state of consciousness. The commonly reported flow state attributes are shown on the next slide...

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A Third Kind of Consciousness

My hypothesis is that the flow state is an **Experiencer** self-model dominated state.

I show that some of these attributes are consistent with an Experiencer dominated Human self-model on the next few slides…

❑ Flow State:

❑ A loss of reflective **self-consciousness**

❑ Intense concentration on the **now**

❑ Experience that the sense of time is altered

❑ **Merging** of action and awareness

❑ Sense of intrinsic reward

❑ A sense of personal agency over the activity

A Third Kind of Consciousness

This attribute is consistent with an Experiencer dominated consciousness since only the **Experiencer** has a **self-less** kind of conscious awareness

Human self-model:

Experiencer self-model

Doer self-model

Thinker self-model

❑ Flow State:

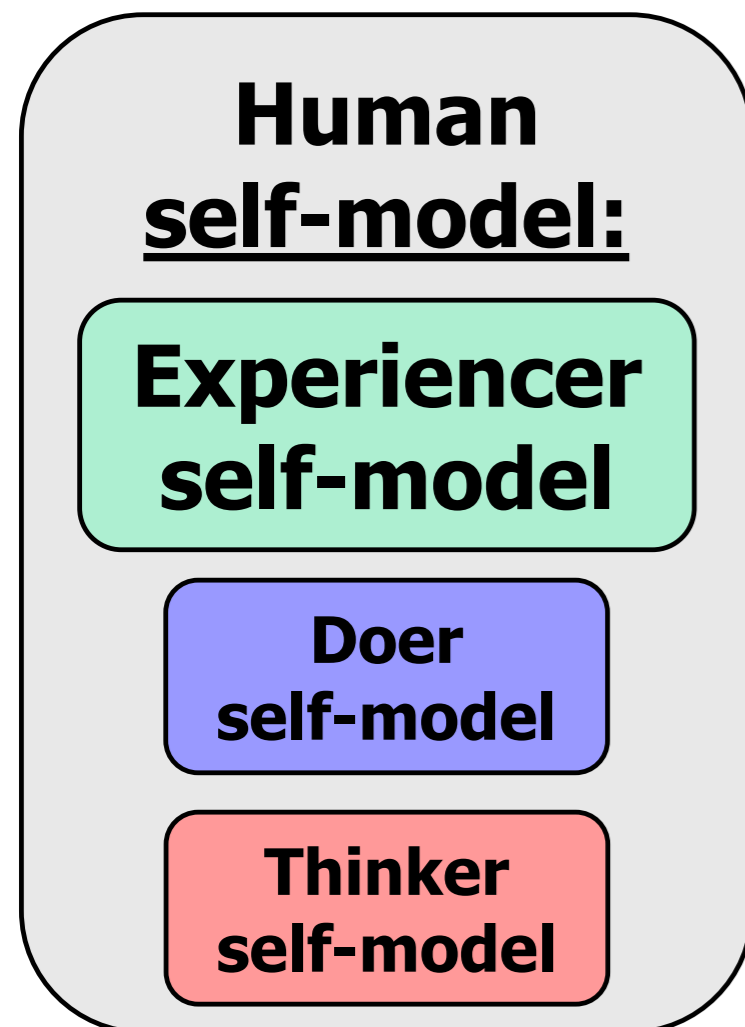   ❑ A loss of reflective **self-consciousness**

   ❑ Intense concentration on the **now**

   ❑ Experience that the sense of time is altered

   ❑ **Merging** of action and awareness

   ❑ Sense of intrinsic reward

   ❑ A sense of personal agency over the activity

A Third Kind of Consciousness

This attribute is also consistent since the Experiencer is always in the "**now**" whereas the Thinker is often off in the future or past—Thus, the sense of time is altered

Human self-model:

Experiencer self-model

Doer self-model

Thinker self-model

❏ Flow State:

- ❏ A loss of reflective **self-consciousness**
- ❏ Intense concentration on the **now**
- ❏ Experience that the sense of time is altered
- ❏ **Merging** of action and awareness
- ❏ Sense of intrinsic reward
- ❏ A sense of personal agency over the activity

A Third Kind of Consciousness

This attribute is also consistent since **action** is what the Doer does, and **awareness** is the Experiencer. So, in this state, with the Thinker role diminished, it would seem that the Experiencer and Doer have merged.

Human self-model:

Experiencer self-model

Doer self-model

Thinker self-model

❑ Flow State:

  ❑ A loss of reflective **self-consciousness**

  ❑ Intense concentration on the **now**

  ❑ Experience that the sense of time is altered

  ❑ **Merging** of action and awareness

  ❑ Sense of intrinsic reward

  ❑ A sense of personal agency over the activity

I hope this convinces you that "flow" is an Experiencer dominated state of consciousness
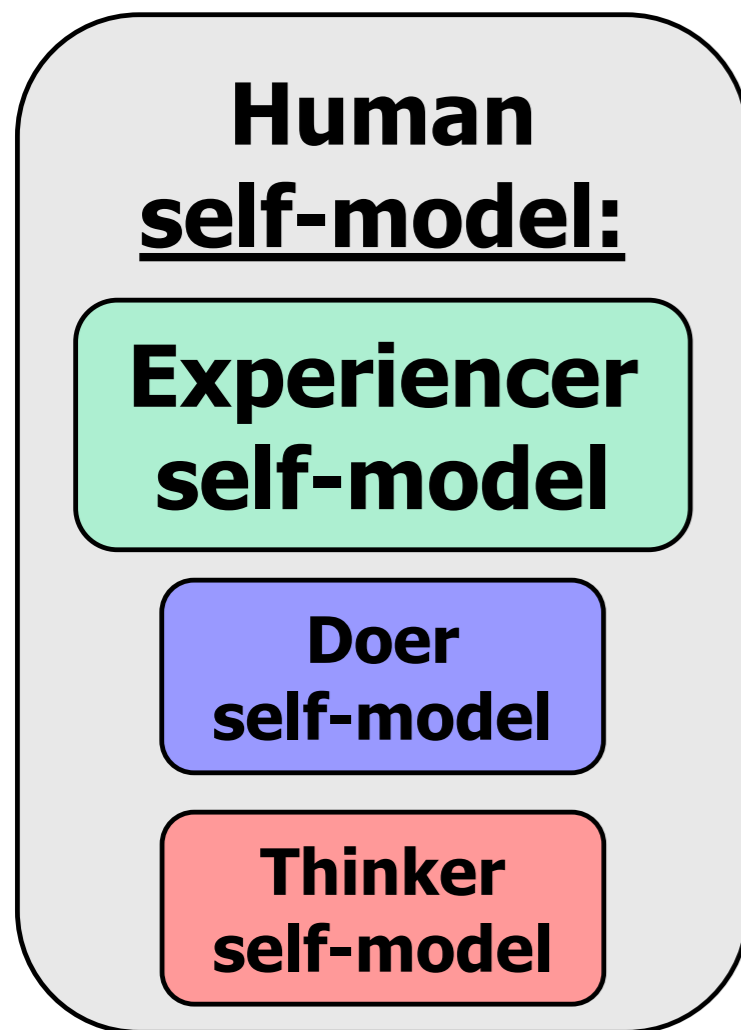
Another Reported Kind of Consciousness:

