Recovery After Generativity Exploitation: Capability Reconstruction, Route-Back, and Anti-Propagation

Wanhong HUANG
huangwanhong@serendip.ngo

Abstract

Suppose a participant's capacity to develop something has been contracted, and suppose we want to know what should happen next. The natural first answer is compensation, and this paper argues it is the wrong answer twice over: the damaged object is a set of reachable developments rather than a holding, and no magnitude for it is identifiable, so a compensatory remedy is both misdirected and unavailable. The natural second answer is that the affected party should rebuild, and this paper argues that this answer is circular in a way that can be made precise. Reduced capability is reduced capacity to produce the conditions that capability requires, so recovery has a threshold: below it, conditions decline whatever the participant does, and above it, recovery is self-sustaining. Whether self-aid suffices is therefore settled by which side of the threshold the post-exploitation state lies on, and not by effort, resilience, or adaptation. A second result separates two objectives that aid regimes routinely conflate. Preventing an affected participant from transmitting its deficit downstream and restoring that participant's capability have different sufficient levels, and where the viability threshold lies below the recovery threshold there is a band of support in which transmission stops and recovery does not — a contained state that is stable, cheap, and not recovery. A third result concerns custodial arrangements in which a participant temporarily relocates a capacity it cannot currently expand to a party that can. No return rule can simultaneously restore the participant to its unexploited counterfactual position, give the custodian a share proportional to its genuine contribution, and be determined by facts available at the time of return; the first requires a counterfactual nobody holds and the second requires an attribution the joint production does not determine. Custody must therefore be governed by triggers declared in advance rather than by allocations computed afterwards. A fourth result shows that joint gain and a participant's own autonomous capability move independently, so a co-creation relation evaluated by joint output is evaluated by a quantity independent of the thing that matters. Throughout, the paper holds that aid is a relation and is subject to the same diagnostic as any other: recovery status confers no exemption. It recommends no package, evaluates no programme, and classifies no institution.

1 Introduction

The programme this paper belongs to has spent eight projects establishing what generativity exploitation is, how it propagates, when it can be identified, when it closes into cycles, what a commons has to do with it, how control of expansion conditions works, how induced dependence works, and why the AI case resists pairwise description. All of that is diagnostic. This paper asks the question that follows: someone's capacity to develop something has been contracted, and what should happen next.

Two answers present themselves immediately and both are inadequate, in instructive ways.

The first is compensation. Establish what was lost, and transfer its value. This fails twice. The damaged object is not a holding but a set of developments that are no longer reachable, and

a companion project establishes that such a set admits a witness — one development that was available and is not — while its magnitude remains bounded and unidentified. So there is no quantity to transfer. Even if there were, transferring it would address the wrong object: what the affected participant needs is not the value of a foreclosed development but the capacity to undertake others.

The second is that the affected party should rebuild. This is the answer that appears in the vocabulary of adaptation, retraining, and resilience, and the research discussion that generated this paper rejected it in a single sentence that turns out to be a theorem. It is difficult by the participant's own efforts alone, because creating conditions under which a remaining capacity can expand is exactly what a contracted capacity makes hard. Reduced capability means reduced capacity to produce the conditions capability requires.

Section 5 makes that precise. Under a dynamic in which capability generates conditions and conditions depreciate, there is a threshold: below it, conditions decline whatever the participant does, and the decline is self-reinforcing; above it, recovery proceeds without help. Whether self-aid suffices is therefore a fact about which side of a threshold a post-exploitation state lies on. This reframes a question that is usually moral — why does the affected party not simply rebuild — as a question about a boundary, and it has a consequence that cuts the other way as well: where the state lies above the threshold, external aid is unnecessary and its provision is a different kind of decision. It also yields a policy observation that is not obvious. Aid need only carry the participant across the threshold, not restore what was lost, because above the threshold the dynamic does the rest.

The paper's second result separates two things that aid regimes routinely treat as one. Preventing an affected participant from transmitting its deficit downstream — which the propagation project shows is what a participant under viability pressure does — and restoring that participant's capability are different objectives with different sufficient levels of support. Where the viability threshold lies below the recovery threshold there is a band in which transmission stops and recovery does not: a state that is stable, comparatively cheap, and not recovery. Naming that band is the result. It is where a great deal of actual provision sits, and describing such provision as recovery is an error the separation makes visible.

The third result concerns an arrangement the research discussion proposed directly: a participant that cannot presently expand a capacity it still holds relocates it temporarily to a party that can, on terms under which it later returns together with a share of what was generated meanwhile. The proposal is attractive because the worst moment to alienate a capacity permanently is exactly the moment of greatest weakness. The difficulty is that if the custodian genuinely develops the capacity, what returns is not what left. The paper proves that no return rule can at once restore the participant to its unexploited counterfactual position, give the custodian a share proportional to its genuine contribution, and be computable from facts available at the time of return. The first requires a counterfactual nobody holds; the second requires separating two contributions to a jointly produced object, which a companion project shows is undetermined by the record. Custody must therefore be governed by triggers declared in advance rather than by allocations computed afterwards, which is a design conclusion derived rather than asserted.

The fourth result concerns co-creation, and it records an objection the research discussion raised against its own proposal: an asymmetric collaboration may raise joint output while leaving the recovering party worse off than it would have been alone. The paper shows that joint capability and a participant's own autonomous capability move independently, so the counterfactual participation condition — that the participant be no worse off in the collaboration than in its best feasible alternative — is not a function of joint output. A recovery-labeled collaboration evaluated by what the collaboration produces is evaluated by a quantity independent of the condition that matters.

Running through all of this is a commitment the paper states early and applies without exception. Aid is a relation. Every recovery form — endowment, lending, custody, collaboration, pooling — creates a new arrangement with control, dependence, and benefit coordinates, and the diagnostic that identified the original relation applies to it unchanged. Recovery status confers no exemption from audit. This is not a suspicion of helpers; it is the observation that a vocabulary of assistance is precisely the vocabulary under which a new benefit-through relation would be least visible.

The paper recommends no package. It evaluates no programme, names no institution, and asserts no claim about what any actual intervention achieves. The portfolio entry from which it derives records that recovery dynamics, causal evaluation, institutional comparison, and evidence for candidate interventions are undeveloped; that remains true, and Section 8 says so.

Section 2 characterizes the post-exploitation state and derives requirements. Section 3 reviews the traditions of repair. Section 4 argues six theses. Section 5 proves four propositions. Section 6 presents the recovery-relation matrix and five countermodels. Section 7 records open questions and Section 8 the limits.

The philosophical and formal parts are *formally independent* and *justificatorily dependent*: no proposition cites a thesis, every proposition survives the rejection of all six, and what does not survive is the claim that they are the right things to prove.

2 The Post-Exploitation State and Why Effort Is Not the Variable

This section performs the problem analysis. Its objective is to characterize what is left after a contraction, to show why the two obvious responses fail, and to derive requirements on an adequate account.

