

From Genetic Compatibility to Conscious Relational Dynamics: Immunogenetic Myths, Algorithmic Homogamy, And the Social and Philosophical Reconstitution of Marriage

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ABSTRACT: Few ideas have travelled so quickly from the laboratory to the marketplace as the claim that human pair formation is steered, at bottom, by genetic compatibility. This review takes that claim seriously enough to test it, reading the immunogenetic and neuroendocrine evidence alongside three registers it usually ignores: the sociology of algorithmic homogamy, a philosophy of erotic simulation, and the psychobiology of dyadic regulation. The evidence proves uncooperative. Signals attributed to biology turn out to be modest, unstable, and hard to separate from social sorting, while the firmest resemblance written into the genomes of spouses traces not to any olfactory search for immunological difference but to the stratified markets in which partners are found. Marriage, accordingly, is neither an exercise in biological optimisation nor a merely discursive fiction; it is a historically contingent institution in which immunology, class, and meaning are produced together. Refusing in equal measure the determinism that would reduce the couple to its genes and the platform rationality that would reduce the partner to a profile, and refusing too the narcissistic foreclosure of the other that recent continental thought has diagnosed, the article develops the construct of conscious relational dynamics: the reflective capacity through which a couple governs, rather than merely suffers, the biological and sociotechnical grounds of its bond. Implications for theory, method, ethics, and graduate teaching follow.

KEYWORDS: mate choice; major histocompatibility complex; assortative mating; algorithmic matching; simulation; adult attachment; coregulation; conscious relational dynamics.

1. INTRODUCTION

Evolutionary explanation has lately recovered a confidence that lends the language of genetic compatibility an authority it has not earned. The sociology of the last century treated marriage as a creature of kinship, property, and religious sanction; a newer vernacular recasts the choice of a partner as the surfacing of a hidden immunological calculus, with body odour and unseen combinations of alleles taking over the office once held by fate. Nothing about this is idle, since the same idiom now licenses commercial services that promise to read a person's compatibility from a sample of saliva. This article sets out to test that promise, and to show that the genetic story falters precisely where it is told with the most conviction.

The case made here is that the four explanations usually pitted against one another are better read as tiers of a single structure. Biology supplies a substrate of probabilistic leanings; the sociology of matching markets funnels those leanings into recognisably classed patterns of pairing; a philosophy of simulation accounts for how the contemporary subject experiences, and often refuses, the partner so assembled; and a psychobiology of dyadic regulation names the conditions under which a couple can take the whole apparatus reflectively in hand. Figure 1 lays out the order. Each tier rests on the ones beneath it and yet answers to a logic those tiers cannot supply.

Figure 1. A four register architecture of romantic partnership

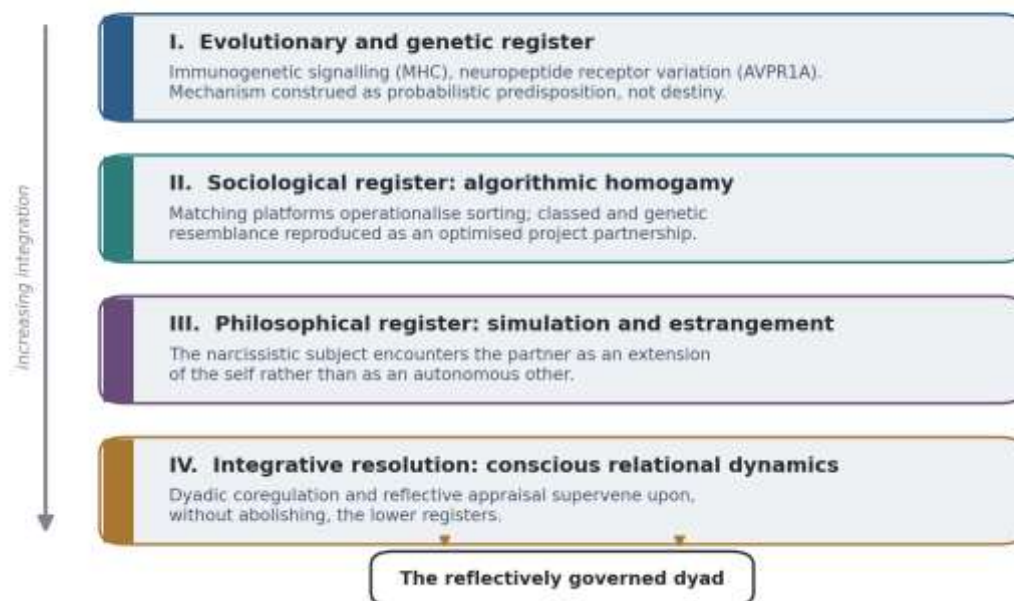


Figure 1. A four register architecture of romantic partnership. The diagram orders the four explanatory registers treated in this review as a stratified rather than a competitive set. Each higher register supervenes upon those below it, governing their expression without abolishing them, and the four converge on the reflectively governed dyad. The schema is interpretive and is intended to organise the argument rather than to assert fixed causal weights.

Two corollaries follow, and they pull in opposite directions. The first asks for restraint about genetics, because the sober reading of the evidence is far thinner than the confident uses to which it is put. The second forbids the opposite extravagance, the constructionist conceit that the body has nothing to say. The flesh of the bond is real; it simply does not rule. Holding both at once is what allows the article to move, by Section 7, from critique toward the positive account of conscious relational dynamics.

