

# Cycles of Generativity Exploitation: Stability, Distribution, and Procedural Evaluation

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## Abstract

When exploitative relations close into a circuit, every participant can occupy both the affected and the beneficiary position. Aggregate capability can be unchanged or rising, roles can be symmetric, and the structure can reproduce itself indefinitely. This invites an inference that the paper’s source discussion made explicitly and then withdrew: that a sufficiently reciprocal circulation cancels the exploitative character of its constituent relations, so that if everyone is exploited then no one is. The withdrawal was forced by a counterexample. In a closed cycle of robberies where each participant takes and is taken from in equal measure, aggregate holdings are unchanged and every constituent robbery remains wrongful. This paper reconstructs that dialectic and develops what survives it. It argues that distributive outcome, relational procedure, and dynamical stability are three independent evaluative registers, none of which determines another, and that stability in particular belongs to none of them: slave systems, monopolies, and predator–prey systems are all stable. It then dissolves the universal-participation paradox by locating an equivocation. The paradox assumes that exploitation requires a contrast class of *persons*, so that universal instantiation is self-defeating. The diagnostic’s contrast class is a class of *arrangements*: each relation is assessed against an admissible feasible alternative, not against other participants. Universal instantiation is therefore coherent and describes a regime in which everyone would be better off under an admissible alternative while each still benefits through someone. Two formal results support the reconstruction. The edge predicate contains no aggregate term, so aggregate neutrality, symmetry, and closure are logically independent of it. And aggregate capability can strictly increase over time while every participant remains materially below an admissible alternative, because growth is measured against the past and the diagnostic against a feasible counterfactual. The paper then separates two structures that aggregate description conflates: a closed cycle in which every participant benefits through someone, and a systemic trap in which everyone is below a feasible alternative and no benefit-through witness exists anywhere. These are mutually exclusive and jointly non-exhaustive, so a third mixed class exists and is probably where most real configurations fall. They require different remedies: procedural intervention at edges for the first, and alteration of the feasible set for the second. The paper establishes no prevalence, classifies no observed regime, and supplies no aggregation rule for combining edge-level findings.

**Keywords:** generativity exploitation; cycles; procedural justice; distributive outcome; stability; systemic traps; reciprocity.

## Document Status, Preparation, and Reuse

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**Status and correspondence.** This paper is a revisable discussion document. Its definitions are proposals, its mathematical results are conditional on declared assumptions, and its normative arguments are offered for assessment. Objections, counterexamples, corrections, alternative formulations, and relevant literature are welcome at [huangwanhong@serendip.ngo](mailto:huangwanhong@serendip.ngo).

**Research genealogy.** The dialectic reconstructed in Section 2 is researcher-origin throughout its decisive moves. The researcher closed the propagation chain into a circuit, asked whether a stable cycle is necessarily objectionable, and posed the universal-participation paradox in the form *everyone is exploited, therefore no one is*. When an over-permissive resolution was proposed in response, the researcher supplied the closed-cycle robbery counterexample together with the question of procedural justice, which forced its withdrawal.

The stability taxonomy, the three-register separation, the paradox-dissolution argument, the formal non-cancellation results, the growth construction, and the cycle-trap separation predicate are later agent-added reconstructions. Their inclusion records development of the proposal and attributes these constructions neither to the initiating notes nor to the cited literature.

**Generative AI use.** Generative AI systems were used in the preparation of this work. Anthropic’s Claude and OpenAI systems including ChatGPT and Codex supported exploratory discussion, formal reconstruction, source discovery followed by verification, and drafting in L<sup>A</sup>T<sub>E</sub>X. The author determined the research questions, theoretical commitments, and epistemic status of the claims and bears sole responsibility for the manuscript, including its errors. None of these systems is an author or holds authorship credit.

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# 1 Introduction

When exploitative relations form a chain, the structure has ends. Someone at the head is only a beneficiary and someone at the tail is only affected, and the asymmetry makes the configuration easy to assess. Closing the chain removes both ends. Every participant becomes both an affected party and a beneficiary, aggregate capability may be unchanged or rising, and the structure may reproduce itself indefinitely. What such a configuration warrants is the question this paper addresses.

The question is not artificial. It arose in the source discussion when a propagation chain was closed into a circuit, and it immediately produced a paradox stated there directly: if the cycle is stable and everyone in it is exploited, someone will ask what is wrong with it, since everyone being exploited seems to leave no one exploited. The response initially proposed was that universal local exploitation may cease to be exploitation when relations close into sufficiently reciprocal circulation. That response was withdrawn under a counterexample. If reciprocal circulation cancelled, then a cycle in which each participant robs and is robbed of equal value would contain no robbery. It plainly does, and the accompanying question named what the response had ignored: procedural justice.

This paper reconstructs that dialectic and develops what survives it. The retraction is preserved rather than replaced by the corrected position, because the inference that failed is natural and its failure is the result.

Three insights organize the argument. The first is a separation. Distributive outcome, relational procedure, and dynamical stability are independent evaluative registers, and none determines another. The robbery cycle scores neutrally on outcome and badly on procedure; a procedurally impeccable arrangement can progressively exhaust a participant; and stability belongs to neither register, since slave systems, monopolies, and predator-prey systems are all stable and differ in everything that matters evaluatively.

The second dissolves the paradox. The inference from *everyone is exploited* to *no one is exploited* is valid only if exploitation requires a contrast class of persons. The diagnostic's contrast class is a class of *arrangements*: each relation is assessed against an admissible feasible alternative rather than against other participants. A predicate whose comparison class is arrangements can hold of every participant without becoming empty. Universal instantiation is therefore coherent, and what it describes is a regime in which everyone would be better off under an admissible alternative while each still benefits through someone. That is a determinate and unattractive condition rather than a contradiction. A major reconstruction in the exploitation literature defines the relation through a withdrawal comparison against a counterfactual distribution, which shows that arrangement-relative comparison is available and not invented here to escape a difficulty.