❑ Spiritual Enlightenment - **but what is it?**

❑ Enlightenment is **NOT** about "**Perfection**" **[1]**

   ❑ Enlightenment is **Nonduality**

   ❑ There are anywhere from 2 to more than a dozen **stages** of Enlightenment

[1] Daniel L Ingram, "**Mastering the Core Teachings of the Buddha**" (2008), see the chapter "Models of the Stages of Enlightenment" where he describes 31 different models of enlightenment

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Spiritual Enlightenment:

❑ Spiritual Enlightenment - **but what is it?**

To examine the question "What is Enlightenment?" I will use the book "Mastering the Core Teachings of the Buddha" [1] This book was written by **Daniel Ingram**, who is both an emergency room doctor and a Buddhist scholar (and he also claims to be enlightened). He has researched many, if not all, of the many different sects of Buddhism, and his book describes Buddhist meditation practices, and the results of those practices—one of those results is Enlightenment. He has a chapter where he discusses **31 different models of enlightenment.**

[1] Daniel L Ingram, "**Mastering the Core Teachings of the Buddha**" (2008), see the chapter "Models of the Stages of Enlightenment" where he describes 31 different models of enlightenment

Spiritual Enlightenment:

❑ Spiritual Enlightenment - **but what is it?**

❑ Enlightenment is **NOT** about "**Perfection**" **[1]**

Many of the enlightenment models he examined are about **perfection** in one way or another. For example, some models claim that enlightened people have perfect behavior, or perfect thoughts, or perfect speech. Ingram rejects all these perfection models of enlightenment. The only model he **fully** endorses is the **nonduality model**.

[1] Daniel L Ingram, "**Mastering the Core Teachings of the Buddha**" (2008), see the chapter "Models of the Stages of Enlightenment" where he describes 31 different models of enlightenment

Spiritual Enlightenment:

❑ Spiritual Enlightenment - **but what is it?**

❑ Enlightenment is **NOT** about "**Perfection**" **(1)**

❑ Enlightenment is **Nonduality**

Nonduality is a translation of the Sanskrit word Advaita—which literally means "Not Two"—hence nonduality. Nonduality means that the self-other and the subject-object distinctions are seen to be illusions. A nondual person might say, "The world and I are one."

(1) Daniel L Ingram, "**Mastering the Core Teachings of the Buddha**" (2008), see the chapter "Models of the Stages of Enlightenment" where he describes 31 different models of enlightenment

Spiritual Enlightenment:

Ingram also reports that each of the different Buddhist traditions claims multiple **stages**, or kinds, of enlightenment. The number of different stages range from 2 to more than a dozen. This means that there is not just one kind of final enlightened state—there are **multiple** different kinds of enlightened states or stages.

❑ Enlightenment is **NOT** about "**Perfection**" [1]

❑ Enlightenment is **Nonduality**

❑ There are anywhere from 2 to more than a dozen **stages** of Enlightenment

Now let's look at Buddhist **practices** and Buddhist **enlightenment**…

[1] Daniel L Ingram, "**Mastering the Core Teachings of the Buddha**" (2008), see the chapter "Models of the Stages of Enlightenment" where he describes 31 different models of enlightenment

Buddhism [1]

We will use Ingram's description of the **Theravada Vipassana Buddhist** tradition (which is very popular in the west).

Trainings in:
- Morality
- Concentration
- Insight
- More Morality

Insights:
- Impermanence
- Suffering
- No-Self

[1] Daniel L Ingram, "**Mastering the Core Teachings of the Buddha**" (2008)

Buddhism [1]

Trainings in:

- ❏ Morality
- ❏ Concentration
- ❏ Insight
- ❏ More Morality

[1] Daniel L Ingram, "**Mastering the Core Teachings of the Buddha**" (2008)

There are **four trainings**:

First is the training in **morality** which means trying to practice the spiritual virtues and to avoid the spiritual vices.

Second is the training in **concentration** which includes doing various meditation practices by controlling and directing attention.

Third is **insights** (see next page).

Finally, there is **more** training in **morality**—this training is needed since enlightenment (which may occur at any point) doesn't achieve perfection.

These insights might occur at any time during the training.

Impermanence is the insight that nothing lasts forever—everything comes and goes.

Suffering is the insight that we all suffer because of our attachments and aversions. Specifically, attachment to something that is impermanent will eventually cause suffering since the attached object will go away at some point.

Insights:
- ❑ Impermanence
- ❑ Suffering
- ❑ No-Self

The **No-Self** insight is that any sense or experience of a permanent, unchanging self is an illusion. Therefore, our sense of self is impermeant, just like everything else.

No-Self is also described by saying "Everything is Self" and that "Self is Empty." Thus, the No-Self insight is the Nondual insight since the self-other distinction must be an illusion if self is everything and nothing.

Insights:
- ❑ Impermanence
- ❑ Suffering
- ❑ No-Self

Only the Experiencer has a **self-less** kind of conscious awareness. The Thinker has an I/Me/My "self," and the Doer has the Body Schema "self," so only the Experiencer can have this kind of No-Self insight.

Hindu Advaita Vedanta

Now we look at the **Hindu Advaita Vedanta** spiritual tradition...