What follows proceeds in that double spirit. After stating the aim and the method, the article takes the genetic, sociological, and philosophical registers in turn, granting each its strongest case before marking its limits, and then assembles the constructive account toward which the critique has been moving. Two threads run through the whole. The first is the inversion already announced, that the compatibility attributed to nature is in large part the sediment of social structure, a claim that gathers force as the genetic, statistical, and economic evidence is laid side by side. The second is the steady approach to a single constructive idea, conscious relational dynamics, which names the capacity by which a couple governs the immunological, economic, technological, and symbolic forces that would otherwise govern it. The wager throughout is that a theory adequate to intimate life can be neither a celebration of biology nor a denial of it.

2. AIM AND SCOPE

This review pursues three connected aims. It asks, first, what genetic compatibility actually explains in human pair formation once the evidence is weighed soberly rather than rehearsed enthusiastically, and how far that reality departs from the version sold to the public. It then traces the relations among the sociological, philosophical, and psychobiological registers and the biological substrate they are so often made to overrule, declining to let any single register pose as the whole story. Its third and most constructive aim is to furnish a successor concept, conscious relational dynamics, capacious enough to hold biology, society, and meaning within one frame without flattening any of them. The argument is therefore critical and generative at once, dismantling the deterministic thesis while supplying both a replacement for it and an agenda for putting that replacement to the test.

3. MATERIALS AND METHODS

What follows is an integrative conceptual review rather than a systematic one, and certainly not a primary study. Its method is interpretive synthesis across five literatures that rarely converse: immunogenetics and evolutionary biology, behavioural genetics, the sociology of family life and of markets, the continental philosophy of the subject, and the relationship science of attachment and regulation. Sources were gathered through PubMed, Web of Science, JSTOR, and Google Scholar, and the net was widened by

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tracing citations backward from the field defining reviews and meta analyses. Preference went to foundational statements, to meta analytic and large sample findings wherever they were available, and to the most formidable rather than the most convenient version of each opposing position, so that the argument earns its conclusions against strong company. Because the contribution is theoretical, every figure and table here distils values and claims already reported in the cited work and should not be mistaken for primary measurement. No new human or animal data were collected, and the study accordingly stood in no need of ethical approval.

4. THE ARCHITECTURE OF THE GENETIC COMPATIBILITY THESIS

4.1 Immunogenetic signalling and the olfactory hypothesis

At the empirical core of the compatibility narrative sits a single proposition: that people favour partners whose major histocompatibility complex is unlike their own, lending any future offspring a wider repertoire of immune recognition. The founding demonstration had women rate garments worn by men of known HLA type, and found the scents more agreeable when their wearers differed at the complex, the preference itself bending with the raters' hormonal state (Wedekind et al., 1995). The reasoning from parasite and host coevolution is genuinely elegant, and disassortative preferences of this kind recur across a number of vertebrate lineages.

Elegance is not the same as replication. A close review of the human work found the odour effects real in some hands but erratic in size and even in direction, swayed by method, by sample, and by the hormonal and contraceptive condition of those doing the rating (Havlicek and Roberts, 2009). Pooled in a phylogenetically informed meta analysis that reached across humans and other primates, the human effect drifted toward zero and the apparent signal scattered into heterogeneity (Winternitz et al., 2017). Studies of couples already formed unsettle the story further, since similarity at the complex went with a slight cooling of attraction inside existing partnerships rather than with any decisive rule of choice (Saphire-Bernstein et al., 2017). The defensible verdict is unglamorous: immunogenetic cues exert a conditional and modest pull, one influence among several, and nothing like an immunological matchmaker.

4.2 Neuropeptide receptor variation and the genetics of bonding

Where immunogenetics furnishes the romance of attraction, behavioural genetics furnishes the romance of fidelity. Comparative work on voles tied variation in a vasopressin receptor gene to the tendency toward monogamy, and a large twin study chased the human echo. Men carrying a particular allelic length in the RS3 region of AVPR1A proved, on average, somewhat less likely to be married, somewhat more prone to marital crisis, and lower in reported partner bonding, with their partners in turn reporting poorer marital quality (Walum et al., 2008). The association was statistically respectable and suggestive in its implications.

Respectable, but also small, confined to men, and hedged by every caution that candidate gene work invites. One receptor polymorphism captures only a sliver of the variance in conduct as steeped in history and culture as marriage, and the effect refused to generalise across the sexes. The sounder inference is that neuropeptide systems tune the ease and the texture of bonding rather than command its presence, which is why the identical machinery yields lifelong devotion in one social setting and serial parting in another.

4.3 From correlation to determinism: the inferential overreach

Moving from these results to a doctrine of genetic compatibility is an overreach worth naming exactly. An aggregate, probabilistic link between a marker and a behavioural leaning is recast as a verdict on the fate of one particular pairing, as though a faint regularity in the data were a hidden lock awaiting its key. Table 2 places the representative findings beside the readings they will actually bear, and Figure 2 renders the gap between what the popular story implies and what the literature reports.

Table 2. Selected biological correlates of partnering and their interpretive status, contrasting the deterministic reading with a probabilistic reframing.

