

## The Fixation-Projection Framework: A Comparison with other Key Models of Consciousness

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### ABSTRACT

This paper introduces the Fixation-Projection Framework (F-P), a conceptual framework that models the brain as a fixation–projection system. Fixations are defined as functional set points instantiated in biological tissue, from synaptic stabilizations to beliefs, while projections are cast as the remapping and transmission of fixated content. Based on this, it is argued that the F-P framework serves as a parsimonious organizing principle, coherently contextualizing and relating other major theories of consciousness. Its goal is not to supplant these models, rather, it integrates them within a unified dialectic. For example, Global Neuronal Workspace, Integrated Information, Higher-Order Thought, Predictive Processing, and Attention Schema theories can all be seen as describing specific instantiations of the more general fixation-projection dynamic. The framework, however, additionally demonstrates its utility by offering explanations for phenomena that are often treated as outliers in these models, such as non-predictive resonant states (e.g., flow, aesthetic experience) and the functional role of dreams in unconscious self-revision. Furthermore, the framework generates a novel, six-stage model of projection withdrawal mechanistically grounded in neural decoupling and Default Mode Network activity as a proposed pathway to self-knowledge and autopraxis (self-guided transformation). By synthesizing these elements, F-P offers a unified, biologically-grounded dialectic for analyzing consciousness across scales, from molecular processes to complex human experience, and provides a foundation for novel, testable predictions.

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### Introduction

This paper introduces the Fixation Projection Framework (F-P), a conceptual framework that models the brain as a fixation–projection system. Its core proposition is that projections are constituted by fixations. F-P is not positioned as a competing model, but as an organizing principle that parsimoniously contextualizes other models of consciousness. It does not seek to supplant them, but to map the relationships between them. It is proposed that a vast range of brain operations and states can be effectively analyzed through the dialectic of fixation and projection. While this broad scope risks charges of tautology, it should be instead seen as a statement of biological necessity: any functional, adaptive, and plastic biological system must possess mechanisms for both stability (fixation) and transformation (projection). The F-P framework provides the specific terminology to analyze this universal dynamic across neural hierarchies. This perspective brings into focus diverse phenomena that are often difficult to incorporate into singular models, such as non-predictive states of resonance and the transformative function of dreams.

Historically, attempts to understand consciousness, from Descartes's dualism to Kant's transcendental unity and modern neuroscientific models like Global Neuronal Workspace or Predictive Processing, have often relied on singular principles that struggle to account for the full spectrum of brain and behavior [1-4]. The F-P framework synthesizes the dual processes of fixation: stable neural set points

instantiated across molecular, systemic, and cognitive levels, such as synaptic stabilization in Long-Term Potentiation or persistent beliefs, and projection: the dynamic remapping of these fixations into perceptions, emotions and cultural constructs, which together form a comprehensive perspective [5-9]. By synthesizing these concepts into a unified dialectic, F-P offers a novel framework that simplifies the explanation of diverse phenomena, from non-predictive states like flow and aesthetic experience to the unconscious restructuring of self-awareness in dreams [10-12]. This dual-process approach bridges the neural with the subjective, grounding phenomena like cognitive biases, defense mechanisms and even out-of-body experiences in the interplay of fixation and projection [13-15]. In addition, it also makes testable predictions, such as higher metabolic demand for rigid fixivity under threat [16]. In the following sections, we will briefly explore some of the most salient features of the framework.

### A New Definition of Fixations

Freudian psychology has historically dominated the concept of fixation, proposing that humans progress through five psychosexual stages oral, anal, phallic, latency and genital during which a fixation occurs when a person becomes “stuck,” preventing progression [17]. Today, this theory is largely outdated for understanding human development. Contemporary psychology instead emphasizes the formative role of early and current interpersonal relationships, as well as the therapeutic alliance [18]. The latter resonates with the F-P framework, insofar as both client and therapist inevitably bring unconscious dynamics into the clinical encounter, including

transference (client projections) and countertransference (therapist projections), which require ongoing management [19].

In the F-P framework, Freudian fixations are merely one aspect of a more fundamental biological phenomenon. Indeed, no biological organism would be viable without fixations. For instance, instinct can be conceived as a robust constellation of fixations resistant to change throughout the organism's life course. This persistence renders instinct both adaptive and enduring, though its precise instantiation remains incompletely understood. Current theories suggest that epigenetic processes may play a key role [20].