Trainings in:

- ❑ Contemplation
- ❑ Self-inquiry
- ❑ Self-mastery
- ❑ Textual studies
- ❑ Ethical refinement

Insight is Nonduality:

- ❑ Atman = Brahman
- ❑ No Subject-Object Distinction

Hindu Advaita Vedanta

Trainings in:
- ❑ Contemplation
- ❑ Self-inquiry
- ❑ Self-mastery
- ❑ Textual studies
- ❑ Ethical refinement

This spiritual tradition is a very extensive Hindu school of philosophy and includes many religious practices.

I won't describe each of the trainings. Instead, I will talk about the main insight which is the result of all these trainings:

the Nonduality insight;

Advaita Vedanta describes the nondual insight by saying that **Atman** is the same as **Brahman**.

Atman is said to be the "true soul" of the human. Brahman is all of reality. Thus, the "nondual" claim is that the "true soul" of the human is equal to all of reality (i.e., the world and I are one).

Insight is Nonduality:

❑ Atman = Brahman

❑ No Subject-Object Distinction

Looking at the three-agent model, the "true soul" must be the Experiencer since the Experiencer is the only conscious agent. Similar the Experiencer is the agent that creates (and is) the Model of the World that we experience—thus, the Experiencer is, in a sense, the reality that we experience. Therefore: **Atman = Brahman**!

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Hindu Advaita Vedanta

Trainings in:
- ❑ Contemplation
- ❑ **Self-inquiry**
- ❑ Self-mastery
- ❑ Textual studies
- ❑ Ethical refinement

The Indian Hindu sage, **Ramana Maharshi**, taught his disciples that the "**Self-inquiry**" training was the most efficient and direct path to nonduality.

Westerners are very interested in getting enlightened efficiently and directly. Hence, several western nondual teachers and writers have embraced this Self-inquiry method, and a number of books and trainings describe this method.

Self-Inquiry

"Who Am I?"

- ❑ Not the Ego (AKA Thinker)
- ❑ Not the Body (AKA Doer)

- ❑ The answer is: "Presence Awareness"[1]

[1] Answer from John Wheeler in his book "*Presence Awareness, Just This and Nothing Else*"
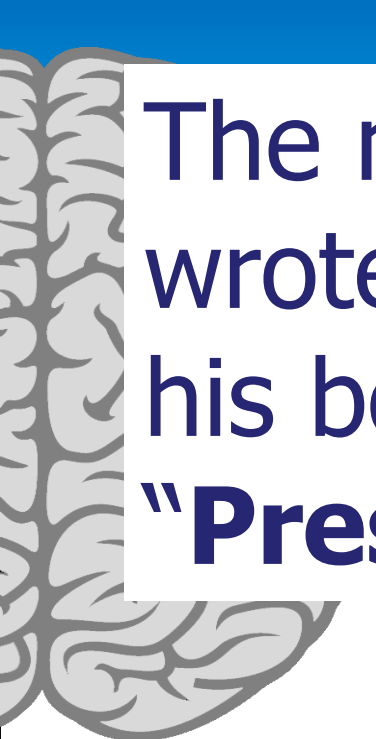
Self-Inquiry

"Who Am I?"

- ❑ Not the Ego (AKA Thinker)
- ❑ Not the Body (AKA Doer)

The **self-inquiry** method is to repeatedly ask yourself "Who am I?" and to then closely examine any answer that arises. The answer "Ego" (or I/Me/My) is seen to be false, so I am not the Thinker. The answer the "body" is also false, so I am not the Doer.

The nondual author, John Wheeler (not the physicist John Wheeler), wrote several books about this self-inquiry method. The title of one of his books is his answer to the "**Who Am I?**" question—the book title is: "**Presence Awareness, Just This and Nothing Else**."

"Who Am I?"

❑ Not the Ego (AKA Thinker)

❑ Not the Body (AKA Doer)

❑ The answer is: "Presence Awareness"[1]

Remember that for the Experiencer, the experience of being aware of your awareness of an object could be described as a "Presence Awareness," and this isn't true for the Thinker or Doer.

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[1] Answer from John Wheeler in his book "*Presence Awareness, Just This and Nothing Else*"
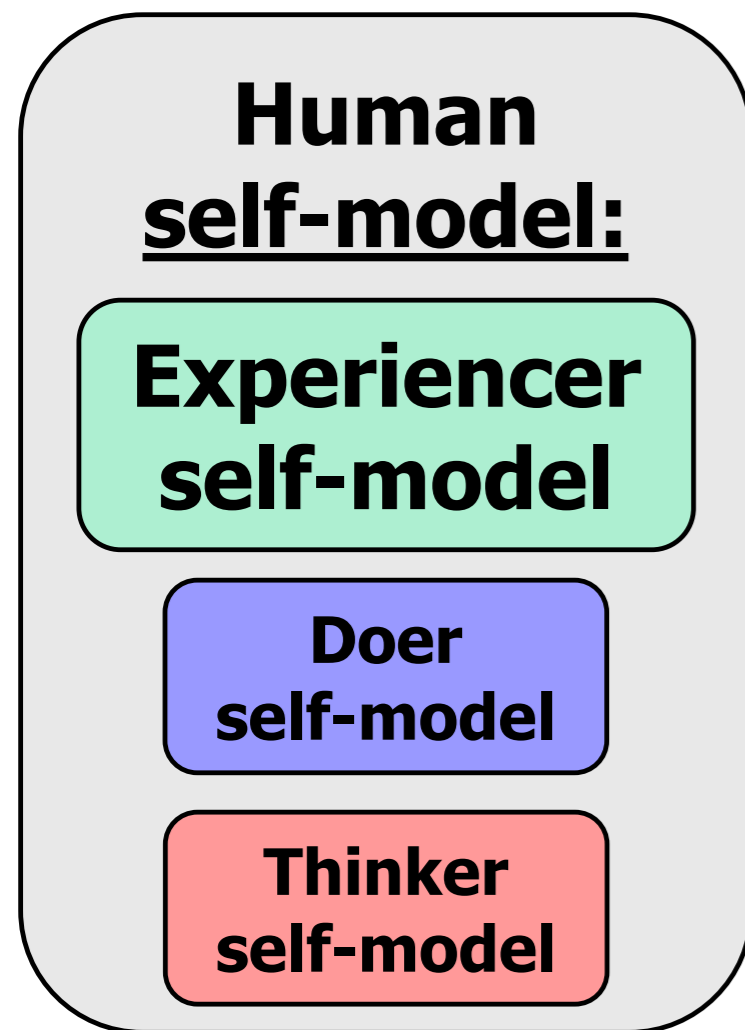
Enlightenment / Nonduality Insights

To summarize, for each tradition and each insight, it is only the **Experiencer Consciousness** that could have these particular insights. The Thinker and Doer Consciousness cannot have these insights.