Putative mechanism	Representative source	Reported signal	Probabilistic reframing
Olfactory preference for dissimilar MHC	Wedekind et al. (1995)	Preference present, moderated by hormonal status	A conditional odour bias, not a partner selection rule; context and contraception alter the direction.
MHC effect on mate choice, pooled	Winternitz et al. (2017), meta analysis	Near null overall in humans	Aggregation across studies dissolves the deterministic claim into heterogeneity.
MHC similarity and in pair attraction	Saphire-Bernstein et al. (2017)	Small reduction in attraction with similarity	Consistent with a weak modulatory role, not with immunological matchmaking.

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Putative mechanism	Representative source	Reported signal	Probabilistic reframing
AVPR1A RS3 variation and pair bonding	Walum et al. (2008), 552 twin pairs	Modest, male specific association	Explains a small fraction of variance; sensitive to sample and replication.
Genetic assortment on schooling	Robinson et al. (2017)	Spousal genetic correlation near 0.65	The strongest genomic signal, yet it records social homogamy rather than biological pursuit of fitness.

Figure 2. The asymmetry between deterministic rhetoric and reported effect

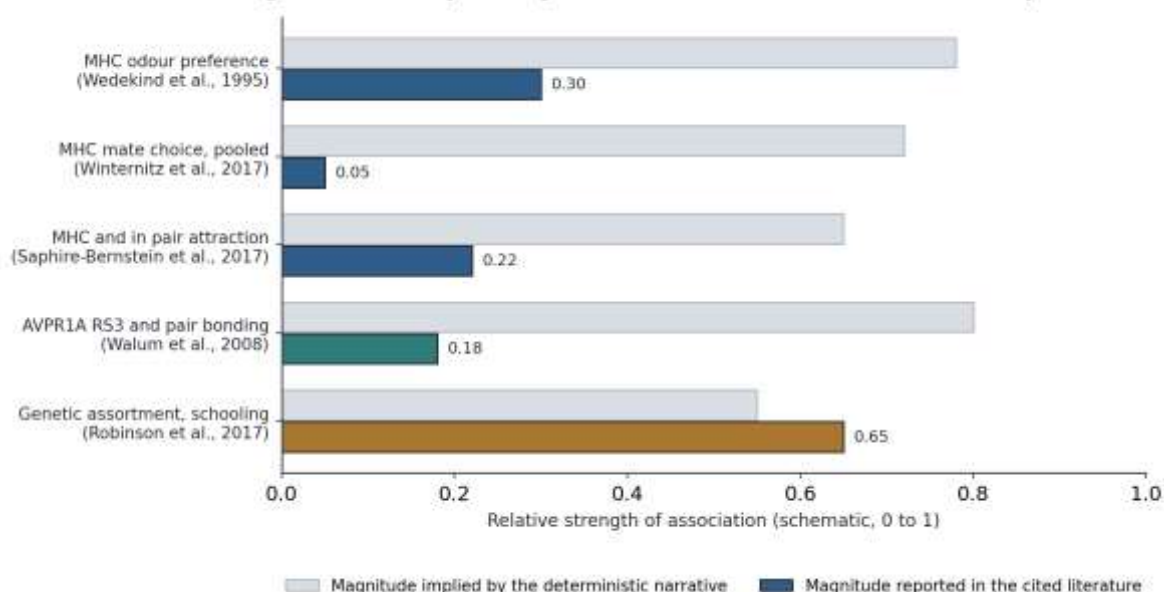


Figure 2. The asymmetry between deterministic rhetoric and reported effect. Pale bars represent the magnitude of association implied by the popular deterministic narrative; solid bars represent the approximate magnitude reported in the cited primary literature. Values are schematic and serve a didactic contrast rather than a meta analytic estimate. The single strongest partner resemblance, the genetic correlation for educational attainment reported by Robinson and colleagues (2017), is sociological in origin and is discussed in Section 5.

Taken in a single view, the rows converge on one moral. The biological signals the determinist enlists are weak or disputed, while the one genuinely strong genetic resemblance between partners owes nothing to biology in its origin. That finding, to which the next section turns, stands the compatibility thesis on its head.

4.4 The wider neurogenetics of bonding and the candidate gene problem

The vasopressin findings belong to a larger neurochemistry of attachment. Comparative neuroscience has shown that pair bonding in monogamous rodents depends on the convergence of oxytocin, vasopressin, and dopaminergic reward circuitry, through which the neural representation of a specific partner becomes intrinsically rewarding (Walum and Young, 2018). The temptation is to read across from the vole to the human and to conclude that love is, at bottom, a reward circuit captured by a single face. Yet the same review is careful to mark the distance between a rodent's nucleus accumbens and the symbolic, biographical, and institutional thickness of a human marriage, and it treats the neural story as a description of mechanism rather than a theory of the bond.

A second caution is methodological and by now familiar across the behavioural sciences. Associations between single common variants and complex conduct have proven notoriously fragile, and the early enthusiasm for candidate genes has given way to designs that aggregate many variants and that compare relatives in order to separate genetic transmission from the social environments that families share. When such designs are applied to the traits on which spouses resemble one another, the within family signal shrinks relative to the population estimate, precisely because part of what looked genetic was the shared social world (Yengo et al., 2018). The lesson is not that genes fall silent but that any honest estimate of their role must first subtract the social structure with which they are entangled.

Read together, the neurochemical and the genetic literatures support a biosocial rather than a determinist account. Attachment itself was first theorised as a biosocial process, an evolved behavioural system whose expression is organised by experience and

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culture rather than fixed by them (Hazan and Shaver, 1987). On this view the neuropeptide systems that condition bonding are real and consequential, yet they furnish only a capacity for attachment whose direction, object, and durability are settled elsewhere, in the developmental, relational, and social history of the person. The biology tunes the instrument; it does not write the score.

