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On the Origin of Power

Distinction-Conditioned Potential, Counterfactual Exclusion, and Branch-Realisation Under Finite Conditions

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Abstract

Power is not first authority, domination, coercion, force, status, possession, command, political office, social hierarchy, control, intention, or guaranteed outcome. These are later forms, allocations, concentrations, uses, or interpretations of power. At its origin, power is a physical and organisational relation: the potential of a specified Information Processing Locus to make downstream branch-realisation differ because one discriminable alternative rather than another can become operative through its organisation.

The inherited architecture already supplies the causal discriminator. Non-Trivial Computation requires organisation-dependent downstream outcome dependence on discriminable distinctions under specified reference and comparator conditions. The Information Processing Locus identifies the organisation whose integrity is required for that difference-making relation. Power does not redefine either concept. It asks what potential exists once such distinction-conditioned consequence is possible. Primitive power is therefore the indexed potential of an IPL to alter downstream branch-realisation through organisation-mediated discriminable distinctions under stated conditions.

Power is potential before it is application. An inactive switch may still possess power if its organisation supports counterfactually different downstream trajectories under different operative distinctions. Application actualises some part of that potential. Consequence demonstrates that the potential was real, but consequence does not create the potential retrospectively. The relevant possibility field is the Counterfactual Inclusion Field: the locus-indexed field of downstream branch relations genuinely included within the distinction-conditioned potential of an IPL under the stated reference, comparator, thermodynamic, abstraction, and temporal conditions. A branch is included only where the organisation physically supports a path by which an operative distinction can make its realisation differ. The field therefore excludes futures available only to exterior imagination.

Primitive power does not require deterministic control. A distinction has demonstrated power wherever its application produces a counterfactually recoverable difference in downstream branch-realisation relative to an adequate comparator. The difference may determine a branch, open or close a branch, alter probability, timing, persistence, accessibility, or the conditions under which later branching occurs. No additional threshold of human, biological, statistical, institutional, moral, or practical significance is required. Causality decides where consequence begins. Small local effects may accumulate across repeated branch events into strong horizon-relative trajectory bias without any individual application guaranteeing its outcome.

Applied distinction produces Counterfactual Exclusion. The positive and negative are one physical branch-realisation event. Positively, an operative distinction conditions the realised branch. Negatively, a relevant alternative included within the Counterfactual Inclusion Field is not equivalently realised in that event. Counterfactual Exclusion does not imply conscious

choice, rejection, or metaphysical deletion. It is thermodynamically realised through physical state transition and the deployment, redirection, maintenance, or dissipation of available work. A local driven thermodynamic system may maintain or increase local organisation through throughput, but the branch event remains embedded in wider thermodynamic accounting.

Knowledge, intelligence, and observation condition this power-bearing possibility field without being redefined by it. Retained distinction can preserve branch potential across time. Bounded registration can alter which distinctions become available to later application. Applied distinction is the immediate route by which power potential becomes realised consequence. Power is not identical to any one of these functions. It measures the counterfactual branch potential that organised distinction makes physically available to the IPL.

The governing rule is simple: a power claim must not carry more branch-changing potential than can be recovered from the IPL's distinction-conditioned organisation under the reference, comparator, thermodynamic, and temporal conditions being claimed. Power is not the magnitude of force, the success of an outcome, or the authority attached to a role. It is the potential of organised distinction to change what can happen next.

This paper stops at that primitive. It does not yet develop the richer consequences of nested and overlapping branch spaces, distributed power, strategic interaction, institutional authority, social domination, or evolutionary competition. Those require later treatment. The immediate handoff is narrower. Power establishes what a locus could make consequential. Responsibility asks which consequential application or non-application of that potential is attributable to the locus under the conditions of the event.

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1. Introduction: Power before authority

This paper concerns power as a primitive branch-potential relation under finite physical conditions.

It does not offer a political theory of power, a sociology of domination, a legal theory of authority, a theory of coercion, a doctrine of agency, a theory of freedom, a moral account of control, or a general account of institutional hierarchy. Those domains matter. Human power is saturated with resources, language, force, property, legitimacy, knowledge, technology, social position, law, violence, organisation, dependence, and expectation. But those are already developed architectures. They cannot decide the primitive question without risking circularity.

The primitive question is earlier.

What is the earliest relation in which an organised locus can properly be said to possess power before authority, intention, social hierarchy, or deterministic control has appeared?

The familiar answer usually begins with visible effect. Someone commands and another complies. A state prohibits. A weapon compels. Money opens access. A machine moves heavy material. A gate prevents entry. A ruler allocates permission. These cases make power easy to recognise because the consequence is large, socially salient, or already interpreted through authority. Yet recognition at that scale can hide the relation that makes all of these cases possible.

Before power can be concentrated, delegated, institutionalised, resisted, abused, legitimised, or moralised, some organised difference must be capable of changing the branch through which later state is realised. The relevant system need not know that it is powerful. It need not represent a future tree. It need not intend the consequence. It need not guarantee the result. It need only contain an organisation through which discriminable alternatives can become causally consequential to what happens next.

The inherited architecture gives this claim a physical starting point. Physical difference can become operational distinction for a locus. Distinction can be registered, retained, and redeployed. Non-Trivial Computation disciplines the stronger causal claim by requiring downstream outcome to depend on discriminable alternatives through a localisable organisation under comparator pressure. The Information Processing Locus identifies where that distinction-use is carried.

Power does not add a new substance to that sequence. It asks a new question of it.

Non-Trivial Computation asks whether the organised distinction makes a downstream difference.

Power asks what counterfactual branch-changing potential exists because the organised distinction can make that difference.

The preceding papers have already used counterfactual structure under narrower epistemic demands. Counterfactual Comparison Discipline asks which alternatives discriminate the strength of a closure. Live Field Contraction preserves which formulations remained admissible, how they ceased to remain live, and whether that contraction was earned. Power begins at the point where counterfactual structure becomes causal: the question is now which downstream branch relations are physically included within the distinction-conditioned potential of the specified locus, and what occurs when some part of that potential is realised. These relations form an additive counterfactual architecture, but they are not interchangeable. An alternative capable of testing a closure need not remain a live formulation, and a live formulation need not be a physically included causal alternative for the IPL.

The shift is from demonstrated difference to available possibility. It is small in wording and foundational in consequence. A system may possess a power potential before the relevant distinction is presently applied. A regulatory pathway may be capable of routing two responses while currently resting. A thermostat may be capable of switching a heating branch before its threshold is crossed. A cell may retain a regulatory state whose later activation changes metabolic routing. The potential is real because the organisation already supports counterfactually different branch-realisation under the relevant conditions.

Power is therefore first a measure of potential. It concerns the branching possibility carried by the IPL's organisation before one branch event actualises a part of that possibility. The word measure should not be read as requiring a universal scalar unit. Some power relations may be quantitatively estimable through branch probabilities, effect sizes, reachable states, temporal horizons, or work budgets. Others may initially be recoverable only relationally. The primitive burden is not common-unit commensurability. It is that the claimed potential be grounded in physically real, counterfactually discriminable branch difference.

This also changes how power application must be understood. The application of one distinction is not merely a positive selection added to an otherwise neutral future. To apply a distinction is to realise a branch relation under which its counterfactual alternatives are not equivalently realised. The positive and negative belong to one operation. Applied distinction is counterfactual exclusion.