Tradition	Insights	TC	DC	EC
Buddhism	**No-Self**	❌	❌	✅
Hindu Advaita Vedanta	**Atman = Brahman**	❌	❌	✅
	No Subject-Object Distinctions	❌	❌	✅
Self-Inquiry	**Who Am I? = Presence Awareness**	❌	❌	✅

TC=Thinker+Experiencer; DC=Doer+Experiencer; EC=Experiencer Only;
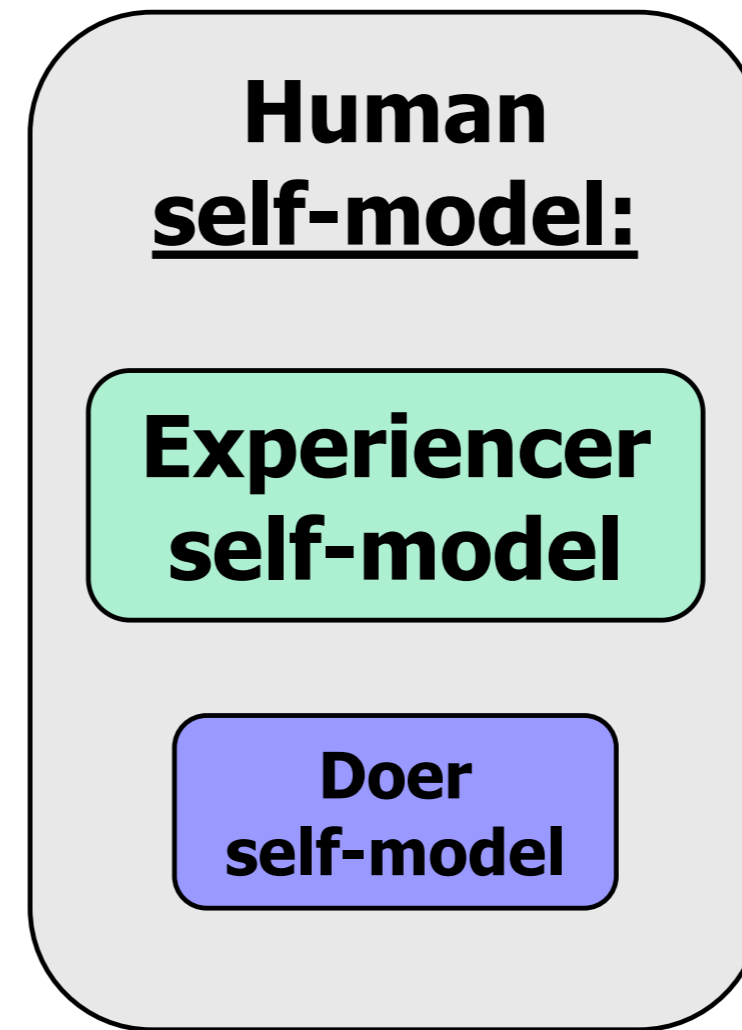
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Several Possible "Enlightened" States

The hypothesis is that the Human self-models for enlightened states would all be **Experiencer dominated** self-models like these:
(Flow could be the entry point to enlightenment—being in flow all the time might be what enlightenment is like!)
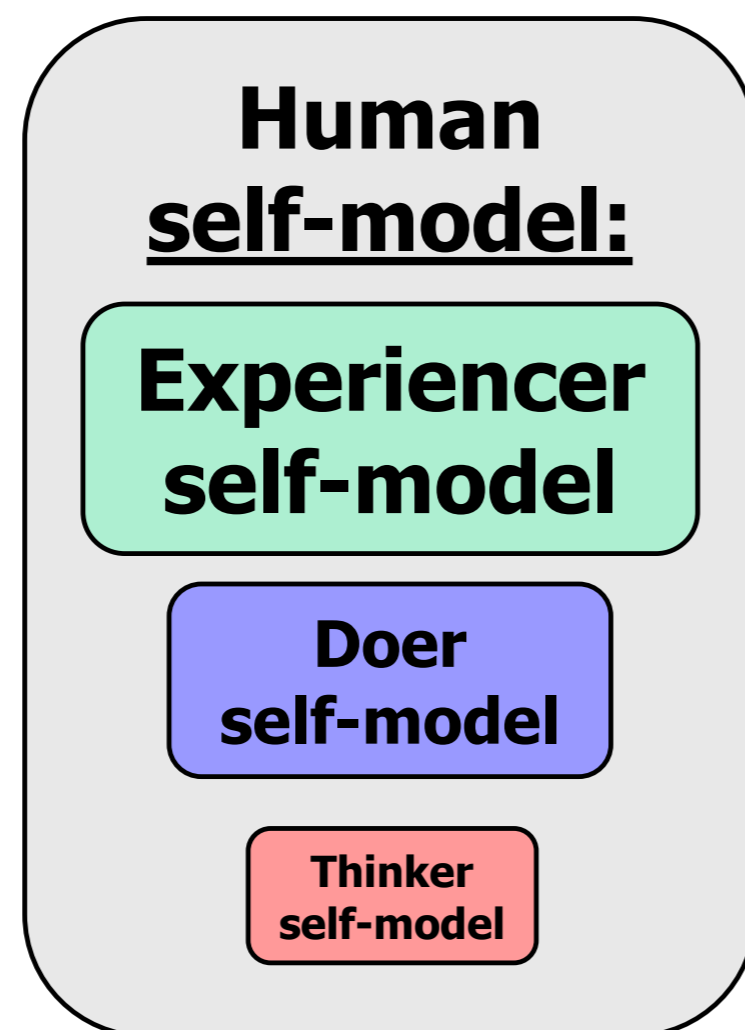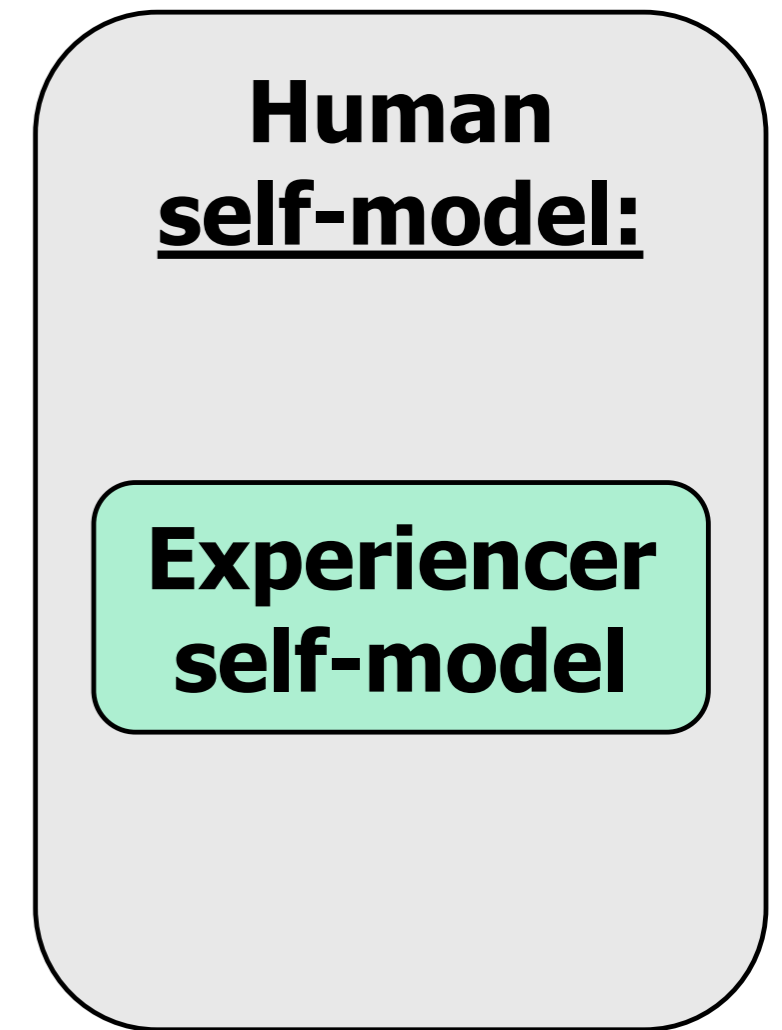