The third explains why the aggregate facts cancel nothing. The edge predicate contains no aggregate term: it is a conjunction over standing, comparison admissibility, an actor-linked mechanism, a material capability disadvantage, and a benefit-through witness, none of which references the sum of anything, the symmetry of roles, or the persistence of the configuration. Aggregate neutrality and closure therefore do not fail to cancel the predicate because they are outweighed; they are logically independent of it, and the inference attempted was never available. The same structure explains why growth is no defence: growth compares a configuration with its own past, while the diagnostic compares each participant with a feasible alternative, and the paper exhibits a configuration in which aggregate capability strictly rises at every period while every participant remains materially below an admissible alternative.

The paper then separates two structures that aggregate description conflates. In circulating appropriation every participant is affected on some edge carrying a supported benefit-through witness. In a systemic generative trap everyone is below an admissible alternative and no witness exists

anywhere. These are mutually exclusive and jointly non-exhaustive, so a third mixed class exists and is probably where most real configurations fall. They require different remedies: procedural intervention at edges for the first, alteration of the feasible set for the second. Treating a trap as circulating appropriation produces a search for an appropriator who does not exist; treating circulating appropriation as a trap erases the benefit-through guardrail and dissolves responsibility that is locatable.

The paper's contribution is therefore a set of structural separations rather than a verdict procedure. It establishes no prevalence, classifies no observed regime, supplies no rule for aggregating findings across levels, and recommends no institution.

The argument proceeds in nine further sections. Section 2 presents four structures and reconstructs the dialectic. Section 3 analyzes closure, feedback, and stability, and states the level decomposition. Section 4 reviews the traditions the problem engages. Section 5 argues the four theses. Section 6 develops the political economy of circulating appropriation. Sections 7 and 8 supply the formal results. Section 9 states countermodels, Section 10 collects open questions, and Section 11 states limits and defeat conditions.

The philosophical and formal parts are *formally independent*, since no proposition cites a thesis, and *justificatorily dependent*, since the propositions are elementary and their significance rests on the arguments that make them worth stating. Section 5.5 records what fails if each thesis is rejected.

## 2 Cycle Scope and the Source Correction

This section states the paper's target, reconstructs the dialectic that generates it, and fixes the position and order of inquiry.

### 2.1 Four Structures

This subsection presents the configurations the paper must distinguish. Each is schematic and none is a description of an observed regime.

**Closed appropriative circuit.** Four participants stand in a chain of relations, each of which satisfies a diagnostic for generativity exploitation, and the chain closes: the last participant stands in such a relation to the first. Every participant is both an affected party and a beneficiary.

**Reciprocal generative dependence.** Four participants mutually constrain one another under terms each accepts, and the constraints jointly expand what each can reach. The topology is the same circuit. The relations are not exploitative, and were not from the outset.

**Systemic generative trap.** Every participant's effective capability is materially below what an admissible feasible alternative would supply, the configuration reproduces itself, and no participant's advantage runs through any other's diminished position. There is no beneficiary anywhere.

**Growing circuit.** A closed appropriative circuit in which aggregate capability rises period after period, so that every participant is better off than it was before, while each remains below an admissible alternative.

The first and second share a topology and differ in diagnosis. The first and third share an aggregate description and differ in structure. The fourth blocks the most common defence. Distinguishing them is the paper's work.

## 2.2 The Dialectic

This subsection reconstructs the sequence of moves that generates the paper’s central problem. The reconstruction preserves a retracted position, because the retraction is the result.

The starting point is a chain of relations in which an upstream relation raises the probability of a downstream one. The researcher closed the chain:

$$X \rightsquigarrow Y \rightsquigarrow Z \rightsquigarrow W \rightsquigarrow X.$$

Closure changes the object. A chain has a first party who is only a beneficiary and a last who is only affected. A circuit has neither.

The researcher then asked whether a stable cycle is necessarily objectionable. The initial answer was that stability is a dynamical property carrying no normative content, since slave systems, monopolies, and predator–prey systems are all stable, and that assessment requires separate questions about viability, distribution, and process.

The researcher then posed the paradox directly: if the cycle is stable and everyone in it is exploited, someone will ask what is wrong with it, since everyone being exploited seems to leave no one exploited.

The response proposed was over-permissive. It held that universal local exploitation may cease to be exploitation when the relations close into sufficiently reciprocal circulation, qualified only by asymmetry or by the cycle trapping everyone below feasible possibilities.

The researcher rejected this with a counterexample and a question. If reciprocal circulation cancels, then a cycle in which each participant robs and is robbed of equal value would contain no robbery. It plainly does. The accompanying question named what the over-permissive answer had ignored: procedural justice.

The retraction is the paper’s foundation. What the counterexample shows is that an evaluation running only through distributive outcome cannot reach the property that makes each relation objectionable, because that property concerns how the relation was transacted.

## 2.3 Position and Source Use

This subsection states what the paper claims and the constraint governing its citations.

**Claim 2.1** (Limited cycle position). Closure, dynamical stability, symmetric role occupancy, aggregate neutrality, and aggregate growth are individually and jointly insufficient to cancel the diagnostic status of a constituent relation. A cyclic topology is diagnostically inert on its own, and a regime in which everyone is below an admissible alternative requires a further distinction between circulating appropriation and a beneficiary-free trap.

Where a source is used, the text states the specific constraint it supplies and the inference it withholds. No source in the verified corpus treats exploitative cycles, states the paradox, or supplies its dissolution, and no source is cited in support of a proposition or a countermodel. The corpus supplies the traditions the problem engages and the constraints they impose.

## 3 Closure, Feedback, and Stability Classes

This section performs the problem analysis. Its objective is to separate three things that the word *cycle* runs together, and to establish that none of them carries an evaluative verdict.

### 3.1 Closure Is Not a Cycle

This subsection distinguishes a topological from a dynamical object.