None of this licenses a retreat into pure constructionism. The bodies that meet in a marriage are not blank, and the neuropeptide systems, reward circuits, and immune signatures rehearsed in this section are part of what each partner brings to it. The claim is rather that these contributions are probabilistic, modest, and chronically confounded with the social, and that a science which forgets the confound will go on rediscovering society and naming it nature.

5. ALGORITHMIC HOMOGAMY AND THE MECHANISATION OF ASSORTMENT

5.1 The platform as social intermediary

The institutions that once arranged marriages, family and congregation and neighbourhood and workplace, have surrendered their brokerage to a single rival. Evidence on how couples meet records a steep six decade decline in the matchmaking offices of kin and school and an equally steep rise in unions that begin online, with the internet ever more often joining people who were previously strangers to one another (Rosenfeld and Thomas, 2012). The platform does more than enlarge the pool. It rebuilds the act of searching itself, trading the slow sedimentation of social ties for a query run against a database.

5.2 The optimised project partnership and classed reproduction

Once courtship is reorganised as search over a filtered population, the relationship inherits the grammar of a project. Candidates are screened against stated criteria, ranked on commensurable traits, and chosen for fit, and the resulting union is afterwards administered in the vocabulary of goals, investment, and return. The sociology of emotional capitalism describes exactly this rationalising of intimate life, in which feeling is reorganised around the procedures and the metrics of the market (Illouz, 2012). The filter that promises efficiency quietly encodes the prevailing distribution of advantage, since preferences for shared schooling, matched income, and congruent taste reproduce endogamy along the lines of class and credential. Marriage, read this way, performs the discreet labour of social reproduction, passing position down the generations in the costume of a free and private choice.

5.3 The genetic residue of social sorting

The decisive evidence comes from genomics, and it furnishes the inversion on which the whole argument turns. Drawing on many thousands of spousal pairs, an analysis of partner resemblance at loci linked to measured traits found a genetic correlation between spouses for educational attainment of roughly 0.65, dwarfing any resemblance attributable to immunogenetic attraction (Robinson et al., 2017). The genome of married couples does carry a legible signature, yet it is the signature of social homogamy, not of any olfactory hunt for immunological difference. When two graduates of comparable institutions and incomes marry, the loci that happen to track schooling become correlated across the couple as the residue of a thoroughly social process. The compatibility that platforms market as biology is, to a considerable extent, class settled into the genome and briefly made visible there.

5.4 Assortative mating, inequality, and the genomic afterimage

The displacement of the older intermediaries has only accelerated since the first surveys. On the most recent nationally representative data, meeting online has become the single most common way for couples to come together, overtaking introduction through friends around 2013 and leaving family, neighbourhood, and congregation far behind (Rosenfeld, Thomas, and Hausen, 2019). The platform now stands between most new partners and the social world that once arranged them, and it does so through an architecture of its own.

That architecture is anything but neutral. A comprehensive analysis of online dating concluded that the compatibility algorithms these services advertise rest on little validated predictive power, and that the very abundance they offer can prove corrosive, since the side by side browsing of many profiles cultivates an evaluative, assessment oriented stance and a choice overload that work against the formation of commitment (Finkel et al., 2012). The interface that promises an optimal match thus quietly trains the user in the disposition least suited to sustaining one, a paradox that rejoins the philosophical diagnosis pursued in the following section.

What the platform sorts, it sorts along familiar lines, and the economic consequences are by now measurable. Tracking United States census data across five decades, economists found that the rise of educational and earnings homogamy has materially widened household income inequality, such that a counterfactual of random matching in 2005 would have lowered the Gini coefficient from the observed value to roughly that of 1960 (Greenwood et al., 2014). Far from a private refuge from the market, marriage has become one of its more efficient engines of stratification, concentrating advantage within households and transmitting it across generations.

The genome registers this social process as a faint afterimage. Building on the partner resemblance reported earlier, a method that quantifies assortment directly from the correlation of trait predictors across chromosomes confirmed a legible signature of assortative mating at loci associated with height and, tellingly, with educational attainment (Yengo et al., 2018). The signature is genuine, but its source is social, for it is the deposit left in the genome when people of similar schooling and income marry one another. To read it as evidence of a biological pursuit of compatibility is to mistake the residue of class for an instinct.

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Two clarifications guard against misreading. The genomic signature of assortment does not imply that couples select one another for genes; it implies that selecting one another for socially distributed traits leaves a genetic trace as a byproduct. And the inequality that homogamy compounds is not the verdict of biology but the cumulative effect of countless private choices made within a structure that rewards the matching of like with like. The platform did not invent that structure, yet by rendering search efficient it has made the structure newly legible and arguably more binding.

6. THE SIMULATION OF EROS

6.1 The agony of the same

If the sociological register tells us how partners are sorted, only a philosophical one can tell us how they are experienced. Recent continental thought finds a strange fatigue at the heart of present day intimacy. Eros, on this telling, lives on alterity, on an otherness the self cannot absorb, and it is just this otherness that the narcissistic subject of late modernity can no longer abide (Han, 2017). Engrossed in the curation and display of its own image, the achievement driven subject meets the partner as a reflection rather than a true outside, so that an encounter meant to wound and remake instead reassures and confirms. What follows is not a surfeit of desire but its quiet erosion, an exhaustion of eros that no abundance of choice can repair.

