

The Fixation-Projection Framework of Brain and Behavior: New Avenues for Clinical Research

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Abstract

This paper introduces the Fixation-Projection Framework (F-P), a meta-theory that conceptualizes the brain as a fixation-projection system. Moving beyond psychoanalytic usage, F-P reconceives ‘fixations’ as functional set-points instantiated across biological hierarchies. These range from molecular processes (e.g., Long-Term Potentiation) and homeostatic loops to higher-order cognitive patterns such as persistent beliefs. The foundational postulate of the F-P framework is that the content of all projections—defined as the transformational remapping of transmitted information onto internal or external targets—is fixations. Projections are similarly analyzed across neural, perceptual, and psychological levels. This dyadic dynamic, it is argued, provides a unifying lens for understanding both adaptive and maladaptive brain function. The framework is applied to clinical contexts, proposing that affective disorders can be reconceptualized as manifestations of aberrant fixation-projection cycles, often rooted in neurodevelopmental vulnerabilities like faulty synaptic pruning. A six-stage model of projection withdrawal is outlined as a pathway to therapeutic change and increased self-awareness. By integrating perceptual, cognitive, and clinical phenomena, the F-P framework provides an organizing architecture for research and therapy, directing focus on identifying and shifting maladaptive fixation-projection cycles to more adaptive patterns.

Keywords: fixation; projection; autopraxis; affective disorders

Introduction

This paper introduces the Fixation-Projection Framework (F-P), a conceptual framework that models the brain as a fixation-projection system. This leads to a foundational postulate: projections are composed of fixations. This postulate allows for the reframing of clinical and non-clinical phenomena as manifestations of fixation-driven distortions projected both internally and externally, while still acknowledging their distinct etiologies and neurobiologies.

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 (Freud, 1905). Today, this theory is largely outdated for understanding human development.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 (Kupfersmid, 2019). 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 (Gabbard, 2014).

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 (Robinson & Barron, 2017).

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 transformation of dysfunctional fixation-projection cycles into more adaptive patterns.

Accordingly, I propose 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 (Sacktor, 2012; Tsokas et al., 2024); at systemic levels, reflex arcs (Sokolov, 1994) and homeostatic feedback loops (Roh et al., 2016); and at higher-order neural assemblies, fixations may take the form of memories, beliefs, or symbolic constructs (Peirce, 1877).

In this conception, fixations are typically adaptive, but they become maladaptive when:

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

Thus, fixations can be characterized by five core attributes:

1. They are instantiated in biological tissue.
2. They range from effortful to impossible to change.
3. They may be adaptive or maladaptive, depending on context.
4. They are represented at every level of biological hierarchy.
5. 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 (Crick et al., 1961). 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 (Röder et al., 2016). Temporal fixations also fall within this level, such as circadian rhythms (Reppert & Weaver, 2002) and saccadic fixations that the eye uses to transmit visual information to the brain (Barlow, 1952).

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 (Cooter, 1984; Van Wyhe, 2004).

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 (Freud, 1911). Contemporary psychoanalysis, cognitive psychology, and social neuroscience have expanded this idea into a broader account of projection as a defensive response to ego threat (Vaillant, 1994). Elsewhere, projection has been used to describe the process of envisioning the future (prospexion), remembering the past, and conceiving the viewpoint of others (theory of mind) in what has been called the “projectable self” (Buckner & Carroll, 2007).

The F-P framework adopts Buckner’s usage of the term 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 any item of information to be coherent, it must be fixed at least long enough to be apprehended. 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 latter 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, fiber bundles, fasciculi, and neural circuits that transmit information across space and time in the brain (Schmahmann & Pandya, 2009). 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 receiver system (Marr, 2010). Likewise, filopodia project from the neuron dendrite to form spines that develop into connections with other neurons (Ozcan, 2017). 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 (Kirsh, 2009; Pereira Jr, 2018; Rudrauf et al., 2023; Williford et al., 2018). It also encompasses the “inner” projections such as mental time travel (Suddendorf & Corballis, 2007) and mirror neuron phenomena (Rizzolatti & Craighero, 2004). 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 (Felleman & Van Essen, 1991). 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 (Bartlett, 1995; Hohwy, 2013; O'regan & Noë, 2001; Singer, 1999; Varela, 1996).

