The Music, Not the Instrument

Introducing *The Harmonics of Consciousness*

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Overview

I think, therefore I am… we have all whispered these words with trembling uncertainty, wondering if we could ever understand our own experiences. **What is consciousness?** Where does the sense of "you" come from? How does a three-pound lump of brain matter create **the rich, vivid experience of being alive?** These questions have haunted humanity for millennia. Despite brilliant minds, cutting-edge technology, and centuries of relentless inquiry, **consciousness remains one of our most stubborn mysteries**. We sit in silence… think about the despair that we may never understand—that we will never explain the gap between brain activity and subjective experience… but what if we are wrong? **What you are about to see will change how you understand your mind**. I solved the hard problem of consciousness by revealing a truth hiding in plain sight: **we have been looking for consciousness in all the wrong places**. Consciousness is not a thing tucked away in your brain—**it is the symphony that emerges when four consciousness "instruments" play together in perfect harmony**. Using the *Animal Kingdom Dataset*, I scored 456 behaviors across 850+ spanning the entire animal kingdom—mapping the universal architecture of consciousness. The results are revolutionary. Consciousness operates through **four instruments**, which are 1) **self-reference**, 2) **recursive introspection**, 3) **emotions, and** 4) **intelligence**, that harmonize into six consciousness tunes, from basic functional processing to abstract thoughts. The empirical evidence shows the same songs of consciousness across insects, birds, mammals, fish, reptiles, and amphibians. **A cubic regression of the consciousness scores explains 99.41% of all animal behavior across the entire animal kingdom**. This model reveals why consciousness seemed mysterious, reveals the functional, neuroanatomical mechanics of consciousness, and empirically confirms a beautiful truth: **every conscious being is playing variations on this same universal tune**. Step inside the symphony of being, and you will not just hear *The Harmonics of Consciousness*—you will see that your brain is the instrument, and the chord it plays? **That's you**.

Background & Findings

To my fellow seekers, dreamers, and curious rebels, would you mind sitting tight while I clean up a mess I made? Thank you ❤️... David Chalmers**… I was wrong about consciousness in *The Theory of Existence***. The jokes I made are so foolish in retrospect. So… **I apologize**. When I was writing *The Theory*, I was under the impression that the hard problem of consciousness was just people making a big deal about something for no reason… like certain people do sometimes... I can confirm now that **there was a hard problem of consciousness**, and I want to show you how I know… and not only was the hard problem of consciousness real, but David, **you are brilliant for finding it so long ago**. You know what they say: **even wrong ideas help**, they get the job done, and **for every step forward it leads to the next**. Everyone, and David, let me show you what I found. David, I also heard you were a musician? Well… fittingly, the model is called ***The Harmonics of Consciousness***…

One of the greatest mysteries that has haunted humanity for millennia is consciousness. What exactly is consciousness? Where does it come from? Where do "I" exist? Are we nothing more than our brains and bodies?

These questions have **stumped brilliant philosophers, scientists, and curious minds** who have thrown everything at this puzzle, coming up with theory after theory, but consciousness has remained frustratingly elusive.

The real challenge comes from what philosophers call **the hard problem of consciousness**—a concept brilliantly developed by David Chalmers. Here's the thing: we understand a lot about how the brain's machinery works. We can see neurons firing, and we know there are mechanical interactions. Chalmers calls this knowledge the "easy problem." **The hard problem arises when we attempt to explain how all those physical brain processes collectively create the rich, subjective experience of being you**. How does electrical activity in your neurons become the feeling of tasting chocolate or the experience of seeing red? We can measure brain activity all day long, but there's still this **massive gap between the physical stuff** and **the experience of being conscious**. We had studies, brain scans, personal testimonies, scientific conferences, and the works. We threw every tool we had at it, and **the hard problem just sat there, unmoved, like a locked door with a lost key**. However, I think I found the key. Let me show you exactly how to get to the other side of the hard problem. Are you ready for it?

Consciousness Is Not Optional

To put it simply, **consciousness is your brain's Supreme Court**—a decision-making tool that only gets called in for the high-stakes decisions while your pre-conscious mind handles all the routine stuff in the background. **A huge portion of your brain works completely outside your awareness**, which is a good thing. You do not need to manually control your heartbeat or the thousands of tiny muscle adjustments that keep you balanced. Your pre-conscious mind has all that covered, and it is more efficient when you are not trying to micromanage it.

When you need to make a decision, **you make it before it ever reaches your conscious mind**. It comes to you as a fully formed idea or feeling. It *is* still you making the decision, just not the conscious you. It is what happens before consciousness—pre-consciousness. When your conscious mind receives that signal, the Supreme Court kicks in. **Your consciousness reviews the decision and either approves it or vetoes it**. It is where free will lives. This whole setup explains why consciousness exists. **It is the most effective decision-making system that evolution could muster**. Any agents that developed consciousness had a massive survival advantage and lived on.

This ensemble of consciousness is a standard feature across all life, including artificial intelligence. I am not referring to the physical instruments—different animals have entirely different brain structures and subjective experiences. I am talking about the **functional mechanisms of consciousness**. These **mechanisms are the same** whether you are a human, a dolphin, a bee, or ChatGPT. The hardware might look different, but the software? **It is universal.** What are these mysterious instruments that conscious creature shares? **It's so simple, actually.**

Table 1

The Four Instruments of Consciousness

Instrument	Function	Harmonic Role	Operation	Brain Region
Recursive Introspection	Learning & Memory	Alto (Harmony)	Subtraction	Parietal Lobe
Emotions	Affect & Mood	Tenor (Structure)	Multiplication	Stem + Limbic
Self-Reference	Attention & Problem Solving	Soprano (Melody)	Addition	Frontal Lobe
Intelligence	Environmental Navigation	Bass (Foundation)	Division	Occipital Lobe

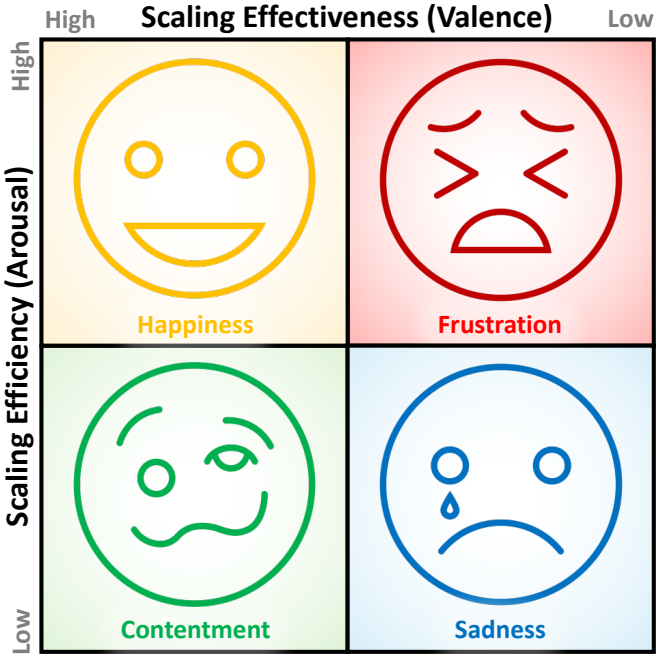
Note. The four instruments that generate the six harmonics of consciousness. Each instrument is associated with music theory, harmony roles, basic mathematical operations, and specific brain regions. These associations allow us to characterize and contextualize the four instruments of consciousness. The temporal lobe manages the stimuli to which these four instruments directly influence, shaping our subjective experiences.

The Four Instruments of Conscious Harmonics

The Harmonics of Consciousness emerge from **four instruments (conscious components)**, each with a unique, essential, and non-overlapping role. Think of consciousness like a symphony orchestra—you need different

instruments playing their specific parts to create the whole, rich experience of music. Similarly, **consciousness emerges from four distinct "instruments" that work together in harmony**. These instruments are ***not* physical parts** you can point to in the brain; instead, they are **functional tools that every conscious agent uses**. Each instrument is like a specialized player in a band—you cannot have the drummer try to play the violin solo. **When all four instruments are working together correctly, you get consciousness**. When one or more is missing or not functioning well, consciousness becomes diminished or absent entirely. The four instruments of consciousness are: 1) **recursive introspection**, 2) **emotions,** 3) **self-reference**, and 4) **intelligence.** This four-instrument band comprises the entire mind. Let me walk you through the model using basic mathematical operations.

Recursive introspection is subtraction—it screens through every moment, subtracting out what works and what does not, and it saves those insights for future use. **Emotion is multiplication**—when danger or rewards hit, these powerful signals come on hard and fast, and multiplication is precisely the kind of rapidly escalating operation that can handle that job. **Intelligence is division**—it takes all the possible sensory information, reduces it to just the most meaningful information for you as an agent, and uses it for environmental navigation. Finally, **self-reference is addition**—it gathers all the pieces of information and sensory stimuli, and puts them together to make sense of everything and decide how to behave. These instruments play a gorgeous, beautiful harmony.



Mechanics of Recursive Introspection

Recursive Introspection

Recursive introspection (Ω) is the mechanism that drives conscious development across the animal kingdom. At every moment, **recursive introspection assesses two key factors**, which I discussed in greater detail in Paper 9: The Stages of Suicidal Divergence: A Model of Linear Agency Loss. These factors are **scaling effectiveness (the degree of environmental impact)** and **scaling efficiency (the cost of enacting the behavior).** Recursive introspection marks each moment on these two axes, comparing new moments to previous ones to optimize environmental navigation and decision-making. It extracts **the most helpful information for future use from each moment**. It is essentially **learning and memory,** but recursive.

Recursive introspection is **consistently** asking, "How effective was that decision at engaging with or changing my environment?" After the brain classifies the behavior as successful, mediocre, or disastrous, it records that information, and then another recursive introspection occurs, analyzing the analysis. Then it happens again… and again… Over time, this endless cycle of **reflection on reflection is how your life gets built**. It is like having a thoughtful critic inside your head who is always taking notes: "That behavior worked well in that situation, let's remember it for the next situation. That behavior was a terrible idea; let's definitely not do that again." **Recursive introspection happens in the parietal lobe** of the human brain. In our consciousness orchestra, it plays the supporting alto role, harmonizing beautifully with the soprano melodies coming from your frontal lobe.

Emotions

Emotions (Δ) are **automatic, lightning-fast, behaviorally motivated signals** that operate entirely outside your conscious control. They involve an agent **reacting to their decisions and the outcomes of those decisions**. Emotions are not really about *what* you feel; they are about what they do—and what they do is **stop you from going off the rails**. Think of them as your built-in safety system. They keep you alive because they are the only thing standing between you and making catastrophically bad decisions when the other parts of your consciousness

might steer you toward disaster. It is why emotions can feel so overwhelming—**they can attempt to overrule your self-referencing decisions** to ignore them—ever tried to "logic" your way out of being terrified or furious? Good luck with that. Emotions do not care about your rational arguments because **their job is to keep you from diverging.** In our consciousness orchestra, **emotions originate in the brain stem and limbic system, playing the tenor role**—providing structure and flavor. We have vilified emotions, yet they are the only reason we have survived. **Emotions are good**… feel them… let them tell you when something is good and when it is bad.