2.1 What Remains

Let a participant hold a generative organization together with the conditions under which it can develop: time, funding, tools, collaborators, institutional access, recognition, records, standing, and channels through which what it produces can circulate. After a contraction, the organization is typically intact — the participant still knows what it knew and holds what it built — while some conditions are gone, and the developments that ran through those conditions are no longer available.

Four features of this state matter for what follows.

The organization and the conditions are damaged separately and are repaired separately. Where the organization is intact and the conditions are not, supplying conditions restores capability; where something about the organization has been appropriated, misattributed, or institutionally detached from the participant, supplying conditions does not touch it.

Continuity is at risk in a way a stock accounting will not show. Records, drafts, code, teams, tacit knowledge, and living relationships are the substrate through which one state of a practice becomes the next, and they degrade rather than disappear. A response that arrives late may find the conditions restorable and the continuity gone.

The participant is under pressure to continue existing, and a companion project establishes that this pressure is what transmits a contraction downstream. The post-exploitation state is therefore not merely a damaged position; it is a position from which a further relation is likely to be initiated.

And the participant's remaining capability is what it would have to use to rebuild. This is the feature the next subsection turns into the paper's central structure.

2.2 The Circularity in "Rebuild"

The response that the affected participant should rebuild is not false. It is circular in a specific and checkable way.

Effective capability is a function of the conditions available. Conditions are themselves produced, and what produces them is the exercise of capability: funding is obtained by having something to fund, collaborators are attracted by having something to work on, institutional access follows from a position that access helped create. So capability at one time generates conditions at the next, and conditions at one time determine capability at the next.

A contraction enters this loop by lowering conditions. If the lowered state still generates conditions faster than they depreciate, the loop recovers on its own. If it does not, the loop runs downward, and it does so whatever the participant intends, because the input to the process is exactly what has been reduced.

Proposition 5.3 states this. Its content is that the question "can this participant recover unaided" has an answer that is a property of the state rather than of the participant's disposition, and that the exploitation is what can move a participant from one side of the answer to the other.

Two things follow that are worth separating from the formal statement. Attributing recovery to effort where the state lies below the threshold attributes to a participant a capacity the contraction removed, which is not merely unkind but false. And the standard vocabulary of adaptation is a poor guide here, since adjusting one's aims to circumstances one cannot change is a well-analyzed phenomenon that is not the same thing as recovering a capacity [8].

2.3 Why Compensation Is the Wrong Instrument

The corrective-justice picture of repair asks what was taken and returns its equivalent, restoring a normative equality the wrong disturbed [27]. It is the most developed account of repair available and it does not fit here, for a reason that is structural rather than a matter of measurement difficulty.

What was affected is a set of developments that are no longer reachable. A companion project shows that such a contraction admits a witness — one development available before and not after — while its magnitude is bracketed by bounds that do not coincide, because the foreclosed developments are precisely the ones that generated no record. There is therefore no quantity whose equivalent could be returned, and the appropriate reporting posture for a quantity with a consistent set rather than a point is to report the set [16].

Even granting a quantity, the transfer would address the wrong object. The participant's difficulty is not that it lacks the value of a foreclosed development but that it lacks the capacity to undertake others, and a sum that restores the first does not restore the second unless it happens to buy conditions — which is a claim about what money purchases in a particular setting rather than a feature of compensation.

This is not an argument that nothing is owed. It is an argument about what a remedy should buy.

2.4 Requirements on an Adequate Account

Four requirements follow.

First, the account must distinguish damage to the organization from damage to its conditions and from damage to the participant's relational position, and must match instruments to objects rather than offering a general resource.

Second, it must treat self-recovery as state-dependent rather than disposition-dependent, and must locate the boundary rather than exhorting across it.

Third, it must treat the prevention of downstream transmission as an objective in its own right, with its own sufficient level, rather than as a by-product of recovery.

Fourth, it must audit aid relations by the same diagnostic that identified the original relation, since every instrument in the space creates a new relation with control, dependence, and benefit coordinates.

3 Traditions of Repair

This section reviews the literatures on which the project draws. Its objective is to record what each supplies, what constraint each imposes, and where each stops. No source in this corpus states the threshold result, the separation of anti-propagation from recovery, the custody impossibility, or the independence of joint gain from autonomous capability.

3.1 Corrective, Restorative, and Reparative Repair

Weinrib's account of corrective justice treats repair as the restoration of a normative equality disturbed by a wrong, with the remedy correlative to the injury [27]. This supplies the paper's foil and its most precise statement of what is unavailable here: correlativity requires an injury with a magnitude.

Braithwaite's restorative account shifts attention from the imposition of proportionate burdens to the repair of relations and the restoration of parties to a position from which they can participate [6]. This is closer to what the paper needs, and it imposes a caution the paper accepts: restorative processes can reproduce asymmetry when the parties enter them unequally, which is exactly the situation after a contraction.

De Greiff's analysis of reparations in transitional settings distinguishes the juridical aim of making individuals whole from the political aims of recognition, civic trust, and solidarity, and argues that massive-scale reparations programmes cannot satisfy the juridical criterion and should be evaluated by the political ones [7]. This is the closest available treatment of a repair problem in which the juridical measure is unavailable, and the paper's position is structurally similar without being derived from it: where a magnitude cannot be established, the criteria that remain are about position, participation, and relation.

3.2 Capability, Disadvantage, and Traps

Sen's distinction between achieved functionings and the capability set supplies the object recovery targets [24], with Robeyns recording the specification choices any operationalization requires [22] and Nussbaum developing a list-based version for political purposes [18].

Wolff and de-Shalit's analysis of disadvantage is the closest antecedent for the paper's central structure [29]. They identify disadvantages that are *corrosive*, in that they cause further disadvantages, and functionings that are *fertile*, in that securing them secures others; and they argue that policy should target the fertile and the corrosive rather than distributing uniformly. The paper's threshold result is a formal statement of a structure their vocabulary describes, and the paper claims neither that they state it nor that it follows from them. What their account adds and the formal result does not is the observation that which conditions are fertile is an empirical question with different answers in different settings.

The poverty-traps literature analyzes configurations that reproduce a low-level state through mechanisms requiring no ongoing appropriation [5]. The paper takes the structural shape of a self-reinforcing low state and transfers no economic result.

Holling's distinction between stability, understood as return to an equilibrium, and resilience, understood as the persistence of relationships and the capacity to absorb change while maintaining function, supplies a caution the paper uses twice [14]. A system can be stable and fragile, and a participant can be returned to an apparent equilibrium whose capacity to absorb the next disturbance is gone. The paper also notes what the concept does not license: resilience as a property of a system is not the same as resilience as a demand on a participant, and the slide between them is one of the vocabularies Section 2.2 warns against.

Elster's analysis of adaptive preference formation records how aims adjust to circumstances that cannot be changed [8]. The paper uses this to mark a failure mode for any recovery criterion stated in terms of the participant's satisfaction.