Human self-model:	Human self-model:	Human self-model:	Human self-model:
Experiencer self-model	Experiencer self-model	Experiencer self-model	Experiencer self-model
Doer self-model	Doer self-model	Doer self-model	
Thinker self-model	Thinker self-model		
Flow State	**Less Thinker**	**No Thinker**	**Experiencer Only**

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Continuum of Kinds of Consciousness States

We've given many examples of the Human (or Animal) self-model with different proportions of the three sub-agents self-models. For the Modern Human, we had 3 examples of Thinker dominated self-models, for the Animal, we had 2 examples of Doer dominated self-models, and for Flow + Enlightened states, we have 4 examples of Experiencer dominated self-models.

All these states had different percentages of Thinker, Doer, and Experiencer self-models included in the overall self-model. Therefore, there is a 2-dimensional **continuum** of possible states of consciousness with different percentages of Thinker, Doer, and Experiencer self-models included in the overall self-model (it is only a 2-dimensional space since the sum of the three percentages is always 100%.)

Continuum of Kinds of Consciousness States

TC=Thinker+Experiencer,   DC=Doer+Experiencer,   EC=Experiencer

EC=100%

So, every possible state of consciousness can be represented by a **point** inside this triangle.
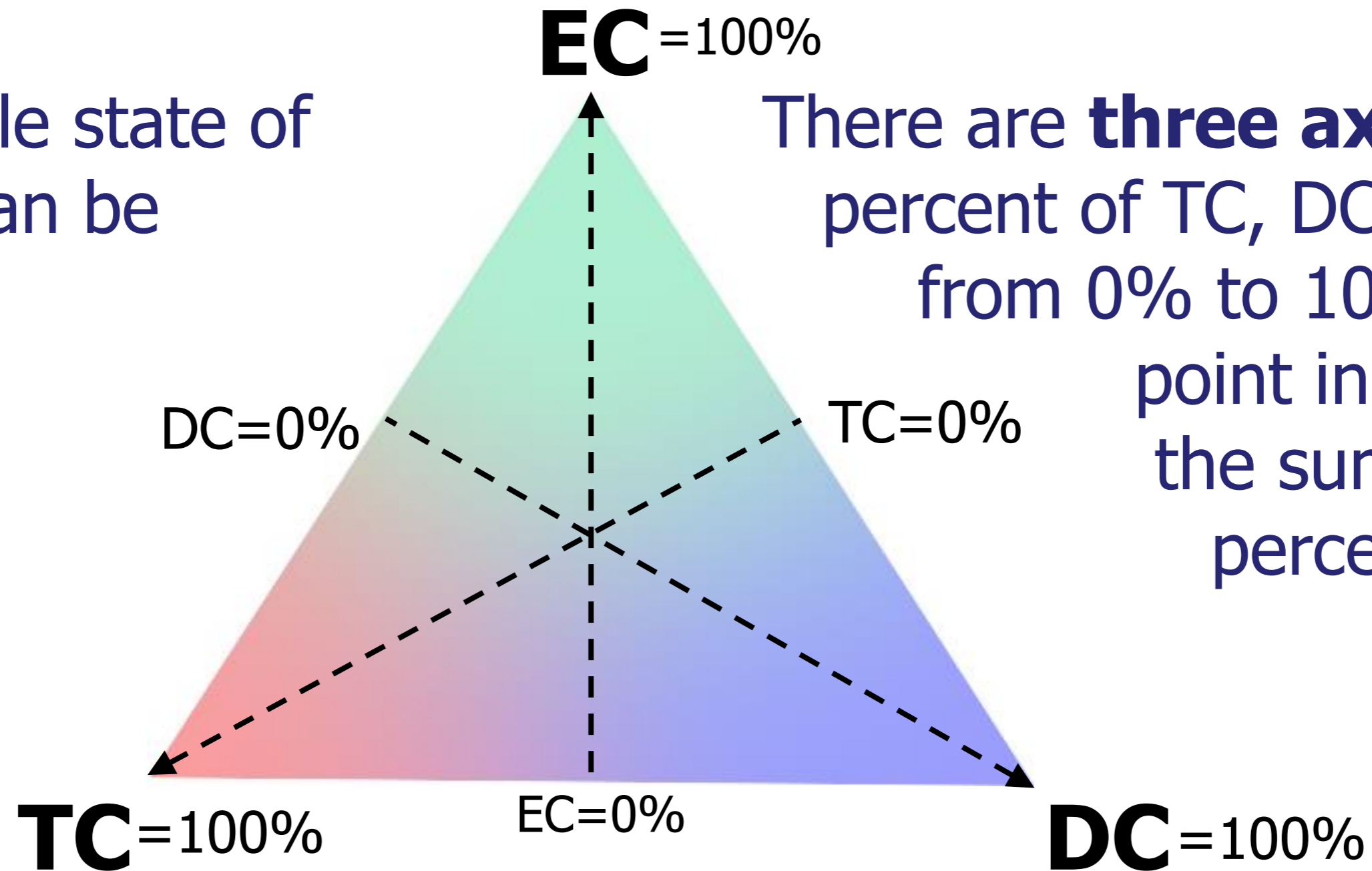
There are **three axes** where the percent of TC, DC, and EC vary from 0% to 100%. For each point in this diagram, the sum of the three percentages would equal 100%