Counterfactual Exclusion is a controlled causal term rather than a new agency, choice, or evaluative status. It does not imply conscious rejection, deliberative choice, or metaphysical deletion. It names the counterfactual structure already required by distinction-conditioned consequence. If the system would have followed the same downstream trajectory regardless of which alternative was operative, the distinction did not do the claimed work. If the trajectory differs, the realised branch carries both the positive effect of the operative distinction and the negative fact that its comparator branch was not equivalently realised.

The physical ground remains thermodynamic throughout. Distinctions require carriers. Stability, manipulation, registration, retention, and application have physical costs and consequences. A Driven Thermodynamic System can maintain local organisation through sustained energy and matter throughput, but local maintenance does not escape the wider thermodynamic relation. Power is therefore not an abstract menu of imagined futures. It is physically supported potential to channel available work through distinction-conditioned pathways so that branch-realisation becomes counterfactually different.

The paper develops this primitive in stages. It first separates cause from power. It then derives primitive power from NTC without redefining NTC or IPL. It distinguishes power potential, application, and consequence; defines the Counterfactual Inclusion Field; shows why power may weight rather than determine branches; develops cumulative power across repeated events; identifies applied distinction with Counterfactual Exclusion; restores the thermodynamic ground of that exclusion; and locates knowledge, intelligence, and observation as inherited functions that condition the power-bearing field.

The paper then states the Power Relation, tests it against simple physical and biological demonstrations, and records what the primitive does not yet explain. It does not move into a full account of nested and overlapping branch spaces. It does not yet analyse strategic competition, domination, authority, or distributed social power. It ends where responsibility can begin.

The governing rule is therefore:

A power claim must not carry more branch-changing potential than can be recovered from the distinction-conditioned organisation of the specified IPL under the reference, comparator, thermodynamic, and temporal conditions being claimed.

Power is not what authority says a locus can do.

Power is not what an exterior observer can imagine a locus might have done.

Power is the physically grounded potential of organised distinction to change what can happen next.

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2. Cause is not yet Power

The first mistake is to make power coextensive with cause.

Causes are everywhere. Gravity changes trajectories. A storm changes pressure, flow, temperature, erosion, and structural load. A wall blocks movement. A chemical gradient alters reaction rates. A missing component changes what a mechanism can do. A narrow channel restricts which paths remain physically accessible. None of these relations is trivial. Causation is the substrate from which every later power claim must be made.

But if every causal contribution is already power, the concept adds nothing.

Power requires a discriminator.

The discriminator cannot be magnitude. A landslide may release vastly more energy than a regulatory switch while containing no relevant distinction-conditioned organisation. The switch may make only a tiny difference to a later trajectory while still satisfying the relevant causal burden. If magnitude decided power, raw force would replace organisation and the primitive would collapse back into physics without discrimination.

The discriminator cannot be complexity. A complicated passive structure can shape trajectories without using a distinction. A simple switch can make downstream state depend on a thresholded alternative. Complexity may enlarge later possibilities, but it does not establish the root relation.

The discriminator cannot be usefulness or success. A distinction-conditioned operation can alter a branch and still produce an outcome that is harmful, maladaptive, inaccurate, or unsuccessful relative to some later purpose. Success evaluates the result. Power identifies the potential by which organised distinction can change the result's branch conditions.

The discriminator cannot be consciousness, intention, or agency in the familiar human sense. If intention were built into the origin, every sub-human and sub-linguistic case would be excluded by definition before the causal relation had been examined. Later forms of agency may enrich power. They cannot be required to make primitive power visible.

The relevant discriminator is inherited from Non-Trivial Computation. A discriminable alternative becomes operative through organisation such that downstream outcome differs relative to an adequate comparator. The Information Processing Locus identifies the organisation whose integrity is required for that difference-making relation.

This gives a first boundary.

Causal capacity is necessary for power, but causal capacity alone is insufficient.

Primitive power appears only where physically supported distinctions can be made consequential through a localisable organisation. A storm may have enormous causal capacity without primitive power in this technical sense. A thermostat may have very little energetic magnitude while possessing primitive power over a narrow switching branch. The difference is not dignity, complexity, or value. It is distinction-conditioned causal potential.

The distinction also protects the account from external-interpreter substitution. An analyst may describe many alternative states of a rock, a river, or a crystal. Those distinctions do not become power for the target merely because the analyst can classify them. The relevant alternatives must enter an organisation by which this rather than that can make a downstream difference for the evaluated locus.

Cause therefore comes first, but cause does not finish the analysis.

Power begins where cause becomes conditionally branchable through organised discrimination.

3. From Non-Trivial Computation to Primitive Power

The inherited concept of Non-Trivial Computation supplies the strongest available starting point.

Non-Trivial Computation does not mean that a system is complicated, intelligent in the human sense, alive, conscious, symbolic, or computational merely because an observer can encode its state. It names a narrower physical relation. A discriminable distinction is available. An organised pathway treats alternatives differently. Downstream trajectory depends on which alternative is operative. Baseline Dynamics supplies comparator pressure by asking what would happen if the proposed mediating organisation were absent, disabled, scrambled, neutralised, bypassed, or otherwise prevented from doing the claimed work while enough relevant context is preserved for comparison.

This paper does not redefine that architecture.

The power consequence appears when the same relation is viewed from the side of potential.

NTC asks: does the organised distinction make a downstream difference?

Power asks: what downstream difference is available to be made because this organisation can render that distinction consequential?

Primitive Power can therefore be defined as follows:

Primitive Power is the indexed potential of an Information Processing Locus to alter downstream branch-realisation through organisation-mediated discriminable distinctions under specified reference and comparator conditions.

Each part of the definition matters.

The power is primitive because no richer authority, intention, self-model, language, moral status, strategic understanding, or institutional role has yet been established. The IPL need not conceive its possibilities as possibilities.

The power is indexed because no locus possesses an absolute possibility field. The same physical organisation may have different branch potential under different boundaries, scales, environments, resource conditions, noise regimes, horizons, interfaces, and comparator assumptions.

The power is potential because the relevant application need not presently be occurring. The organisation may be capable of making branch-realisation differ even while the branch condition remains latent. A switching pathway can be power-bearing before the switch fires. A retained regulatory state can be power-bearing before later redeployment. A control pathway can be power-bearing before the condition it discriminates is encountered.

The potential belongs to an IPL because the organisation carrying the distinction-use must be localisable. Power does not float across whatever larger object happens to contain the mechanism. One organism may contain many IPLs. One machine may contain many switching and routing loci. The claim must identify the organisation whose integrity is required for the counterfactually different branch relation under review.

The potential alters branch-realisation rather than guaranteeing a particular outcome. This is essential. A distinction may change the probability distribution, persistence, timing, accessibility, or conditional structure of later trajectories without fixing the final state. Deterministic control is one possible limiting case. It is not the primitive definition.

The distinction must be discriminable for the locus rather than merely named by an exterior observer. The alternatives must be physically supported strongly enough that the organisation can treat them differently under the relevant channel and noise conditions.

The comparator is required because apparent potential can otherwise be read into any causal process. If removing, disabling, scrambling, or bypassing the proposed distinction-use leaves the relevant downstream branch relation materially unchanged, the power claim weakens or fails with it.