Fixations operate across a continuum, from the molecular level to the cognitive-behavioral level, where they can be either adaptive or maladaptive. An adaptive fixation might take the form of sustained intellectual or vocational commitment. Many scientists report becoming fixated on a particular field of inquiry after experiencing an epiphany; Newton, for example, is said to have decided to investigate gravity more deeply after observing an apple fall from a tree. The product of this fixation was *Philosophiæ Naturalis Principia Mathematica*.

Maladaptive fixations are equally prevalent; their impact is evident across both individual and societal levels. In clinical contexts, they are conspicuous for their recalcitrance to change. Some fixations resist amelioration due to irreversible organic causes. Others, deemed "psychological," carry the expectation that the individual can be persuaded away from their maladaptive beliefs and behaviors. In each case, therapeutic improvement is defined by the shifting of dysfunctional fixation–projection cycles to more adaptive patterns.

Accordingly, this paper proposes the following definition: a fixation is a functional set point instantiated in biological tissue. "Instantiation" here is analogous to its use in object-oriented programming, where an instance object is generated from a blueprint. In biological terms, the "blueprint" refers to locally constrained molecular processes operating within and across cells. The resulting instance object is the expressed fixation. At the lowest level, this includes processes such as receptor stabilization during Long-Term Potentiation (LTP), a critical process for memory fixation at systemic levels, reflex arcs and homeostatic feedback loops and at higher-order neural assemblies, fixations may take the form of memories, beliefs, or symbolic constructs echoing Peirce's semiotic fixations [6,16, 21-23].

In this Conception, Fixations are Typically Adaptive, but they become Maladaptive when:

- The organism acquires a fixation foreign to its normal mode of operation.
- The fixation itself mutates or deteriorates, shifting from adaptive to maladaptive.
- The normal support system of the fixation malfunctions, leading to a disproportionate or energetically costly investment.

Thus, Fixations can be Characterized by Five Core Attributes:

- They are instantiated in biological tissue.
- They range from effortful to impossible to change.
- They may be adaptive or maladaptive, depending on context.
- They are represented at every level of biological hierarchy.
- They may be transitory or lifelong.

### Three Descriptive Categories of Fixations

#### Molecular Fixation

A Paradigmatic Example is the Universal Genetic Code: 64 triplet codons specifying amino acids during protein synthesis. This conserved mapping, mediated by mRNA, tRNA and ribosomes, enforces precise translation and is highly conserved across life, with only rare variants in some organelles [24]. It exemplifies a deeply entrenched biochemical constraint fundamental to cellular function.

#### Systemic Fixation

Homeostatic regulatory circuits, such as the pancreas–insulin–glucose feedback loop, exemplify this level. These tightly coupled systems maintain physiological stability through negative feedback. While insulin-like mechanisms are widespread across phyla, the mammalian pancreatic feedback architecture is especially robust and evolutionarily conserved [25]. Temporal fixations also fall within this level, such as circadian rhythms and saccadic fixations that the eye uses to transmit visual information to the brain [26,27].

#### Cognitive Behavioral Fixation

Phrenology illustrates this level, where belief fixation persisted despite scientific discreditation. Its endurance was sustained by emotional investment, professional entrenchment and motivated reasoning, exemplifying how unconscious drives can maintain cognitive fixations [28,29].

#### Projections

If fixations are the brain's enduring anchors, projections are its transformative remappings. Projections are not passive reflections of reality but active reconfigurations of internal content into perceptual, cognitive and behavioral forms. Crucially, projections are constituted by fixations: every projection carries fixated content, even if distorted, displaced, or symbolically re-expressed.

Different fields have developed related ideas that resemble or overlap with projection, though they use different terminology or theoretical framing. Freud suggested projection occurs when an internal perception is suppressed but then undergoes a certain kind of distortion, whereupon it enters consciousness in the form of an external perception [30]. Contemporary psychoanalysis, cognitive psychology, and social neuroscience have expanded this idea into a broader account of projection as a defensive response to ego threat [31]. Elsewhere, projection has been used to describe the process of envisioning the future (prospiration), remembering the past, and conceiving the viewpoint of others (theory of mind) in what has been called the "projectable self" [32].

