

Means of Generative Expansion: Control, Distribution, and Accumulation of Realization Conditions

Wanhong HUANG
huangwanhong@serendip.ngo

Abstract

Classical accounts of exploitation locate a structural invariant in ownership of the means of production: a worker holds labor power and lacks the factory, machinery, and distribution required to realize it, and must therefore enter a process another party governs. This paper asks what becomes of that invariant when the capacity at issue is generative and non-rival. The answer proposed here turns on a distinction the classical case does not require. Ownership of productive means governs the conditions under which a capacity is *exercised*, which is why the worker must enter the owner's process. Control of realization conditions for a generative capacity leaves exercise untouched and governs the conditions under which the capacity *expands*. The affected participant continues to hold and to use what it holds, and stands in no relation whatever to the controlling party. This breaks the employment template and explains why no transaction, contract, or encounter need occur anywhere in the configuration. The paper's second claim concerns rivalry. A generative capacity is non-rival in possession: two parties can hold the same grammar, method, or technique without diminishing one another. It does not follow that they can both expand it, because expansion runs through conditions that are scarce, and through positions such as priority and recognition that are constituted by ranking and therefore cannot be held by everyone. Non-rivality relocates conflict rather than removing it. The paper then models realization conditions as a conversion network in which heterogeneous holdings convert into one another at institutionally determined rates, and shows that conversion together with reinvestment produces cumulative advantage endogenously, with no intention to exclude anywhere in the mechanism. It shows that positional conditions are non-distributable in a strict sense, so that a purely distributive remedy is structurally partial and a complete response must alter conversion rates or positional structure. It records what accumulates: position in a conversion network rather than a stock of value, which is why a value-theoretic accounting of the advantage is unavailable. And it preserves the correction that governs the whole: control of expansion conditions is one mechanism among several rather than the essence of the relation, and the diagnostic question remains with a companion project. The paper establishes no prevalence, proposes no policy, claims no replacement of labor exploitation, and classifies no firm, sector, or institution.

Keywords: means of generative expansion; realization conditions; conversion of capital forms; cumulative advantage; positional goods; accumulation; political economy of generativity.

Document Status, Preparation, and Reuse

This unnumbered section records the manuscript’s status, research genealogy, preparation process, and reuse conditions. These statements govern the document and carry no evidential weight for its substantive position.

Status and correspondence. This paper is a revisable discussion document. Its constructions are proposals, its formal results are conditional on declared assumptions, and its empirical bridges remain open. Objections, counterexamples, corrections, alternative formulations, and relevant literature are welcome at huangwanhong@serendip.ngo.

Research genealogy. Four moves are researcher-origin. The chain from acquisition of another’s generative organization, through possession of conditions permitting its expansion, to foreclosure of the original holder’s own expansion. The conjecture that capital continues to control the means through which productive potential becomes socially effective, so that a structural invariant survives the change of object. The sharpening of that conjecture into a difference: control operates on the target’s *expansion* conditions rather than on the target directly, so that the affected party need not enter the controller’s process at all. And the correction that condition control is one mechanism rather than the essence, since what matters is that another holder of the same or a similar generative organization is unable to expand it.

The student-and-professor case, in which one party originates an idea and another obtains funding, realizes it first, and occupies the recognized position while the originator remains resource-constrained and unrecognized, is likewise researcher-origin.

The phrase *means of generative expansion*, the conversion-network construction, the cumulative-advantage results, the non-distributability result, and every countermodel are agent-added.

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1 Introduction

A student has an idea and continues to have it. A professor learns the idea, obtains funding, assembles collaborators, publishes first, and occupies the recognized position. The student retains the idea in full, retains the capacity that produced it, and can no longer develop it: the funding is committed, the collaborators are engaged, the priority is taken, and nobody knows the student was involved. Nothing was removed from the student's possession and the student's future has been substantially reorganized.

This configuration is the paper's subject. It resembles classical exploitation in one respect and differs in another, and getting both right is the work.

The resemblance is a structural invariant that classical political economy identified. A worker holds labor power and lacks the factory, the machinery, the land, and the distribution system required to realize it at scale [13]. Ownership of those means is what compels the worker to enter a process the owner governs. The invariant is that whoever controls the means through which a productive potential becomes socially effective controls the potential's realization, whatever the potential happens to be.

The difference is sharper and is this paper's starting point. Ownership of productive means governs the conditions under which the capacity is *exercised*. That is why the worker must enter the owner's process: the capacity cannot be used elsewhere. Control of realization conditions for a generative capacity leaves exercise entirely untouched. The student still thinks, still works, still holds the idea, and may continue to develop it in whatever way unfunded and unrecognized work permits. What has been governed is not exercise but *expansion*: the conditions under which the capacity could have become socially effective at scale.