The reference conditions are required because power is not a global property of an object. Boundary, scale, operational horizon, available throughput, discrimination regime, noise, environment, and component integrity can all change what branch potential the same organisation actually possesses.

Primitive power is therefore neither added to NTC nor identical with it.

NTC establishes that organised distinction can make a consequential difference.

Power names the potential branch leverage present because that difference can be made.[1]

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4. Power is potential

Power is usually recognised too late because language notices the act before it notices the potential.

A command is issued. A gate closes. A weapon fires. A machine moves. A regulator intervenes. A person refuses. We then say power was exercised and infer that power existed. The inference may be correct, but it reverses the conceptual order.

The capability had to exist before the event could actualise it.

Power is therefore potential before application.[2]

This requires three relations to remain separate.

Power potential concerns what distinction-conditioned branch alterations are available to the IPL under the indexed conditions.

Power application concerns the event in which an operative distinction is actually carried through the organisation so that part of that potential enters branch-realisation.

Power consequence concerns the downstream difference produced relative to the comparator.

These relations support one another but are not interchangeable.

A present consequence can demonstrate that a power potential was real. Repeated consequences can estimate its range, reliability, or statistical strength. Experimental ablation can reveal which organisation carried it. None of these facts means the consequence created the power after the event. The event actualised a capacity already supported by the organisation and conditions.

The distinction matters equally in the other direction. Mere assertion of capability does not establish power. A mechanism may be designed to act, believed to act, labelled as controlling, or historically associated with an outcome while lacking comparator-stable downstream effect under the present conditions. Potential is not imaginary possibility. It must

be grounded in an organisation for which counterfactually different branch-realisation is physically available.

This gives power an unusual temporal position. It is a present property of an organised relation defined partly by counterfactual futures. The IPL need not represent those futures. The evaluator need only establish that, under the relevant distinction-conditions, the organisation supports downstream trajectories that differ in a recoverable way.

A thermostat before threshold crossing illustrates the point. Its current output may be unchanged. Yet if its sensing and switching organisation remains intact, temperature alternatives can produce different downstream heating states. The power potential lies in the organisation before one of those alternatives becomes operative.

A cellular repair pathway may likewise carry power potential before damage occurs. Recognition, checkpoint, and repair organisation make later trajectory conditionally dependent on damage-related distinctions. The pathway need not be active continuously for that potential to exist.

The same principle prevents inactivity from being confused with powerlessness. A locus may refrain, wait, remain dormant, or simply not encounter the triggering condition while retaining the organisation that could make later branches different. Conversely, visible activity is not proof of power where the activity would proceed materially the same without the proposed discriminating relation.

Power is therefore not measured first by motion.

It is measured first by counterfactually available branch difference.

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5. The Counterfactual Inclusion Field

Potential requires a possibility field.

But the possibility field relevant to primitive power is easy to overstate. It is not the set of every physically admissible future state of the universe. It is not every future an exterior modeller can simulate. It is not every action a human observer can imagine the target performing. It is not a retrospective catalogue of branches that become visible only after the outcome is known.

The Counterfactual Inclusion Field is the locus-indexed field of downstream branch relations genuinely included within the distinction-conditioned potential of an Information Processing Locus under stated conditions. A branch is included only insofar as the organisation contains a physically supported path by which a relevant operative distinction can make its realisation differ under the evaluated boundary, scale, horizon, throughput, abstraction, and comparator conditions. Inclusion therefore records causal availability to the IPL, not mere physical possibility or exterior conceivability.[3]

The Counterfactual Inclusion Field is also abstraction-dependent. A power claim must state how downstream trajectories are partitioned into the branch classes relevant to the claim and at what reference scale that partition is stable. A coarse cut may conceal consequential difference; an excessively fine cut may introduce distinctions that are not operationally stable for the locus. The branch cut is therefore part of the indexed power relation rather than a view from nowhere over every physically describable future.

The Counterfactual Inclusion Field may be very small. A binary switch may support only two immediate output states. It may be larger. A regulatory network may support many combinations of activation, inhibition, repair, transport, metabolic routing, or movement. The number of branches does not by itself establish power, but the physically supported alternatives form the field within which power can be exercised.[4]

The field is also temporally indexed. A branch available now may disappear after a state transition. A branch unavailable now may become available after retention, observation, or altered driving. A resource depletion may narrow the field. A restored gradient may reopen it. A retained distinction may allow an earlier relation to condition a later branch beyond the immediate event.

The field is thermodynamically constrained. An IPL cannot exercise a branch whose required physical transition lacks the necessary support. Available work, material substrates, channel integrity, boundary conditions, component state, and driving conditions all shape which distinction-conditioned transitions are physically accessible.

The field is discrimination-constrained. A physical difference can exist while remaining unavailable as an operative distinction for the locus. An exterior analyst may know that two states differ. If the IPL lacks the channel, threshold, alphabet, or organisational pathway required to treat them differently, the difference does not enter or enlarge that IPL's Counterfactual Inclusion Field under the power relation being claimed.

The field is organisation-constrained. The same signal may encounter two loci with different switching, retention, or application pathways and therefore support different branch potential. Power is not contained in the signal alone. It belongs to the relation between available distinction and the organisation capable of making it consequential.

This is why the Counterfactual Inclusion Field should not be treated as an interior picture of the future. Primitive loci need not model the field. The field can be reconstructed from the organisation, accessible distinctions, reference conditions, and comparator relations even where the locus has no explicit representation of alternatives.

An exterior observer may nevertheless overreach. If a scientist can imagine a bacterium moving north, south, upward, downward, pausing, signalling, forming a colony, or evolving a different receptor, not all of those imagined alternatives belong to the bacterium's present Counterfactual Inclusion Field. The question is which distinctions and operations are actually supported by the locus under the relevant conditions.

Power therefore remains realist and finite.

The future is not created by the IPL. Physical possibility constrains what can occur.

But the IPL does not possess every physical possibility as power. It possesses only the branch-changing potential its organisation can physically make consequential.

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6. Power alters branch weighting

The next mistake is to equate power with deterministic control.

This is understandable because the clearest demonstrations of power are often decisive. A switch flips. A valve closes. A gate locks. A command is obeyed. These cases make one branch appear to replace another with near certainty.

Primitive power requires much less.

The causal threshold is crossed wherever the operative distinction makes downstream branch-realisation counterfactually different from the appropriate comparator.

The difference may be deterministic. It may also be probabilistic.

A distinction can raise the probability of one trajectory from one value to another without fixing which individual event will occur. It can reduce failure probability without eliminating failure. It can make persistence slightly more likely. It can shorten the expected time to a state transition. It can make one route accessible under conditions where another route remains possible. It can alter the distribution of later branches rather than selecting one final branch in advance.

In each case the distinction has power if the organisation makes a counterfactually recoverable difference.

This is where significance must be separated from consequence.

Consequential does not mean large, important, adaptive, morally serious, statistically fashionable, or visible to a human observer. It means that the later branch relation differs because the distinction-conditioned pathway is operative rather than absent, disabled, scrambled, bypassed, or supplied with another relevant alternative.

A one percent shift can be power. A one tenth of one percent shift can be power. A conditional effect detectable only across repeated trials can be power. The exact evidential burden depends on measurement, noise, comparator quality, and the claim being made, but there is no additional metaphysical threshold at which a small causal effect becomes worthy of the word power.