The F-P framework adopts the projectable self concept and expands it to take in the full spectrum of phenomena that are applicable to projection, finding that it belongs alongside fixation as an equally fundamental process. Abstractly, projection is the transformational remapping of transmitted information. For information to be coherently transmitted, it must originate from a source that is functionally fixed, at least transiently. We could then say that projection requires a source and a target. These are relative terms for the sake of definition: a source can in turn become a target, and vice versa. For example, at the molecular level, a neurotransmitter is released from its vesicle on the pre-synaptic neuron (the source) which then crosses the synaptic cleft and attaches to a receptor on the post-synaptic neuron (the target). At the cognitive-behavioral level, an idea is generated by the self (the source) and is projected back onto itself (self as target) or out into the world (someone or something as target). In the

second case, the “idea” is an instance of a fixation that has been instantiated in biological tissue. While the precise mechanistic sequence from instantiation to instance remains a key challenge for future research, the underlying principle is neurobiologically plausible. Something was fixed in the biological matrix that was transmitted to a target, whether that target was internal or external, and depending on the target, there is a response. Based on what we know about hierarchical processing in the brain, we can say that a fixation likely undergoes transformation as it moves through the system. For example, a feeling of fear is transformed into a defensive response which in turn is projected as a verbal attack.

### Three Descriptive Categories of Projections

Like fixations, we can categorize projections into three descriptive levels:

#### Neural Projection

This involves axons, dendrites, fibre bundles, fasciculi, and neural circuits that transmit information across space and time in the brain [33]. Neural projection naturally encompasses ‘molecular projection’ neurotransmitters are packaged and released from the pre-synaptic terminal and sent to the post-synaptic terminal, whereupon they cause some effective change in the target system [34]. Likewise, filopodia project from the neuron dendrite to form spines that develop into connections with other neurons [35]. This likely accounts for the formation of stable memories over time.

#### Perceptual Projection

This refers to the process by which the brain constructs a coherent 4D perceptual world “out there” from sensory signals transduced at the periphery and processed within neural circuits [36-39]. It also encompasses the “inner” projections such as mental time travel and mirror neuron phenomena [40,41]. As per hierarchical processing theory, perceptual projection appears to involve a re-mapping of transformed sensory data within the sensory cortices, where lower levels are progressively pushed up the hierarchy in summarized form, so that lower levels are ultimately transformed into a representation of the original data entering the brain [42]. The mystery is that the world appears to be out there, yet is constructed entirely in the brain; the assumption is that the end-point of the neural hierarchy is ‘projected’ back out into the world [43-47].

#### Psychological Projection

Here, unconscious content is externalized into interpersonal or symbolic domains. It is not limited solely to defensive reactions to ego threat but covers phenomena as diverse as religious belief where, for instance, anthropomorphic gods can be interpreted as projections of human traits agency, morality, intentionality onto imagined entities [9]. Such projections are not merely defensive but generative, shaping cultural systems, moral orders, and social cohesion.

Together, these levels demonstrate that projection is not an anomaly or pathology but a universal mode of brain function. Where fixations stabilize, projections mobilize. The dialectic of fixation and projection constitutes the F-P framework’s central dynamic.

#### Withdrawal of Projection and the Emergence of Self-Awareness

Even though the F-P framework is not a model itself, it can generate workable models for better understanding of the brain and behavior. One of these is a model of self-awareness. Numerous models of self-awareness exist [48-55]. Most of these implicate the Default Mode Network (DMN) broadly speaking, a group of brain

structures that are active when we are not focused on the ‘external world.’ Another key area is the temporo-parietal junction (TPJ). Together, these areas are associated with self-referential thinking, autobiographical memory, mind-wandering, daydreaming, and body self-awareness, to name a few of their most cited functions. Despite the large body of work now available on self-awareness, there is one area that could benefit from an F-P approach; namely, the process of becoming self-aware, that is, starting from a state of unawareness and transitioning to awareness of one’s own cognition and behavior (i.e., self-knowledge). The key claim of this model is that withdrawal of projections acts as a fundamental and unifying mechanism that underlies the unconscious-to-conscious transition. That is, conscious self-awareness by itself does not necessarily entail self-knowledge; a person can be self-aware while simultaneously being completely unaware that they are projecting fixated content. In other words, withdrawal of projections leads to novel self-knowledge.

The F-P framework proposes a six-stage model of projection withdrawal. This model has been adapted from von Franz’s five-stage model [56].

#### Disturbance (Stage 1)

External reality fails to align with projected content, creating cognitive dissonance [57].

#### Revaluation (Stage 2)

The individual begins to morally evaluate the situation. A negative correlation between perceived similarity of the target and stereotyping may drive moral inference [58].

#### Prediction Collapse (Stage 3)

Attempts to resolve the situation fail; belief updating becomes necessary but is constrained by prior fixations and biases [59].

#### Attribution Shift (Stage 4)

The possibility that the belief is subjective and not “out there” in the world is accepted as a real possibility [60].