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 (Guthrie, 1999). 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 (Blanke et al., 2015; Candia-Rivera et al., 2024; Lou et al., 2017; Mograbi et al., 2024; Morin, 2006; Northoff & Bermpohl, 2004; Sui & Gu, 2017; Toglia & Goverover, 2022). Most of these implicate the Default Mode Network (DMN)-broadly speaking, a group of brain structures that are most 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 its 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 unconscious 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-self-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 (Von Franz, 1980):

Disturbance (Stage 1): External reality fails to align with projected content, creating cognitive dissonance (Festinger, 1957).

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 (Ames, 2004).

Prediction Collapse (Stage 3): Attempts to resolve the situation fail; belief updating becomes necessary but is constrained by prior fixations and biases (Kube & Rozenkrantz, 2021).

Attribution Shift (Stage 4): The possibility that the belief is subjective and not "out there" in the world is accepted as a real possibility (Merlo, 2022).

Introspective Insight (Stage 5): The nature of the subjective belief examined and a conclusion is drawn as to its value (Von Franz, 1980).

Integration (Stage 6): The belief is recognized as being constructed from a fixation and is deinvested of emotional attachment, achieving greater self-awareness (Jung, 1959).

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 not just the withdrawal of the projection but the restructuring of the underlying cognitive-emotional architecture. It enables autopragis-self-guided transformation toward more adaptive models of self and world (Dielenberg, 2023). If metacognition is the ability to form an abstract representation of a thought process (Flavell, 1979), then autopragis is the ability to use that abstraction for self-improvement leading to novel creative solutions that change behavior toward increased adeptness.

The Limits of Withdrawal: Common to both Path A and B is a phenomenon known as "the wanderings of projections" (Von Franz, 1980). 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 (Dielenberg, 2024). 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 catalyse projection withdrawal.

The Affective Disorders: An F-P Perspective

The core postulate of the F-P framework is that the content of projections are fixations. A second key postulate emerges when we consider the affective disorders: faulty projection pathways may lead to the formation of aberrant fixations. One compelling hypothesis implicates abnormal synaptic pruning as a developmental mechanism that alters projection pathways. It is well-recognized that mental disorders commonly emerge around puberty and the late teens, coinciding with a major pruning sequence (or, conversely, the reduced effectiveness of it) (Germann et al., 2021). This leads to two generalized neurotypes: the over-pruned and the under-pruned brain.

We can correlate the two pruning outcomes with disorder symptoms. For example, over-pruning may be implicated in schizophrenia (Chafee & Averbeck, 2022; Howes & Onwordi, 2023) and depression (Zhang et al., 2022). Conversely, under-pruning may be more prevalent in obsessive compulsive (OCD) (Glorie et al., 2020) and anxiety disorders (Xie et al., 2023). In both cases, the pruning malfunction establishes a vulnerability that may lay dormant until the onset of a critical stressor. The stressor triggers a coping strategy that may center around prior fixations and accrue new

aberrant fixations due to compromised projection pathways.

The clinical challenge, therefore, is to identify the compromised projection pathways, and if possible, improve them in some way to reduce the impact of the aberrant fixations, or if that is not possible (for example due to irreversible organic causes), the goal becomes instantiating compensatory parallel pathways that can be recruited to reduce the emotional investment in the aberrant fixations (Jha, 2023). These two avenues represent potential programs for clinical research.