The converse matters equally. A very large outcome is not evidence of greater primitive power if the distinction-conditioned organisation did not cause the relevant difference. A storm may destroy a structure with enormous energy. A minute control signal may alter whether a protective mechanism deploys. The energetic magnitude of the two events and the distinction-conditioned power relation are different questions.

The relevant quantity is branch weighting in the broad sense: how the operation changes the realisation structure over downstream possibilities relative to comparator conditions.

Branch weighting need not imply that a probability distribution is always explicitly known. In some systems the change may be recovered as a difference in frequency. In others it may appear as deterministic routing, altered persistence, changed threshold, delayed transition, inhibited pathway, or different reachable state. The common structure is counterfactual difference in what happens next.

Power is therefore compatible with uncertainty.

No decision in the physical world needs a guaranteed outcome for the distinction-conditioned relation to be real. Indeed, once noise, finite access, environmental variation, competing dynamics, and repeated branching are admitted, probabilistic consequence is ordinary rather than exceptional.

The primitive rule is therefore deliberately low and physical:

If the organised distinction changes downstream branch-realisation relative to an adequate comparator, it has demonstrated power.

If it does not, the claimed power relation has not been established.

7. Repetition and cumulative Power

A weak local effect can become a strong trajectory effect when branch weighting is repeated.

This is not a new kind of power. It is the temporal accumulation of the primitive relation.

Suppose a system repeatedly encounters an alternative and its organisation shifts the probability of one downstream branch only slightly. Any single event remains uncertain. The preferred branch may fail. Noise may dominate. An unfavoured branch may occur many times. Yet if the bias is stable enough across the relevant horizon, repeated realisation can produce a large divergence from the comparator trajectory.

A roulette wheel with a house edge illustrates the structure. The house does not determine the outcome of each spin. It does not need to. A small persistent bias in the branch-generating conditions is sufficient for repeated play to produce an aggregate advantage over the long run. The local event remains uncertain while the horizon-relative trajectory becomes increasingly asymmetric.

Primitive biological regulation often has the same structural feature without the gambling context. A chemotactic response need not direct every movement perfectly. A repair pathway need not correct every lesion. A stress response need not preserve every cell. If the distinction-conditioned organisation systematically changes the distribution of later outcomes relative to baseline, it carries power even where individual events remain noisy or fail.

This matters because power cannot be inferred only from dramatic single events. A system that produces small but repeated branch differences may exercise more horizon-relative power over a trajectory than a system capable of one large but rarely relevant intervention. The comparison depends on the question, reference conditions, and horizon. The primitive definition does not force these different relations into one scalar rank.

Accumulation also makes temporal reference conditions indispensable. A power relation assessed over one millisecond may look negligible while the same repeated bias over days, generations, or repeated control cycles becomes large. Conversely, a strong immediate effect may dissipate so quickly that its longer-horizon branch influence is small.

The power claim must therefore state enough temporal structure to make its potential meaningful. What is the event horizon? How often can the distinction be applied? Does the organisation retain the relevant state? Does the effect persist, reset, or compound? Does noise cancel the bias or merely broaden the outcome distribution?

None of these questions adds a significance threshold.

They locate the actual causal potential.

Repeated application therefore exposes a central feature of primitive power: power can be statistically small at the branch event and causally large across the realised history.

The primitive remains the same throughout.

Distinction-conditioned organisation biases what happens next. Repetition allows that bias to accumulate.

8. Applied distinction is Counterfactual Exclusion

The application of power has a double structure that should not be split into two unrelated operations.

An operative distinction makes one branch relation real under the present event. The counterfactual relation that would obtain under another relevant distinction-condition or comparator is not equivalently realised.

Applied distinction is therefore counterfactual exclusion.

The phrase does not name a separate status. It elucidates what applied distinction already means when viewed against branch possibility.

The positive side is straightforward. A distinction is physically available to the IPL. The organisation treats the alternatives differently. One alternative becomes operative. The downstream trajectory is conditioned by that application.

The negative side is not an added act of deletion. It is the counterfactual relation built into the same event. If another available distinction had been operative, or if the mediating organisation had been absent, disabled, scrambled, bypassed, or otherwise unable to carry the distinction, the downstream branch relation would differ. Because the present event realises one condition, the comparator branch is not equivalently realised in that event.

Counterfactual Inclusion and Counterfactual Exclusion therefore name different relations rather than two sequential acts. The Counterfactual Inclusion Field names the physically supported potential available before and around application. Counterfactual Exclusion names the branch-realisation relation produced when an operative distinction actualises part of that potential. The positive and negative within the realised event remain inseparable: one trajectory is physically conditioned by the operative distinction while its relevant counterfactual alternative is not equivalently realised.[5]

The point does not require conscious choice. A thermostat does not survey a tree of alternatives and decide to exclude one. A receptor does not deliberate about the molecular state it does not bind. A regulatory switch does not morally reject the branch it does not activate. Yet each can instantiate counterfactual exclusion where the applied distinction physically conditions one trajectory rather than the relevant alternative.

Nor does the point require explicit internal representation of the excluded branch. The counterfactual can be established through comparator construction even where the locus has no model of what it did not do. The branch relation belongs to the organisation and physical dynamics, not necessarily to a symbolic representation inside the system.

This distinction becomes especially important for later responsibility work, but the present paper should not move there prematurely. At the power level, the claim is simply causal. Where more than one distinction-conditioned trajectory is genuinely available, actual application carries the realised branch and the non-equivalent realisation of its alternatives as one counterfactual structure.

The word available remains essential. An exterior observer cannot manufacture exclusion by imagining an alternative the IPL could not physically discriminate or apply. Counterfactual Exclusion can be attributed only relative to alternatives included within the relevant Counterfactual Inclusion Field, not to unlimited retrospective imagination.

The comparator also remains essential. If the alternative branch would be materially the same, then the supposed exclusion has no consequential content. The distinction may be present, labelled, or correlated with the event, but it has not been shown to alter branch-realisation.

Applied distinction is therefore not merely selection language.

It is the physical realisation of one counterfactually differentiable trajectory rather than another.

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9. Counterfactual Exclusion is thermodynamically realised

Counterfactual exclusion must remain physically grounded.

Without that grounding, branch language can begin to sound as though an abstract agent stands outside physics selecting among unreal futures. The inherited architecture does not permit that move.

Every operative distinction has a carrier. Every carrier exists under boundary and channel conditions. Stability, manipulation, registration, retention, erasure, redeployment, and application have physical costs and consequences. Thermodynamic information is not a decorative layer placed over those processes. It marks the regime in which physically embodied distinctions are tied to work, dissipation, stability, and manipulation.[6]

A branch is realised through physical state transition.

Where an IPL applies a distinction, the organisation channels physical dynamics differently because one discriminable condition rather than another is operative. That channel may open a membrane, alter a reaction pathway, switch a circuit, redirect movement, inhibit a process, trigger repair, or preserve a constraint. The discriminating event may be energetically small while controlling access to much larger flows of energy and matter.

This is the sense in which power can act as a force multiplier in branch space without becoming a new physical force. The distinction need not carry the energy of the downstream consequence. Its organisation can gate, redirect, release, suppress, or sequence thermodynamic work already available within the wider system-environment relation.