#### Introspective Insight (Stage 5)

The nature of the subjective belief is examined and a conclusion is drawn as to its value [56].

#### Integration (Stage 6)

The belief is recognized as being constructed from a fixation and is deinvested of emotional attachment, achieving greater self-awareness [61].

#### Path A

##### Devaluation

The individual may defensively reject the belief, declaring, “It was just nonsense.” In such cases, no true transformation occurs. The projection may return in displaced form—re-projected onto a new target, believing that that is the new truth.

#### Path B

##### Insightful Transformation

Alternatively, the individual achieves genuine insight: “I see why I believed that and I’ve changed.” This form of integration reflects the acquisition of novel self-knowledge that can be utilized to restructure the underlying cognitive-emotional architecture. It enables autopraxis: self-guided transformation toward more adaptive models of self and world [62]. If metacognition is the ability to form an abstract representation of a thought process, then autopraxis is the ability to use that abstraction for self-improvement leading to novel solutions that change behavior toward increased adeptness and creativity [63].

**The Limits of Withdrawal.** Common to both Path A and B is a phenomenon known as “the wanderings of projections” [56]. It

encompasses two processes. The first is constrained by the intrinsic compartmentalization present in the brain's architecture. Parts of the unconscious can never be accessed. Therefore, no matter how aware a person is, they will still unconsciously project fixated content into the world against their own will. The second is that fixations can be divided into two types: primary and auxiliary [64]. Thus, fixations more realistically operate as a network. In this model, primary fixations serve as nodal hubs and occupy these positions by virtue of having been deeply imprinted into the brain from early life experience, and may also be shaped by instinctual needs, or be instincts themselves. Auxiliary fixations by comparison serve a peripheral role in the network, have lower emotional investment and are less tied to an individual's core identity. Auxiliary fixations form later in development or in response to specific experiences, and are easier to shift or replace. They can even be shaped by contemporary cultural trends. If an auxiliary fixation specifically supports a primary fixation, shifting or replacing it may have little effect on the primary fixation. If the primary fixation is threatened, it may sink back into the unconscious, only to reappear, chameleon-like, and attach to a new target. Sometimes, however, auxiliary fixations can be played off against primary fixations to engender cognitive dissonance which, when managed appropriately, can lead to projection withdrawal. For example, a primary fixation might be an aversiveness to killing other human beings, but an auxiliary fixation might be an exception to kill a certain class of humans based on religious precepts. Playing these two fixations off against one another might be futile in certain permanently fixated individuals but might yield change in others who are more susceptible to the effects of cognitive dissonance which can be leveraged to catalyze projection withdrawal.

### **Decoupling, the Mechanism Behind Projection Withdrawal**

From the foregoing, mechanistically speaking, withdrawal implies a decoupling of cognition from the external world and a reorientation to the internal world of cognitions. Decoupling is a pervasive phenomenon in both physical and biological systems [65-67]. In the F-P context, it refers to a process in which selective switching at synaptic or nodal junctions disengages the standard mapping between inputs and outputs within a neural circuit. This switching may be driven by inhibitory signals from another circuit or, by recursive feedback loops that re-route information back into the originating circuit. Such reconfiguration temporarily suspends the normal causal cascade from peripheral signals to internal responses, enabling internal processing to proceed relatively disconnected from the peripheral and proprioceptive stream. I say "relative" because the adaptive unconscious will continue to operate independently of the internal stream, and if something important to the self-model crops up, attention will almost instantly shift to the salient event.

The shift to internal cognitions (i.e., DMN processing) underpins the F-P's projection withdrawal process, particularly during stages 4 (Attribution Shift) and 5 (Self-Assessment), where attention shifts inward to question the locus of a belief and probe its emotional underpinnings. For example, during Attribution Shift, DMN-mediated activity in the medial prefrontal cortex and temporoparietal junction facilitates self-other distinction, allowing the individual to reclassify a projection as internally generated [68]. During Self-Assessment, the precuneus and posterior cingulate cortex integrate autobiographical memories with emotional valence, enabling the recognition of fear or identity needs driving the projection [69]. This DMN-driven decoupling stabilizes new neural fixations, such as LTP in the hippocampus

during Integration (Stage 6), and enables revised encoding of self-models that support autopraxis and adaptive behavioral change.