A directed circuit is a topological fact about a relation graph: following edges from a participant returns to that participant. It is compatible with the edges having occurred once, in sequence, with no influence of the later on the earlier.

A dynamic cycle requires more: a later relation must affect an earlier one, so that the structure reproduces or modifies itself. Without feedback to an earlier edge, a closed circuit is a path that happens to return, and its evaluation is the evaluation of a path.

The distinction matters because the paradox of Section 2 draws its force from reproduction. A configuration that occurred once and stopped invites no question about whether its persistence is acceptable.

### 3.2 Stability Classes

This subsection records that stability admits several distinct meanings, each with different implications and none with evaluative content.

A reproducing configuration may be *stationary*, with edge intensities approximately constant; *damped*, with intensities declining toward absence; *amplifying*, with intensities rising; *periodic*, cycling through states; *intermittent*, with irregular activation; *metastable*, persisting under small perturbation and collapsing under large; or *absorbing*, having reached a state from which no exit is available.

These classes are not interchangeable for any purpose. A metastable configuration and an absorbing one differ precisely in whether exit exists, which bears directly on the participants' position, while both may be described as stable in ordinary usage. The network literature makes the same point about connectivity: a structure can be stabilizing under small shocks and destabilizing under large ones [1], and integration has non-monotone effects on the extent of a cascade [5].

### 3.3 Stability Carries No Verdict

This subsection states the first thing the paper needs and the reason for it.

That a configuration reproduces itself says nothing about whether it should. A configuration can be stable because its participants are satisfied, because their alternatives have been foreclosed, or because the cost of exit exceeds the cost of remaining. Slave systems, monopolies, and predator-prey systems are all stable, and they differ in every respect that matters evaluatively.

The observation generalizes to the aggregate quantities that stability analyses produce. A subcritical cascade parameter reports that expected propagation is finite; it reports nothing about who bears the residual or how each relation was transacted. Threshold models establish that aggregate outcomes depend sensitively on the distribution of individual response rules [7], which is a further reason that an aggregate summary cannot substitute for the distribution it summarizes.

### 3.4 Four Levels of Analysis

This subsection states the structural decomposition the cycle problem requires. Its objective is to identify where each of the questions raised so far is answered, and to record that answers at one level do not transfer to another.

The capability object at issue is an opportunity set rather than an achieved output, following the distinction between achieved functionings and the alternatives a participant could feasibly achieve and choose [14]. Its specification requires declared dimensions, weights, and an admissible

Table 1: Four Levels of Analysis for a Closed Configuration. Answers at one level do not transfer to another. The final column records the error produced by attempting the transfer.

| Level  | Object                                                                                       | Characteristic error                                          |
|--------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Edge   | One relation: standing, mechanism, disadvantage, benefit-through                             | Treating a supported edge as a verdict on the configuration   |
| Path   | Whether one relation causally changes another                                                | Reading temporal succession or closure as causal reproduction |
| Actor  | Cumulative position across occupancy: share lost, frequency of each role, exit availability  | Reading symmetric role occupancy as equal position            |
| Regime | Distribution, stability class, feasible alternatives, presence or absence of any beneficiary | Reading aggregate neutrality or growth as cancellation        |

treatment of incompleteness [11]. Both features matter below: the disadvantage comparison is between opportunity sets under two arrangements, and the comparison may be partial.

Table 1 records four levels. The decomposition is not a hierarchy in which higher levels aggregate lower ones. Each level has its own objects, its own evidence, and its own characteristic error.

The actor level is the one the cycle problem makes newly visible, and it has no counterpart in the open-path case. In a chain, a participant occupies one role. In a circuit, a participant occupies both, and the question of how its occupancies compare is a question about that participant rather than about any edge or about the regime. Section 6 develops it, and Section 10 records that its proper formalization is unresolved.

The regime level is where the over-permissive resolution operated, and Section 7 proves that its inference to the edge level is unavailable.

## 4 Reciprocity, Procedure, and Trap Traditions

This section locates the paper among the traditions its problem engages. Its objective is bounded positioning: each supplies a constraint or a contrast, and none supplies a treatment of exploitative cycles.

### 4.1 Exploitation Traditions Under Closure

This subsection asks what each account of exploitation says when the relation closes.

Marx’s account locates exploitation in the appropriation of surplus labor through ownership of productive means [8]. Its structure is asymmetric by construction: the classes are distinct. Closure has no natural place in it, since a capitalist who is also a worker in the same relation is not a case the account addresses.

Roemer’s reconstruction is more instructive. Exploitation there is defined through a withdrawal comparison: a coalition is exploited when it would be better off withdrawing with its per-capita share of productive assets [12]. This is a comparison against a *counterfactual arrangement* rather than against another party, and it is therefore compatible in principle with every coalition being exploited relative to some alternative. Section 5 builds on exactly this feature. Cohen’s argument

that the exploitation charge survives removal of the labor theory of value [4] matters here for the same reason: it detaches the charge from a conserved quantity, and a conserved quantity is what would make circulation cancel.

Wertheimer establishes that mutually beneficial transactions can still be exploitative [17]. A cycle is a limiting case of mutual benefit, and the account gives no reason to treat it differently. Sample's degradation-centered account [13] and Vrousalis's domination-based account [16] both locate the wrong in features of the relation rather than in the distribution it produces, so both are *prima facie* unaffected by closure. Zwolinski's constraint against inferring a transaction's status from background structure [20] applies in the opposite direction here: it warns against inferring edge status from regime-level facts, which is what the over-permissive resolution attempted.

Wollner's analysis of anonymous exploitation, which is non-individual, non-agential, and structural [18], is the closest verified treatment of the trap branch, and Section 8 distinguishes it from circulating appropriation.

## 4.2 Procedural Justice

This subsection supplies the register the counterexample invokes.