A transistor gate can redirect a larger current. A receptor-binding event can trigger a cascade. A threshold crossing can start or stop a heating process powered from elsewhere. A regulatory distinction can alter whether stored chemical potential is deployed along one pathway or another. The causal leverage lies in the organisation of access to work, not in violation of energetic accounting.

Counterfactual exclusion is therefore thermodynamically realised. The applied distinction channels available physical potential through one distinction-conditioned trajectory while the relevant comparator trajectory is not equivalently realised under that event.

Nothing needs to be described as annihilated.

The physical state has changed. Work has been transformed, redirected, retained, released, or dissipated. The new state supports a different set of subsequent trajectories from the state that would have followed under the counterfactual condition. The alternative is not metaphysically erased; it is simply not the branch history physically realised by this event.

Driven thermodynamic systems make the accounting especially clear. A local DTS can maintain constraints, gradients, and organised availability only through sustained energy and matter throughput. It may increase or maintain local organisation and local capacity for work, but that local condition is embedded in a wider thermodynamic relation. The maintenance is paid for through throughput, transformation, and dissipation rather than created outside physical law.

This prevents a common confusion between power and energy magnitude. Available thermodynamic work makes branch transformation physically possible. Distinction-conditioned organisation makes some of that physical possibility power-bearing for the IPL by determining whether and how different alternatives alter trajectory.

A storm may contain vastly more kinetic and thermal energy than a bacterium. The bacterium may nonetheless possess primitive power where a minute receptor distinction redirects movement, metabolism, or regulation relative to baseline. The storm's magnitude does not satisfy the organisational discriminator by itself. The bacterium's small energetic signal does not need to match the scale of the downstream work it gates.

Power therefore belongs neither to abstraction alone nor to energy alone.

It belongs to physically supported distinction-conditioned potential for different branch-realisation.

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10. Knowledge, Intelligence, and Observation as conditions of Power

Knowledge, intelligence, and observation are already defined upstream. This paper should inherit them rather than turn power into a replacement theory of any of the three.

Knowledge is retained distinction. Intelligence is applied distinction. Observation is bounded registration. The functions often support one another: observation can produce records; retained records can become knowledge-bearing; retained knowledge can be redeployed in intelligent application; intelligent systems can direct later observation. Support is not identity.

Power asks a different question across the same architecture.

What branch-changing potential does the IPL possess because distinctions can be retained, registered, and applied through its organisation?

Knowledge can extend power across time. A distinction that would otherwise vanish with the event can remain available as retained state. The later branch can therefore depend on a relation encountered earlier rather than only on immediate input. Memory, stored threshold, regulatory state, encoded configuration, or other retained distinction can preserve branch potential beyond the moment of first registration.

This does not mean all retained knowledge is power by itself. A retained distinction that cannot be redeployed into any consequential branch may be knowledge-bearing without adding demonstrated power to the evaluated relation. The power claim concerns the potential for the retained distinction to alter later branch-realisation through organisation.

Observation can alter the available distinction field. Bounded registration brings some relation into a form that can become a record. Where that registration changes what later applications are possible, observation changes the branch possibility available to the locus. A

newly registered condition may open a response, close a response, redirect a threshold, or supply the distinction on which later action depends.

Observation is not therefore identical to power. A record can exist without being redeployed. A sensor can register a value that has no downstream application. The power consequence appears only where the registered relation enters a path by which branch-realisation can become different.

Intelligence has the most direct relation. Intelligence is applied distinction: the distinction-conditioned application that shapes trajectory. Power potential becomes realised through such application where the relevant NTC conditions hold. Intelligence identifies the operation. Power identifies the counterfactual branch potential within which that operation has consequence.

This distinction matters because an intelligent application can be narrow while the same locus possesses additional power potential not presently exercised. Conversely, a system may be designed to possess many nominal options while only a few are genuinely distinction-conditioned under comparator pressure. Application demonstrates part of the field; it does not automatically map the whole field.

The three primitive functions therefore condition power without being collapsed into it.

Knowledge preserves distinctions that can remain consequential across time.

Observation registers distinctions that can alter the available field.

Intelligence applies distinctions so that potential becomes realised branch difference.

Power measures the branch-changing possibility physically supported by that organised relation.

The sequence is not a claim that every primitive power relation requires rich knowledge, observation, and intelligence statuses at once. The minimal threshold remains NTC-grounded distinction-conditioned consequence. The KIO architecture describes how that potential can become richer, more temporally extended, more responsive, and more repeatedly deployable without changing the primitive discriminator.

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11. Power is not control, success, force, or authority

Once primitive power is made visible, several familiar substitutes must be separated from it.

Power is not control.

Control usually implies a stronger relation in which a system can hold, regulate, or drive outcomes within some desired or specified range. Primitive power needs only counterfactually different branch-realisation. A locus can possess power while exercising weak, noisy, partial, or unreliable control.

Power is not success.

A distinction-conditioned operation may alter the branch and still fail relative to a goal. A bacterium may bias movement toward a gradient and still die. A repair pathway may activate and still fail to repair. A thermostat may switch and still fail to heat a room because another component is broken. The power relation concerns the difference made by the application, not whether the later purpose is achieved.

Power is not force.

A large passive force may dominate the physical outcome without satisfying the distinction-conditioned discriminator. A small discriminating event may gate a much larger process. Energetic magnitude and power potential are related through physical possibility but are not identical measures.

Power is not authority.

Social, legal, organisational, or institutional authority may allocate permission, legitimacy, decision rights, or expected compliance. Authority can increase practical access to branch-changing mechanisms. It can also exist formally where practical power is weak. Neither relation defines the primitive.[7]

Power is not possession.

Ordinary language says that a person, state, machine, or organisation has power. The shorthand is useful but technically incomplete. Power is indexed to a relation: this locus has this distinction-conditioned potential over this branch field, under these conditions, across this horizon. Remove the conditions and the noun begins to float.

Power is not intention.

An IPL can make downstream branch-realisation differ without representing the outcome as a goal. Intention may later change the available branch field, comparator, or responsibility relation. It is not required for primitive power.

Power is not consciousness.

The causal relation appears wherever organised discrimination can make a difference. Human awareness is one rich setting in which power is exercised. It is not the origin condition.

Power is not moral value.

A power relation can support beneficial, harmful, neutral, adaptive, maladaptive, or mixed consequences. Primitive power does not praise the locus for having effect. It identifies potential for distinction-conditioned branch difference.

Power is not responsibility.

Power establishes what the locus could make consequential under the indexed conditions. Responsibility is a later attributional question about which consequential application, non-application, or transformation is attributable to which locus under the conditions of the event. The distinction is essential because possession of power does not make a locus responsible for every branch lying within its potential.

These boundaries keep the primitive thin enough to travel across physical and biological examples without losing the richer meanings that later domains will add.

The primitive does not abolish the familiar forms of power.

It gives them a lower causal relation from which they can later be reconstructed.

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12. The Power relation

Power is often spoken as though it were a single property of an entity.

A stronger technical account requires the relation to be recoverable.