6.2 Baudrillard and the precession of the romantic simulacrum

The dating profile lends this foreclosure a technical shape. On one account of simulation the sign comes to precede, and at length to supplant, its referent, so that the model is met before, and instead of, whatever reality it once stood for (Baudrillard, 1994). The curated profile is such a model. Built to be desirable, tuned against an audience, and consumed as an object in itself, it leaves the embodied person to arrive afterward as a faintly disappointing copy of their own representation. Intimacy organised in this fashion tilts toward the hyperreal, a traffic in signs of desirability that need never meet the friction of an actual other. The map is drawn first; the territory is asked to comply.

6.3 Emotional capitalism and the commodity form of intimacy

The two diagnoses converge on the commodity form. When intimacy is rationalised, measured, and offered through a market, the partner takes a place among goods, weighed with the same comparative attention one brings to any purchase (Illouz, 2012). Abundance of choice, far from freeing desire, installs a chronic provisionality, since every present partner stands shadowed by the imagined superiority of the next entry in the queue. Simulation thus finishes what the platform began, converting the labour of being known into the lighter pleasure of browsing and leaving the subject rich in candidates and oddly poor in attachment.

6.4 Liquid love, the pure relationship, and the historical contingency of marriage

The estrangement diagnosed by Han and Baudrillard has a sociological twin in the thesis of liquefaction. On this account the late modern bond grows provisional and consumer grade, entered with one eye on the exit and dissolved as readily as any other unsatisfactory purchase, so that the security intimacy once promised is surrendered to the imperative of keeping options open (Bauman, 2003). With its inexhaustible queue, the platform is the perfect instrument of such liquidity.

A more hopeful reading is available, and it matters for the argument to come. The reflexive intimacy described by Giddens names a relationship sustained for its own sake and continually renegotiated by partners who are, in principle, equals, a bond held together not by external sanction but by the satisfaction it affords and the reflective work it demands (Giddens, 1992). The pure relationship is fragile precisely because it is reflexive, yet that same reflexivity is the seed the pessimists overlook. Where Bauman sees only the dissolution of the bond, Giddens identifies the very faculty a couple might cultivate in order to hold it.

An older tradition that treats love as a practice rather than a possession sharpens the point. To love, on this view, is an art that must be learned and disciplined, an active orientation toward another rather than a fortunate condition into which one falls (Fromm, 1956). The contrast with the platform could not be starker. Where the interface promises that the right object, correctly identified, will spare one the labour of loving, the tradition insists that there is no such object and no such sparing, only the work.

All of this presupposes that marriage is the kind of thing that can change, and the historical record confirms that it is. For most of its history marriage was an economic and political arrangement, a transfer of property and a forging of alliances in which the affection of the partners was incidental or even suspect, and its reinvention as the principal vessel of personal happiness is a recent and culturally specific development (Coontz, 2005). To deconstruct marriage is therefore not to assail a natural kind but to historicise a contingent institution, which is exactly what frees it to be reconstituted on terms more answerable to the partners who inhabit it.

Read in sequence, the three philosophical moments compose an argument rather than a lament. Liquefaction names the danger, the pure relationship names the latent capacity, and the art of loving names the practice through which that capacity is realised, while the historical contingency of marriage establishes that there is room for such practice to remake the institution. The constructive proposal of the next section gives this capacity a name and a mechanism.

7. CONSCIOUS RELATIONAL DYNAMICS

7.1 Attachment and the coregulated dyad

A purely critical account would abandon the couple between a biology that does not determine it and a social machinery that deforms it. The constructive claim of this article is that a third resource waits in the psychobiology of adult attachment. Mature bonds are not sentiment laid over a biological base; they are working regulatory systems in which each partner becomes a steadying resource for the other. Felt security within such a bond is the very achievement that turns one person's body into an instrument for calming another's physiology.

7.2 The neurobiology of coregulation

The mechanism has a name. An integrative framework describes how the biological and psychological systems of partners grow interwoven within a bond, a state of coregulation in which the pair sustains a band of arousal that neither could hold alone, so that separation and loss bring measurable dysregulation and recovery waits on the slow rebuilding of self regulation (Sbarra and Hazan, 2008). The dyadic process has since been specified more precisely as a bidirectional coupling of oscillating emotional channels between partners, an exchange of arousal and dampening that lends stability to both (Butler and Randall, 2013). Figure 3 sets out this coupling together with the substrates that feed it and the reflective canopy that governs it.