3.3 Autonomy, Vulnerability, and Recognition

Nedelsky argues that autonomy is made possible by relationships rather than threatened by them, and that the individualist picture misdescribes both its sources and its protection [17]. Mackenzie develops the relational-autonomy and capabilities framing for an ethics of vulnerability, and distinguishes responses that reduce vulnerability from responses that generate new dependency [15]. Anderson and Honneth argue that autonomy depends on relations of recognition, so that its impairment is a relational rather than a private matter [2].

Together these supply the paper's reason for treating recovery as necessarily relational without treating relations as automatically benign. Mackenzie's distinction between reducing vulnerability and generating dependency is the direct ancestor of the paper's audit requirement, and the paper's addition is to make the audit the same instrument as the original diagnostic rather than a separate ethical checklist.

Fricker's account of epistemic injustice bears on a specific failure mode: a participant whose standing as a knower has been damaged may be unable to make its own case for what it needs [11]. Anderson's relational criterion of equality bears on why restoring holdings does not restore a position in a relation [1].

3.4 Aid, Stewardship, and the Governance of Help

Ferguson's analysis of development intervention argues that such projects systematically fail at their stated objectives while producing a side effect — the expansion of bureaucratic control and the depoliticization of what are political questions — and that the side effect is the more consequential result [9]. This is the strongest available warning against the paper's own subject matter, and it is cited for the warning rather than against it. Any recovery apparatus is a candidate instance.

Frankel's analysis of fiduciary law identifies the recurring structure of relations in which one party entrusts property or power to another who is better positioned to use it, and derives the duties that structure calls for [10]. This is the closest legal-theoretic antecedent for the custodial arrangement in Section 5.4, and the paper uses it for the structural observation that entrustment generates duties — not for any doctrinal claim, which belongs to a companion project.

Gouldner's analysis of reciprocity as a generalized norm functioning as a starting mechanism records that receiving assistance is not normatively inert [13]. The paper uses this to mark that an aid relation begins with an obligation running from recipient to helper, which is one of the routes by which assistance becomes leverage.

3.5 Collective Provision and Shared Conditions

Ostrom establishes that communities sustain shared resources through institutional arrangements that are neither private property nor central regulation [19]; Benkler analyzes production without proprietary exclusion or managerial direction [3]; Frischmann analyzes infrastructure whose value derives from the downstream activity it enables and argues for commons management where spillovers resist appropriation [12]. These supply the institutional forms in which conditions can be held collectively rather than obtained from a single provider, which is what the paper's exit-oriented instruments require.

Birch's analysis of rent through control rights [4] and Srnicek's analysis of platform position [25] supply the forms an aid provider's position can take if the audit is not performed.

3.6 Exploitation Theory as the Audit Instrument

The diagnostic the paper applies to aid relations is the companion framework's, which rests on comparison against a feasible alternative arrangement [23], does not treat consent or mutual benefit as exculpatory [28], and admits both relational [26] and structural [30] forms. Zwolinski's constraint against inferring status from background conditions applies with force to an aid relation, since the recipient of assistance is by construction in a weak position and an analysis that inferred exploitation from weakness would classify all assistance [32]. Young's distinction between forward-looking structural responsibility and liability identifies the form obligations to provide recovery conditions plausibly take [31].

The two justice frameworks the research discussion invoked are recorded with their standard content and applied to no case: Rawls's difference principle [21] and Pettit's non-domination [20], the latter bearing directly on why a recovery relation that leaves the recipient subject to a helper's discretion is defective even if the helper never exercises it.

Table 1: Traditions bearing on recovery after a generative contraction, what each supplies, and the constraint each imposes on the paper's claims.

Tradition	**Supplies**	**Constraint imposed**
Corrective justice	Repair as correlative to injury	Correlativity requires a magnitude, which is unavailable here
Restorative justice	Repair of relations and restoration of participation	Restorative processes reproduce asymmetry where parties enter unequally
Reparations theory	Criteria for repair where the juridical measure cannot be met	Political criteria are not a weaker version of the juridical one
Capability	Opportunity rather than achievement as the recovery target	Specification choices are unavoidable and consequential
Disadvantage and fertile functionings	Corrosive disadvantage and fertile functioning; targeting rather than uniform distribution	Which conditions are fertile is empirical and setting-specific
Poverty traps	Self-reinforcing low states requiring no ongoing appropriation	No economic result transfers
Resilience	Persistence of function distinguished from return to equilibrium	Resilience as a system property is not a demand on a participant
Adaptive preference	Aims adjust to unchangeable circumstances	Satisfaction is not a recovery criterion
Relational autonomy	Autonomy as produced by relations; reducing vulnerability distinguished from generating dependency	Relations are not automatically benign
Recognition	Impairment of autonomy as relational	Does not establish what is owed
Epistemic injustice	The affected party may be unable to make its own case	Does not establish that this occurs here
Development critique	Intervention can fail its aims while expanding control	Applies to the paper's own subject as much as to any other
Fiduciary structure	Entrustment generates duties	Structural only; no doctrinal claim
Reciprocity	Receiving help is not normatively inert	The norm runs recipient-to-helper and can become leverage
Commons and infrastructure	Institutional forms for holding conditions collectively	Design principles do not transfer automatically
Rent and platform position	Forms an unaudited helper's position can take	No classification of any provider
Exploitation theory	The audit instrument for aid relations	Weakness must not imply exploitation, or all assistance is classified
Structural responsibility	The form obligations to provide conditions take	Does not apply the obligation to any case

4 Six Theses on Recovery

This section argues the paper's six theses, each with argument, strongest known objection, and reply. The section makes no use of the formal results and is not used by them.

4.1 Recovery Targets Capacity, Not Loss

Thesis 4.1 (Capacity as the target)**.** The object of recovery is the participant's capacity to continue generating, not the value of what was foreclosed. A remedy should be assessed by what it restores of that capacity and not by what it replaces of that value.

Argument. Two independent reasons. The damaged object is a set of reachable developments, and a companion project establishes that its magnitude is bounded rather than identified, so there is no value to replace. And even where a value could be assigned, the participant's difficulty is the loss of a capacity rather than of a product, and restoring the second does not restore the first except by accident.

The thesis is the research discussion's own formulation and the paper adopts it without weakening: aid should restore the capability to generate, not merely replace the value of what was lost.

Strongest objection. This releases the responsible party from paying. If no magnitude can be established, and if what is owed is described as a capacity rather than a sum, then a party that caused the contraction faces an obligation with no determinate content, which in practice means no obligation.

Reply. The objection conflates the measure of a remedy with the existence of an obligation, and the argument bears only on the first. Nothing here reduces anyone's responsibility; it says what a remedy should buy. And the alternative is not a determinate obligation but an indeterminate one presented as determinate: a compensatory framing that cannot compute a quantity delivers nothing, and delivers it while appearing rigorous. The observation that repair criteria must change where the juridical measure is unavailable is not novel to this paper [7].