At minimum, a primitive power claim should identify the locus, the distinction field, the availability condition under which those distinctions and application paths stand for the locus, the mediating organisation, the Counterfactual Inclusion Field and the abstraction by which its relevant branches are classed, the comparator, the reference conditions, the closure demand, the application path where relevant, the Counterfactual Exclusion relation where application is claimed, and the temporal horizon of the claim. Where any of these remain incomplete, the residual and the condition that would force update must remain attached to the claim.

Closure demand distinguishes a primitive existence claim from stronger claims about branch breadth, magnitude, reliability, control, or total power inventory. Demonstrating one comparator-stable branch effect may establish some primitive power without closing the wider power field.

The locus identifies where the branch-changing potential is carried. In the present architecture this is the relevant Information Processing Locus: the organisation whose integrity is required for the distinction to make the claimed downstream difference.

The distinction field identifies which alternatives can become operative for that locus. It should not be inflated by alternatives available only to an exterior observer. A binary threshold may support a narrow distinction field. A regulatory network may support a richer one. The power claim is indexed to what the organisation can actually discriminate under the relevant conditions.

The mediating organisation identifies how the distinction is made consequential. A signal alone does not supply the whole relation. The analyst must recover the pathway by which different alternatives are treated differently and enter downstream state.

The Counterfactual Inclusion Field identifies the downstream branch relations whose realisation can differ through those operations. It is not total physical possibility. It is the locus-indexed causal possibility field supported by the IPL under the stated conditions.

The comparator identifies the relevant alternative against which branch difference is tested. Baseline Dynamics may remove, disable, scramble, bypass, neutralise, or otherwise prevent the proposed mediating organisation from carrying the distinction while preserving enough context for meaningful comparison. Other comparator forms may compare different operative alternatives within the same organisation.

The reference conditions identify boundary, scale, horizon, noise regime, driving, component integrity, resource conditions, and other circumstances needed to make the relation evaluable. Power can change when these conditions change even though the named object remains the same.

The application path identifies how some portion of potential becomes realised. This may be immediate switching, retained-state redeployment, threshold crossing, chemical regulation, movement, inhibition, activation, or another physically supported transformation. The application path is not required to be conscious or linguistically represented.

Counterfactual Exclusion identifies what becomes different when some part of the included potential is realised. The difference may concern a deterministic state, a probability distribution, timing, persistence, accessibility, pathway occupancy, or later reachable branches. The claim should be no stronger than the recovered exclusion relation and its downstream effect.

The temporal horizon identifies how long and how often the relation is being evaluated. A weak repeated bias may dominate a long horizon. A strong one-time effect may vanish quickly. Without a horizon, claims about power magnitude can become ambiguous.

Thermodynamic support runs through the entire relation. The relevant branch transitions must be physically accessible, the distinction must have a carrier, and application must be realised through lawful dynamics and available work. The power relation does not float above the physical process it describes.

This relational grammar also explains why one universal scalar of power should not be assumed at the primitive stage. Branch breadth, effect magnitude, probability shift, repetition rate, temporal persistence, and work leverage may all be measurable in particular cases. But a single number would require explicit choices about which dimensions are commensurable and for what closure demand.

The absence of one universal unit does not make power immeasurable.

It makes measurement indexed.

A sound power claim says what potential is being measured, against which comparator, across which branch field and horizon, under which physical conditions.

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13. Primitive demonstrations

Primitive cases are useful because they remove the mature vocabulary while leaving the discriminator visible.

The first case is a thermostat-like switch.

Suppose temperature is physically available to a sensing element. The device distinguishes conditions relative to a threshold. Its switching organisation changes output state so that heating is enabled under one condition and disabled under another. If disrupting the sensing or switching pathway removes the temperature-dependent difference while relevant context is preserved, the distinction-conditioned relation is established.

The thermostat's power is narrow. It does not possess political authority, intention, moral agency, or broad control. Yet before the threshold is crossed it already has power potential: different temperature distinctions can produce different downstream heating branches through its organisation.

When the threshold is crossed, applied distinction is counterfactual exclusion. The realised switching state carries the operative temperature relation, while the comparator output that would obtain under the alternative distinction is not equivalently realised. The physical work driving the heating system may be much larger than the sensing event. The thermostat does not create that energy. Its organisation gates how the available work enters the downstream branch.

The second case is a cellular regulatory pathway.

Suppose a receptor discriminates a molecular condition and a signalling pathway changes transcription, transport, movement, or metabolic routing. The molecular difference alone is not the whole power relation. The relevant IPL includes the organisation whose integrity is required for the discrimination to alter the downstream trajectory.

If disabling the receptor or signalling pathway changes the distribution of downstream responses, the pathway has demonstrated power. It need not guarantee a successful outcome. A repair response can fail. A chemotactic response can move the cell the wrong way on a particular step. A metabolic adjustment can be overwhelmed by later conditions. The power lies in the counterfactual branch difference produced by the organised discrimination.

The same case shows cumulative power. A tiny directional bias repeated across many movement events can materially alter where a bacterium tends to move over time. No single branch needs to be guaranteed. The distinction-conditioned organisation weights the trajectory.

The third case is a repeated probabilistic selector.

Imagine a process in which a distinction-conditioned organisation changes the probability of one downstream branch relative to baseline by only a small amount on each application. The organisation need not determine any single event. If the relevant distinction is repeatedly applied and comparator pressure shows a stable probability shift, the locus possesses power over that distribution. A gambling system can illustrate this only where an operative rule or payout mechanism actually discriminates outcomes and routes consequences; a passive wheel bias or favourable background structure by itself is not sufficient.

The example is deliberately modest. It does not yet analyse strategy, competition, nested loci, or institutional power. It demonstrates only that primitive power need not be deterministic and that small branch weighting can accumulate across a horizon.

These cases also reveal the boundary with passive causation.

A wall can prevent movement without discriminating alternatives. A storm can redirect a river without an IPL. A fixed chemical constraint can alter reaction probability without a localisable distinction-using organisation. Those causes may be indispensable to the physical explanation. They do not satisfy the primitive power discriminator merely because their effects are large.

A final comparison makes the point compactly.

The stone and the thermostat can both change later state.

The storm and the cell can both redirect trajectories.

The difference relevant to primitive power is not which cause is larger.

It is whether organised discrimination creates counterfactually different branch potential.

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14. What the primitive does not yet explain

A primitive paper is strongest when it states where it stops.

The present account does not yet offer a full description of what happens when multiple power-bearing loci occupy nested and overlapping branch spaces.

It does not yet explain how the branch potential of one IPL becomes part of the physical or informational environment of another, how several loci jointly condition a branch, how overlapping power fields compete or cooperate, or how repeated interactions alter the possibility structures from which later applications proceed.

It does not yet develop strategic interaction. Strategy requires a richer account of loci whose branch applications depend upon anticipated or observed applications elsewhere. That architecture cannot be imported into the primitive merely because mature examples make it familiar.

It does not yet develop domination or coercion. Those concepts require relations among loci, constraints on alternatives, asymmetries of access, and usually further normative or institutional structure. Primitive power is necessary to explain such cases but is not identical with them.

It does not yet develop social or institutional allocations of permission, role, legitimacy, obligation, or decision-right. Such allocation may alter practical branch space, but the primitive power relation remains distinction-conditioned potential rather than the social warrant attached to its use.

It does not yet develop distributed power. A causal chain can contain many organised transformations. The present paper deliberately avoids deciding how power should be composed, apportioned, or represented across those chains. That problem requires an expanded explanation of nested and overlapping branch spaces.