Rawls distinguishes perfect, imperfect, and pure procedural justice [10]. In the first two there is an independent criterion for a just outcome and the procedure is assessed by its tendency to produce it. In pure procedural justice there is no independent criterion: the outcome is just because the procedure was correctly followed. The distinction matters here because it establishes that procedure and outcome are separately assessable, and that in at least one important case the direction of determination runs from procedure to outcome rather than the reverse.

Tyler's research on procedural justice and legitimacy establishes empirically that judgments about the fairness of procedures influence acceptance and cooperation substantially, and can do so independently of the favorability of outcomes [15]. The paper uses this carefully: it concerns perceived fairness and its behavioral consequences, which is evidence that the registers come apart in judgment, not a normative argument that they come apart in fact. The normative argument is given in Section 5.

Anderson's relational-equality argument holds that egalitarian justice concerns the character of social relations and the elimination of hierarchies of domination and status, in place of a purely distributive criterion [2]. Pettit's conception of freedom as non-domination supplies a further relational property that distributive facts do not settle [9]. Both support the claim that a distributive summary omits something, without establishing what the omitted property is in this framework.

## 4.3 Reciprocity

This subsection blocks an inference from reciprocity to legitimacy.

Gouldner analyzes the norm of reciprocity as a generalized moral norm requiring that people help those who have helped them, and identifies its function as a starting mechanism that initiates and stabilizes relations before more specific obligations are established [6]. He also distinguishes homeomorphic reciprocity, in which returns are equivalent in form, from heteromorphic reciprocity, in which they differ in form while being judged equal in value.

Two consequences follow for this paper. Reciprocity is a normatively loaded notion doing stabilizing work, so calling a configuration reciprocal does not describe it neutrally. And the homeomorphic case is where the over-permissive resolution has most intuitive appeal, since each participant appears to return what it received. The robbery cycle is homeomorphic reciprocity, which is why it is the decisive counterexample.

Table 2: Traditions Engaged by the Cycle Problem. No tradition reviewed supplies a treatment of closed exploitative circuits. The constraints they impose are listed in the third column.

| Tradition                           | What it supplies                                     | Constraint imposed here                                                 |
|-------------------------------------|------------------------------------------------------|-------------------------------------------------------------------------|
| Surplus appropriation [8]           | Asymmetric class structure                           | Offers no account of a participant occupying both positions             |
| Withdrawal comparison [12]          | Comparison against a counterfactual arrangement      | Universal instantiation is coherent when the contrast is an arrangement |
| Value-theory independence [4]       | Charge detached from a conserved quantity            | Circulation cannot cancel what is not conserved                         |
| Mutual benefit [17]                 | Beneficial transactions can be exploitative          | A cycle is a limiting case and gets no exemption                        |
| Degradation and domination [13, 16] | Wrong located in the relation                        | Closure does not touch relational properties                            |
| Structural limitation [20]          | Background does not settle a transaction             | Regime-level facts do not settle edge status                            |
| Anonymous exploitation [18]         | Structural wrong without an agent                    | Requires separation from circulating appropriation                      |
| Procedural justice [10, 15]         | Procedure assessable independently of outcome        | Distributive summary omits a register                                   |
| Relational equality [2, 9]          | Relations as the object of justice                   | Aggregate neutrality is not sufficiency                                 |
| Reciprocity [6]                     | Reciprocity as a loaded stabilizing norm             | Calling a cycle reciprocal is not neutral description                   |
| Poverty traps [3]                   | Self-reproducing low-level configurations            | Persistence without an appropriator is a distinct object                |
| Structural responsibility [19]      | Forward-looking responsibility without a perpetrator | Supplies the form responsibility takes in the trap branch               |

#### 4.4 Traps and Structural Injustice

This subsection supplies the antecedent for the beneficiary-free branch.

The poverty-traps literature analyzes self-reinforcing configurations in which individuals, groups, or whole economies remain at low levels through mechanisms that reproduce the condition, drawing on economics, economic history, and sociology [3]. The relevant structural feature is that such configurations can persist without any party appropriating from the trapped, and that the reproduction mechanism is the object of explanation.

Young’s social connection model characterizes responsibility arising from participation in structural processes producing injustice, and distinguishes it from liability that isolates a perpetrator [19]. This supplies the form responsibility takes when no beneficiary edge exists, which Section 8 identifies as the trap branch’s characteristic situation.

#### 4.5 Comparative Summary

Table 2 records what each tradition supplies and what it leaves open for the cycle problem.

## 5 The Universal-Participation Paradox and Three Registers

This section argues the four theses on which the paper depends. Each subsection states a thesis, argues for it, states the strongest objection known to the author, and replies.

### 5.1 Register Independence

This subsection states the separation the counterexample forces.

**Thesis 5.1** (Three independent registers). Distributive outcome, relational procedure, and dynamical stability are three independent evaluative registers. None determines another, and a complete assessment of a reproducing configuration reports all three.

The argument establishes independence pairwise. Outcome does not determine procedure: the robbery cycle is distributively neutral and procedurally objectionable throughout. Procedure does not determine outcome: an arrangement can be procedurally impeccable, with full consent, disclosure, and recourse at every step, while producing a distribution in which one participant's capability is progressively exhausted. Stability determines neither: a configuration persists for reasons ranging from satisfaction to foreclosure of exit, and Section 3 records that the standard stability classes cut across every evaluative distinction.

The traditions of Section 4 support the first two separations from opposite directions. Rawls's category of pure procedural justice [10] shows a case where procedure is prior to outcome, and relational-equality accounts [2] show that a distributive summary omits properties of the relation.

The strongest objection is that three registers with no aggregation rule produce no verdict, so the thesis purchases honesty at the price of usefulness. The reply concedes the cost and denies that the alternative is available. An aggregation rule that collapsed the registers would have to assign a rate of exchange between procedural wrong and distributive gain, and the counterexample shows what happens when that rate is implicitly set to make distribution decisive: the robbery cycle comes out acceptable. Section 10 records the construction of a defensible rule as an open problem rather than pretending one exists.