Figure 3. Conscious relational dynamics as a supervenient regulatory layer

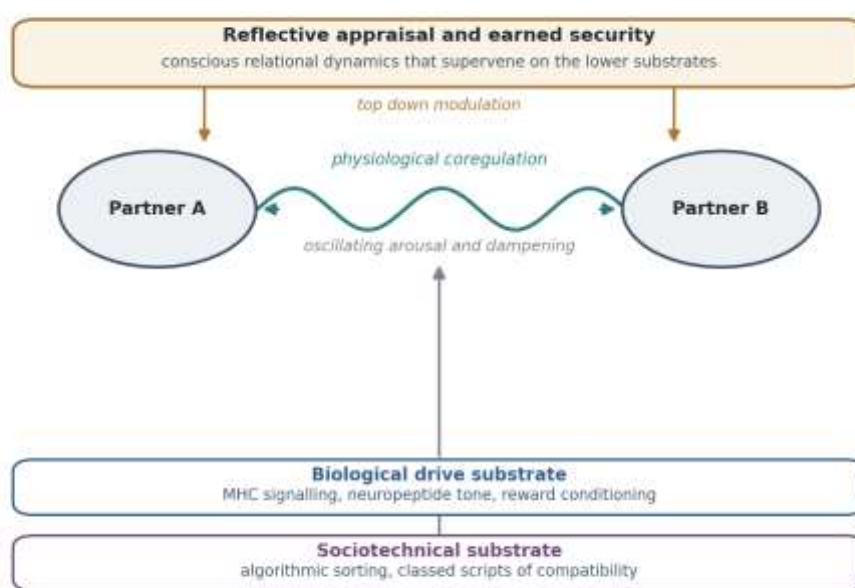


Figure 3. Conscious relational dynamics as a supervenient regulatory layer. Two partners form a coregulated dyad, characterised by an oscillating exchange of arousal and dampening (Sbarra and Hazan, 2008; Butler and Randall, 2013). Biological and sociotechnical substrates feed upward into this exchange, while a canopy of reflective appraisal exerts top down modulation, constituting the conscious relational dynamics theorised in Section 7.

7.3 Theorising conscious relational dynamics

From these materials the article advances its central construct. Conscious relational dynamics names the reflective and supervenient capacity by which a couple comes to govern the biological and sociotechnical grounds of its own bond. The capacity is supervenient in the strict sense: it depends on those grounds and yet exerts a real downward influence over them, shaping the coregulatory exchange through appraisal, repair, and the deliberate cultivation of the security that attachment theory calls earned. It neither denies the body, as the constructionist would, nor bows to it, as the determinist demands, and it declines with equal firmness the platform logic that would dissolve the partner into a vector of optimised attributes. A couple working in this register treats immunological leaning, classed taste, and the seductions of the simulacrum as forces to be reckoned with rather than as fate or as illusion. The bond becomes an object of shared reflection, and in that reflection it wins a freedom no lower tier can confer.

7.4 Empirical anchors and testable propositions

Conscious relational dynamics is not a metaphor but a claim with empirical consequences, and several existing literatures already mark out the ground on which it can be tested. The first is attachment itself, conceived from the outset as a biosocial process in which adults seek proximity to a felt secure base and a safe haven, and in which the security so attained can be earned through

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later relationships rather than merely inherited from early ones (Hazan and Shaver, 1987; Mikulincer and Shaver, 2016). Earned security is the developmental name for the capacity the construct describes at the level of the couple.

The second anchor is the neurobiology of coregulation, which has moved from metaphor to measurement. In a now classic experiment, women anticipating an electric shock showed a pervasive dampening of threat related neural activation when they held their husband's hand, an effect that was weaker for a stranger's hand and that scaled with the quality of the marriage (Coan, Schaefer, and Davidson, 2006). Here the regulatory claim of attachment theory becomes legible in the brain, for the partner is, quite literally, an instrument of neural regulation whose efficacy tracks the reflective quality of the bond. The oscillating coregulatory exchange specified by relationship science (Sbarra and Hazan, 2008; Butler and Randall, 2013) is the dynamic of which this attenuation is a single frame.

Conscious relational dynamics is distinguished from these neighbours by what it adds to them. It is not merely attachment security, nor merely coregulation, nor Giddens' reflexive negotiation, but the supervenient capacity that integrates them and turns them upon the lower substrates. A couple high in conscious relational dynamics does not escape its immunological leanings, its classed scripts, or the seductions of the simulacrum; it recognises them for what they are and governs its response to them, converting forces that would otherwise operate behind its back into objects of joint awareness and deliberate practice.

From this the construct yields propositions that can be put to the test. The first holds that reflective appraisal of the bond will predict the magnitude of coregulatory recovery after conflict and loss, extending the hand holding paradigm to longitudinal and dyadic designs. The second holds that couples formed under conditions of strong platform mediation will display, on average, a more pronounced assessment orientation, and that conscious relational dynamics will moderate its corrosive effect. The third holds that earned security and reflective functioning will jointly predict the durability of the bond above and beyond any genetic or sociodemographic resemblance between partners. Each proposition is demanding, each requires the dyadic and longitudinal instruments the field has only begun to assemble, and each would, if confirmed, carry the construct from a theoretical proposal toward a measured and consequential feature of intimate life.

8. A FOUR REGISTER SYNTHESIS

The argument can now be put briefly. The deterministic thesis fails on its own evidential terms, for the immunogenetic and neuroendocrine signals are modest and inconstant, while the strongest genetic resemblance between partners is a deposit of social class rather than a product of biological attraction. The sociological register accounts for the sorting that the determinist mistakes for biology; the philosophical register accounts for the estrangement that abundance and simulation breed; and the integrative register specifies how a couple might govern the whole. Table 1 ranges the four registers side by side, and Figure 1 renders their tiered relation. The novelty claimed here lies not in any single register, each already possessed of its own literature, but in showing that together they form a hierarchy of supervenience, one in which reflective agency is neither illusion nor sovereign but a real capacity conditioned from below and exercised from above.

Table 1. The four analytical registers compared across their unit of explanation, central claim about marriage, and principal limitation.