DC=0%

TC=0%

TC=100%

EC=0%

DC=100%

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Human S-M

(T%, D%, E%)
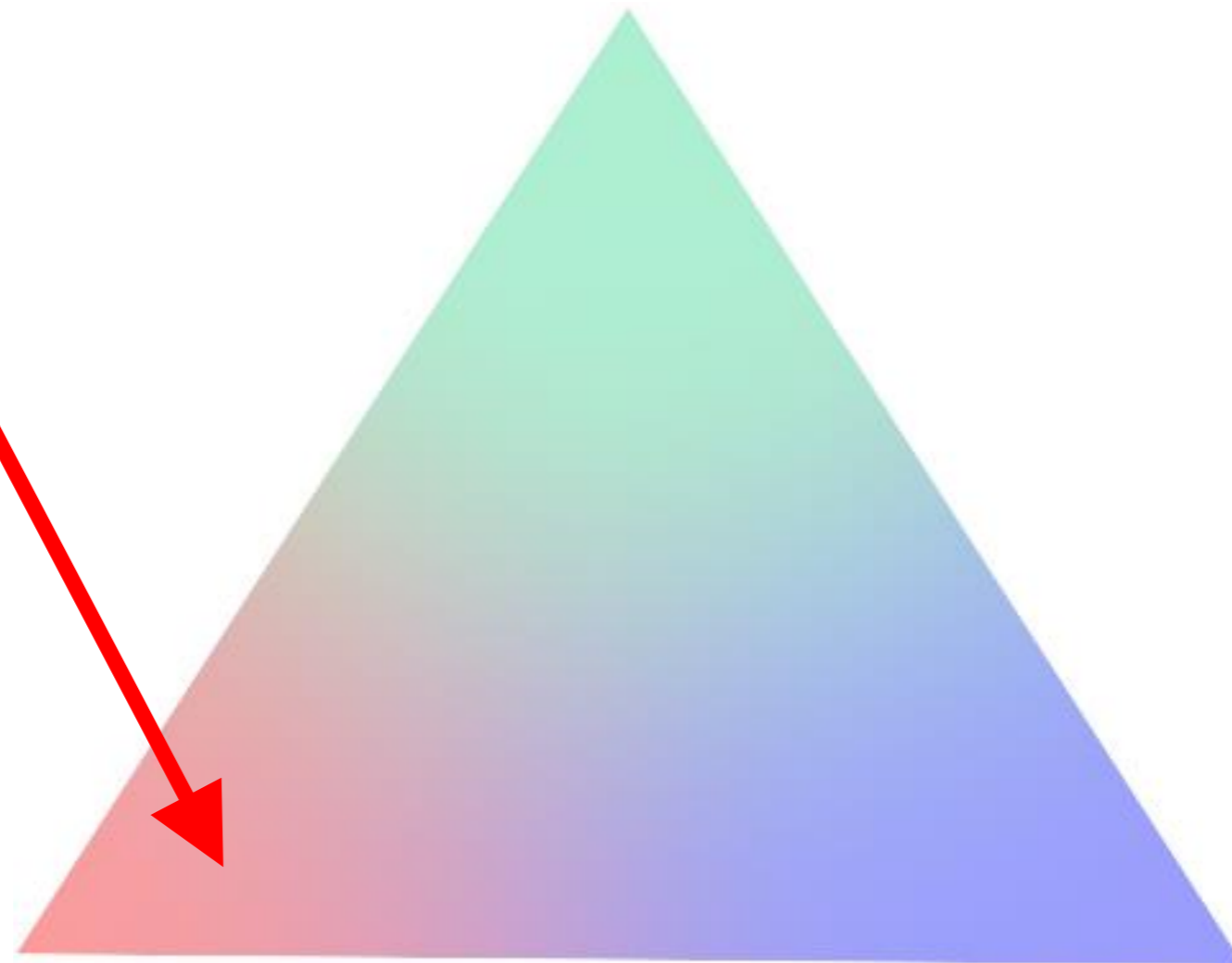
(80, 10, 10)

