The Reward Trace Theory

A Unified Theory of Human Attraction

Bradley Miller
Independent Theorist
bdmillermobile@gmail.com
November 28, 2025

1. The Single Observable Phenomenon That Unifies All Human Relationships

Every form of human relationship — from fleeting sexual desire to lifelong parental devotion, from the worship of a charismatic leader to the willingness to die for an ideology — shares one empirically observable feature: the individual involuntarily reorganizes their time, emotions, identity, and behavior in order to maintain or increase proximity to another person, group, idea, or symbol.

This reorganization is not chosen in the ordinary sense; it is compelled. It overrides conscious cost-benefit calculation, persists in the face of objective harm, and can reach a point where the individual's entire existence becomes oriented around the target. Because this single process appears across every domain of human affiliation, any adequate theory of attraction must explain all of them with the same mechanism.

2. The Proximate Currency: The Reward Trace

The proximate driver of this reorganization is the intensity and valence of the reward trace — an integrated limbic valuation signal generated by the concurrent activity of four major neuromodulators in mesocorticolimbic circuitry:

- Dopamine provides the motivational "wanting" component and encodes prediction error.
- Oxytocin supplies the affiliative, trust, and bonding component.
- Serotonin contributes stability, meaning, and mood regulation.
- Vasopressin underwrites loyalty, territoriality, and long-term commitment.

When these four systems fire together at high intensity, the brain registers an overwhelmingly positive valuation. The organism is then compelled to act so as to keep that signal alive. Every known "attraction mechanism" in the literature — physical beauty, social status, provider reliability, sexual prowess, shared hardship, charismatic vision, moral virtue, cultural myth, sacred ritual, even terror and dominance — is valuable only insofar as it succeeds in driving this integrated trace higher.

3. Receiver-Dependence and Bidirectional Emergence

The reward trace is not an objective property emitted by the stimulus; it emerges in the receiver as a function of the dyadic interaction between source and receiver. Identical stimuli therefore produce radically different trace intensities across individuals because the receiver's developmental history, attachment template, hormonal milieu, and cultural priors tune the gain on each neuromodulator. This single fact dissolves dozens of longstanding paradoxes in the attraction literature (why the same face or ideology is irresistible to one person and repulsive to another) and explains why no external observer can ever fully compute another person's valuation.

4. The Predictive Power of Maximum Reliable Trace Intensity

Individuals differ continuously in the highest reward-trace intensity they can reliably generate in others using their available mechanisms, and in their own sensitivity to incoming traces. This single latent dimension — maximum reliable trace intensity — predicts lifetime relational outcomes (depth, number, stability of bonds; leadership reach; ideological adherence) more accurately than any composite of pre-interaction traits (Big Five, attachment style, socioeconomic status, physical attractiveness, intelligence). The mechanism is simple: those who can create stronger, more persistent traces in relevant receivers reorganize more lives around themselves.

5. Trace Saturation: The Non-Linear Phase Shift

When multiple mechanisms align (e.g., beauty + charisma + shared trauma + visionary promise), the integrated trace can reach nuclear intensity. At this threshold the response becomes non-linear: ordinary cost-benefit architecture collapses, and the individual undergoes a pathway-dominating behavioral shift — sudden life reorganization, obsessive love, religious conversion, revolutionary fervor, or cult membership — that is incompatible with gradient or dual-process models of decision-making.

6. Trace Persistence and the Protective Cascade Against Negative Revaluation

Once a trace has been driven to high intensity and repeatedly reinforced, the brain treats any credible threat of downward revision as an existential emergency. Negative revaluation — the catastrophic crash of the trace when reality finally contradicts its valuation — is met with an escalating protective cascade: cognitive biases, emotional denial, behavioral self-sacrifice, or outright violence, all aimed at preventing the asymmetric pain and identity contagion that accompany collapse. This single mechanism explains why people remain with abusers, parents care for permanently vegetative children for decades, believers choose martyrdom over apostasy, and individuals commit suicide after public shaming: the limbic system endorses any cost to avoid the irreversible devaluation of a hyperaffixed trace.

7. Foreclosure and the Turn to Coercion

When voluntary trace-delivery mechanisms chronically return zero or negative outcomes (social rejection, poverty, aging, cultural collapse), the range of adaptive behavioral strategies narrows dramatically. The theory predicts a sharp, measurable increase in coercive, forced, or self-destructive proximity-seeking strategies as the organism attempts to restore trace intensity by any means left. This dynamic operates at both individual and collective scales.

8. Unification Across the Social Sciences

The Reward Trace Theory reveals the following major frameworks as domain-specific descriptions of the same underlying limbic process:

- Incentive salience theory → special case of trace saturation
- Attachment theory → receiver-dependent trace formation and persistence
- Costly signalling / sexual selection → competition among trace-delivery mechanisms
- Charisma & transformational leadership research → trace saturation phenomena
- Moral foundations & sacred values → hyperaffixed symbolic traces with strong protective cascades
- Cultural evolution & religious studies → heritage-amplified legacy traces
- Reinforcement-affect models of attraction → partial accounts of early trace formation

All reduce to variations along one continuous variable: reward-trace intensity modulated by reinforcement history and receiver state.

9. Falsification Criterion

The strong form of the theory is falsified by a single, rigorously documented case of sustained, effortful proximity-seeking behavior that cannot be reduced to variation in reward-trace intensity, mechanism selection, protective cascades against negative revaluation, or decision-tree dynamics under foreclosure.

10. Forthcoming Monographic Extensions

1. Negative Revaluation: The Catastrophic Collapse of Hyperaffixed Traces
2. Reward Traces as Subjective Value: A Neurobiological Foundation for Austrian Economics
3. Edge Cases and Paradoxes: Systematic Resolution of Anomalies in Attraction Research
4. Mythological and Symbolic Traces: Heritage-Amplified Rewards in Cultural Evolution (2027)
5. Protective Cascades and Cognitive Bias: The Limbic Origin of Motivated Reasoning

The Reward Trace Theory proposes a single-variable, domain-general, receiver-sensitive, neurobiologically explicit framework for human attraction, with potential predictive applications ranging from individual relationships to societal dynamics.

This document constitutes the canonical founding statement of the theory. All subsequent work will reference this text and date.