In terms of therapy, the F-P framework directs the clinician's focus on the maladaptive fixation-projection cycle. The basic method is to assist projection withdrawal. It may be that affective disorders stall at the stage 3 ('Prediction Collapse') due to an inability to progress to stage 4 ('Attribution Shift'). Cognitive biases and defense mechanisms will most likely dominate the process at this juncture. Whatever therapy modality used, the nature of the fixation network suggests that focusing on the primary fixations at this stage may in fact be counter-productive, as has been often the case for religious conviction (Van Leeuwen, 2017). Therefore, a focus on the auxiliary fixations is recommended.

Discussion

A key assertion of the F-P framework is that the brain is a fixation-projection system. Other cognitive phenomena, such as cognitive bias (Tversky & Kahneman, 1974), defense mechanisms ranging from denial (Lysaker et al., 2018) to motivated reasoning (Kunda, 1990), and cognitive deficits (Lezak, 2004), are all subsumed under fixation and projection. This includes models of consciousness, such as the conception of the brain as a prediction machine (Friston, 2010). The F-P framework embraces the full array of brain phenomena, including levels of consciousness (Bayne et al., 2016), levels of self-awareness (Morin, 2006), and other strange phenomena such as out-of-body experiences (Queralto et al., 2025), and of course dreams (Tsunematsu, 2023). The F-P framework also recognizes the importance of modularity (Fodor, 1985) and compartmentalization (Showers, 2002) in the cognitive economy. All of these mechanisms, states and models fall under the F-P umbrella because they fundamentally rest on fixation and projection processes for their operation. For example, the predictive brain model starts by generating a prediction. The prediction is then compared to a fixed set point. The difference between the prediction and the set point results in a "prediction error" which drives the system forward. The prediction in essence is a forward projection. The set point is necessarily a fixation. Having

said this, in all probability, predictive processing likely only accounts for a specialized sub-set of brain operations.

In this regard, the F-P framework demonstrates broader utility by also explaining resonant projections. These occur in varying situations, such as when appreciating art (Leder et al., 2004), or when feeling at one with the cosmos (Schmautz et al., 2024). During these expansive states, there is no predictive target; rather, novelty and familiarity produce pleasure, and the brain may enter a synchronous state (Cela-Conde et al., 2013). Other states such as neural entrainment (e.g., while listening to music) (Bauer et al., 2021) and hypnosis (Oakley & Halligan, 2013) and flow states (Antonini Philippe et al., 2022) are also incorporated. All of these cases represent a class of brain behaviors that fit more parsimoniously under the category of resonant projections because projection pathways are still employed, and psychological projection still occurs, but the brain enters into a synchronous state that engenders an immersive experience characterized by identity resonance and other resonant phenomena.

A final area that is of interest to the F-P framework is the phenomenon of neural decoupling (Baird et al., 2014; Cohen et al., 2022). Neural decoupling typically refers to when cognition is turned inward during self-reflection or meditation (Brewer et al., 2011). Here, externalized projection is replaced with internalized projection. In the case of self-reflection, the self is projected into the past or future (Jarvis & Miller, 2017); in the case of meditation (Brandmeyer & Delorme, 2021), the self is emptied of all its projections to the extent that this can be achieved. The Default Mode Network (DMN), represented by areas of the brain activated during day dreaming and mind wandering, has been consistently correlated with this inward turning process (Buckner et al., 2008).

In summary, the F-P framework, in essence, is not presenting anything new that is not already known, rather, its utility lies in organizing the full array of brain phenomena under a simple and cohesive organizing principle. Accordingly, it can also be used to generate testable predictions. For example: (1) specific projection withdrawal stages should map onto distinct neural signatures (e.g., anterior cingulate cortex activation at Disturbance); (2) developmental pruning abnormalities should predict characteristic fixation-projection pathologies; (3) therapies that target auxiliary fixations in the fixation network should yield faster symptom reduction than those targeting primary fixations. These hypotheses create an empirical roadmap linking cellular, systemic, and clinical levels.

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.

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