It does not yet provide an evolutionary theory. Repeated distinction-conditioned branch weighting plainly creates machinery relevant to later evolutionary analysis, especially where local effects accumulate and organised histories change later possibility. But that larger constructive treatment must be formally earned elsewhere rather than read backward into this primitive account.

It does not yet develop moral or legal responsibility. Those are downstream responsibility regimes. The immediate next step is more modest: once power potential has been established and some part of it is applied or materially left unapplied within the relevant field, where is the consequential transformation attributable?

These exclusions are not weaknesses in the paper.

They preserve the primitive.

Power must first be visible without requiring the mature systems that later amplify, distribute, legitimise, contest, or constrain it.

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15. From Power to Responsibility

Power now supplies a cleaner starting point for responsibility.

The two concepts should not be collapsed.

Power asks what branch-changing potential is available to the IPL under the indexed conditions.

Responsibility asks which consequential transformation is attributable when some part of that potential is applied, withheld, redirected, or otherwise implicated in the realised branch under the relevant frame and comparator.

This ordering matters because possession of power does not establish responsibility for every possible outcome within the branch field. A thermostat may possess the capacity to switch heating on and off. It is not thereby attributable for every temperature change in the room. A

cell may possess many regulatory pathways. It is not attributable for every physical event occurring within its environment. A human locus may have broad capabilities while only some were available, relevant, or materially connected to the event under review.

Power supplies the Counterfactual Inclusion Field against which later attribution becomes meaningful.

The responsibility question therefore inherits several relations rather than originating them. It inherits the IPL. It inherits the distinction field. It inherits the Counterfactual Inclusion Field. It inherits comparator pressure. It inherits Counterfactual Exclusion where distinction-conditioned application has produced a branch-realisation event. It inherits the thermodynamic ground on which a branch becomes physically realised.

Responsibility then adds a different burden: localisation of attribution under the actual event conditions.

This also changes the role of non-application. At the power level, an available alternative may be established as included within the Counterfactual Inclusion Field. Applied distinction is counterfactual exclusion because one operative relation is realised rather than another. Whether failure to apply some available distinction becomes responsibility-bearing is not decided by power alone. The later paper must ask whether the alternative was actually available to the evaluated locus, whether its non-application materially changed the branch, what temporal and comparator conditions apply, and where the relevant transformation is attributable.

The ordering therefore prevents two opposite errors.

The first is power-responsibility collapse: because a locus could influence an outcome, it is treated as responsible for the outcome. Potential alone does not establish provenance.

The second is outcome-responsibility collapse: because a later branch occurred, responsibility is inferred without first establishing what power the locus actually possessed over that branch under its indexed conditions.

A sound responsibility account must sit between them.

It cannot attribute more than the locus could make consequential.

It cannot assume that every available potential was causally implicated merely because it existed.

Power therefore comes first in the causal sequence.

It defines the physically grounded field of distinction-conditioned possibility from which responsibility can later recover attributable transformation.

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16. The discipline of Power

A primitive theory of power is useful only if it resists the shortcuts by which potential becomes inflated into force, authority, success, possession, or imagined omnipotence.

The first discipline is to preserve the causation boundary.

Not every cause is power-bearing. Passive constraint, background condition, energetic magnitude, complexity, correlation, and exterior description do not replace the NTC-derived

discriminator. Where no distinction-conditioned organisation can be localised, the correct description may remain causal capacity without primitive power.

The second discipline is to preserve potential before application.

Power should not be defined only by visible exercise. A real branch-changing capacity can exist before its triggering condition occurs. Conversely, design intent, reputation, or asserted capability does not establish potential where comparator-stable downstream difference cannot be shown.

The third discipline is to preserve the IPL.

Power must not float across convenient objects. The relevant locus is the organisation whose integrity is required for the distinction-conditioned branch relation being claimed. A larger container may include that locus without owning all of its power relations.

The fourth discipline is to preserve the distinction.

The claimed alternatives must be operational for the IPL. An exterior analyst's labels do not enlarge the target's power field merely because they describe physically possible states.

The fifth discipline is to preserve the comparator.

If the downstream branch relation remains materially unchanged when the proposed mediating organisation or operative distinction is removed, disabled, scrambled, bypassed, or replaced under an adequate comparison, the power claim weakens accordingly.

The sixth discipline is to preserve probabilistic consequence.

Power must not be restricted to guaranteed outcomes. A distinction-conditioned shift in branch probability, persistence, timing, or reachability is enough if the difference is causally recoverable. No extra significance threshold may be inserted after NTC has already established consequence.

The seventh discipline is to preserve horizon.

Weak local branch weighting can accumulate across repeated events. Strong local effects can dissipate. Power claims should therefore state the temporal horizon and repetition conditions needed to interpret their potential.

The eighth discipline is to preserve Counterfactual Exclusion.

Applied distinction carries the positive and negative in one event. The operative branch is realised because this distinction rather than its relevant counterfactual condition is carried through the organisation. Do not turn the negative side into a second metaphysical act, and do not infer Counterfactual Exclusion relative to an alternative that was never included within the IPL's Counterfactual Inclusion Field.

The ninth discipline is to preserve thermodynamic grounding.

Power is not abstract choice over imagined futures. Distinctions require physical carriers, branch transitions require available physical pathways, and application is realised through work, throughput, transformation, and dissipation under lawful dynamics. Local organisation may gate large downstream work without creating energy or escaping wider thermodynamic accounting.

The tenth discipline is to preserve KIO ownership.

Knowledge, intelligence, and observation retain their upstream definitions. Power may describe the branch potential supported by retained, registered, and applied distinction, but it must not silently redefine those statuses or make them compliments about general capability.

The eleventh discipline is to preserve the authority boundary.

Social or institutional authority may later allocate branch rights, permissions, constraints, or roles. It does not create primitive power by declaration. Practical power can exist without authority, and authority can exist where practical branch potential is weak.

The twelfth discipline is to preserve the responsibility boundary.

Power establishes potential. Responsibility establishes attribution. Do not infer responsibility merely from capacity, and do not attribute a consequential branch without first asking what branch-changing potential was actually available to the locus under the indexed conditions.

These disciplines do not make power simple.

They make it localisable.

A finite account will still carry residual. The branch field may be incompletely mapped. Comparator construction may be difficult. Probabilistic effects may be noisy. Thermodynamic pathways may be only partly observed. Some potential may be latent and never experimentally exercised. That residual must also state what it blocks. An incompletely mapped branch field may support a local existence claim while blocking claims about total branch breadth; noisy effects may block precise magnitude claims; weak recovery of the physical pathway may block stronger claims about mechanism or work leverage. Update should follow from new comparator results, newly available distinctions, changed reference conditions, improved measurement, or evidence that an assumed branch or pathway was not operational for the IPL. The correct output may therefore be a bounded, updateable power claim rather than a total inventory of what the locus can do.

The governing rule can now be stated in complete form:

A power claim must not carry more branch-changing potential than can be recovered from the distinction-conditioned organisation of the specified IPL under the reference, comparator, thermodynamic, and temporal conditions being claimed. Demonstrated consequence may establish part of that potential; it does not license an unbounded claim about the whole locus.

Power remains finite.

Its consequence can be small.