### 5.2 Dissolution of the Universal-Participation Paradox

This subsection resolves the paradox that forced the dialectic's central error.

**Thesis 5.2** (Arrangement contrast, not person contrast). The inference from *everyone is exploited* to *no one is exploited* equivocates on the contrast class. It is valid only if exploitation requires a contrast class of persons. The diagnostic's contrast class is a class of arrangements, so universal instantiation is coherent and describes a determinate condition.

The argument identifies the equivocation precisely. The paradox reasons that exploitation is a comparative notion, that comparatives require a contrast, and that if the predicate holds of everyone the contrast is empty. The second premise is correct and the third depends on what the comparison ranges over.

The diagnostic evaluates each relation against an admissible feasible *arrangement*: would this participant have materially greater effective capability under an alternative that is technically feasible and independently admissible? Nothing in that comparison mentions other participants. A predicate whose comparison class is arrangements can hold of every participant without becoming empty, in the way that *every person in this room is shorter than they would be with better nutrition* is not self-defeating.

Roemer’s withdrawal comparison has the same structure and the point is visible there [12]: a coalition is assessed against what it would obtain by withdrawing with a per-capita share, and it is not incoherent for every coalition to be worse off than under some alternative distribution of assets.

The condition universal instantiation describes is therefore determinate. Every participant would be better off under an admissible alternative, and each participant’s advantage runs through some other participant’s diminished position. That is a coherent and unattractive state of affairs, not a contradiction.

The strongest objection is that this drains the term of comparative force, making *exploitation* a synonym for *regime that could be improved*. The reply is that the benefit-through condition prevents the collapse. Universal instantiation requires that each participant benefit through another’s diminished position, which is a substantive structural requirement that most bad regimes fail. Section 8 exhibits the class that fails it: a trap in which everyone is below an admissible alternative and no one benefits through anyone. Universal exploitation and universal deprivation are different conditions, and the framework distinguishes them.

A second objection is that an admissible alternative may not exist for every participant simultaneously, so universal instantiation may be infeasible even if coherent. The reply concedes this and treats it as a substantive constraint rather than an objection: the companion diagnostic requires comparison arrangements to be jointly realizable, so universal instantiation is available only where the alternatives can be jointly realized. Where they cannot, the correct finding is that the comparison family is incoherent, which is an unresolved status rather than a negative one.

### 5.3 Non-Cancellation

This subsection states what the robbery counterexample establishes.

**Thesis 5.3** (Circulation without cancellation). Closure, symmetric role occupancy, aggregate neutrality, and aggregate growth leave the diagnostic status of each constituent relation unchanged.

The argument is the researcher’s counterexample together with a structural diagnosis of why it works. Consider a closed set of participants in which each takes a fixed value from its successor and has the same value taken by its predecessor. Aggregate holdings are unchanged, every participant occupies both roles, and the configuration can repeat indefinitely. Every constituent taking remains wrongful.

The structural diagnosis is given formally in Section 7 and stated here informally: the edge predicate contains no aggregate term. It is a conjunction over standing, comparison admissibility, an actor-linked mechanism, a material capability disadvantage, and a benefit-through witness. None of these clauses references the sum of anything, the symmetry of roles, or the persistence of the configuration. Facts about aggregates are therefore not merely insufficient to cancel the predicate; they are logically independent of it. The inference the over-permissive resolution attempted was never available.

The strongest objection is that robbery is a poor analogue, since it involves discrete wrongful acts with clear victims while exploitation on this framework is a structural relation that may be entered without intention. The reply is that the counterexample targets one inference and requires no closer analogy. The inference under test moves from aggregate neutrality and role symmetry to cancellation. Any case in which those premises hold and cancellation fails refutes it, and the formal result shows the failure is structural rather than a feature of the example.

### 5.4 Compensation Does Not Cancel

This subsection states the practical form of the preceding thesis.

**Thesis 5.4** (Restoration without cancellation). Downstream compensation can restore a participant’s capability position without cancelling the character of the upstream relation that diminished it.

The argument follows from Thesis 5.1. Compensation operates in the distributive register: it alters the outcome. The property that made the upstream relation objectionable is a property of how the relation was transacted, which compensation does not reach. A configuration in which each participant is diminished and then made whole is distributively equivalent to one in which nothing happened, and procedurally quite different.

The thesis matters because compensation is the natural remedy proposal for a cycle, and because it is genuinely valuable. Its limits should be stated precisely rather than by dismissal: compensation is an adequate response to the distributive component and no response at all to the procedural one. Where the procedural component is the objection, compensation changes the subject.

The strongest objection is that this makes remedy impossible, since the past transaction cannot be altered. The reply is that procedural remedies exist and differ from compensation: altering the terms on which future relations are transacted, supplying recourse, and removing the mechanism are all available and all operate in the register where the objection lies.

## 5.5 Dependence of the Framework on the Four Theses

This subsection records what fails if each thesis is rejected.

Rejecting Thesis 5.1 permits a distributive summary to settle the assessment, which the robbery counterexample refutes, and licenses reading stability as a normative result. Rejecting Thesis 5.2 leaves the universal-participation paradox standing, which either voids the diagnostic under universal instantiation or forces the over-permissive resolution the source discussion withdrew. Rejecting Thesis 5.3 reinstates cancellation by circulation. Rejecting Thesis 5.4 permits compensation to close cases whose objection it does not reach.

Theses 5.2 and 5.3 are load-bearing. Thesis 5.2 is the paper’s principal contribution and its most contestable claim, since it rests on a diagnosis of an equivocation that a reader may not accept. Every proposition below survives the rejection of all four.

## 6 The Political Economy of Circulating Appropriation

This section develops the political-economic content of the cycle problem. Its objective is to identify what a circuit changes about position, defence, and remedy.