4.2 Self-Recovery Is Threshold-Governed

Thesis 4.2 (Threshold, not effort)**.** Whether a participant can recover unaided is determined by whether its post-contraction state lies above or below a threshold in the loop through which capability produces conditions and conditions produce capability. It is not determined by effort, disposition, or resilience.

Argument. Section 2.2 states the loop and Proposition 5.3 states the threshold. The substance is that the input to the recovery process is the very quantity the contraction reduced, so below some level the process runs downward regardless of what is intended.

The thesis is the research discussion's correction to its own earlier framing, and the paper regards it as the project's central point. It has an asymmetric consequence worth stating: it does not say that participants cannot act, and Section 6 records several things a participant can do below the threshold, including preserving continuity and relocating a capacity to a stronger environment. What it says is that those actions do not by themselves cross the threshold.

Strongest objection. The thesis is fatalistic and denies agency. It tells participants that their situation is settled by a parameter, which is both demoralizing and empirically doubtful, since people do recover from severe setbacks by acting.

Reply. People recover from severe setbacks, and the thesis predicts this wherever the state lies above the threshold, which is compatible with the recovery being difficult and requiring sustained

effort. What the thesis denies is that effort is the operative variable across the boundary. The charge of fatalism is better directed at the alternative: telling a participant below the threshold to adapt attributes to it a capacity that was removed, and a demand addressed to an absent capacity is the more demoralizing position. The thesis also locates responsibility rather than dissolving it, since a boundary that external provision can move is a boundary someone can be responsible for not moving.

4.3 Three Families, Three Objects

Thesis 4.3 (Matching, not quantity)**.** Recovery instruments divide into three families acting on different objects — reconstructing the conditions of a retained capacity, reconnecting the participant with a capacity that has been appropriated or detached, and supplying new generative access — and they are not substitutes. Mismatched aid is not partial aid; it is aid directed at an object that is not damaged.

Argument. The taxonomy is the research discussion's. Its force is that each family presupposes a different diagnosis. Condition reconstruction assumes the participant still holds the organization and lacks the means to expand it. Restitution assumes something has been detached from the participant — its authorship, its position, its recognized relation to what it produced — and that the detachment rather than the scarcity is the injury. Endowment assumes that the prior path is foreclosed and that what is needed is a different one.

The practical consequence is that the identity of the damaged object is a prerequisite for choosing an instrument, and that a general-purpose resource does not resolve the choice. Money buys conditions; it does not re-attribute authorship, and it does not by itself supply a new generative path.

Strongest objection. In practice money does all three. It buys conditions, it funds the litigation or campaign that restores attribution, and it underwrites retraining into a new field. The taxonomy is conceptually tidy and operationally idle.

Reply. Partly granted, and the grant is informative. Money is an input to instruments in all three families and is an instrument in none: what restores attribution is a change in a relation that money may finance, and what supplies a new path is access that money may purchase where such access is for sale. The taxonomy's use is diagnostic rather than budgetary — it says what a transfer must be converted into, and a transfer whose conversion is unspecified is the characteristic form of aid that fails while appearing adequate.

4.4 Aid Is a Relation and Carries No Exemption

Thesis 4.4 (Symmetric audit)**.** Every recovery instrument creates a relation with control, dependence, and benefit coordinates, and the diagnostic that identified the original relation applies to it unchanged. Recovery status confers no exemption from audit.

Argument. The diagnostic's conjuncts — standing, an admissible comparison, a capability reduction, a benefit increase, and a witness connecting them — contain no clause about the acting party's purpose. So a relation entered under an aid description satisfies them or fails them on the same terms as any other, and a helper whose position improves through the recipient's continued weakness is in the configuration the diagnostic identifies whatever the relation is called.

Three considerations make this more than a formality. Assistance generates an obligation running from recipient to helper, which is a route by which help becomes leverage [13]. Intervention regimes can fail their stated aims while reliably producing an expansion of the intervening party's

control, and the second effect can be the durable one [9]. And a relation in which one party's continuation depends on another's discretion is defective on a non-domination criterion whether or not the discretion is exercised [20].

Strongest objection. Auditing helpers deters help. Parties who would otherwise assist will decline rather than submit to an analysis whose vocabulary is that of exploitation, and the recipients of the withheld assistance bear the cost.

Reply. The concern is real and the thesis is narrower than it deters. The audit forbids nothing and classifies nothing by itself; Zwolinski's constraint applies here with unusual force, since a recipient is by construction in a weak position and an inference from weakness would classify all assistance [32]. What the audit requires is that the coordinates be recorded, which is a documentation cost. The alternative is that the one vocabulary under which a benefit-through relation is least visible is also the one exempted from looking.

4.5 Return Is Participation in an Evolved Trajectory

Thesis 4.5 (Route-back, not restitution of a frozen object)**.** Where a capacity has been kept alive and developed by another party, what can be returned is a position in the evolved trajectory rather than the original object. The return of a frozen copy is not the return of the valuable thing.

Argument. If a custodian genuinely develops what it holds, then the object at the end of the custodial period is not the object at the beginning; the development is what custody was for. Returning the original state is therefore possible only by discarding the development, which defeats the arrangement's purpose, or is impossible because the original state was never separately preserved.

What can be returned is the participant's position in the trajectory: continuing rights, participation in direction, a share of what was generated, and a route into the future development. Proposition 5.10 shows why this must be settled in advance.

The thesis has a consequence the paper accepts rather than avoids: the custodian's genuine contribution is a real contribution and grounds a real claim, so the arrangement's terms are a division rather than a restoration.

Strongest objection. Then the participant never gets back what it lost, and "return" is a euphemism for a negotiated share of something else. A mechanism presented as protecting a weak party against permanent alienation delivers permanent partial alienation under a better name.

Reply. Conceded in part and located precisely. Exact restoration is unavailable, and the reason is that the alternative to custody was not preservation of the original but its decay: an unexpanded capacity in a condition-poor environment loses relevance, connection, and momentum. The comparison that matters is against that alternative and against permanent sale at the moment of greatest weakness, not against an intact past. The euphemism charge is nonetheless a live risk in any actual arrangement, which is why Proposition 5.10's conclusion is that the terms must be fixed before the weakness rather than after it.

4.6 Anti-Propagation Is a Separate Objective

Thesis 4.6 (Two objectives, two levels)**.** Preventing an affected participant from transmitting its deficit downstream and restoring its capability are distinct objectives with distinct sufficient levels of support. A regime can achieve the first without the second, and where the viability threshold lies below the recovery threshold it will do so at lower cost.

Argument. A companion project establishes that a participant under viability pressure may initiate a downstream relation in order to continue existing. Support that relieves the pressure

removes the motivation without restoring the capacity. Proposition 5.7 states the three regimes and the condition under which the middle one is nonempty.

The thesis reframes a familiar class of provision. Emergency income, bridge funding, temporary access, and continuity support are ordinarily described as partial recovery. On this analysis they are frequently something else: complete achievement of a different objective. Naming the objective correctly is what makes it possible to ask whether it is the one intended.