Its effect can be probabilistic.

Its accumulation can be large.

Its ground remains physical.

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17. Conclusion: the earliest form of Power

Power begins earlier than ordinary language suggests.

It does not begin when a state issues an order, when a person dominates another, when wealth purchases access, when a weapon compels, when an institution grants authority, or when a

conscious agent forms an intention. Those are later forms in which power has already been enriched, distributed, formalised, or socially interpreted.

The primitive begins where physically supported distinction-conditioned organisation gives an Information Processing Locus counterfactually different possibilities for what happens next.

Causation is the substrate.

Non-Trivial Computation supplies the discriminator.

The Information Processing Locus localises the organisation carrying the distinction-use.

Power is the potential contained in that difference-making capacity.

This makes power thinner than control and more general than authority. A thermostat can possess narrow power over a switching branch without agency in the human sense. A cellular pathway can possess power where molecular discrimination changes regulatory trajectory without guaranteeing survival. A repeated probabilistic bias can possess power where no single event is determined but the long-run branch distribution differs from baseline.

The relevant possibility field is the Counterfactual Inclusion Field of the IPL, not every future an exterior observer can imagine. That field is constrained by discrimination, organisation, reference conditions, temporal horizon, available work, and physical law. Power is therefore neither subjective possibility nor unrestricted causal capacity.

Power is potential before it is application.

Application actualises some portion of that potential.

Consequence demonstrates counterfactual branch difference.

Applied distinction produces Counterfactual Exclusion. The realised branch positively carries the operative distinction while the relevant included counterfactual alternative is not equivalently realised in that event. These are not two operations. They are the two sides of one distinction-conditioned state transition.

That transition is thermodynamically real. Distinctions require carriers. Organisations require physical support. Driven systems maintain local order through throughput. The discriminating event may be small while gating much larger available work. Power can therefore multiply causal leverage in branch space without becoming a new force or escaping thermodynamic accounting.

The scale of the effect does not decide whether primitive power exists. Comparator-stable distinction-conditioned causal difference does. Stronger claims about magnitude, control, or practical significance remain separate closure demands. Where the organised distinction produces a counterfactually recoverable downstream difference, some power has been demonstrated. Where repeated application produces a stable bias, small local effects may accumulate into substantial trajectory change across the relevant horizon.

Knowledge, intelligence, and observation then show how the branch potential can be retained, updated, and applied. They condition the field without becoming power by definition. Power asks what possibility for consequential branch difference the organised relation makes available.

The primitive should remain there.

A later account can develop the consequences of nested and overlapping branch spaces, interactions among multiple power-bearing loci, and the richer biological, strategic, social,

institutional, and evolutionary forms built upon them. Those developments require the primitive; they should not be allowed to define it backward.

The immediate handoff is responsibility.

Power asks what the locus could make consequential.

Responsibility asks what consequential application or non-application of that potential is attributable under the event's actual conditions.

The order matters.

Before responsibility can be allocated, branch-changing potential must exist.

Before trust can later background the work of other loci, those loci must first be capable of shaping the branches in which reliance occurs.

Power is therefore not the possession of the future.

It is the physically grounded potential of distinction to change what can happen next.

Endnotes

[1] Causal-leverage adjacency: Stuart J. Bartlett, “Causal Leverage Density: A General Approach to Semantic Information” (2024), develops an intervention-based measure in which erasing or scrambling information changes distributions over a system’s future phase-space trajectories, and describes the resulting relation in terms of causal power. This is a close comparator to the present move from demonstrated NTC difference to available branch leverage. Bartlett’s target is a quantitative treatment of semantic information and trajectory divergence; the present paper instead defines primitive power through the inherited NTC/IPL discriminator and does not require semantic status, viability, or a universal scalar measure.

[2] Causal-capacity comparator: Nancy Cartwright, Nature’s Capacities and Their Measurement (1989), argues that causal capacities or powers are not reducible to their particular manifestations and may be possessed before a specific manifestation occurs. The potential-before-application distinction here is structurally adjacent. The present account imposes a different discriminator: the claimed power must be localised to an Information Processing Locus and recovered through organisation-mediated discriminable distinctions, comparator pressure, and an indexed branch field. Cartwright’s capacities therefore provide a philosophical comparator rather than an inherited definition of Primitive Power.

[3] Branch-potential comparator: Alexander S. Klyubin, Daniel Polani, and Chrystopher L. Nehaniv, “Empowerment: A Universal Agent-Centric Measure of Control” (2005), defines an information-theoretic quantity over an agent’s potential action-to-future-state influence. This relation was previously too potential-oriented to serve as a comparator for the realised application relation developed under Intelligence; it becomes directly relevant once branch-changing potential is itself the target. Empowerment remains agent-centric and action-channel based, whereas the Counterfactual Inclusion Field is intended as a more primitive locus-indexed causal possibility field and does not require an agent, sensorimotor loop, or scalar channel-capacity measure.

[4] Cause-effect-power comparator: Larissa Albantakis and Giulio Tononi, “The Intrinsic Cause-Effect Power of Discrete Dynamical Systems—From Elementary Cellular Automata to Adapting Animats” (2015), use cause-effect power to analyse how a system constrains possible past and future states. The overlap with a physically constrained counterfactual branch field is substantial enough to require explicit comparison. Their account belongs to the integrated-information-theory architecture and evaluates intrinsic causal structure through its own information, integration, composition, and exclusion requirements. The Counterfactual Inclusion Field developed here instead inherits NTC/IPL localisation, may concern outward downstream branch-realisation, and does not require IIT-style intrinsic integration.

[5] Actual-causation and exclusion comparator: Larissa Albantakis, William Marshall, Erik Hoel, and Giulio Tononi, “What Caused What? A Quantitative Account of Actual Causation Using Dynamical Causal Networks” (2019), develops an intervention-based account of actual causation that considers counterfactual state transitions and includes exclusion among its causal requirements. Its exclusion condition is not the Counterfactual Exclusion defined here. In the present paper, Counterfactual Exclusion

names the negative side of one realised distinction-conditioned branch event: a relevant alternative already included within the locus's Counterfactual Inclusion Field is not equivalently realised. The term therefore does not import IIT's actual-causation formalism or its exclusion criterion.

[6] Thermodynamic dependency: Juan M. R. Parrondo, Jordan M. Horowitz, and Takahiro Sagawa, "Thermodynamics of Information" (2015), provides a modern technical synthesis of the physical relations among information processing, work, entropy, measurement, feedback, and dissipation. The present section relies on that established thermodynamic ground only in the narrow sense that distinctions and their manipulation require physical carriers and lawful energetic accounting. The additional claim that distinction-conditioned organisation can gate, redirect, release, suppress, or sequence available work into different branch histories belongs to the present Power architecture and is not inferred from thermodynamics alone.

[7] Social-power comparator: Robert A. Dahl, "The Concept of Power" (1957), provides a canonical relational formulation of social power in which one actor's power over another is connected to a counterfactual difference in what the latter would otherwise do. This is closer to the present primitive than definitions based only on office, force, or possession because it preserves relational difference-making. Dahl nevertheless begins with actors and behavioural influence inside a social relation. Primitive Power is placed below that level: it requires no person, intention, authority, compliance relation, or social role, only indexed distinction-conditioned branch-changing potential carried by an IPL.

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