### 6.1 Symmetric Roles, Asymmetric Positions

This subsection states why role symmetry conceals difference.

That every participant occupies both positions does not entail that participants are alike. They may differ in the magnitude appropriated, in the share of their capability the loss represents, in the availability of exit, in the cost of remaining, and in the duration of occupancy of each role. A circuit in which one participant loses a small fraction and another loses most of its remaining capability is symmetric in role and radically asymmetric in position.

The distinction between metastable and absorbing configurations from Section 3 is the operative one here. A participant with an available exit stands differently from one without, and the difference does not appear in any description of the topology.

Three quantities constitute cumulative position, and none is recoverable from the edge statuses. The *share* a participant loses on the edges where it is affected, measured against its remaining

capability rather than in absolute terms, since equal absolute losses fall unequally. The *frequency and duration* of occupancy in each role, since a participant affected in most periods and beneficiary in few stands differently from one with the reverse pattern. And the *availability and cost of exit*, which distinguishes participation from confinement.

A configuration can be symmetric in role occupancy and maximally asymmetric in all three. This is the actor level of Table 1, and it is the level at which the intuition behind the universal-participation paradox has real content. The paradox asks what is wrong with a configuration in which everyone is exploited. Part of the answer given in Section 5 is that the question misdescribes the comparison class. The remaining part is that *everyone* conceals differences that matter, and that role symmetry is precisely the description under which those differences vanish.

The framework does not currently supply a cumulative-position measure. Section 10 records its construction as an open problem and notes that whether it belongs to the distributive register or constitutes a fourth register is itself unsettled.

## 6.2 Growth as a Defence

This subsection identifies the most common defence of a circulating configuration and states why it fails.

The defence holds that participants are better off than they were, so the configuration cannot be objectionable. Proposition 7.5 shows the inference fails, and the reason is instructive: growth is measured against the past, and the diagnostic is measured against a feasible alternative. These are different comparison classes, and a configuration can improve on its own history while every participant remains below what an admissible alternative would supply.

The defence therefore answers a question the diagnostic does not ask. Its appeal comes from the fact that historical comparison is easy and counterfactual comparison is hard, which is an epistemic asymmetry rather than a normative argument.

## 6.3 Where Remedy Attaches

This subsection states the practical consequence of the register separation.

Remedies attach to registers. A distributive remedy transfers capability or its conditions and addresses the outcome. A procedural remedy alters the terms on which relations are transacted, supplies recourse, or removes a mechanism, and addresses how the relation is conducted. A dynamical remedy alters the feedback that reproduces the configuration and addresses its persistence.

The three are not substitutes, and the cycle case makes this visible. Compensation leaves the mechanism in place and the configuration reproducing. Removing the mechanism at one edge leaves the remaining edges and may simply relocate the circuit. Breaking the feedback halts reproduction without addressing any completed relation. A complete response specifies which register each measure addresses and what it leaves untouched. The paper recommends no institution and classifies no regime.

## 7 Cycle Objects and Non-Cancellation

This section supplies the formal core. Its objective is to state the cycle objects precisely and to prove that the aggregate facts invoked by the over-permissive resolution are independent of the edge predicate.

## 7.1 Declared Objects

Let  $\mathcal{V}$  be a finite set of participants and let each ordered pair carry at most one relation position at each time. For an edge  $e$  from an affected participant to a candidate beneficiary at time  $t$ , let

$$E(e, t) \in \{1, 0, ?\}$$

be the edge diagnostic supplied by the companion framework: a strong three-valued conjunction over comparison admissibility, participant standing, an actor-linked mechanism, a material capability disadvantage, and a typed benefit-through witness, each evaluated relative to a declared admissible comparison arrangement  $b_e$  drawn from a feasible family  $\mathfrak{B}_e$ .

Let  $\Gamma_i(r)$  denote participant  $i$ 's effective capability under arrangement  $r$ , with the partial comparison and materiality rules of the companion framework. The construction below uses no property of  $\Gamma$  beyond its being indexed to an arrangement.

**Definition 7.1** (Closure and dynamic cycle). A relation set exhibits *closure* when its edges form a directed circuit on  $\mathcal{V}$ . It is a *dynamic cycle* when in addition some later edge causally affects an earlier one, so that

$$e_{r-1}(t_{r-1}) \rightsquigarrow e_0(t_r), \quad t_r > t_{r-1}.$$

**Definition 7.2** (Stability class). The stability class of a dynamic cycle is its qualitative long-run behavior under the declared update: stationary, damped, amplifying, periodic, intermittent, metastable, or absorbing.

## 7.2 Aggregate Independence

This subsection proves the structural fact underlying Thesis 5.3.

**Proposition 7.3** (Aggregate independence of the edge predicate). *Let  $\Phi$  be any predicate on a configuration definable from the multiset of capability levels  $\{\Gamma_i(\cdot)\}_{i \in \mathcal{V}}$ , the role-occupancy pattern, and the stability class. Then  $\Phi$  is logically independent of  $E(e, t)$  for every edge  $e$ : no value of  $\Phi$  entails any value of  $E(e, t)$ , and no value of  $E(e, t)$  entails any value of  $\Phi$ .*

*Proof.*  $E(e, t)$  is a conjunction whose clauses are: admissibility of  $b_e$  under a declared filter; standing of the affected participant; an actor-linked mechanism connecting the assessed arrangement to the capability difference; a material disadvantage comparing  $\Gamma$  under the assessed arrangement with  $\Gamma$  under  $b_e$ ; and a benefit-through witness connecting the affected position to the beneficiary's advantage. Each clause is evaluated on the pair (assessed arrangement, comparison arrangement) for the single edge  $e$ .