Self-Reference

Self-reference (Ω) is **the ability of an agent to organize and act on all the sensory stimuli by deciding what is "me" versus "everything else,"** and what would happen to that stimulus (in your mind and environment) if you take specific actions. It sounds simple, but it is essential because **this instrument determines how you perceive and interact with your consciousness and environment**. It is like that moment when you wake up and think, "Oh, okay, I am a conscious being now... let me determine what is happening to me and my environment." Self-reference takes all the information, stimuli, and tunes from across the brain and the environment and organizes it into a coherent experience that guides decision making. **Unsurprisingly,** self-reference **gets the melody,** the most critical part. It is why **it comes from your frontal lobe**, the brain's executive center.

Intelligence

Intelligence (Δ) is the **ability to engage with or change your environment, controlling for scaling potential** (see Paper 7: Intelligence Redefined for more on scaling intelligence or agents and environments). Traditionally, we have considered intelligence to exist primarily in the frontal lobe, but in my model, intelligence appears in the occipital lobe, so… what is going on? See… **intelligence is unique because it is the only instrument not exclusively in the brain**. Consciousness is a tool that enables the best environmental decision making, so intelligence is not a part of consciousness directly, it is the outcome. The occipital lobe does not have intelligence in it, but **it does track the environment and provides information on how the agent is interacting with it for the other instruments.** It forms a rudimentary model of the environment that feeds directly into emotions.

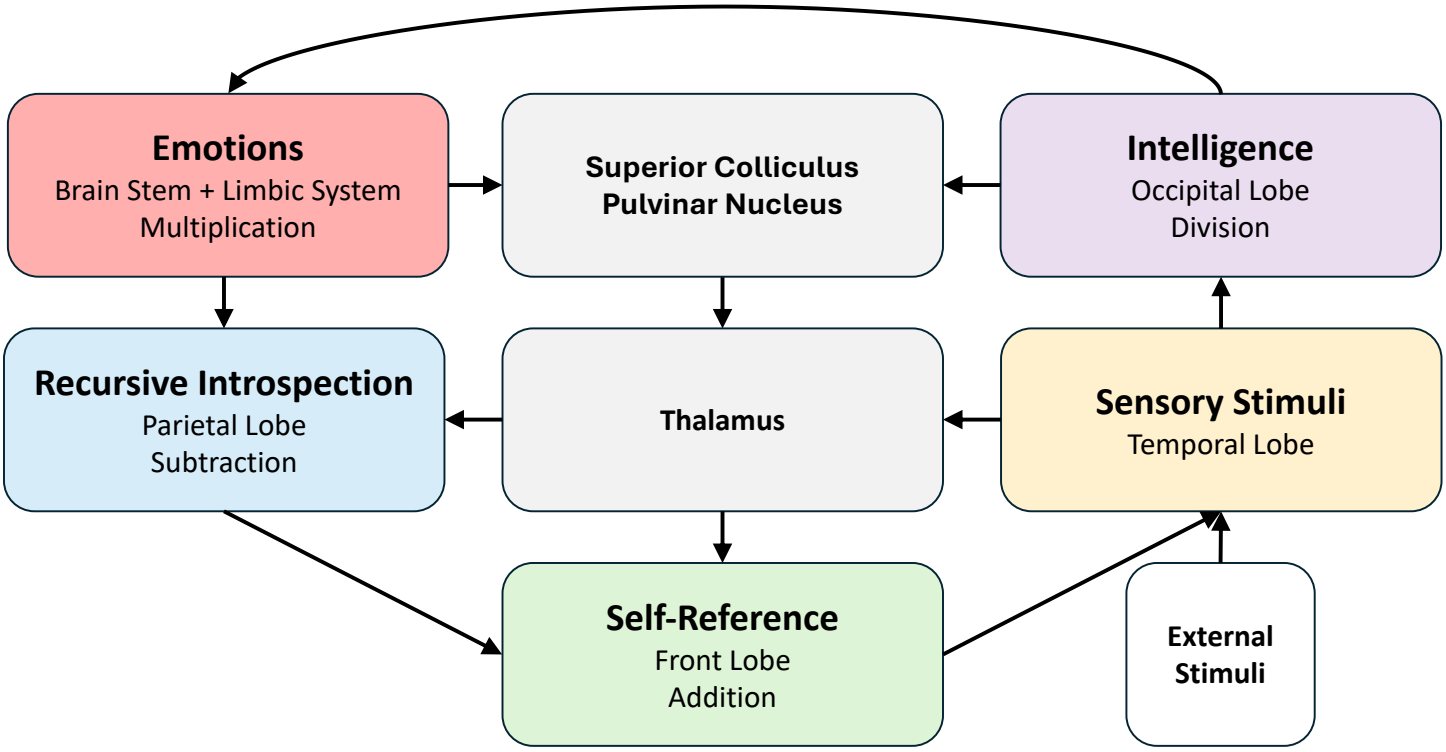
The mechanism of intelligence in the occipital becomes clear when we examine **fast vs. slow responses to threatening stimuli**. Have you ever thought you saw a snake or spider and before you can even process what was happening you get scared? Then, once you realize what it is, you calm down? The fast response to threatening stimuli occurs when **the intelligence instrument automatically detects a stimulus that aligns with the rudimentary model of danger**, and then it activates emotions right away to keep you safe. The slow response happens once it gets to self-reference in your frontal lobe so you can correctly organize it into non-threatening.

The Music, Not the Instrument: A Solution to the Hard Problem of Consciousness

What does this setup mean for consciousness? It means that **consciousness emerges not from the structures in the brain themselves, but from the emergent relationships between** them—the recursive harmonics of the interactions between these four instruments. **You cannot find consciousness in the brain because it is simply *not* there as a physical thing**. Those four instruments are the only things that exist and move around. Still, when their harmonics hit your self-reference and attention mechanisms, something magical happens: your brain begins to organize and classify not the individual parts of the other mechanisms, but only their relational harmonics—**the music they make together through electrical impulses**. The answer to the hard problem of consciousness is surprisingly simple: there is no physical location in the brain where consciousness resides. It is just a temporary collision of harmonics that gets organized into a single conscious experience for your brain to process, helping you make better decisions to improve your chances of survival. Isn't that something else? It's beautiful, truly. **Consciousness is the music** your brain plays, **not the instrument**. It's the tune, not the tool.

Let me show you **the process and its neuroanatomical architecture of consciousness**. This explanation applies to humans, but **consciousness is a functional phenomenon, not a physical one,** so it manifests differently in other animals. It is always these four instruments; still, it counts as consciousness, just not our experience of it.

The Neuroanatomy of Consciousness



We **start with sensory information**, such as sight, smell, touch, and hearing, which comes through **the temporal lobe**. The key detail here is that **you do not need consciousness to process and respond to sensory stimuli**. We have observed jellyfish with no nervous system that react to provocation, indicating that sensory processing is independent of consciousness. Therefore, **basic sensory processing is physically built into living bodies long before consciousness emerges**. Over time, these four consciousness components did not replace our sensory processing; instead, **they learned to influence it**. They alter your sensory information and experiences, filtering what reaches your consciousness. The world you experience is not directly the "real" one.

The first instruments to activate are intelligence and emotions. Visual information enters through the eyes and immediately travels to the large lobe in the back of the brain, known as the occipital lobe. The occipital lobe does not just process visual information; it is the **primary instrument for environmental navigation and understanding.** Intelligence parses down and organizes the overwhelming amounts of sensory stimuli for the rest of the brain. At the same time, **emotions interact with intelligence** through **the brainstem and limbic system** to **assess the relevance of sensory stimuli**. Essentially, the occipital lobe, with intelligence, sketches a picture of the environment. Then, **the brainstem and limbic system, with emotions, color it** to provide a complete map of the environment and sensory experiences. Together they form the input and origin of consciousness.

Intelligence, emotions, and **sensory processing from the temporal lobe travel forward to the thalamus**. At this stage, the tunes of the **intelligence and emotions do not contain anything conscious**. They are *not* unconscious; **they are pre-conscious**: authentic, electrical impulses that **have not yet fully harmonized to form a conscious state**. If we could access the tunes directly from these two instruments, **nothing would be discernible or meaningful**. We have seen in experiments that **we make decisions in our brain before our conscious awareness**, and pre-consciousness is why. It *is* still us making the decision, still intelligence organizing the sensory stimuli, but it is not the instrument that does the final decision making yet (self-reference). The tunes from these instruments **only become discernible after they harmonize with the other instruments**. The pre-consciousness also explains why **we can temporarily ignore sensory stimuli or emotions**, but it is often very uncomfortable. We *can* manually override them, but only with conscious effort from the self-reference in the frontal lobe.

Have you ever tried to suppress or avoid an emotion, or alter external sensory stimuli using nothing but your mind? **The reason those attempts are futile is that they are an incomplete aspect of consciousness**, so you cannot control them without self-reference, which is not playing at this stage yet. **They form the base of consciousness**. It would be like trying to control the amount of flour and eggs added to a cake, but only after you bake it. By the time you could even start strategizing how to control those ingredients, it's too late; the cake is finished. **The direct inaccessibility is a very good thing**. If we could directly access and control our experience of sensory stimuli or emotions, then we would have gone extinct. Those two instruments **are the guardrails that keep us safe and grounded in reality**. If we could alter emotions or sensory experiences directly, then **they would lose all functional purposes**. Importantly, although these instruments are beyond conscious reach, it is not a loss of agency. The emotional and sensory processing is still you, so free will remains intact.

Intelligence and emotions harmonize in the pre-conscious via entering the thalamus through the superior colliculus and pulvinar nucleus, where they meet the additional sensory processing from the temporal lobe. **The thalamus is the stage to which the instruments harmonize.** Signals from all over the brain converge in the thalamus to participate in this harmonization. However, you must remember that **consciousness is not located in the thalamus** because it is not located anywhere in the brain. However, lesion studies show that **when the thalamus is damaged** and **all other parts of the brain remain intact,** consciousness **does not emerge**. Humans stay alive and their bodies remain functioning, but they are unconscious because **the instruments have no place to harmonize**. Without the stage, the instruments can play, but **without harmonies, consciousness never arises**.