Analytical register	Core mechanism	Central claim about marriage	Principal limitation
Evolutionary and genetic	Immunogenetic signalling and neuropeptide receptor variation orient attraction and bonding.	Pairing approximates an optimisation of immunological and reproductive fitness.	Reported effects are small, inconsistent, and readily confounded with social assortment.
Sociological (algorithmic homogamy)	Matching platforms operationalise sorting by class, schooling, and taste.	Marriage functions as an optimised project partnership and a vehicle of social reproduction.	Risks economic reductionism and can understate affective and ethical content.
Philosophical (simulation)	The narcissistic subject encounters a sign of the partner rather than the partner.	Intimacy becomes a hyperreal projection that forecloses genuine alterity.	Diagnostic rather than predictive; resists operational measurement.

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Analytical register	Core mechanism	Central claim about marriage	Principal limitation
Integrative (conscious relational dynamics)	Reflective appraisal and dyadic coregulation govern the lower substrates.	Marriage is a reflexively sustained bond that neither denies biology nor obeys the platform.	Requires longitudinal and dyadic designs that remain comparatively scarce.

It bears emphasis that the central inversion no longer rests on a single result. Three independent lines, the direct estimate of spousal genetic correlation (Robinson et al., 2017), the chromosomal signature of assortment (Yengo et al., 2018), and the economic accounting of homogamy and inequality (Greenwood et al., 2014), converge on one conclusion from genetics, statistics, and economics alike. When findings reached by such different means agree, the burden of proof shifts decisively onto anyone who would still read partner resemblance as the work of biology.

9. DISCUSSION

The synthesis assembled above lands on a conclusion that cuts against the common intuition. The biological signals most often summoned to make partner choice look natural are, on the better evidence, modest and unsteady, whereas the one strong genetic resemblance between spouses is a deposit of social class rather than a trace of immunological attraction (Robinson et al., 2017; Winternitz et al., 2017). What direct to consumer services present as a reading of the body is therefore, in large part, a reading of the social structure that precedes the body. The reframing matters because it moves the locus of explanation: what looks like nature selecting for difference is mostly society sorting for similarity, with the genome left to record the outcome.

The theoretical proposal advanced here, that the four registers form a hierarchy of supervenience rather than a slate of competitors, parts company with both gene and environment interaction models and strong social constructionism. Interaction models keep biology and environment on one explanatory plane and ask how they combine; the present account instead ranks the registers by level, letting the sociological channel the biological, the philosophical interpret the sociological, and the reflective govern all three without erasing any. Against constructionism it keeps a real and consequential body; against determinism it denies that the body legislates. Conscious relational dynamics names the capacity this ordering makes intelligible, a couple's reflective governance of grounds it never chose. The construct is put forward as a hypothesis with empirical purchase rather than as a consoling abstraction, and Section 11 shows how it might be measured.

Several practical consequences attend the argument. Clinicians and educators who work with couples have reason to handle the rhetoric of genetic compatibility warily, since it can turn a contingent social pattern into a seemingly natural verdict and so foreclose the reflective work on which lasting bonds depend. Services that sell compatibility from genetic data merit particular scrutiny, both for the thinness of their predictive base and for the risk that they harden existing stratification behind a biological alibi. At the level of theory, the account asks relationship science to take the platform as an object of study rather than a neutral conduit, and to read attachment and coregulation as the place where agency returns to a process that biology and the market would otherwise close. These implications are offered with due caution, and the limits that frame them follow at once.

The expanded evidence base sharpens rather than softens these claims. That online matching now mediates most new partnerships (Rosenfeld, Thomas, and Hausen, 2019), that its algorithms cultivate an evaluative stance inimical to commitment (Finkel et al., 2012), and that the resulting homogamy measurably compounds inequality (Greenwood et al., 2014) together describe a social machinery far more consequential for whom we marry than any immunogenetic cue. Set against this, the demonstration that a partner's mere presence can reorganise the brain's response to threat (Coan, Schaefer, and Davidson, 2006) locates the countervailing power exactly where the construct places it, in the reflectively governed dyad rather than in the genome or the platform.

A word is owed to the boundaries of generalisation. Nearly all of the genetic evidence and much of the sociological evidence assembled here derives from wealthy, industrialised, and predominantly Western populations, and the patterns it describes need not hold elsewhere. The institution of marriage varies enormously across cultures and epochs (Coontz, 2005), and the platforms that now mediate it are unevenly distributed, so the four register architecture proposed here should be treated as a framework to be tested across settings rather than a universal law already secured. Comparative work is likely to show that the relative weight of the registers shifts with the local organisation of kinship, economy, and technology.

The practical reach of the argument is nonetheless considerable. For the clinician it reframes the work of couple therapy as the cultivation of conscious relational dynamics rather than the correction of an imagined biological mismatch. For the educator it counsels a sceptical literacy toward the rhetoric of genetic compatibility that students will meet in the marketplace. And for the policymaker it raises the prospect that the design of matching platforms, like any other infrastructure of opportunity, is a fit subject

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for public deliberation rather than a private technical matter. In each case the lesson is the same, namely that the forces shaping intimate life are more social, and more open to reflective intervention, than the determinist vocabulary allows.