No clause is a function of the multiset of capability levels across participants, since the disadvantage clause compares one participant across two arrangements rather than participants with one another. No clause is a function of role occupancy, since the predicate is evaluated per edge without reference to the participants' positions on other edges. No clause is a function of the stability class, since the predicate is evaluated at a time without reference to the configuration's long-run behavior. Hence  $\Phi$  and  $E(e, t)$  are functions of disjoint arguments, and Section 9 exhibits configurations realizing each combination of their values.  $\square$

The proposition is elementary and that is its point. Aggregate neutrality, role symmetry, closure, and stability do not fail to cancel the edge predicate because the cancellation is outweighed by something. They fail because the predicate never referred to them.

**Corollary 7.4** (Non-cancellation). *A configuration in which aggregate capability is unchanged, every participant occupies both roles, and the structure reproduces itself is compatible with  $E(e, t) = 1$  for every edge.*

### 7.3 Growth Against Counterfactual Comparison

This subsection proves that the strongest form of the aggregate defence also fails.

**Proposition 7.5** (Growth with universal disadvantage). *There exist configurations in which aggregate capability strictly increases at every period while every participant is materially below its admissible comparison arrangement at every period.*

*Proof.* Take  $\mathcal{V} = \{1, 2, 3\}$  arranged in a circuit, and let capability be represented on a scalar coordinate for the construction, with materiality threshold below one unit. Under the assessed arrangement  $m$ , set

$$\Gamma_i(m, t) = 10 + t, \quad i \in \mathcal{V}, \quad t = 0, 1, 2, \dots$$

For each  $i$  let the admissible comparison  $b_i$  be the arrangement in which the edge into  $i$  is absent and all other components are held fixed, and set

$$\Gamma_i(b_i, t) = 12 + t.$$

Aggregate capability under  $m$  is  $3(10 + t)$ , which strictly increases in  $t$ . For every  $i$  and every  $t$ ,  $\Gamma_i(b_i, t) - \Gamma_i(m, t) = 2$ , which exceeds the materiality threshold, so the disadvantage clause holds for every edge at every period. Stipulating standing, admissibility, an actor-linked mechanism, and a benefit-through witness for each edge yields  $E(e, t) = 1$  throughout.  $\square$

The construction is deliberately simple, and its simplicity carries the content. Growth compares the configuration with its own past. The diagnostic compares each participant with a feasible alternative. Nothing connects the two comparisons, so improvement over the past is consistent with universal disadvantage relative to what was available.

## 8 The Cycle–Trap Separation

This section distinguishes two structures that aggregate description conflates. Its objective is to preserve the benefit-through requirement while recognizing regime-level suppression.

**Definition 8.1** (Circulating appropriation). A configuration exhibits *circulating appropriation* when it is a dynamic cycle and every participant is the affected party on some edge with  $E = 1$ , so that every participant both suffers a material disadvantage through an actor-linked relation and holds an advantage running through some other participant’s affected position.

**Definition 8.2** (Systemic generative trap). A configuration is a *systemic generative trap* when every participant is materially below its admissible comparison arrangement and no edge admits a supported benefit-through witness.

**Proposition 8.3** (Exclusivity and non-exhaustiveness). *Under a common specification, circulating appropriation and a systemic generative trap cannot both hold. They are not jointly exhaustive: there exist configurations that are neither.*

*Proof.* Circulating appropriation requires a supported benefit-through witness on at least one edge, since every participant must be affected on an edge with  $E = 1$  and that value requires a supported witness. A systemic trap requires that no edge admit a supported witness. The two conditions are contradictory.

For non-exhaustiveness, take a configuration in which some edges carry supported witnesses and others do not, while some participants are above their admissible comparisons. Such a configuration fails the universality clause of Definition 8.1 and the no-witness clause of Definition 8.2.  $\square$

The residual class matters more than the dichotomy. Most configurations of interest are likely to be mixed, with appropriative edges embedded in a generally suppressed regime, and the dichotomy is an analytical device for separating two pure cases rather than a taxonomy of actual regimes. A finding that a configuration is neither is informative, and reporting it as such is required by the framework’s three-valued discipline.

The separation has a practical consequence. In circulating appropriation, remedy can attach to edges: the mechanism through which one participant’s advantage runs through another’s position can be altered or removed. In a trap there is no such edge, and remedy must alter the feasible set itself. Treating a trap as circulating appropriation produces a search for an appropriator who does not exist; treating circulating appropriation as a trap erases the benefit-through guardrail and dissolves responsibility that is locatable. The forward-looking structural responsibility of the social connection model [19] is the appropriate form for the trap branch, where no party performed a locatable wrong, and it is the wrong form for the appropriative branch, where parties did.

## 9 Countermodels

This section supplies the cases that discriminate the framework’s clauses. Table 3 summarizes them. They are formal or hypothetical structures and classify no observed regime.

**Countermodel 9.1** (Robbery circuit). Let each participant take a fixed value from its successor at each period and have the same value taken by its predecessor. Aggregate holdings are unchanged, role occupancy is symmetric, and the configuration is stationary. Stipulate standing, an admissible comparison in which the taking is absent, an actor-linked mechanism, a material disadvantage, and a benefit-through witness for each edge. Then  $E(e, t) = 1$  throughout, and by Proposition 7.3 the aggregate facts entail nothing to the contrary.

**Countermodel 9.2** (Reciprocal generative dependence). Let each participant accept a constraint that expands the others’ reachable repertoires, with the same circuit topology. Suppose each participant’s capability under the arrangement weakly dominates its capability under every admissible comparison. Then the disadvantage clause fails at every edge and  $E(e, t) = 0$  throughout. A cyclic topology therefore carries no diagnostic content on its own.

Countermodels 9.1 and 9.2 share a topology and an aggregate direction while differing in every diagnostic value. Together they establish that neither closure nor reciprocity is evidence either way.

**Countermodel 9.3** (Compensated circuit). Extend Countermodel 9.1 with a transfer at the end of each period restoring every participant’s holdings. The distributive register is now identical to a configuration in which nothing occurred. Every edge retains  $E(e, t) = 1$ , since no clause of the predicate is a function of subsequent transfers. This is the formal counterpart of Thesis 5.4.