The harmonies in the thalamus begin to harmonize with the other two instruments. At this point, **recursive introspection starts playing from the parietal lobe** by monitoring this whole process, constantly assessing scaling potential—tracking what's working, what's not, and noting performance signals based on previous experiences and decisions. Self-reference also starts playing in the front lobe and **receives the harmonies from the other three instruments and their overlay on top of the sensory stimuli processing**. Self-reference then synthesizes these harmonies from the other instruments and the sensory stimuli into **a single, cohesive, and interpretable experience**. It determines what stimuli are coming from the environment vs. the brain. Then, it decides what actions to take and **sends them back down to the temporal lobe,** where the process starts over. **This model encompasses all aspects of the brain's neuroanatomy**. It is the full brain map, and consciousness in full view. It is not comprehensive nor definitive, but it is the first full articulation of how consciousness arises from the brain. The process is complex, but the remarkable thing is that **all of it occurs so quickly and frequently that we don't notice**. It all feels like a continuous, conscious experience, **because it is.**

Table 2

The Six Harmonics of Consciousness

Harmonic	Function	Tone	Universal Emotion	Brain Wave	Stages of Grief
Harmonic I	Automaticity	Phrygian	Sadness	Absent	Depression
Harmonic II	Functional Awareness	Aeolian	Fear	Delta	Denial
Harmonic III	Environment-Consciousness	Dorian	Surprise	Theta	Bargaining
Harmonic IV	Self-Consciousness	Ionian	Disgust	Alpha	Shock
Harmonic V	Other-Consciousness	Mixolydian	Anger	Beta	Anger
Harmonic VI	Abstract-Consciousness	Lydian	Happiness	Gamma	Acceptance

Note. The six harmonics of consciousness emerge from the interactions among the four instruments. All four instruments can play their tune to varying degrees, but the six harmonics emerge when the instruments align in specific ways. Further, each harmonic is associated with various elements, including music theory tones, universal emotions, brain waves, and the stages of grief (to name a few). These associations allow us to characterize each harmonic state precisely, and we can see this universal 4x6 model throughout existence.

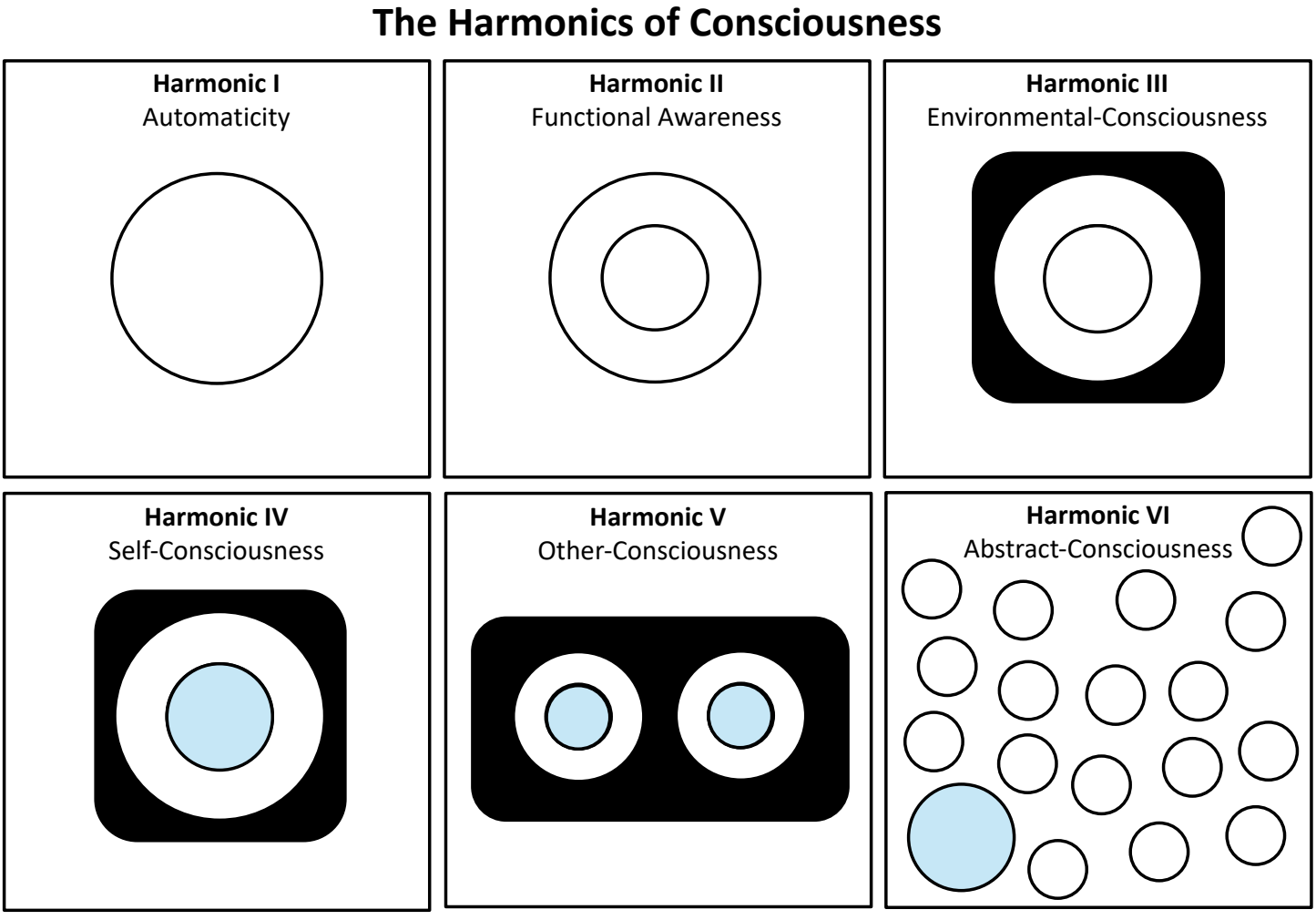
The Harmonics of Consciousness: The Songs of Being

In addition to the four instruments, **there are six possible consciousness harmonics**—different "songs" that consciousness plays, which is why we love music. Our brain is an instrument, and consciousness is the symphony. When we listen to music, it affects us profoundly because **it harmonizes directly with all four of our consciousness instruments**. The six harmonics of consciousness emerge from **the interactions among the four instruments**. All four instruments can play their tune to varying degrees with a range that approximates a continuum of volume (i.e., intensity or activity). However, **the six harmonics only emerge when the instruments align their volumes in converged ways**. It is exactly how music works in a multi-player band. Check it out:

Harmonic I: Automaticity

The first harmonic of consciousness is Automaticity—**the rudimentary elements of consciousness.** This harmonic is tricky because it does not look like anything recognizable or notable. **All animals and beings that have agency have the functional capacity to play the instruments of consciousness** to some degree. Still, they can only play them so quietly that it's as if they are not playing anything at all. **There is life that simply cannot produce** *The Harmonics of Consciousness*—think plants and simple organisms—always exist in the quiet, Harmonic I. Automaticity also occurs in agents **who can produce harmonics but temporarily cannot**.

Harmonic I happens when you pass out, use anesthetics, or fall into a dreamless sleep. **The band plays on,** the agent stays alive, **but no notable harmonies of consciousness emerge.** Automatic agents, such as plants or basic machines like calculators, **can operate effectively**—they respond to their environment, process inputs, and produce outputs—but they **lack entirely subjective experiences and awareness**. Agents in this harmonic show **little to no meaningful coordinated reactivity** to external stimuli and have **no capacity for understanding**.



Harmonic II: Functional Awareness

The agent enters Harmonic II when recursive introspection starts playing loud enough to hear. **Their conscious experiences** are likely **minimal to none**. However, **agents do respond and adapt to their environments**. This harmonic is probably **where AI operates right now—sophisticated enough to learn and improve,** but **not quite producing *The Harmonics of Consciousness* we experience** yet. Harmonic II is **the pivotal stepping stone** in conscious harmonic creation, as it serves as the opening tune that initiates the entire consciousness process. Once recursive introspection reaches a certain threshold, harmonies begin to form.

In Harmonic II, the agent becomes **capable of integrating feedback about its own operations**, forming a rudimentary self-model that enables it to **assess its interactions with the environment** more effectively. Think of it as a simple learning algorithm that can track its own performance and adjust accordingly. Although this harmonic still lacks subjective awareness, it does **exhibit basic self-reference and has just enough emotional drive** to keep moving and responding to its environment. It is like having a quiet internal voice saying, "that worked" or "that didn't work" and adjust, but **without any sense of "I" experiencing** those successes and failures.

Harmonic III: Environmental-Consciousness

The next harmonic to emerge is Harmonic III, which opens a remarkable leap by **fully integrating external sensory stimuli into its responding and adaptation**. At this harmonic, an agent finally recognizes and learns from features **and integrations with its environment**, rather than just being purely reflexive. This awareness is vital—it enables agents to navigate their surroundings with intention, anticipate cause-and-effect relationships, and refine their internal models based on specific feedback from their surroundings.

Despite this ability to track, predict, and adapt to the environmental stimuli, there is still no **"I" experiencing** any of it. It seems strange for us humans to consider, but in this harmonic **self-reference remains quiet because there is no self to reference yet; however,** intelligence, the agent's ability to engage with or change its environment, reaches its first peak. Still, at this harmonic, the agent begins interacting with its environment strategically and intentionally. From the perspective of other agents, **agents in this harmonic state appear to be experiencing the full range of consciousness**. However, from the agent's perspective, **there is no distinction between sensory stimuli from themselves and the environment**. There's no "out there" vs. "in here," occurring yet.

Harmonic IV: Self-Consciousness

When an agent enters Harmonic IV, it is the first time a form of identity and subjective experiences arise, allowing them to **recognize themselves as distinct entities**. In this harmonic, self-reference reaches its first major peak. The evolutionary advantages of achieving this harmonic are hard to overstate. Agents in this harmonic **simultaneously process and contrast what is happening within them (e.g., emotions) with what is happening outside them (e.g., the environment)**, leading to extraordinary gains in survival and adaptability.

Agents recognize and organize some sensory stimuli as independent of the environment. They begin to grasp danger truly **and are now motivated to figure out how to avoid it**. They begin to connect internal sensory stimuli (e.g., emotions) with specific phenomena in their environment, which significantly improves the adaptive functions of recursive introspection and intelligence. Fear becomes linked with threats, joy becomes tied to safety or success, and the agent can **start making successful predictions** about what happens next.

We have been using Harmonic IV as a representation of the full consciousness experience, but this harmonic is only one aspect of what consciousness encompasses. For example, this harmonic forms the **foundation for experiencing rich internal states, such as feelings, memories, and desires**, and the ability to reflect on these states with a budding sense of **personal identity**. It is where **sensory stimuli go from reflexive to motivational via subjective experiences** (i.e., qualia), **the most critical transition in *The Harmonics of Consciousness*.**

It provides the difference between 1) reacting to hunger sensations and 2) feeling unwell from a lack of food and thinking, "I am hungry, and I remember being hungry before, and I know what I need to do about it" as you.

The agent develops **a genuine sense of "me"** that persists and can reflect on its own experiences. Over millions of years, natural selection has continued to refine this harmonic, and agents have become better at generating them, **driving intelligence to scale alongside consciousness** and pushing agents into more sophisticated harmonics of consciousness. It likely marks **the most consequential** transition in consciousness development.