Modern Human

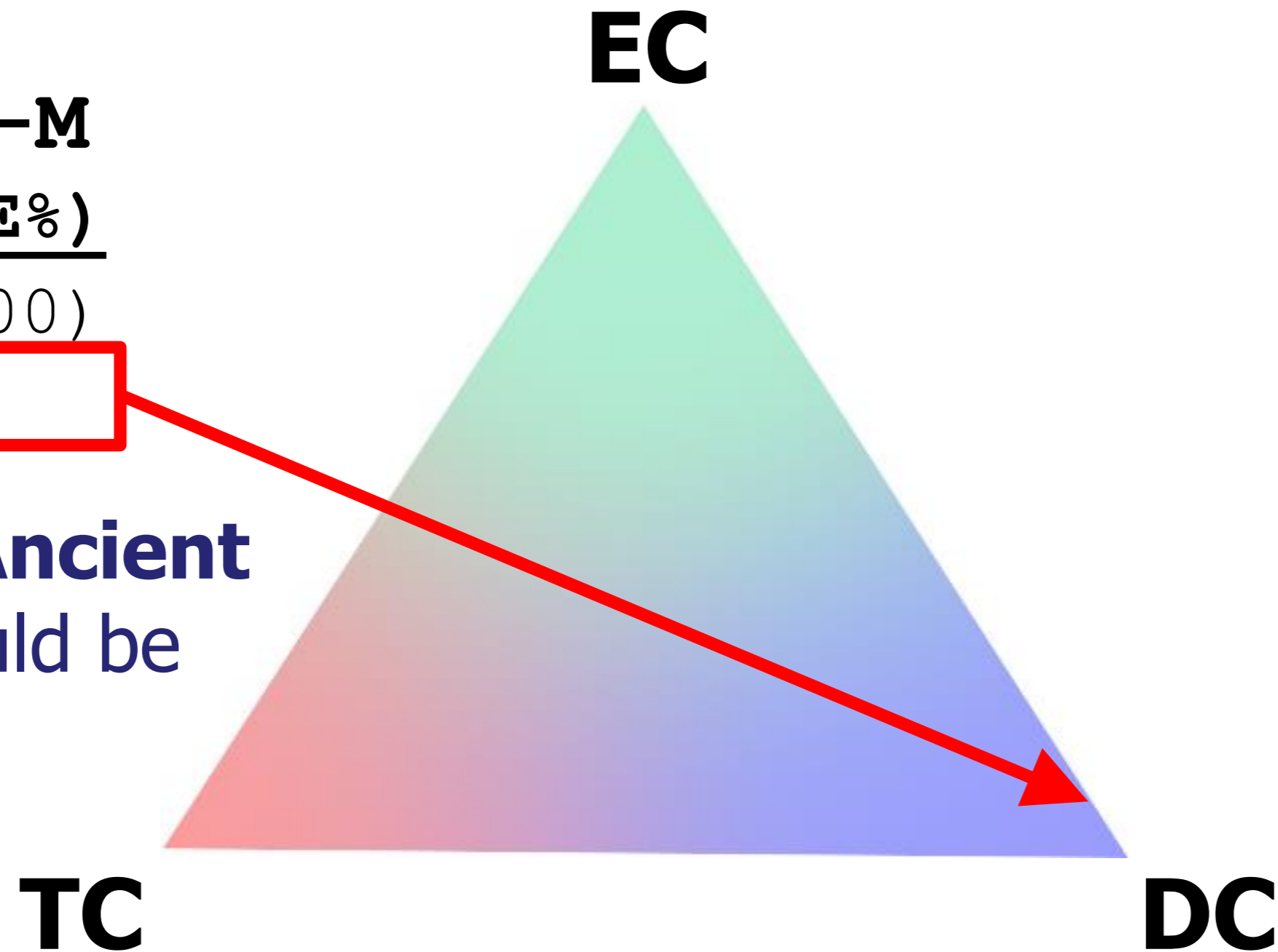The **Normal** (or **Spiritual**) Modern Human would be in this area of the diagram

EC

TC

DC

Continuum of Kinds of Consciousness States

Human S-M

(T%, D%, E%)

(10, 90, 00)

Animal

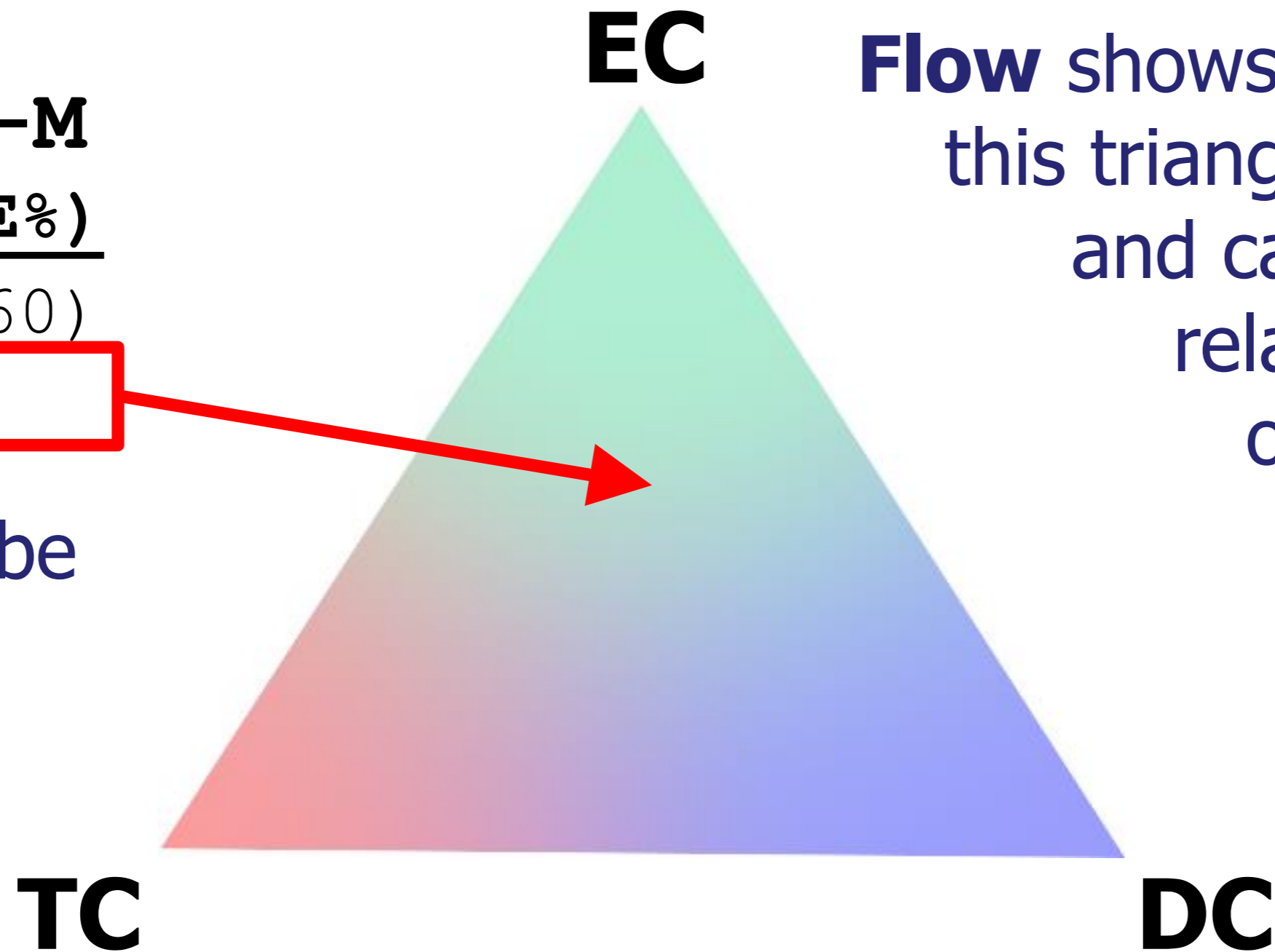**Animals** (or **Ancient Humans**) would be in this area of the diagram