### **Decoupling and Dreams**

Like consciousness, dreaming is mysterious, and consequently, theories of dreams abound, and can be broadly categorized as: psychological (emotional regulation, revealing unconscious motives); evolutionary (threat simulation); physiological (memory consolidation); and epiphenomenal (a meaningless side effect) [70-73]. The observation of rapid eye movement (REM) and associated twitches in arthropods and mollusks, alongside strong evidence of negative effects after disruption in mammals supports a fundamental physiological role for dreaming, particularly in memory consolidation and emotional processing [74-80].

This evidence fits well within the F-P framework. The stable storage of wakeful experience in hippocampal place and grid cells represents fixations, and their replay during REM sleep constitutes projections. In humans, the continuity hypothesis that dream content reflects waking experiences and is used for future simulation aligns with the DMN-mediated capacity for mental time travel [81,82]. The hallmark incoherence of dreams is neurobiologically grounded in the inhibition of the dorsolateral prefrontal cortex [83,84]. This cortical decoupling frees dream content from waking constraints of linear time and physical causation, allowing emotionally salient fixations to gain ascendancy.

Within the F-P framework, dreams represent the unconscious self-model in its most raw, uncensored form. The brain, operating in this decoupled state, projects fixated content without the usual executive oversight of the conscious self-model. The brain's capacity for creating narratives unconstrained by logic or social acceptability means it often "knows more about itself" than its conscious owner. When an individual examines their dreams, the resulting confrontation between the waking, controlled conscious self-model and the raw, projected fixations of the unconscious self-model generates a powerful form of cognitive dissonance. This process forces a critical challenge to the individual's waking beliefs and established fixations, making dream analysis a potent catalyst for conscious projection withdrawal and autopraxis. The neurological restructuring that occurs during REM sleep thus primes the conscious mind for self-revision upon waking, effectively bridging unconscious processing with the F-P's six-stage model of conscious self-transformation.

### **Integration of Models of Consciousness into the F-P Framework**

To illustrate the architecture implied by the F-P framework, we introduce the metaphor of the fountain. This metaphor provides a different lens for how consciousness arises and is experienced. This metaphor speaks directly to the architecture of the brain with its reticular activating system and the way its large fiber tracts criss-cross and fan out culminating in the neocortex. It also maps very nicely onto the remarkable redundancy of the brain, as demonstrated by numerous cases where lesions or removal of parts of the brain do not result in the loss of a unified experience of consciousness. The fountain metaphor accounts for this because if you block a part of the rising fountain stream, other parts continue to rise nevertheless. If anything, the fountain metaphor suggests that there must be a core system to consciousness, and it most probably maps onto the primitive arousal system [85]. This is not to say that consciousness resides in the arousal system, only that this is where it starts. The thalamus, from what we know, also appears to be a critical way-station in this system [86].

### **The Fountain's Structure Inherently Implies the F-P Dynamic:**

Fixations are represented by the fixed, underlying architecture of the reservoir, the non-negotiable pipework, the basin, and the carved stone from which the water is propelled. These elements determine the persistent boundaries and structural set points of the entire system. In contrast, the dynamic, upward-and-outward flow of the water, the energetic stream rising from the core and fanning out into a 'head,' represents the process of projection, the remapping and transmission of content sourced from the fixed infrastructure.

The fountain metaphor also dovetails nicely into what we know about different levels of awareness [52]. The quality of consciousness will depend on the strength and dispersal of the fountain head. For example, in mental health disorders and disorders of consciousness, if any single subsystem along the way is blocked or impaired in some way, the overall shape of the fountain head will be perturbed. Finally, the fountain is shaped by gravity, and so what goes up, must come down. Therefore, the return stream invites the idea of downward causation, and aligns with the concept of decoupling presented in this paper. In fact, without stretching the metaphor too far, there will be a moment when gravity and the upward force cancel each other out, and this can be likened to the free-floating decoupled state. Thus, the fountain metaphor provides an elegant and biologically grounded description of consciousness and the binding problem. Consciousness is not bound; it emerges from a source and spreads out and returns.

### **F-P as a Broader Case of Global Neuronal Workspace Theory (GNWT)**

The Global Neuronal Workspace Theory (GNWT) is similar to F-P in that it posits various sub-streams of the fountain contributing to the experience of consciousness [3]. It is also similar in that its concept of a workspace, or arena, could be represented by the collection basin of the fountain. Within the F-P framework, the locus of consciousness is not a singular basin but is dynamic, shifting with the dominant sub-stream within the fountain at any given moment [87]. This view suggests that a perfectly unified "binding" may not be necessary for a subjective sense of unity as immersion in a dominant sub-stream provides a focal point against a background of other parallel processes [88]. Even though, metaphorically speaking, an outside observer experiences the fountain as bound into a singular event, from the subjective point of view, the experience of consciousness is dynamic and constantly updating as a sub-stream within the fountain without access to the objective whole. This is consistent with the inherent opaqueness of consciousness to full transparency by its subjective experiencer, while still feeling singular due to them being fully immersed in a dominant sub-stream at any one point in time.