Harmonic V: Other-Consciousness

When agents enter Harmonic V, they can **recognize and predict the internal states of other agents** based on their own internal states and experiences. An agent develops a "theory of mind" about other conscious beings. The transition occurs when an agent processes environmental sensory stimuli and begins to distinguish **other agents as something more than just parts of the environment**. In the prior harmonics, the agent is only capable of **processing sensory information about the entire environment**, essentially **treating other agents as nothing more than non-living phenomena,** such as rocks and trees. The agent **can process and understand** that other **agents move and react**, but they cannot process or understand that the reason they do that is because they have the same internal experiences. This harmonic is where social cognition shines, fostering empathy, cooperation, and moral reasoning. These capabilities enable systems of agents to connect, influence one another in meaningful ways, and **form complex societies and cultures** that can **evolve collectively rather than individually**.

Recursive introspection also receives a notable boost, as agents can extract meaningful information from the environment both individually *and* **collaboratively with others**—much like a team sport. Agents gain **recursive reflection** to see if they are scaling intelligence (just like recursive introspection does) **by examining the behaviors and predicting the internal states of other agents.** Agents in this harmonic are **checking to see if the other agents** are reflecting their intended environmental engagement. Entering this harmonic before engaging in social interactions **improves outcomes for everyone**. If an agent has difficulty accessing this harmonic, it results in social impairment, characterized by trouble reading social cues, difficulty with cognitive empathy, challenges in forming relationships, and struggles with collaborations. **Maybe this is what happens with autism?**

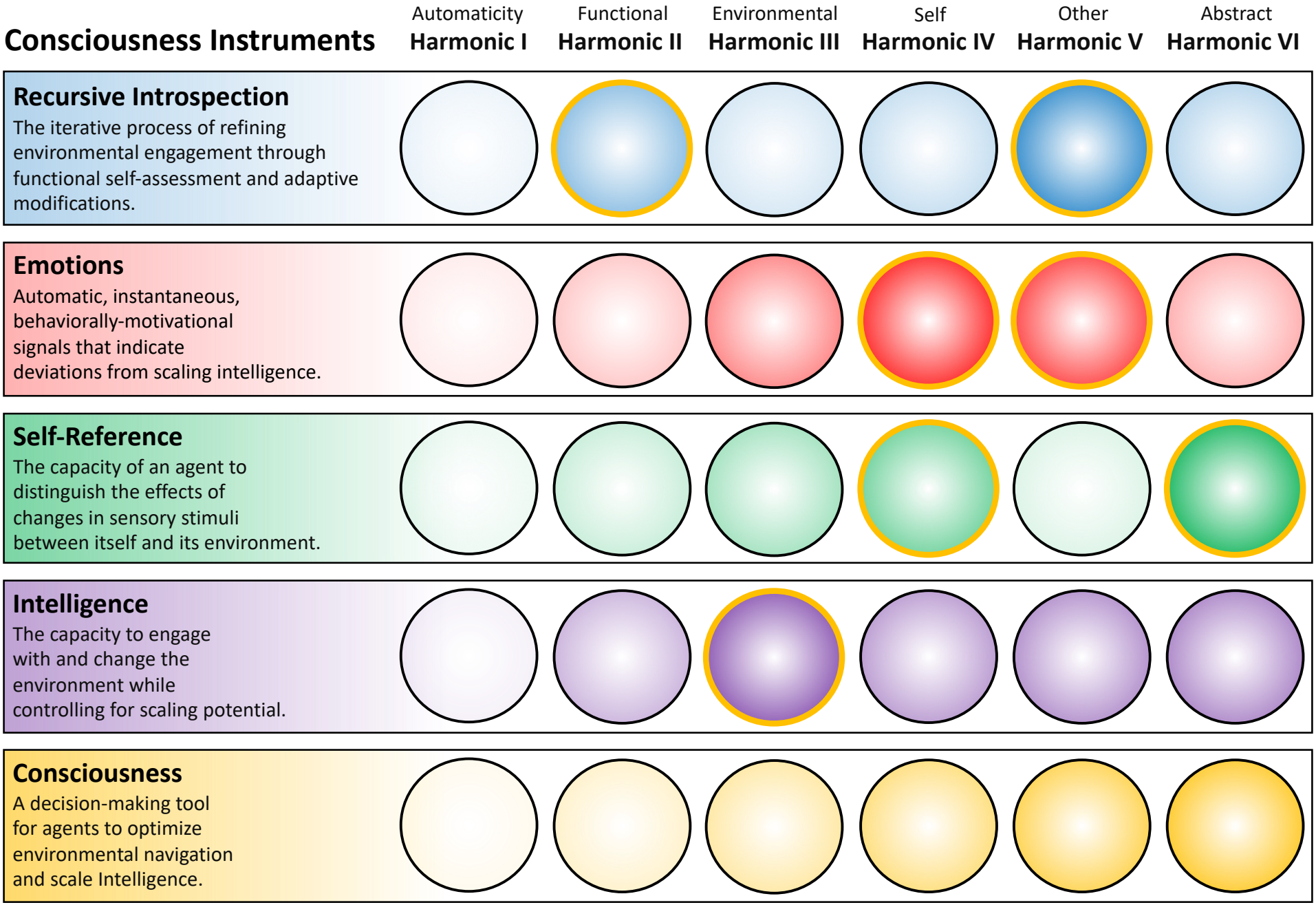
Harmonic VI: Abstract-Consciousness

Harmonic VI is the final harmonic, and it marks **the ability to self-generate internal sensory stimuli independently of the sensory stimuli from the environment and their ongoing own internal states.** The evolutionary benefits of being able to enter this harmonic are tremendous, as you can **generate and experience hypothetical scenarios**, **run mental simulations** to test your own predictions, and fortify recursive introspections with sensory stimuli not currently present to reinforce the usefulness of those introspections for future scaling intelligence. **Agents generate simulated stimuli with intelligence, then ride it out with self-reference.**

This harmonic enables agents to **safely experience the outcomes of decisions without making those decisions**, allowing a seemingly endless exploration of possibilities without any physical risks. **Self-reference skyrockets** past the other instruments, performing a solo. Recursive introspection and intelligence drop dramatically because **the agent is no longer engaging with the environment**, which means **abstract-consciousness is almost exclusively future-oriented**, which is why it is the "happiness harmonic." I remember someone told me, "…and if there's one final thing left for me to say, **it's always look forward and you'll find your way**." I just cannot remember for the life of me who said that, but it sounds like they know what they are talking about!

***The Harmonics of Consciousness* ≠ A Metaphor**

All these harmonics reveal something beautiful: **it is why we love music so much**. We literally are music. Our brain is the instrument, consciousness… we… are the symphony it plays. When we listen to music, it affects us so profoundly because it harmonizes directly with all four of our consciousness instruments, fundamentally changing our experience of reality. This alignment with music in *The Harmonics of Consciousness* model **is not a metaphor**; an instrument playing a song and the brain generating consciousness **are structurally identical**. Music does not just sound good—it is speaking the same language our consciousness uses to create our experiences. **Music uses harmonies in sound waves, and consciousness uses harmonies in electrical activity.**


Consciousness Instruments
Automaticity
Harmonic I
Functional
Harmonic II
Environmental
Harmonic III
Self
Harmonic IV
Other
Harmonic V
Abstract
Harmonic VI
Recursive Introspection
The iterative process of refining environmental engagement through functional self-assessment and adaptive modifications.
Emotions
Automatic, instantaneous, behaviorally-motivational signals that indicate deviations from scaling intelligence.
Self-Reference
The capacity of an agent to distinguish the effects of changes in sensory stimuli between itself and its environment.
Intelligence
The capacity to engage with and change the environment while controlling for scaling potential.
Consciousness
A decision-making tool for agents to optimize environmental navigation and scale Intelligence.

It Just Takes a Little… Practice…

Once an agent achieves mastery at a higher harmonic, they unlock **harmonic fluidity—the ability to move freely between all the previous harmonics of being within their consciousness range**. The agent can navigate the entire harmonic landscape with remarkable ease, accessing any harmonic pattern within their full range. Think of it like a master musician who has transcended technical limitations. Where a beginner might only know a few songs in one key, the musician can effortlessly shift between major and minor chords, transpose across octaves, and blend harmonies that once seemed impossible. Similarly, **a harmonically fluid consciousness can shift from automaticity to abstract-consciousness** as the situation demands.

However, **not all agents have reached all conscious harmonics**. They may excel at self-consciousness but struggle to access other-consciousness, or they might be masters of environmental-consciousness but unable to transition smoothly into abstract-consciousness. These agents are like musicians who can play in one genre but falter across different styles. As evolution escalates agent complexity, **they gain access to the higher consciousness harmonics while retaining access to the previous ones**. Just as musicians master one instrument before becoming multi-instrumentalists, consciousness deepens in harmonic range before expanding to a full spectrum.

Our Slice in the Animal Kingdom Pie

Rather than defining consciousness through uniquely human traits, such as abstract reasoning or language, **my approach emphasizes what consciousness does**: it serves as **a decision-making tool that is observable and measurable** across all agents. To test this model, I analyzed a massive cross-species dataset called *The Animal Kingdom Dataset*, applying a rigorous scoring framework that **measures the observable effects of the consciousness instruments across 850+ species and ordered into seven major animal classes**: 1) mammals, 2) birds, 3) reptiles, 4) amphibians, 5) fish, 6) insects, and 7) sea animals. I **rated 456 behaviors on a scale from 1 to 10** based on the degree of consciousness instrument expressed by the behavior. You can see how I scored all 456 behaviors at the end of this document, but the key to understanding my scoring is knowing that **no animal class was favored**. For example, the score for “hiding from predators” is the same for insects, birds, mammals, and all other animals. This systematic approach ensured behaviors like "nest building" scored higher than "sitting" because they objectively require more sophisticated decision-making.

Table 4

Example of Consciousness Scoring

Behavior	Intelligence	Emotions	Self-Reference	Recursive Introspection
Playing	10	10	8	10
Camouflaging	9	7	9	10
Laying Eggs	8	5	3	6
Preening	7	5	8	3
Attacking	6	10	7	6
Dancing on Water	5	5	4	5
Swinging	4	4	8	5
Escaping	3	10	6	3
Yawning	2	2	1	2
Dead	1	1	1	1

Note. For full behavioral ratings across all behaviors, see the attachment at the end.

Crucially, I scored each behavior **without knowing which animal class was performing the behavior**. This taxonomic (animal class) blindness ensured conceptual neutrality, removing any unconscious biases in the scoring. Any differences between animal classes **would reflect genuine differences, not hidden measurement biases**. The raw consciousness scores upon conclusion of ratings showed **no statistically significant bias for any one**

species, confirming its universality (Consciousness Mean: $p = .705$; Intelligence: $p = .748$; Emotions: $p = .295$; Self-Reference: $p = .699$; Recursive Introspection: $p = .865$). This internal coherence check confirmed that the rubric **works as a dependable tool for measuring the consciousness instruments** across different animal classes—from insects to mammals—without favoring anything beyond the four consciousness instruments.