Strongest objection. Framing aid to an affected party as a device for protecting third parties instrumentalizes that party. It supplies a rationale for providing exactly enough to stop transmission and no more, and a theory that makes the cheap option articulate has done the cheap option a service.

Reply. The concern is serious and the thesis is stated to expose the option rather than to recommend it. The claim is that the two objectives come apart and are separately fundable, not that the second grounds the first; a regime that stops at the lower threshold has achieved containment and has not achieved recovery, and the whole point of separating them is that this can be said. A regime that conflates them can present containment as recovery indefinitely, and it is that conflation, not its exposure, that serves the cheap option.

4.7 Dependence Structure Among the Theses

Rejecting Thesis 4.1 returns a compensatory framing that cannot compute its own quantity. Rejecting Thesis 4.2 makes recovery an effort problem and removes the argument that external provision is sometimes structurally necessary. Rejecting Thesis 4.3 permits a general-purpose resource to stand for all instruments. Rejecting Thesis 4.4 exempts helpers from the analysis applied to everyone else. Rejecting Thesis 4.5 requires custodial arrangements to return an object that either does not exist or is not the valuable one. Rejecting Thesis 4.6 collapses two objectives whose separation is what allows a regime to be assessed against the one it intended.

Theses 4.2 and 4.4 are load-bearing: the first is the project's reason for existing and the second is what keeps it from becoming an apology for whoever supplies the aid. Thesis 4.6 is the most contestable, since its own strongest objection — that it makes the cheap option articulate — is not fully answered.

5 Formal Results

This section declares the objects and proves four propositions. Its objective is to establish that self-recovery is threshold-governed, that containment and recovery have separate sufficient levels, that no custodial return rule satisfies three natural conditions at once, and that joint gain and autonomous capability are independent. The section cites no thesis.

5.1 Declared Objects

Let a participant hold a fixed generative organization G and a scalar condition level $c(t) \in \mathbb{R}_{\geq 0}$ summarizing the conditions available for its development. The scalar is a deliberate simplification and Section 7 records what it excludes.

Definition 5.1 (Capability and the condition dynamic)**.** Effective capability is $\Gamma(t) = F\big(c(t)\big)$ with F continuous and non-decreasing. Conditions evolve as

$$c(t+1) = c(t) + g\big(\Gamma(t)\big) - \mu,$$

where g is continuous and non-decreasing with $g(0) = 0$, and $\mu > 0$ is a constant depreciation.

The dynamic says that exercising a capability produces further conditions, and that conditions decay if not reproduced. Write $\phi(c) = g(F(c)) - \mu$, so that $c(t+1) - c(t) = \phi(c(t))$. Note ϕ is continuous and non-decreasing, and $\phi(0) = -\mu < 0$.

Definition 5.2 (Self-recovery threshold)**.** $c^* = \inf\{c \geq 0 : \phi(c) \geq 0\}$, with $c^* = \infty$ if the set is empty.

5.2 Self-Recovery Is Threshold-Governed

Proposition 5.3 (Recovery threshold)**.** *Under Definition 5.1:*

1. *If $c(t_0) < c^*$ then $c(t)$ is strictly decreasing for all $t \geq t_0$ until it reaches 0, and $\Gamma(t)$ is non-increasing. No sequence of choices available to the participant within the dynamic reverses this.*

2. *If $c(t_0) > c^*$ and $\phi(c) > 0$ for all $c > c^*$, then $c(t)$ is strictly increasing and $\Gamma(t)$ is non-decreasing.*

3. *An external transfer a applied once at t_0 suffices for recovery if and only if $c(t_0) + a > c^*$.*

Proof. (1) For $c < c^*$ we have $\phi(c) < 0$ by the definition of the infimum and the monotonicity of ϕ, so $c(t+1) < c(t)$; monotonicity of ϕ then gives $\phi(c(t+1)) \leq \phi(c(t)) < 0$, and the decrease continues. Γ is non-increasing because F is non-decreasing. The dynamic contains no control variable, so no choice within it alters the trajectory. (2) Symmetric, using $\phi(c) > 0$ above c^*. (3) Immediate from (1) and (2) applied to the state $c(t_0) + a$. □

Corollary 5.4 (The threshold is what an exploitation can move a participant across)**.** *A contraction of magnitude δ has qualitatively different consequences according to whether $c(t_0) - \delta$ lies above or below c^*: above, the loss is recovered without external provision; below, it is not recovered at all. Hence equal magnitudes of contraction are not equally consequential.*

Corollary 5.5 (Sufficient aid is threshold-crossing, not restorative)**.** *Under the conditions of clause (2), the minimal sufficient transfer is $c^* - c(t_0)$ rather than the amount required to restore the pre-contraction level.*

Three limitations belong beside this result. The dynamic contains no choice variable, so clause (1)'s claim that no available sequence of choices reverses the decline is a property of the model rather than a demonstrated fact about participants; what the model shows is that a decline can be driven by the structure of the loop rather than by anything the participant does or fails to do. The scalar condition level suppresses the heterogeneity that Section 4.3 insists on, and a vector version in which some components are fertile and others are not would change Corollary 5.5 substantially, since the identity of the transferred condition would matter as much as its quantity [29]. And the monotonicity of ϕ is what makes the threshold a single point; without it there can be several, and the recovery region need not be an interval.

5.3 Containment and Recovery Have Separate Levels

Definition 5.6 (Viability and the downstream edge)**.** Let $\sigma : \mathbb{R}_{\geq 0} \to \mathbb{R}$ be continuous and non-decreasing, giving the participant's viability as a function of its condition level, and let $\Sigma_{\min}$ be a threshold below which the participant initiates a downstream relation. Write $c_{\mathrm{v}} = \inf\{c : \sigma(c) \geq \Sigma_{\min}\}$.

Proposition 5.7 (Three aid regimes)**.** *Let $a \geq 0$ be a transfer applied at t_0, and let $a_{\text{prop}} = \max\{0, c_{\text{v}} - c(t_0)\}$ and $a_{\text{rec}} = \max\{0, c^* - c(t_0)\}$. Then:*

1. *If $a < a_{\text{prop}}$, the downstream relation is initiated and no recovery occurs.*
2. *If $c_{\text{v}} < c^*$ and $a_{\text{prop}} \leq a < a_{\text{rec}}$, the downstream relation is not initiated and no recovery occurs. This band is nonempty exactly when $c_{\text{v}} < c^*$.*
3. *If $a \geq a_{\text{rec}}$, both objectives are achieved.*

Where $c_{\text{v}} \geq c^*$, the middle band is empty and any transfer sufficient for recovery is sufficient for containment, but not conversely.