Recent adversarial evidence against GNWT, which finds no sustained "ignition" in the prefrontal cortex, is akin to finding that there is no privileged objective sub-stream that acts as an anchor within the fountain as a whole [89]. The fountain continues its dynamic flow even when one of the jets contributing to a stream is blocked. Cases of preserved consciousness after prefrontal damage or blindsight show that other streams continue to rise, demonstrating a resilience in the fountain's distributive architecture that GNWT's focus on a single broadcasting mechanism struggles to explain [90-92].

### **Contextualizing Integrated Information Theory (IIT) within the F-P Framework**

Integrated Information Theory (IIT) attempts to describe the fountain by measuring the complexity of the water's shape ( $\Phi$ ),

arguing that a sufficiently complex shape is consciousness, independent of the water itself [93]. IIT is a metaphysics of the fountain's form.

The F-P framework, in contrast, focuses on the fountain's biological substance and process. It posits that the subjective quality of the fountain is an emergent property of the specific biological "water" (the matrix of fixations) and its dynamics (projection and withdrawal). From the F-P perspective, the "hard problem" may arise from a categorical error in separating the feeling from the process itself within a biological substrate [94].

The F-P fountain metaphor reveals the paradox of IIT by abstracting consciousness to a mathematical property of information (the shape), it leads to the conclusion that a non-biological system with an equally complex shape (e.g., a DVD player) would possess the same conscious experience because it employs high cross-correlation of mapping between inputs and outputs, which is the essence of a high  $\Phi$  value [95]. F-P rejects this, arguing that a simulation of a fountain is not wet. Adversarial findings for IIT, such as a lack of sustained posterior synchronization, challenge its claim to have identified a necessary and sufficient correlate of consciousness, a problem the distributive architecture of the F-P fountain metaphor naturally accommodates [89].

### **F-P as a Foundation for Higher-Order Thought (HOT) Theory**

Higher-Order Thought (HOT) theory posits that a stream of water in the fountain is only "consciously seen" if a second, higher-order stream arcs over it to observe the first [96,97]. It creates a sharp binary: a stream is either meta-represented (conscious) or it is not [98].

The F-P framework redefines this hierarchy. It proposes that the very act of a stream rising from the source through successive stages constitutes its conscious quality. First-order is the water pressure at the source (sensory transduction); second-order is the initial column forming (feature extraction in primary cortices); and third-order is the stream achieving a coherent, recognizable shape at its apex (object synthesis in associative cortices, e.g., the inferotemporal cortex) [99,100]. F-P contends that this third-order representation is a conscious percept; it does not require a separate, higher-order stream to "see" it to make it so.

The HOT model struggles to account for the consciousness of animals with less developed "higher-order" capacities; in the fountain metaphor, it would deny that simpler fountains are wet [101]. F-P, with its multi-level view of consciousness, readily accounts for this. Furthermore, states of resonant projection and flow are moments where the fountain's many streams synchronize into a harmonious, non-cognitive whole. These are states of pure, first-order experience where the higher-order observing stream dissipates, a phenomenon that the HOT model, reliant on meta-representation, has difficulty accommodating.

### **Contextualizing Predictive Processing Theory (PPT) within the F-P Framework**

Predictive Processing Theory (PPT) describes the fountain as a system entirely governed by a control mechanism that constantly anticipates the trajectory of every water droplet to minimize deviations (prediction errors). Its goal is to maintain a perfectly stable, predictable shape, guided by the Free Energy Principle [4]. The F-P framework challenges the universality of PPT's predictive paradigm, proposing that not all brain states are primarily predictive. For example, non-predictive resonant

states like flow or aesthetic absorption involve synchrony and harmony rather than error minimization. This suggests PPT may be an excellent description of a specific mode of brain function (e.g., for fine motor control or explicit problem-solving) rather than its exclusive principle of operation.