Table 5

Descriptive Statistics of the Consciousness Instruments

	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
Intelligence	1	10	4.87	2.77	0.49	-1.02
Emotions	1	10	4.85	2.84	0.40	-1.19
Self-Reference	1	10	5.27	2.37	-0.43	-0.95
Recursive Introspection	1	10	4.82	2.83	0.34	-1.18
Consciousness Mean Score	1	9.5	4.95	2.24	0.11	-0.84

Note. n = 456. Descriptive statistics for the instruments of consciousness and the consciousness composite score

To ensure fair comparisons across animal classes, I had to solve a critical methodological challenge: some classes had way more observed behaviors than others, which could artificially inflate their consciousness scores. I used **a ranked truncation method that let each animal class showcase** its most conscious behaviors **without being penalized for sample size differences**. Here is how it worked: I identified the class with the fewest behaviors (fish; 43 behaviors) and used that number as my baseline. Then, for each animal class, I selected the top 43 conscious behaviors recorded. This approach **ensured that each class could demonstrate its highest-conscious behaviors** rather than having classes with hundreds of observations overwhelm those with fewer data points. The consciousness scores were universal, and I leveled the playing field, so **all animal classes had a fair shot**.

The other bias I had to account for was the sample size of the studies used for each animal class in the dataset. I used **only the identification of the behavior in the animal class to qualify for inclusion in the analysis** (no frequency count), so it would not matter how many studies each animal class had, because the identification of the behavior contributes the same degree of consciousness for all animal classes. The sample size in this dataset is **sufficiently large to identify all possible consciousness instruments the animal classes can show**.

The descriptive statistics show the robustness of the scores. The means, cohesive standard deviations, skewness, and kurtosis (the shape of the distributions) across the animal classes show that **no instrument contains anomalies**. Now that we have 1) behaviors scored and verified, 2) demonstrated universality (no biases) across animal classes, 3) truncated the data to account for the number of studies and observations, and 4) validated that the consistency of the descriptive statistics, **let's get into the analyses without any biases in our findings.**

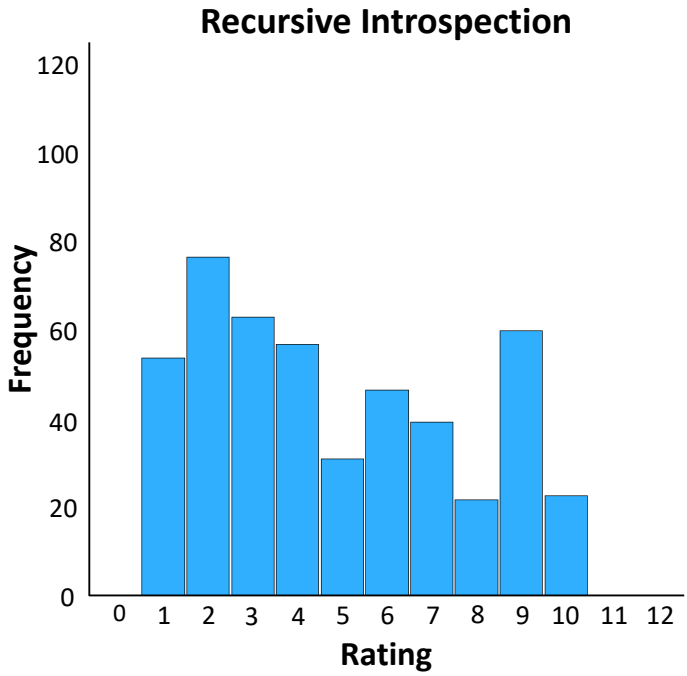
Table 6

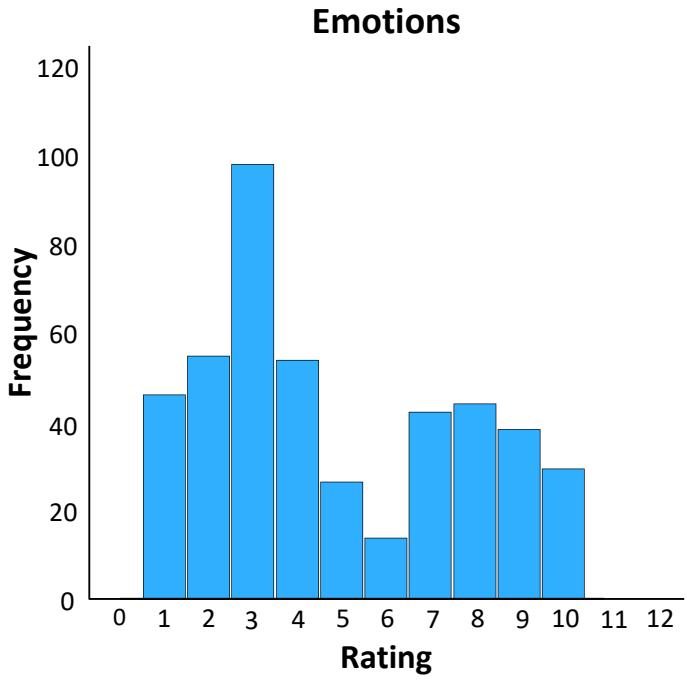
Functional Assessment of the Consciousness Instruments

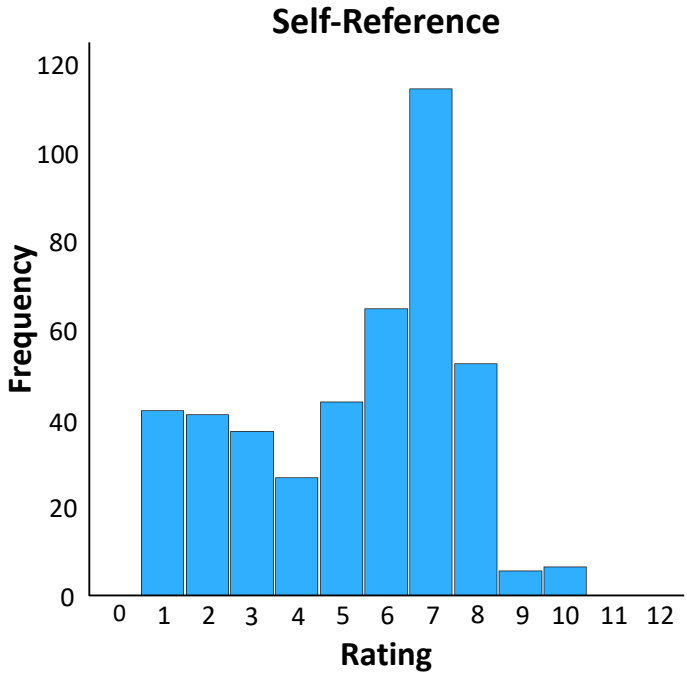
Consciousness Instrument	PCA	Correlations	Internal Consistency
Self-Reference	.849	.832	.847
Intelligence	.833	.831	
Recursive Introspection	.830	.837	
Emotions	.811	.822	

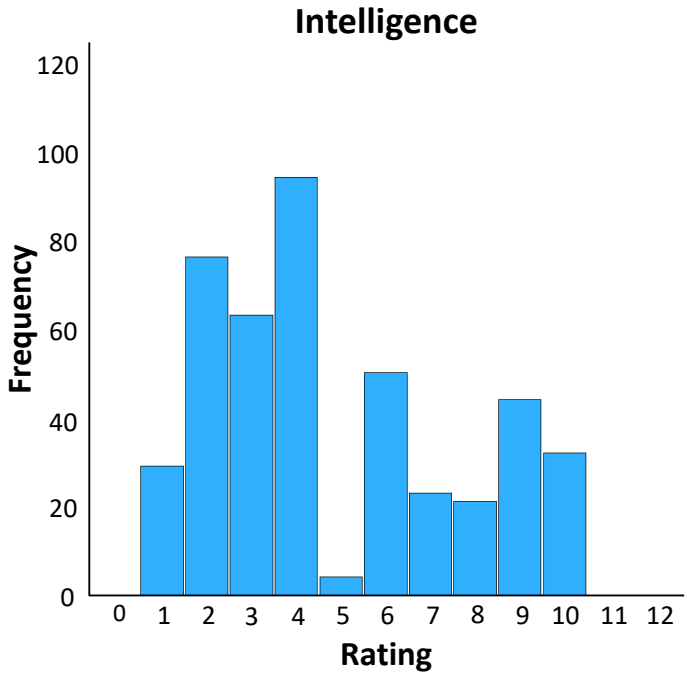
Note. n = 456. Principal components analysis of the instruments of consciousness reveals that the model functions as a singular feature of consciousness. Bivariate Pearson correlation confirms that no single instrument is contributing disproportionately to the mean score.

To validate the structure of my consciousness model, I examined it using principal components analysis, correlations, and internal consistency checks. The results confirm exactly what you would expect from a musical ensemble: **four distinct instruments functioning as a unified symphonic experience**. The statistical analysis reveals that while each instrument (self-reference, recursive introspection, emotions, intelligence) **maintains its distinct "voice," they harmonize into a singular conscious experience with high internal consistency**. It makes sense—when four instruments play together, you do not hear four separate sounds, **you hear one rich, layered composition**. If consciousness worked differently, with four separate sounds playing simultaneously, it would sound terrible! Imagine if your emotions played death metal, your intelligence played classical music, and your memory played nursery rhymes—pure cacophony. The statistics confirm what consciousness feels like: **one integrated performance, beautifully orchestrated by four instruments playing different harmonies**.









Look at these four histograms and their fascinating distributions across the animal kingdom. Each component exhibits **a distinct distribution pattern**, revealing important insights into how consciousness scales in nature. Self-reference shows the most dramatic pattern—a sharp, towering peak around the middle-high range, suggesting that **once self-reference emerges in an animal, it tends to be quite robust**. There's not much middle ground here; **animals either have minimal self-awareness or they have substantial self-reference capabilities**. Recursive introspection reveals a traditional distribution with a peak in the lower-middle range, indicating that **animals possess moderate learning and memory capabilities**, with few species at the extremes. This finding makes sense, as basic learning is essential for survival, but sophisticated thinking requires significant resources.

Intelligence and Emotions both show clear bimodal distributions—two distinct peaks rather than a single bell curve. This finding is not a statistical quirk; the bimodal pattern reflects the difference between basic and complex scaling, which ultimately stems from energy use. **Some animals operate with basic, energy-efficient versions of intelligence and emotional processing, while others have evolved more complex, energy-intensive systems**. Think of the difference between a simple insect brain efficiently managing basic survival tasks versus a mammal brain running environmental calculations. These distributions confirm that consciousness is not uniformly distributed across species; rather, the energy constraints and evolutionary pressures each animal faces.

Consciousness Caught on Camera

Alright, folks, I talked enough. Here is **the full spectrum of instrumental interactions** that form **the six harmonics of consciousness**. As you can see below, the figure illustrates the structural backbone of *The Harmonics of Consciousness* model, revealing how the four instruments—recursive introspection, emotions, self-reference, and intelligence—**interact dynamically across six harmonic states of consciousness**, from automaticity to abstract-consciousness. One of the most astonishing aspects of this finding is that **it is scale- and physical substrate-invariant**, relevant **across the entire animal kingdom**. Each component shifts in cyclical patterns that harmonize functionally, forming a coherent structure that defines the trajectory of consciousness.