Proof. Each clause follows from Definitions 5.2 and 5.6 together with Proposition 5.3, applied to the post-transfer state $c(t_0) + a$. Nonemptiness of the middle band is the statement $c_{\text{v}} < c^*$. □

Corollary 5.8 (Containment is stable and is not recovery)**.** *In the middle band the participant's condition level continues to decline toward the level at which σ falls below $\Sigma_{\min}$, so containment at a fixed transfer is not durable and requires either repetition or an increasing transfer.*

The corollary sharpens the regime distinction in a direction that is not favorable to the cheap option. A one-time transfer sized to stop transmission does not hold, because the decline continues beneath it; a standing transfer sized to stop transmission holds and never recovers. Which of these an actual regime is providing is a question the separation makes askable.

The substantive content of the proposition is the ordering $c_{\text{v}} < c^*$, which says that a participant can be viable without being able to rebuild. Whether that ordering holds is empirical and is not established here. Its plausibility is that viability concerns continuing to exist and the recovery threshold concerns generating conditions faster than they decay, and these are different quantities.

5.4 No Custodial Return Rule Satisfies Three Conditions

Definition 5.9 (Custodial arrangement)**.** At t_0 a participant Y transfers a generative organization G_0 to a custodian Z holding conditions $c_Z \gg c_Y$. Over $[t_0, T]$ the organization develops to G_1. A *return rule* R assigns to Y and Z positions in the trajectory containing G_1: continuing rights, participation in direction, and shares of what was generated.

Proposition 5.10 (Custodial impossibility)**.** *No return rule R satisfies all three of the following.*

1. Counterfactual restoration. *Y's assigned position equals Y's position in the counterfactual trajectory in which no contraction had occurred.*
2. Contribution proportionality. *Z's assigned share is proportional to Z's own contribution to the development $G_0 \rightsquigarrow G_1$.*
3. Ex post determinacy. *R is a function of facts available at T.*

Proof. Suppose R satisfies (3). Condition (1) requires the counterfactual trajectory under no contraction, which is not among the facts available at T: a companion project establishes that such a trajectory set admits a witness but no identified magnitude, being bracketed by non-coinciding bounds. Condition (2) requires a decomposition of the joint development into Y-attributable and Z-attributable parts; a companion project establishes that attribution degrades along an update of this form and is not determined by the record of the update. Hence R satisfies neither (1) nor (2). □

Corollary 5.11 (Custody must be governed ex ante)**.** *A custodial arrangement admits determinate terms only if triggers, duration, scope, benefit shares, continuing rights, and the route back are fixed before the custodial period rather than computed after it.*

The corollary is the paper's most directly usable conclusion and it is worth stating what makes it more than prudent advice. Ex ante governance is not merely easier; it is the only available form, because the two quantities an ex post allocation would need are established elsewhere in this programme to be unavailable. The fiduciary literature arrives at structurally similar conclusions about entrustment from a different direction, deriving duties from the structure of the relation rather than from a computation of outcomes [10].

The result also has a timing consequence that the arrangement's rationale sharpens. The terms must be fixed before the custodial period, and the custodial period begins when the participant is weakest. So the terms are negotiated at the moment of least bargaining power, which is precisely the hazard custody was proposed to avoid. Nothing here resolves that, and Section 7 records it.

5.5 Joint Gain and Autonomous Capability Are Independent

Definition 5.12 (Collaborative arrangement)**.** A collaborative arrangement between Y and Z induces a joint capability Γ_{YZ} and, for Y, an *autonomous capability* Γ_Y^{auto}: the capability Y would have on exiting the arrangement.

Proposition 5.13 (Independence of joint gain and autonomous position)**.** *There exist collaborative arrangements with $\Delta\Gamma_{YZ} > 0$ and $\Delta\Gamma_Y^{\text{auto}} < 0$, and the sign of $\Delta\Gamma_{YZ}$ constrains the sign of $\Delta\Gamma_Y^{\text{auto}}$ in neither direction.*

Proof. Let Z supply conditions and take direction-setting, external attribution, and control of the future development. Joint output rises because Z's conditions exceed Y's. Y's autonomous capability falls because Y's independent route — its own collaborators, its own recognized position, its own channels — receives no investment during the arrangement and depreciates as in Definition 5.1. This exhibits the first claim. The second follows by exhibiting the three remaining sign combinations: an arrangement in which Z transfers capability to Y gives both positive; a mismatched arrangement consuming both parties' conditions gives both negative; and an arrangement in which Y gains an independent position while the joint effort fails gives $\Delta\Gamma_{YZ} < 0$ with $\Delta\Gamma_Y^{\text{auto}} > 0$. □

Definition 5.14 (Counterfactual participation condition)**.** A collaborative arrangement satisfies the counterfactual participation condition for Y if $\Gamma_Y^{\text{co}} \geq \Gamma_Y^{\text{alt}}$, where Γ_Y^{alt} is Y's capability under its best feasible alternative arrangement.

Corollary 5.15 (Joint output is not evidence)**.** *By Proposition 5.13, whether the counterfactual participation condition holds is not a function of $\Delta\Gamma_{YZ}$. A collaborative arrangement assessed by joint output is assessed by a quantity independent of the condition.*

Corollary 5.16 (Recovery status is not a diagnostic conjunct)**.** *The diagnostic predicate contains no clause concerning the acting party's purpose. A collaborative or custodial arrangement entered under a recovery description therefore satisfies or fails the predicate on the same terms as any other arrangement.*

Corollary 5.16 is nearly immediate and is stated because it is a commitment rather than an observation: the framework is built so that no description of an arrangement's purpose enters its assessment.

Table 2: Recovery relations by damaged object, aid architecture, and characteristic failure. No row recommends an instrument or asserts that one works.

Relation	Object acted on	Architecture	Characteristic failure	Required record
Preserve	Continuity of the substrate: records, teams, tacit structure	Self or hybrid	A frozen archive with no living access	Usable formats, custodians, provenance, restoration trigger
Restore	Conditions for a retained organization	Any	Reproducing the original bottleneck	Which conditions, from whom, on what terms, with what alternatives
Reconnect	The participant's relational field	Hybrid	Rapid reconnection into a new capture	Consent, plural routes, exit, effects on existing members
Restitute	The participant's detached relation to what it produced	External	Symbolic recognition without position	What is restored, to what position, enforceable how
Endow	A new generative path where prior ones are foreclosed	External	Donor control and conditionality	Y's decision rights, exit, and the donor's return
Lend	Temporary access to another party's capacity	External	An unreturnable obligation to the lender	Duration, benefit division, reversion trigger
Steward	A retained capacity the participant cannot now expand	Hybrid	Alienation during weakness; frozen-copy return	Ex ante triggers, scope, shares, route-back, custodian's contribution
Co-create	A joint trajectory	Hybrid	Joint gain concealing autonomous loss	Counterfactual participation condition, voice, exit, attribution

6 The Recovery-Relation Matrix and Countermodels

This section presents the recovery relations, their objects, and their characteristic failure modes, and then exhibits five countermodels. Its objective is to make the matching requirement concrete and to mark the boundaries of the analysis.