10. METHODOLOGICAL AND EPISTEMOLOGICAL LIMITATIONS

Several constraints keep these conclusions in proportion. The genetic literature on partnering leans heavily on correlational designs, modest samples, and populations drawn disproportionately from wealthy and well schooled societies, the very conditions under which candidate gene associations have so often failed to hold. The confound between genetic and social assortment is severe, since partners who resemble each other socially will resemble each other genetically at any locus tied to the sorting trait, which inflates every naive reading of biological compatibility. The philosophical register, for its part, is diagnostic rather than predictive, and its claims resist the operational measures the empirical sections demand, so that synthesis across registers remains an interpretive act open to reasonable dispute. Conscious relational dynamics, finally, still awaits the longitudinal and dyadic evidence that would carry it from proposal to measured construct, and the article is best read as setting that agenda rather than discharging it.

11. IMPLICATIONS AND AN ADVANCED RESEARCH AND CURRICULAR ARCHITECTURE

These conclusions point toward a programme at once empirical, ethical, and pedagogical. The modules that follow each pair a line of inquiry with the graduate teaching it would require, so that the framework travels into the laboratory and the seminar alike.

11.1 Module one: disentangling genetic from social assortment

A first inquiry would estimate how much of the genetic resemblance between spouses follows from social homogamy and how much, if any, from a direct biological preference, using designs that hold social background steady while letting immunogenetic similarity vary. Its seminar would school students in the critical reading of polygenic and assortment statistics, with sustained attention to the confounds rehearsed in Section 10.

11.2 Module two: the platform as an instrument of stratification

A second inquiry would treat matching architectures as objects of study in their own right, auditing how ranking and filtering reproduce endogamy and asking whether different design choices might widen rather than narrow the field of possible encounter. Its teaching would marry the sociology of markets to the ethics of recommendation, so that students read the political stakes folded into an interface.

11.3 Module three: simulation, attention, and the erosion of alterity

A third inquiry would bring the philosophical diagnosis into contact with empirical psychology, testing whether profile mediated encounter measurably dulls the experience of a partner as an autonomous other. Its seminar would set recent continental theory beside the experimental study of attention and desire, modelling the translation across disciplines that the framework demands.

11.4 Module four: measuring conscious relational dynamics

The culminating inquiry would operationalise the central construct, building indices of reflective appraisal and earned security and testing their power to predict coregulatory recovery after conflict and loss. Its course would equip students with dyadic and longitudinal methods, since no cross sectional or single subject design can capture what the construct describes.

11.5 Module five: ethics, law, and the governance of genetic intimacy

A final module would turn to the regulation of services that market genetic compatibility, weighing their claims to predictive validity against the threats they pose to privacy, consent, and equality, and asking what protections a liberal order owes to those whose intimate lives are increasingly mediated by genetic data. Its teaching would be frankly normative, training students to reason about autonomy and justice rather than to defer to the authority of a biomarker.

11.6 Module six: cross cultural and developmental validation

A sixth and integrative line of inquiry would test the framework where it is most vulnerable, namely in its claim to describe something general about human pair formation. The architecture was assembled largely from Western and contemporary evidence, and its registers may carry different weights in societies organised around extended kinship, arranged marriage, or collective rather than companionate ideals of union. A programme of comparative research would estimate the four registers across contrasting cultural settings, asking in particular whether algorithmic homogamy and erotic simulation are features of a specific technological moment or recurrent tendencies that merely find new instruments in each age.

The developmental dimension is equally pressing. Conscious relational dynamics is posited as a capacity that can be cultivated, which implies a trajectory across the life course and the possibility of intervention. A longitudinal design would follow couples from formation onward, charting how reflective appraisal and earned security develop, how they buffer the corrosive tendencies catalogued above, and whether they can be strengthened through the kinds of relational education that attachment informed therapies

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already attempt. The corresponding teaching would equip students to design and evaluate such interventions rather than merely to describe the phenomena they address.

Taken with the five lines that precede it, this module completes a research architecture that is at once critical and constructive. The earlier modules dismantle the deterministic thesis and trace the social machinery it obscures; this one submits the successor construct to the most demanding tests of generality and change. Should conscious relational dynamics survive them, it will have earned its place not as a consoling phrase but as a measurable, cultivable, and cross culturally meaningful feature of the bonds that people make.

12. CONCLUSION

The compatibility this moment believes it has found in the genome is, for the most part, the old inequality of class returning in molecular dress, and it arrives chaperoned by a philosophy of the self that mistakes a mirror for a beloved. Even so, the bond between two people remains a place where biology, society, and meaning can be taken up and governed rather than merely endured. To insist on that capacity, and to give it a name and a programme of research, is at once the modest and the consequential ambition of this article. Love is not the execution of a genetic instruction, nor the closing of an optimisation, nor the consumption of a sign. It is the reflective labour by which two regulated bodies resolve, against no small pressure, to remain an other to each other.

AUTHOR CONTRIBUTIONS

G.İ.A., K.Ş.Y., and A.B. jointly conceived the framework and contributed to the overall design and structure of the review. G.İ.A. led the synthesis of the evolutionary and behavioural genetic literatures, drafted the corresponding sections, and prepared the figures and tables. K.Ş.Y. led the sociological and philosophical analysis, developed the construct of conscious relational dynamics, and drafted the discussion. A.B. led the clinical psychology perspective, contributed to the analysis and interpretation of psychological and relational processes, and drafted the sections addressing the clinical and psychological implications of the framework. All three authors critically revised the manuscript for important intellectual content, contributed to the integration of the interdisciplinary perspectives, and approved the final submitted version. K.Ş.Y. is the corresponding author.

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