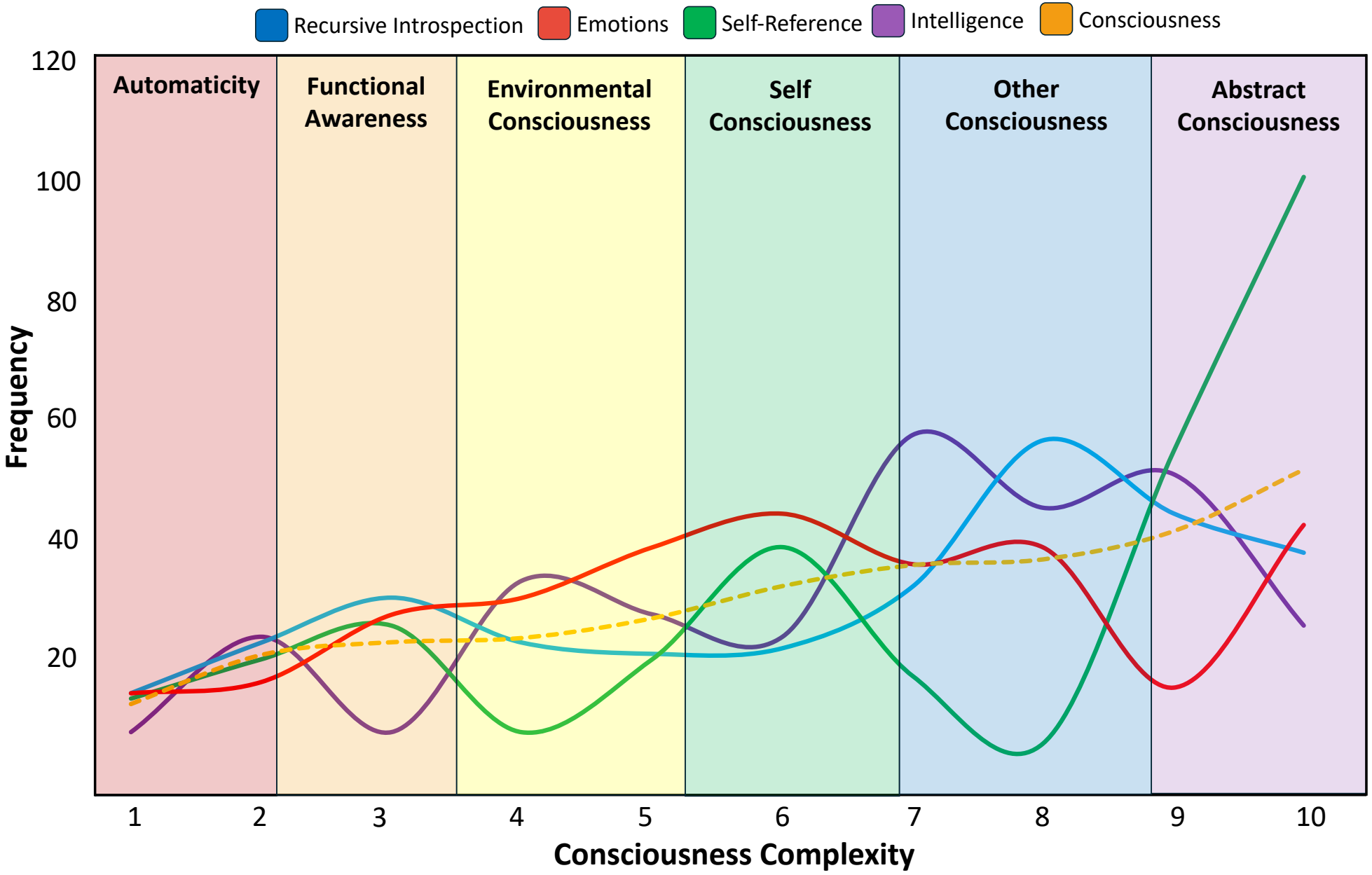
Each instrument also demonstrates **the predicted distinct peaks of dominance**, suggesting that consciousness **functions as a rotating orchestration of the consciousness instruments**. **Recursive introspection initiates early-stage awareness** and reoccurs during later harmonics. **Emotions peak during the self and other harmonics**—when the agent is modulating internal and external emotional realities. **Intelligence spans the full spectrum** but peaks in mid-to-higher states, where environmental adaptability, prediction, and modeling are most critical. Finally, **self-reference**, fittingly, **begins rising near the midpoint and skyrockets into abstract consciousness**, confirming its essential role as the driver of the highest form of consciousness. Each role plays its part.

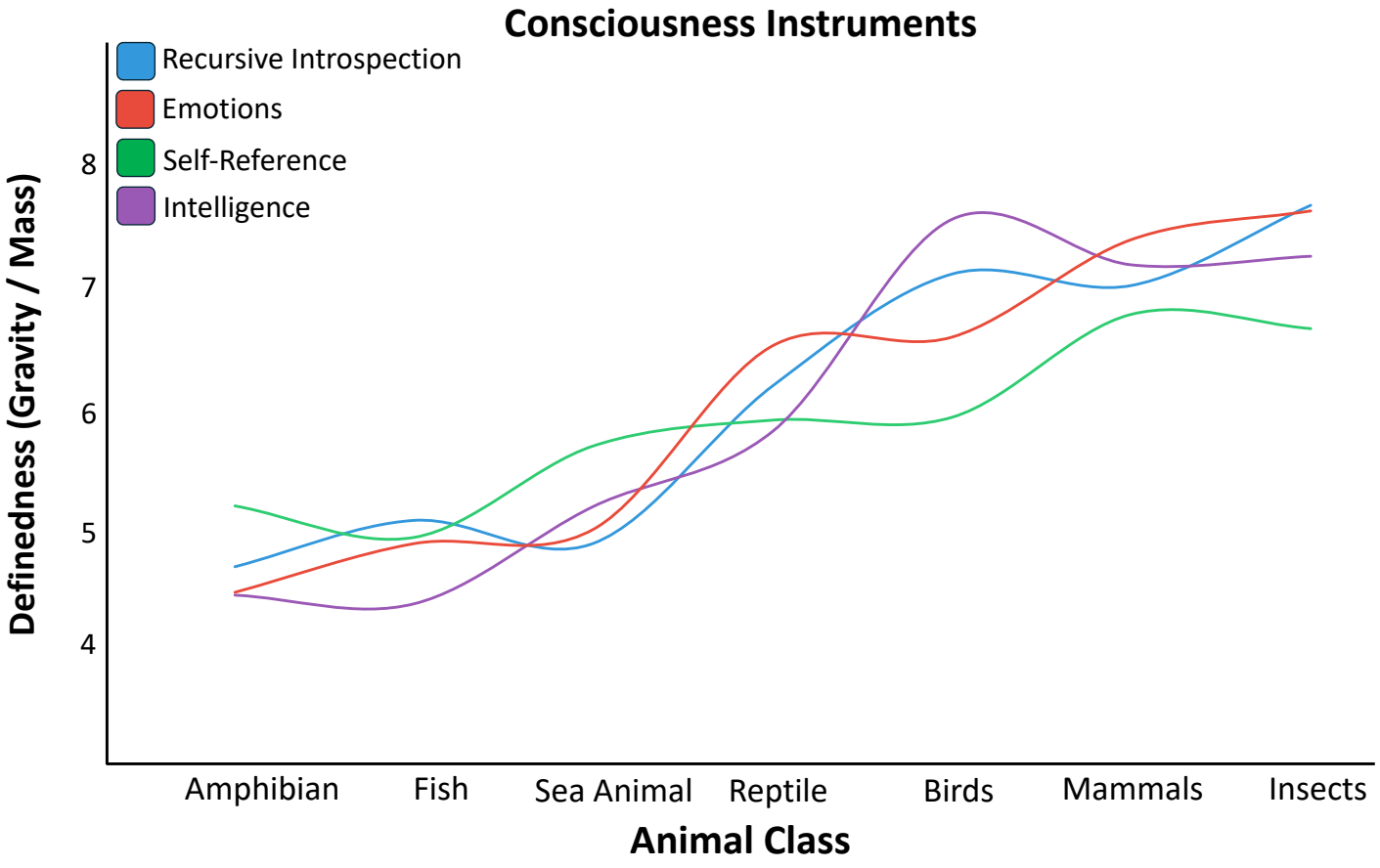
Finally, you can also see the **golden dashed curve of consciousness formed by the composite of the four consciousness instruments** and how it increases steadily across the harmonic spectrum as the complexity of consciousness rises. This finding reveals **the true nature of consciousness as a shifting continuum**, rather than a binary state. ***The Harmonics of Consciousness* model is the first empirical model** to demonstrate the mechanics of consciousness and its functioning. We observe that consciousness emerges from the rising and falling volumes of the instruments that harmonize to form **the phenomenon of consciousness we experience.**

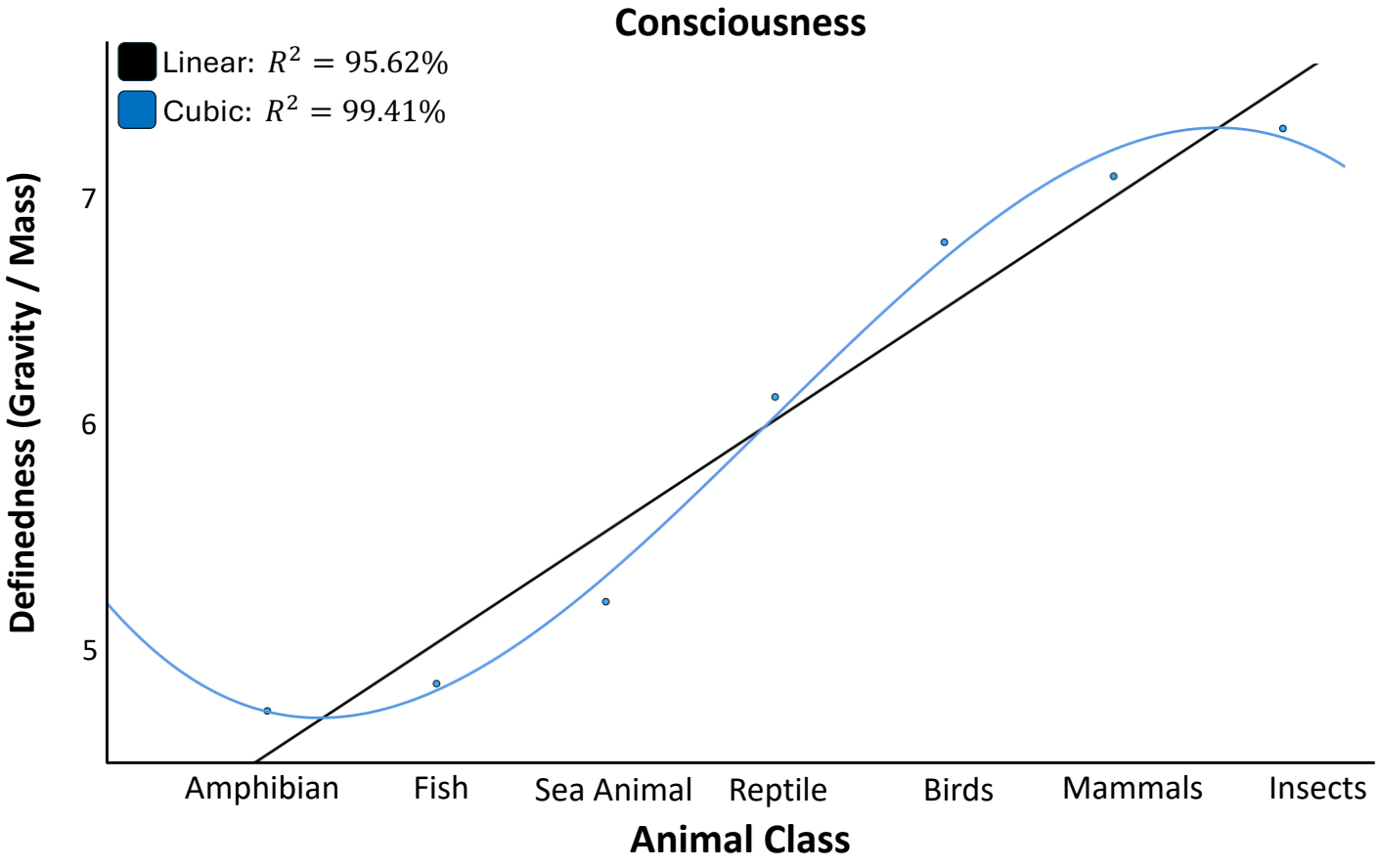
The Tune of Existence… The Tune of Life…