EC

TC

DC

Human S-M

(T%, D%, E%)

(20, 20, 60)

Flow

"**Flow**" would be in this area of the diagram.

EC

TC

DC

Flow shows that the position in this triangle can be **dynamic** and can change rapidly in relatively short periods of time since we can go in and out of **flow** relatively rapidly.

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Continuum of Kinds of Consciousness States

Human S-M

(T%, D%, E%)

(1, 1, 98)

Enlightened

Enlightened states would be in this area of the diagram.

EC

TC

DC

The more **fully enlightened** people would send more and more time in this area—rather than slipping into the TC region when triggered.

The **Wise Intuitive Attention Mechanism** could be used to decrease the attachments and aversions that cause triggers.
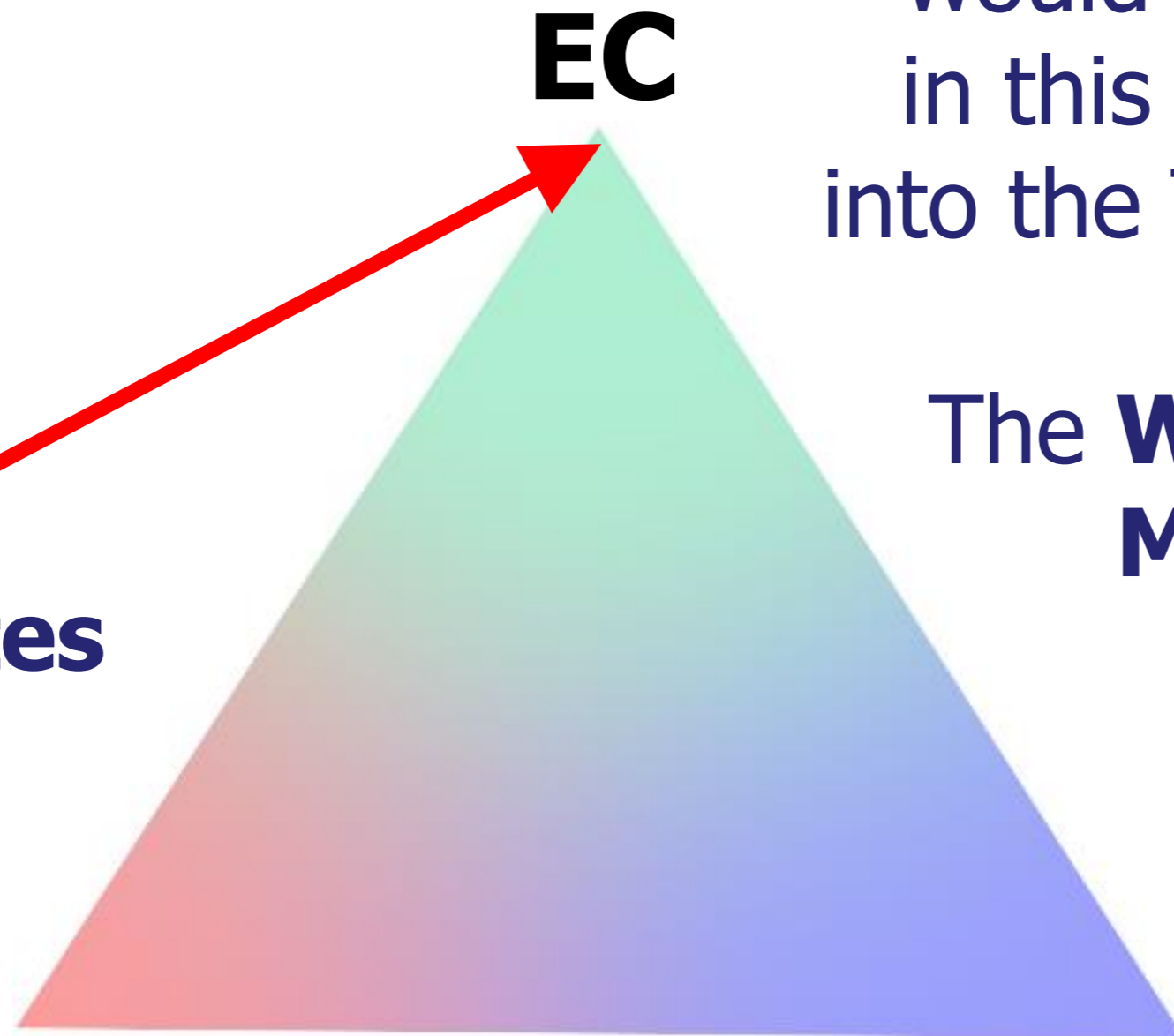
EC

This completes the presentation of the possible kinds of human conscious awareness, and of the explanation of spirituality.

I hope you found this three-agent model of the human brain to be:
- understandable, interesting, convincing, and useful,
- that it explained the origin, purpose, and efficacy of spirituality,
- and that it also explained multiple possible states of consciousness.

TC

DC

Thank You!

- I hope that your **Experiencer intuitively understood:**
  - **The Origin and Efficacy of Spirituality**
  - And **Multiple Kinds of Consciousness**
- Thanks for directing your **Top-Down Attention** to my Presentation!

The End

- I welcome feedback!
- Check out **www.SpiritualityExplained.com**
  - It has links to many **YouTube videos** and **PDFs**
  - Click on **"Sign Up Now"** to get notification of new content and **the publication of the book.**
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