A core divergence is F-P's capacity to incorporate brain states that are not optimally described by prediction error minimization. F-P proposes that the brain can also operate in a mode geared toward synchronous neural activity and resonant projections states that prioritize an intuitive sense of connectedness and harmony. For example, sensorimotor entrainment from hitting a tennis ball against a wall otherwise known as "flow" or the oceanic feeling of peak experiences reflects harmonization, not a mismatch between prediction and reality [10]. If the brain processed prediction errors for every ball bounce, the energy demands would exhaust its resources, making F-P's non-predictive resonance a more efficient mechanism. PPT, with its focus on error minimization, struggles to account for profoundly meaningful states such as the surprise of beauty in art, where no specific prediction exists due to the complexity or novelty of the stimulus. Here, the salience network and association cortices activate in a bottom-up process, free from specific top-down predictive goals [44]. In fact, there is almost no clear definition of what a "prediction" is or ought to be in PPT. For a prediction to be truly workable, it must be categorically specified right down to the most granular detail, otherwise it is no longer a prediction of anything. Attempts to salvage the theory by appealing to averaged correlations risk rendering it unfalsifiable, as correlations can be expanded arbitrarily to fit the data.

PPT may also be problematic when considering the evolutionary development of the brain and consciousness. If error minimization is central, millions of years of evolution should have refined predictive algorithms to achieve a veridical relationship with sensory data. Yet, humans remain prone to magical thinking and irrational beliefs, suggesting that nature does not penalize non-veridical cognition. This undermines PPT's claim that error minimization is the brain's primary function. PPT proponents counter by arguing the theory concerns how predictions inform hypotheses about the world, not their accuracy [102]. This ad hoc adjustment, however, also renders PPT unfalsifiable. If hypotheses can be decoupled from sensory feedback, then error minimization loses traction, negating PPT's core premise that sensory data drives effective belief updating. In contrast, F-P, through its fountain metaphor, naturally accommodates both predictive fine-tuning and non-predictive resonance as different modes of the same underlying fixation-projection dynamic. The brain, like a fountain, can be both controlled and freely expressive.

### **F-P as a more general case of Attention Schema Theory (AST)**

Attention Schema Theory (AST) accurately identifies one crucial component of the fountain: a schematic model that monitors and controls the direction and focus of the most prominent streams [103]. This "attention schema" is, in F-P terms, a specific cognitive-behavioral fixation.

F-P subsumes AST by placing the attention schema within the broader fountain. The self-model, however, is not just a model of attention; it is the entire, dynamic shape of the fountain, built from a vast network of fixations interoceptive, emotional, autobiographical and their projections. Consciousness experience, likewise, remains limited to a sub-stream of the whole system, since the self-model does not, and cannot, have access to its entirety, as per modularity and compartmentalization of the brain. Nevertheless, the AST model is not contradicted but contextualized

by the F-P framework. AST provides a superb account of one major sub-system the attention schema while F-P provides the meta-theoretical framework that explains how this sub-system fits into the whole and accounts for states where focused attention recedes, such as during resonant experiences.

### **Discussion**

The F-P framework's assertion that the brain operates as a fixation-projection system finds its strength in its capacity to subsume a wide array of cognitive and neural phenomena under a unified dialectic. This is not an act of theoretical imperialism but a natural consequence of recognizing fixation and projection as the brain's foundational building blocks. Cognitive biases, defense mechanisms from denial to motivated reasoning and even cognitive deficits emerge as variations on this theme: fixations that resist projection withdrawal lead to maladaptive remappings of internal content onto the world [13,14,104,105]. The framework extends this explanatory reach to models of consciousness itself, encompassing levels of consciousness levels of awareness, enigmatic states like out-of-body experiences and of course dreams [52, 106-108]. In the case of out-of-body experiences, F-P views them as remapped fixations decoupled from bodily states. Dreams, similarly, involve a decoupling of top-down projection control over hippocampal and pre-frontal episodic replay resulting in hallucinatory content and non-linear narrative flow. The F-P framework also accommodates modularity and compartmentalization as fixation networks enable parallel decoupled projections—emotional fixations in the amygdala operating independently of rational ones in the prefrontal cortex—yet allow integration through withdrawal, facilitating autopraxis across modules [109,110]. This subsumption reveals F-P's umbrella status: diverse phenomena are not isolated anomalies but expressions of the same fixation-projection dynamic, from synaptic stabilization to cultural delusions.