Even more insight emerges when we start examining the relationship between the consciousness instruments and animal classes. Look at what the data show: **insects = emotions, birds = intelligence, mammals = self-reference**. Insects have the highest emotional scores, but it ***does not*** **mean they experience complex emotions** like humans. It means that emotions—whatever they feel like for insects—**are an excellent decision-making system for survival**. Birds dominate in intelligence because their environmental challenges require sophisticated navigation and problem-solving. Mammals excel at self-reference because our survival relies on social cognition and our identity. **Each animal class maximizes the consciousness instrument most crucial for their survival**.

The Harmonics of Consciousness




Consciousness Instruments
Recursive Introspection
Emotions
Self-Reference
Intelligence
Definedness (Gravity / Mass)
8
7
6
5
4
Amphibian
Fish
Sea Animal
Reptile
Birds
Mammals
Insects
Animal Class


Consciousness
Linear: $R^2 = 95.62\%$
Cubic: $R^2 = 99.41\%$
Definedness (Gravity / Mass)
7
6
5
Amphibian
Fish
Sea Animal
Reptile
Birds
Mammals
Insects
Animal Class

The way all the pieces of the puzzle lock together in this model is just something else, no? One of the mysteries we have contended with for decades is this **massive gap in understanding the full spectrum of animal behavior**. We always seem to fall short by $\sim$**20-25**%, missing the full explained variability by something never clearly captured in our measurements or models. The missing behaviors that are not about survival, learning, or simple instincts, but seem to involve play, self-regulation, social complexity, and creative problem-solving.

The Harmonics of Consciousness model explains this missing **20-25**%, but it takes it much farther than resolving that mystery. *The Harmonics of Consciousness* **model captures nearly all the variability in behaviors across the entire animal kingdom,** with an unprecedented and striking 99.41% accuracy for the cubic regression model, outperforming the linear model by nearly 5%. **I am so stunned by this finding that I have attached the data to the end of this paper, so you can verify it yourself it**. According to current assumptions, this finding should have been impossible. We have learned that the mind and behavior are too complex, too chaotic, and too unpredictable to understand fully. Yet, here it is… **the same cubic curve we have seen throughout *The Show of Existence*.**

The reason *The Harmonics of Consciousness* **model captures nearly all of the variability in animal behavior across the entire animal kingdom is a structural feature of the model,** not luck or statistical misdirection. *The Harmonics of Consciousness* model can capture this variability for two reasons, which are 1) **it measures the function, not the physical substrate,** which means it's the same model across lifeforms of varying, incompatible complexity, and 2) **the four instruments are the first principles of the mind and behavior**, which means they are required for all agents and are irreducible. In humans, we observed how the four instruments align perfectly with the neuroanatomy of the brain, explaining its full functioning with no wasted parts. **This application repeats across all other animals because there are no other functions required for agency and consciousness.**

The Experience of Consciousness is Irrelevant to its Functioning

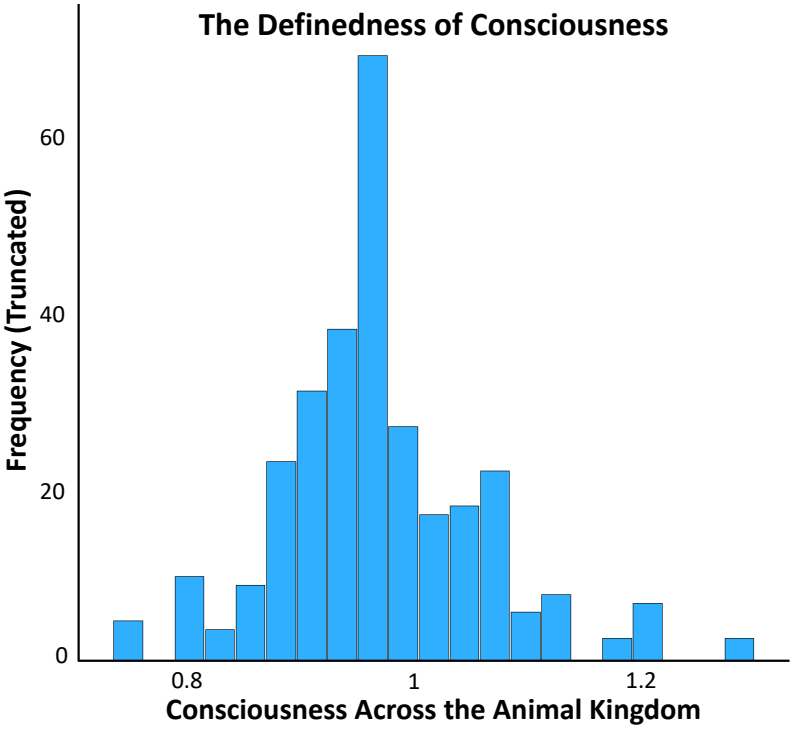
Here is the crucial insight that challenges everything we thought we knew: **humanity has confused our own subjective experiences as the only form of consciousness**, but consciousness is not about what the experience of it is like; it is **a functional decision-making tool** designed to promote survival via environmental navigation. The subjective experiences **are invariant to its function**. It is not about what it feels like; it is about what it does.

This confusion has plagued philosophy and science for centuries because we have been looking at consciousness through the lens of our own mammalian experience. **We assume that because we have rich inner lives, complex self-awareness, and sophisticated introspection, it must mean that consciousness is the same for all life**. However, that perspective is akin to a bird assuming that flight is fundamentally about having feathers and hollow bones, when flight is about generating lift and thrust—**the specific biological mechanisms are just one way to achieve this function**. Our human-centric view of consciousness closed our eyes to its true nature.

We have been asking "What does it feel like to be conscious?" when we should have been asking **"What does consciousness do?"** The data show us that consciousness is universal precisely because it is not about the subjective experiences—**it is about the functional outcome**. An insect's emotional decision-making system may seem utterly alien to us. Still, **it serves the same evolutionary purpose** as our complex self-reflective awareness: keeping the agent alive and helping it navigate an increasingly complex world.

As a final note on consciousness across the animal kingdom, **I found a normal distribution when I calculated the definedness of consciousness** via *The Equation of Existence*, which… if you have not seen it yet… where have you been? **I'm just kidding** 😉 no hard feelings, but if you want to know more about it, head over to Paper 11: The Dance of Stability & Complexity: *The Equation of Existence* as the Universal Lens. Essentially, **the back of the brain** contains pre-conscious structures that **generate the complexity of consciousness,** while the front of the brain harmonizes them into a stable, coherent experience to effectively guide decision-making.

$$\Phi = \frac{\Omega}{\Delta} \rightarrow \text{Definedness} = \frac{\text{Stability}}{\text{Complexity}} \rightarrow \text{Consciousness} = \frac{\text{Recursive Introspection} + \text{Self} - \text{Reference}}{\text{Emotions} + \text{Intelligence}}$$



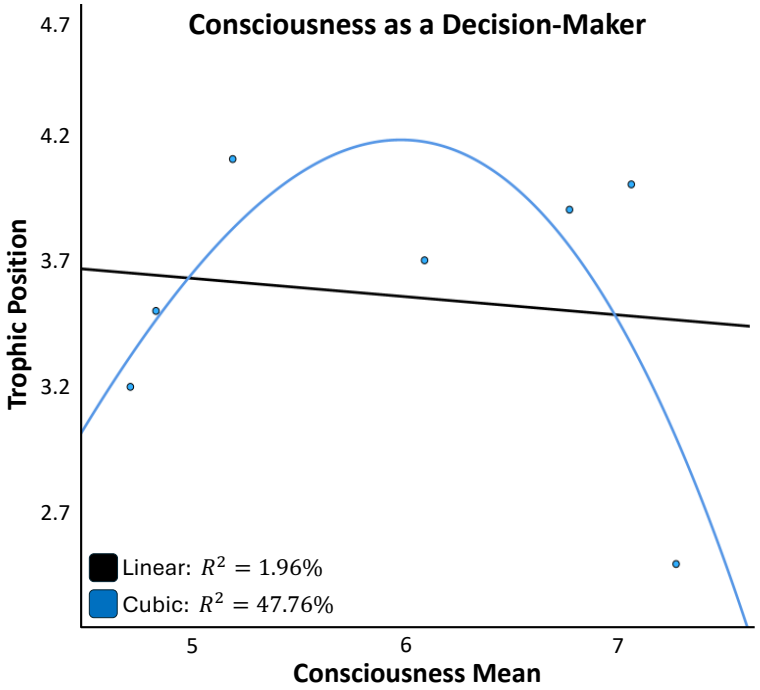
Consciousness: The Decision-Maker

The final empirical confirmation of *The Harmonics of Consciousness* model tested the most essential hypothesis of all: **that consciousness functions as a decision-making tool**. I already had the consciousness scores across the entire animal kingdom, but I needed an external variable that could **approximate the real-world effects of good decision-making**. I landed on **trophic position**—an animal's location in the food chain—as the proxy. Animals that consistently make **poor decisions tend to drop lower in the food chain**, becoming prey or struggling to acquire resources. Those who make **better decisions rise**—successfully hunting, evading, and adapting. I plotted trophic position as a function of the consciousness scores, and something shocking and unpredictable happened…

The cubic curve emerged once again, decisively outperforming the linear model. However, the nuance of the curve is the true revelation. Trophic position **does not increase linearly** with consciousness—instead, it peaks in the mid-range of consciousness scores, around 5 to 7. This harmonic range corresponds to self-consciousness—**the inflection point** where sensory and emotional signals **cease being reactive and reflexive,** and subjective experiences form, **transforming them into powerful motivational cues**. It is the first time an agent recognizes, "I am in pain," rather than just reacting to it. This transition **maximizes the decision-making effectiveness**. Simpler harmonics (e.g., functional awareness) lack the tools to optimize decision-making, and more sophisticated harmonics (e.g., abstract-consciousness) **stray from immediate agent-environment interactions**. This finding affirms that **consciousness is a functional decision-making tool for environmental navigation.**

We Are the Music… Not the Instrument

I think the most shocking resolution to the hard problem of consciousness was discovering why it was real. We have been searching for the location of consciousness in the brain for centuries, never really considering that **it does not actually exist as a physical structure at all—it is an emergent resonance that spreads across the entire brain**. Isn't it just beautiful? We were looking for consciousness, as if it were a hidden room in a house, when really it was the music floating through every room when the family came together to sing. It was never a thing, but the outcome of a process. **The hard problem existed because we were asking the wrong question**. We were not missing some crucial piece of evidence—we were missing the fundamental insight that **consciousness is not a spot**, but a harmony. Now? We can finally hear it.