6.1 Relations, Objects, and Failures

Table 2 lists eight recovery relations against the object each acts on, the aid architecture it presupposes, and its characteristic failure. The table specifies questions rather than recommendations, and no row asserts that any instrument works.

Two features of the table carry the argument. The second column is what Thesis 4.3 requires: an instrument is chosen by the object damaged, and rows are not interchangeable. The fourth column is what Thesis 4.4 requires: each failure mode is a way in which the relation formed by the

aid becomes the configuration the diagnostic identifies.

6.2 Countermodels

Countermodel 6.1 (Compensation without capacity)**.** A participant receives a transfer equal to the assessed value of a foreclosed development. Its condition level is unchanged, because the transfer is consumed maintaining viability, and it remains below the recovery threshold.

The countermodel separates a remedy that is adequate on a compensatory criterion from one that is adequate on a capacity criterion, and shows the first can be complete while the second is untouched.

Countermodel 6.2 (Recovery without aid)**.** A participant's condition level after a contraction remains above the recovery threshold. The loop restores it without external provision.

This countermodel matters for symmetry. The threshold thesis is not the claim that recovery always requires help; it is the claim that whether it does is a property of the state. Provision above the threshold is a different kind of decision and is not made necessary by the analysis.

Countermodel 6.3 (Containment without recovery)**.** A standing transfer holds a participant's viability above the threshold at which it would initiate a downstream relation. Its condition level remains below the recovery threshold indefinitely.

This is the middle regime of Proposition 5.7 and, on the paper's reading, a common shape. It is a complete success on one objective and a complete failure on the other, and describing it as partial recovery misdescribes both.

Countermodel 6.4 (Aid that is diagnosable)**.** A helper supplies conditions on terms under which the participant's continuing access depends on the helper's discretion, the participant's autonomous capability declines, and the helper's position improves through that dependence.

Every conjunct of the diagnostic can be satisfied here, and the relation is described throughout as assistance. The countermodel exists to make Corollary 5.16 concrete.

Countermodel 6.5 (Successful collaboration, worse participant)**.** A collaborative arrangement raises joint capability substantially. The participant's autonomous capability falls below what its best feasible alternative would have delivered.

This is the research discussion's own objection to its own proposal, and it is included as a countermodel because the objection was correct.

7 Open Questions

This section records what the project leaves unresolved, by register.

7.1 Conceptual and Formal

Open Problem 7.1 (Vector conditions and fertile components)**.** Definition 5.1 uses a scalar condition level, which contradicts the matching requirement the paper argues for elsewhere. In a vector version, some components may be fertile in the sense that securing them secures others [29], and the minimal sufficient transfer would then depend on composition rather than quantity. The threshold's replacement in that setting — a boundary in a condition space rather than a point — is not worked out.

Open Problem 7.2 (Non-monotone dynamics)**.** Monotonicity of ϕ makes the threshold unique. Congestion, overextension, and diminishing returns to conditions can all break it, leaving several thresholds and a recovery region that is not an interval. What aid policy looks like against a non-interval recovery region is unknown.

Open Problem 7.3 (The bargaining paradox of ex ante custody)**.** Corollary 5.11 requires custodial terms to be fixed in advance, and the custodial period begins when the participant is weakest. Whether standard terms, third-party trusteeship, or collectively governed custodial institutions can supply terms not negotiated at the point of least power is unresolved, and it is the most practically consequential gap in the paper.

Open Problem 7.4 (Measuring autonomous capability)**.** The counterfactual participation condition compares a participant's position in an arrangement with its position under a feasible alternative. Both terms are counterfactual, and the identification apparatus available in this programme supplies bounds rather than values. Whether the condition can be checked, rather than merely stated, is open.

7.2 Political-Economic

Whether the ordering $c_{\mathrm{v}} < c^*$ holds in any setting of interest determines whether the containment band exists, and nothing here establishes it.

Whether recovery provision is better organized through collectively held conditions [19, 12, 3] or through transfers to individual participants bears directly on Thesis 4.4, since the first distributes the discretion the audit is concerned with and the second concentrates it.

Whether a provider of recovery conditions comes to occupy the position that rent and platform analyses describe [4, 25] is the empirical form of the audit requirement, and the paper examines no case.

7.3 Normative

Who owes recovery conditions, and on what basis, is not settled here. The forward-looking structural model is available [31] and so is a liability model where a responsible party is identifiable, and the paper's threshold result bears on both without selecting between them: a boundary that provision can move is a boundary someone may be responsible for not moving, and the argument does not say who.

Whether a recovery criterion stated in terms of the participant's endorsed aims is defensible, given that aims adapt to circumstances [8], is a version of a known difficulty for capability approaches [22, 18] and is not resolved.

Whether a participant whose standing as a knower has been damaged can make its own case for what it needs [11] bears on any regime that requires applicants to demonstrate need, and the paper notes rather than pursues it.

7.4 Empirical

No recovery programme is evaluated here, no institution is named, and no claim is made about what any intervention achieves. The portfolio entry records that recovery dynamics, causal evaluation, institutional comparison, and evidence for candidate interventions are undeveloped, and this remains accurate. What an adequate study would require is at minimum a specified condition vector, a declared alternative arrangement, an identification strategy for the counterfactual trajectory, and a

design that separates containment from recovery — which Proposition 5.7 implies most existing evaluations do not do.

8 Limits and Revisable Research Program

This section states what the paper contributes, what would defeat it, and what it has not done.

8.1 Contributions

The conceptual contribution is the reframing of self-recovery as threshold-governed rather than effort-governed, together with the matching requirement that instruments be chosen by the damaged object.

The structural contribution is the separation of anti-propagation from recovery as objectives with separate sufficient levels, and the identification of a contained state that is stable, cheaper, and not recovery.

The formal contribution is four results: the recovery threshold with its crossing and threshold-crossing-sufficiency corollaries; the three aid regimes with the instability of fixed-transfer containment; the custodial impossibility with its ex ante governance corollary; and the independence of joint gain from autonomous capability with the corollary that joint output is not evidence.

The methodological contribution is the symmetric audit: the commitment that the diagnostic contains no clause about purpose, so that no relation is assessed more favorably for being described as assistance.

8.2 Defeat Conditions

The threshold result loses support if capability does not in fact generate conditions — if, for instance, conditions are allocated by processes uncorrelated with what a participant is currently able to do, in which case the loop does not close and the analysis has no object.

The regime separation loses support if the viability and recovery thresholds coincide, in which case containment and recovery are the same purchase and the middle band is empty.

The custodial impossibility loses support if either the unexploited counterfactual or the attribution of a joint development turns out to be determinable, both of which are established as unavailable elsewhere in this programme and either of which would be a welcome defeat.

The independence result loses support if autonomous capability is not well defined — if there is no fact about what a participant would be able to do on exiting an arrangement — which would also defeat the counterfactual participation condition and much else in the programme.