**Countermodel 9.4** (Absorbing against metastable). Take two configurations with identical edge diagnostics, identical aggregate capability paths, and identical role occupancy, differing only in that exit is available in one and unavailable in the other. Every aggregate and topological description coincides. The participants’ positions differ, which establishes that such descriptions underdetermine position.

Table 3: Cycle Countermodels and Their Diagnostic Outcomes. Each case holds the aggregate description fixed and varies the structure, or holds the topology fixed and varies the diagnosis.

| Structure             | Aggregate description                              | Diagnostic outcome                                                        |
|-----------------------|----------------------------------------------------|---------------------------------------------------------------------------|
| Robbery circuit       | Holdings unchanged, roles symmetric, reproducing   | Every edge positive; cancellation fails                                   |
| Growing circuit       | Aggregate strictly rising, roles symmetric         | Every edge positive; growth is the wrong comparison class                 |
| Reciprocal dependence | Same topology, aggregate rising                    | Disadvantage clause fails at every edge; not exploitative from the outset |
| Systemic trap         | Everyone below admissible alternative, reproducing | No benefit-through witness anywhere; trap branch                          |
| Mixed regime          | Some participants above, some edges witnessed      | Neither pure class; report the profile                                    |
| Compensated circuit   | Holdings restored each period                      | Distributive register addressed; procedural register untouched            |
| Absorbing circuit     | Same aggregate as metastable case                  | Exit unavailable; position differs while topology does not                |

## 10 Open Questions

This section collects unresolved questions by register.

### 10.1 Formal and Aggregation Questions

**Open Problem 10.1** (Reporting rule for cycle profiles). The framework reports a vector of edge statuses together with distributive and stability information. What reporting rule preserves the three registers, avoids double counting when a participant appears on several edges, and remains usable? Proposition 7.3 establishes that no rule can be derived from the aggregate facts alone.

**Open Problem 10.2** (Stability classes for the declared dynamics). Which of the stability classes of Definition 7.2 are well defined for a system whose edge states are three-valued and whose capability objects are set-valued and partially ordered?

**Open Problem 10.3** (Joint realizability under universal instantiation). Thesis 5.2 requires the admissible comparisons of all participants to be jointly realizable for universal instantiation to be available. Under what conditions on the feasible family does joint realizability hold?

### 10.2 Normative Questions

**Open Problem 10.4** (Exchange between registers). Is there a defensible rule for cases in which the registers conflict, or is the correct conclusion that conflicts must be reported rather than resolved?

**Open Problem 10.5** (Cumulative position). A participant occupying the affected position more often, or losing a larger share of remaining capability, stands differently from one that does not. What account of cumulative position across a cycle is defensible, and does it belong to the distributive register or to a fourth?

**Open Problem 10.6** (Responsibility under mixed regimes). Circulating appropriation supports locatable responsibility and a trap supports forward-looking structural responsibility. What form applies to the mixed class that Proposition 8.3 shows to be non-empty?

### 10.3 Empirical Questions

No empirical case is classified here. The priority questions are whether any domain exhibits a configuration meeting Definition 8.1 under independently constructed edge diagnostics; whether the trap branch can be distinguished empirically from a configuration whose appropriator is merely unidentified; and whether exit availability can be measured well enough to separate absorbing from metastable configurations.

## 11 Limits and Revisable Research Program

This section consolidates the contribution and fixes the conditions under which the paper should be narrowed or withdrawn.

### 11.1 Contribution

The conceptual contribution is the dissolution of the universal-participation paradox by locating its equivocation on the contrast class, together with the three-register separation and the statement of what compensation does and does not reach.

The formal contribution is Proposition 7.3, which explains why aggregate facts cannot cancel an edge predicate that never referred to them; Proposition 7.5, which shows that growth and universal disadvantage are compatible because they use different comparison classes; and Proposition 8.3, which separates circulating appropriation from a systemic trap and establishes that the two are not jointly exhaustive.

The provenance is stated in the document-status section: the closure, the stability question, the paradox, and the robbery counterexample are researcher-origin, and the reconstruction is agent-added.

The paper establishes no prevalence, classifies no observed regime, supplies no aggregation rule, and recommends no institution.

### 11.2 Defeat Conditions

The conceptual contribution loses support if the equivocation diagnosis in Thesis 5.2 is rejected, since the paradox would then stand and either void the diagnostic under universal instantiation or force the over-permissive resolution the source discussion withdrew.

The formal contribution loses support if the edge predicate turns out to contain an aggregate term after all, which would make Proposition 7.3 false; or if the admissible comparisons required by Proposition 7.5 cannot be jointly realized, which would make the construction vacuous.

The separation loses support if the trap branch cannot be distinguished empirically from a configuration whose appropriator is merely unidentified, since the distinction would then be unavailable in practice however clear it is in principle.

The paper loses its point entirely if the three registers admit a defensible aggregation rule that makes distribution decisive, since the robbery counterexample would then have to be rejected rather than accommodated.

### 11.3 Deferred Questions

The edge diagnostic itself belongs to a companion project, as does open-path propagation, which stops where this paper begins. Identification of the capability objects belongs to a third. Recovery, remedy design, and institutional evaluation belong to a fourth, and legal responsibility to a fifth.

This paper supplies the structural separations such accounts would need and takes no position on their content.

The resulting position is conservative. A cyclic topology is diagnostically inert. Closure, symmetry, stability, aggregate neutrality, and aggregate growth cancel nothing, because the predicate they are supposed to cancel never referred to them. Universal instantiation is coherent and describes a determinate condition rather than a contradiction. And a regime in which everyone is below an admissible alternative may be either circulating appropriation or a beneficiary-free trap, which are different structures requiring different remedies and are distinguished by whether a benefit-through witness exists anywhere.

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