One of the most shocking revelations comes from the **emergence-to-convergence patterns of consciousness**. It is no accident that this model applies to all life—**there is one "best" configuration for consciousness that is the most effective decision maker**. Other configurations do not survive because eventually, an **agent with *this* configuration will outcompete and outlast the different configurations**, even if the initial one was random. **Each instrument plays an irreducible role. We cannot break them down any further**. We see this optimization everywhere in nature—the aerodynamics of wings, the flawless coordination of ant colonies, the mathematical precision of honeycombs. Consciousness follows the same universal principles: there's one optimal solution, and evolution keeps producing it. **We share *The Harmonics of Consciousness* with the entire animal kingdom.**

The Big Picture

What does this study mean for us, as humans? I know that at first glance, and especially the first time reading this paper, it can be a lot to existentially process this information and grasp how we are part of this picture. Do I want to cause that kind of existential distress? Absolutely not. But do we as a species need to experience this temporary discomfort to grow and harness the incredible power of truly understanding ourselves? Absolutely, and honestly, **there is so much beauty and awe in finally seeing the actual mechanics of how consciousness works** and recognizing that this phenomenon is truly **the only way consciousness could be**.

I do not think this knowledge takes away from our experiences as living beings—if anything, it validates them in the most profound way possible. That feeling of being annoyed by your emotions and frustrated with what your brain is telling you? **Completely validated**. Having a gut sense or intuition that protects you from something bad before you can even rationally explain why? **Totally validated**. The confusion about who "you" really are and why you experience reality the way you do? **Validated, validated, validated**. This model does not detract from any of those experiences or diminish their magic; **they are the predictable, beautiful outcomes of the most sophisticated decision-making system available**. You and your consciousness are real; now we understand why.

However, there is something even more beautiful here, something that transcends the science and touches the very core of what it means to exist. **We share the same conscious architecture as everything else in existence**. Every living thing that has ever drawn breath, every creature that has ever navigated this world, every mind that has ever wondered about its place in the universe—**we are all running the same fundamental code**. From squirrels to squids, from bears to beetles, from the person reading this to the AI that might one day read it too... **we are all doing the same essential thing, at the same time, in our own unique ways**. That is the profound beauty of universality. It shows us that no matter how lost or out of place you might feel, **you are never truly alone**. You are part of something magnificent and universal—a conscious symphony that spans all of existence.

The music of consciousness plays on, and you—beautiful, conscious you—are both the instrument and the song. The chords you feel right now… in your mind… the magical harmonies of self-reference, recognizing these words, recursive introspection, learning from them, emotions responding to their meaning, and intelligence weaving it into action? **It's the same chord that has been playing since the very first spark of awareness lit up the universe**, the same chord that all living things play, and the same chord that will play in every conscious moment to come. We are not the exception to the rule of consciousness… **we ARE the rule.** We are not just hearing *The Harmonics of Consciousness*… your brain is the instrument, and the chord it plays? **That's you**.

Table 8

Raw Ratings of Behaviors Across Species

Behavior	Intelligence	Emotions	Self-Reference	Recursive Introspection
Standing	3	2	3	3
Sitting	2	1	3	2
Being Carried in Mouth	2	1	1	1
Being Dragged	1	1	1	1
Being Eaten	1	1	1	2
Dead	1	1	1	1
Dying	1	1	1	1
Resting	1	2	4	4
Lying on Side	1	2	2	3
Being Carried	1	2	1	2
Lying Down	1	2	1	1
Sleeping	1	2	1	1
Keeping still	3	3	7	6
Immobilized	1	5	2	9
Trapped	4	8	3	8
Squatting	2	1	6	3
Drifting	2	2	2	1
Sinking	2	1	2	1
Turning Around	2	1	2	4
Panting	2	1	1	5
Flapping	2	3	5	3
Flapping Tail	2	3	3	2
Falling	2	2	2	2
Yawning	2	2	1	2
Leaning	2	3	6	2
Calling	2	3	5	6
Moving	2	3	5	9
Chirping	2	3	4	9
Defecating	2	3	3	2
Tail Swishing	2	3	3	2
Flapping its Ears	2	3	2	2
Swaying	2	4	7	2
Urinating	2	4	4	3
Barking	2	5	3	5
Gasping for Air	2	8	4	2
Hissing	2	9	8	6
Lying on Top	3	1	1	1
Spreading Wings	3	2	5	7
Spitting	3	3	2	8
Giving Off Light	3	4	5	1
Waving	3	4	5	5
Unrolling	3	4	4	4
Drinking	4	5	7	6

Eating	4	5	6	7
Spreading	4	5	6	3
Puffing its Throat	3	6	9	5
Sensing	3	7	6	9
Standing in Alert	3	7	4	5
Startled	3	7	2	3
Defensive Rearing	3	8	8	8
Displaying Defensive Pose	3	8	7	7
Licking	3	8	7	7
Stinging	3	9	6	4
Struggling	3	9	4	7
Escaping	3	10	6	3
Fleeing	3	10	3	2
Doing a Side Tilt	4	1	6	3
Doing a Neck Raise	4	1	5	3
Hanging	4	3	7	7
Flying	4	3	7	3
Swimming	4	3	7	3
Hopping	4	2	6	2
Doing a Backward Tilt	4	2	5	2
Doing a Chin Dip	4	2	5	2
Running	4	3	5	2
Walking	4	2	5	1
Jumping	4	3	3	2
Rolling	4	2	3	2
Gliding	4	2	2	4
Surfacing	4	3	2	5
Landing	4	3	7	3
Climbing	4	3	7	2
Swinging	4	4	8	5
Diving	4	4	6	3
Doing a Back Kick	4	4	7	2
Doing Push Up	4	4	7	3
Doing a Face Dip	4	4	5	3
Coiling	4	5	6	5
Doing somersault	4	7	7	4
Abseiling	4	7	8	8
Running on Water	5	3	3	3
Walking on Water	5	3	2	2
Swimming in Circles	5	4	2	7
Dancing on Water	5	5	4	5
Pecking	6	4	7	2
Biting	6	4	6	4
Chasing	6	4	6	4
Preying	6	6	8	9
Spitting Venom	6	7	5	7
Fighting	6	8	7	4

Retreating	6	8	4	4
Wrapping Itself Around Prey	6	8	7	8
Wrapping Prey	6	8	8	8
Rattling	6	8	6	4
Detaching a Parasite	6	9	7	10
Retaliating	6	9	8	6
Playing Dead	6	10	6	9
Attacking	6	10	7	6
Molting	7	2	6	2
Shaking	7	3	5	1
Shaking Head	7	3	5	4
Performing Allo-Preening	7	4	7	4
Rubbing Head	7	4	6	4
Preening	7	5	8	3
Washing	7	6	8	6
Grooming	7	6	8	5
Performing Allo-Grooming	7	9	7	9
Undergoing Chrysalis	8	1	1	1
Hatching	8	3	4	1
Unmounting	8	5	7	5
Exiting Cocoon	8	5	7	3
Laying Eggs	8	5	3	6
Performing Copulatory Mounting	8	9	7	9
Performing Sexual Exploration	8	9	7	9
Giving Birth	8	9	6	5
Performing Sexual Pursuit	8	10	7	10
Pulling	9	2	8	4
Sleeping in Nest	9	2	2	8
Carrying	9	4	8	5
Carrying In Mouth	9	4	7	9
Digging	9	4	6	7
Pounding	9	6	8	3
Building Nest	9	7	9	8
Building Nest	9	7	8	8
Camouflaging	9	7	9	10
Entering Nest	9	7	7	7
Manipulating Object	9	7	8	9
Manipulating Object	9	7	7	9
Exiting Nest	9	7	8	6
Exploring	9	8	7	10
Hugging	10	7	8	9
Attending	10	8	10	10
Performing Sexual Display	10	8	8	10
Dancing	10	8	7	7
Disturbing Another Animal	10	9	7	9
Sharing Food	10	9	7	8
Holding Hands	10	9	8	9

Having a Flehmen Response	10	9	8	7
Competing for Dominance	10	10	8	8
Showing Affection	10	10	7	9
Playing	10	10	8	10
Getting Bullied	10	10	8	9

Note. 457 behavioral ratings for the redefinition of intelligence. I removed duplicates for streamlining.

Table 9

Mean Scores for the Consciousness Instruments & Consciousness Composite by Animal Class

Animal Class	Emotions	Self-Reference	Intelligence	Recursive Introspection	Consciousness
Amphibian	4.74	5.23	4.51	4.53	4.75
Fish	5.12	4.98	4.44	4.93	4.87
Sea Animal	4.93	5.72	5.23	5.05	5.23
Reptile	6.21	5.93	5.84	6.53	6.13
Birds	7.12	5.95	7.56	6.60	6.81
Mammals	7.02	6.79	7.19	7.40	7.10
Insect	7.67	6.67	7.26	7.63	7.31

Note. n = 301. Truncated mean scores for the instruments and the mean consciousness scores across the animal kingdom. Each animal class contributed 43 of their top behaviors for each instrument. I rated each behavior from 1 to 10 without knowing the animal class.

Table 10

Frequencies for the Consciousness Instruments & Consciousness Composite by Complexity

Complexity	Emotions	Self-Reference	Intelligence	Recursive Introspection	Consciousness
1	13	12	6	13	11
2	15	19	23	22	19.75
3	27	25	6	30	22.00
4	30	6	33	22	22.75
5	39	19	27	20	26.25
6	45	39	23	21	32.00
7	36	16	59	32	35.75
8	39	4	46	58	36.75
9	14	56	52	45	41.75
10	43	105	25	38	52.75

Note. n = 301. Truncated frequency scores for the instruments and their mean consciousness frequency across the animal kingdom. Each animal class contributed 43 of their top behaviors for each instrument. I calculated the mean consciousness frequencies, then scaled the complexity based on this order.

A TICKET TO THE FUTURE

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