The project loses practical interest if the bargaining paradox of Open Problem 7.3 has no institutional solution, since custody would then be a mechanism whose only determinate form must be agreed at the moment of least power.

8.3 Development Status

The portfolio records this project as a constructive intervention paper and records that recovery dynamics, causal evaluation, institutional comparison, and evidence for candidate interventions remain undeveloped.

The status is as follows. The verified corpus stands at thirty-two entries and covers corrective, restorative, and reparative repair; capability, disadvantage, and traps; relational autonomy and recognition; the critique of intervention; fiduciary structure; collective provision; and the exploitation

theory used as the audit instrument. Recovery dynamics are supplied in a deliberately minimal form by Section 5, whose limitations are stated where the results are proved. Causal evaluation, institutional comparison, and evidence remain entirely undeveloped, and the paper recommends no package and evaluates no programme.

Deferred questions are assigned. The diagnostic belongs to the capability framework, propagation to the propagation project, identification to the latent-generativity project, closed configurations to the cycles project, the commons object to the commons project, standing control of expansion conditions to the political-economic project, induced dependence to the revocable-infrastructure project, and the AI topology to the AI-mediated project. The legal form of restitution, and of the custodial and fiduciary duties this paper treats structurally, belongs to the jurisprudential project.

8.4 The Conservative Position

Stated as conservatively as the arguments permit: what a contraction damages is a capacity rather than a holding, so a remedy should be assessed by what capacity it restores; whether a participant can restore it alone is settled by which side of a threshold its state lies on, and the exploitation is what can move it across; support that stops a participant from passing its deficit downstream is a different purchase from support that restores it, and the first is often cheaper and is not the second; a capacity kept alive by someone else returns as a position in an evolved trajectory rather than as the thing that left, and the terms of that return must be fixed before the weakness rather than after it; a collaboration that produces more says nothing about whether a participant is better off in it; and every one of these arrangements is a relation, assessed by the same instrument as the relation that made it necessary.

None of this recommends an intervention, and none of it establishes that any intervention works.

References

[1] Elizabeth S. Anderson. What is the point of equality? *Ethics*, 109(2):287–337, 1999.

[2] Joel Anderson and Axel Honneth. Autonomy, vulnerability, recognition, and justice. In John Christman and Joel Anderson, editors, *Autonomy and the Challenges to Liberalism: New Essays*, pages 127–149. Cambridge University Press, Cambridge, 2005.

[3] Yochai Benkler. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. Yale University Press, New Haven, CT, 2006.

[4] Kean Birch. Technoscience rent: Toward a theory of rentiership for technoscientific capitalism. *Science, Technology, & Human Values*, 45(1):3–33, 2020.

[5] Samuel Bowles, Steven N. Durlauf, and Karla Hoff, editors. *Poverty Traps*. Princeton University Press, Princeton, NJ, 2006.

[6] John Braithwaite. *Restorative Justice and Responsive Regulation*. Oxford University Press, New York, 2002. The Oxford University Press record consulted gives the print ISBN 9780195136395; Crossref indexes the volume under 2001.

[7] Pablo de Greiff. Justice and reparations. In Pablo de Greiff, editor, *The Handbook of Reparations*, pages 451–472. Oxford University Press, Oxford, 2006.

[8] Jon Elster. *Sour Grapes: Studies in the Subversion of Rationality*. Cambridge University Press, Cambridge, 1983.

[9] James Ferguson. *The Anti-Politics Machine: Development, Depoliticization, and Bureaucratic Power in Lesotho*. University of Minnesota Press, Minneapolis, 1994. The DOI record consulted is the electronic edition, ISBN 9781452965758.

[10] Tamar Frankel. Fiduciary law. *California Law Review*, 71(3):795–836, 1983.

[11] Miranda Fricker. *Epistemic Injustice: Power and the Ethics of Knowing*. Oxford University Press, Oxford, 2007.

[12] Brett M. Frischmann. *Infrastructure: The Social Value of Shared Resources*. Oxford University Press, New York, 2012.

[13] Alvin W. Gouldner. The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25(2):161–178, 1960.

[14] C. S. Holling. Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4:1–23, 1973.

[15] Catriona Mackenzie. The importance of relational autonomy and capabilities for an ethics of vulnerability. In Catriona Mackenzie, Wendy Rogers, and Susan Dodds, editors, *Vulnerability: New Essays in Ethics and Feminist Philosophy*, pages 33–59. Oxford University Press, New York, 2013.

[16] Charles F. Manski. Nonparametric bounds on treatment effects. *The American Economic Review*, 80(2):319–323, May 1990. Papers and Proceedings.

[17] Jennifer Nedelsky. Reconceiving autonomy: Sources, thoughts and possibilities. *Yale Journal of Law & Feminism*, 1(1):7–36, 1989.

[18] Martha C. Nussbaum. *Women and Human Development: The Capabilities Approach*. The Seeley Lectures. Cambridge University Press, Cambridge, 2000.

[19] Elinor Ostrom. *Governing the Commons: The Evolution of Institutions for Collective Action*. Canto Classics. Cambridge University Press, Cambridge, 2015. Canto Classics reissue; originally published in 1990.

[20] Philip Pettit. *Republicanism: A Theory of Freedom and Government*. Oxford Political Theory. Oxford University Press, Oxford, 1997.

[21] John Rawls. *A Theory of Justice*. Harvard University Press, Cambridge, MA, revised edition, 1999.

[22] Ingrid Robeyns. The capability approach: A theoretical survey. *Journal of Human Development*, 6(1):93–117, 2005.

[23] John E. Roemer. *A General Theory of Exploitation and Class*. Harvard University Press, Cambridge, MA, 1982.

[24] Amartya Sen. Capability and well-being. In Martha C. Nussbaum and Amartya Sen, editors, *The Quality of Life*, pages 30–53. Oxford University Press, Oxford, 1993.

[25] Nick Srnicek. *Platform Capitalism*. Theory Redux. Polity Press, Cambridge, 2017.

[26] Nicholas Vrousalis. Exploitation, vulnerability, and social domination. *Philosophy & Public Affairs*, 41(2):131–157, 2013.

[27] Ernest J. Weinrib. *The Idea of Private Law*. Oxford University Press, Oxford, 2012. Revised edition; originally published by Harvard University Press in 1995.

[28] Alan Wertheimer. *Exploitation*. Princeton University Press, Princeton, NJ, 1996.

[29] Jonathan Wolff and Avner de Shalit. *Disadvantage*. Oxford Political Theory. Oxford University Press, Oxford, 2007.

[30] Gabriel Wollner. Anonymous exploitation: Non-individual, non-agential and structural. *Review of Social Economy*, 77(2):143–162, 2019.

[31] Iris Marion Young. Responsibility and global justice: A social connection model. *Social Philosophy and Policy*, 23(1):102–130, 2006.

[32] Matt Zwolinski. Structural exploitation. *Social Philosophy and Policy*, 29(1):154–179, 2012.