F-P's breadth is further illuminated by its account of resonant projections, a class of states where the dialectic shifts from control to harmony. These occur in contexts as varied as art appreciation where novelty and familiarity evoke pleasure through synchronous neural activity or cosmic oneness where diffuse projections dissolve the self into expansive resonance [11,111,112]. Resonant projections extend beyond aesthetics, for example, during neural entrainment when listening to music [113]. Here, entrainment generates gamma synchrony in auditory cortices for immersive harmony without predictive error, mirroring the oceanic feeling of peak experiences where ego-boundaries fade in low-energy modes [114]. This challenges predictive models like PPT, as resonant states affirm connectedness without mismatch error, testable via EEG theta-gamma coupling during flow [10,44]. Neural entrainment in hypnosis and flow states similarly follow: projections mobilize, but in resonant modes they foster identity coherence absent in modular theories [115]. F-P's parsimony lies in its explanation of projection pathways tuned for harmony, subsuming these states as a class of behaviors that other models treat as outliers, from aesthetic pleasure to decoupled trance.

In essence, F-P presents nothing radically new: fixations and projections are established processes but its innovation lies in their synthesis as a cohesive organizing principle. Fixations and projections, long studied in isolation (e.g., LTP for memory fixation), gain explanatory power through F-P's dialectic, subsuming modularity as fixation networks and decoupling as projection inversion resolving IIT's substrate independence paradox without computational overreach [21,66,109]. It subsumes diverse brain operations under a simple dynamic, enabling

parsimonious explanations that embrace diversity. This umbrella status generates testable predictions, advancing beyond descriptive models.

#### Four predictions derived from the F-P framework:

##### 1. Fixation Rigidity and Metabolic Cost

The strength or “rigidity” of a deeply entrenched maladaptive Fixation (e.g., a strongly held false belief) will correlate directly with the metabolic cost required for its conscious revision. Specifically, the neural activity (measured by fMRI BOLD signal) in DMN regions will show a significantly higher energetic demand when the subject attempts the cognitive task of arguing against their own fixation compared to arguing against a neutral statement. (F-P Concept Tested: Fixations are instantiated, high-energy set points.)

##### 2. Projection Failure and Attribution Shift

Experiencing a high-salience projection failure (a prediction error that threatens the self-model, as in Stage 3: Prediction Collapse) will immediately trigger a transient but measurable spike in activity in the TPJ. This spike will occur before the conscious realization of the error and represents the neural correlate of Attribution Shift (Stage 4), where the brain begins to automatically classify the discrepancy as internally generated rather than external reality. (F-P Concept Tested: Decoupling/Withdrawal is a sudden, automatic neural process.)

##### 3. Decoupling Signature in Non-Predictive States

States of non-predictive resonant projection (e.g., deep flow, high aesthetic absorption) will demonstrate a distinct neural signature defined by two concurrent phenomena: a) Significant decoupling and reduced functional connectivity between the dorsolateral prefrontal cortex and the rest of the DMN, and b) Maintained or increased local functional connectivity within the sensory cortices corresponding to the subject’s activity (e.g., visual cortex for painting, auditory cortex for music). (F-P Concept Tested: Projection can occur without prediction and relies on DMN decoupling.)

##### 4. Autopraxis and Auxiliary Fixation Plasticity

Successful long-term autopraxis (self-guided transformation) will be characterized by sustained synaptic plasticity (e.g., changes in dendritic spine density or receptor expression) in neural circuits supporting auxiliary fixations (contextual, peripheral memories/beliefs). This suggests that lasting behavioral change is achieved by subtly restructuring the vast network of supportive, non-core fixations, rather than by overwhelming the primary, nodal fixations directly. (F-P Concept Tested: The network structure of fixations, where auxiliary fixations facilitate change.)

The F-P framework also acknowledges its limitations. Currently there is no clear mechanistic explanation for the chain of events between fixation instantiation and expression. Part of the puzzle has been revealed by Long-Term Potentiation and filopodia connectivity. However, the systemic-to-cognitive-behavioral transition still remains largely unexplored.

In conclusion, F-P does not seek to be yet another competing model vying for supremacy, nor does it claim to solve the intractable “hard problem” of subjective experience. Instead, it offers a pragmatic, biologically-grounded hierarchical architecture, a functional blueprint of the mind. By identifying the dialectic of fixation and projection as the core dynamic operating seamlessly from the synapse to the social self, F-P provides an indispensable organizing principle. It is a scaffold for integration, not a wrecking

ball for demolition. Its value lies not in supplanting granular theories, but in contextualizing them within a unified landscape, explaining their perplexing outliers, and, most critically, generating a new class of testable hypotheses about the mechanics of self-awareness and change. The framework’s utility will be validated by its capacity to guide future research beyond the limitations of single-metric models, fostering a more complete, multi-level understanding of the brain and behavior.

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