One consequence is immediate and is easy to miss. Because control operates on expansion rather than exercise, the affected participant need stand in no relation whatever to the controlling party. There need be no contract, no transaction, no employment, and no encounter. The employment relation, which organizes the classical account and supplies its evidentiary anchors, is simply absent. A theory built on transactions between parties will not find this configuration because there is no transaction in it.

A second question follows. A generative capacity is non-rival in possession: two people can hold the same grammar, method, or technique, and neither diminishes the other. It is tempting to conclude that non-rivalry removes the conflict. It does not. Two holders of the same capacity cannot both expand it, because expansion runs through conditions that are scarce and through positions such as priority, recognition, and attention that are constituted by ranking and therefore cannot be occupied by everyone at once. The paper states this as non-rivalry in possession together with rivalry in expansion. The conflict is not removed; it is relocated from the capacity to the conditions.

Three further claims organize the analysis. The realization conditions are heterogeneous and inter-convertible: funding buys compute, compute yields results, results yield recognition, recognition yields funding. What matters is therefore not any single holding but position in a conversion network whose rates are set institutionally rather than technically. Conversion together with reinvestment produces cumulative advantage endogenously, so that an initial asymmetry widens without anyone intending to exclude anyone; the student-and-professor case is a cumulative-advantage case before it is a case of bad faith, and the paper argues that this makes it harder rather than easier to address. And positional conditions are non-distributable in a strict sense: a rank cannot be raised for everyone, so a purely distributive remedy is structurally partial and a complete response must alter conversion rates or positional structure rather than reallocating holdings.

What accumulates, on this account, is position in a conversion network rather than a stock

of value. This has a consequence the paper takes seriously: no value-theoretic accounting of the advantage is available, since there is no conserved substance being transferred. The classical apparatus would measure what has been taken, and here nothing has been taken.

The paper preserves one correction throughout, and it is the researcher's. Control of expansion conditions is a mechanism, not an essence. What matters is that another holder of the same or a similar generative organization becomes unable to expand it, and condition control is one route to that outcome among others. This paper studies the mechanism; whether any instance of it is exploitation is a question for the companion diagnostic, which requires participant standing, an admissible comparison, and a benefit-through relation that the mechanism alone does not supply.

The paper establishes no prevalence, proposes no policy, claims no replacement of labor exploitation by generativity exploitation, and classifies no firm, sector, or institution. It is the least developed branch of its research programme and is presented as a first structural treatment rather than a completed political economy.

The argument proceeds in seven further sections. Section 2 analyzes the invariant and the exercise-expansion difference. Section 3 reviews the political-economy traditions the problem engages. Section 4 argues the six theses. Section 5 supplies the formal results. Section 6 states countermodels and the student-and-professor structure. Section 7 collects open questions, and Section 8 states limits and defeat conditions.

The philosophical and formal parts are *formally independent*, since every proposition follows from declared assumptions and no derivation cites a thesis, and *justificatorily dependent*, since the formal results describe structures whose interest rests on the arguments. Section 4.7 records what fails if each thesis is rejected.

2 The Invariant and Its Limit

This section performs the problem analysis. Its objective is to state precisely what carries over from the classical account and what does not, and to derive the requirements a political economy of generative expansion must satisfy.

2.1 What Carries Over

This subsection states the invariant.

The classical account locates exploitation in a relation between a capacity and the means of its realization. The worker possesses labor power; the capitalist possesses the means of production; and the worker must enter the capitalist's process because labor power cannot be realized without those means [13]. The relation is not primarily about the transaction's terms. It is about who controls what the capacity requires.

Stated at that level of abstraction the relation is indifferent to the capacity in question. Whoever controls the means through which a productive potential becomes socially effective is positioned to govern how that potential is realized, whether the potential is labor power, a research programme, or a generative organization. This is the invariant the researcher identified, and the paper accepts it.

Marx's later discussion of the general intellect anticipates a complication: where productive power resides in accumulated collective knowledge rather than in individual labor time, the account's units become difficult to apply [12]. The complication is real and is not this paper's subject; what matters here is that the invariant survives the shift while the apparatus around it does not.

2.2 Exercise Against Expansion

This subsection states the difference that organizes the paper.

Classical control operates on the conditions under which the capacity is *exercised*. Labor power is realized by working, working requires the means of production, and the means are owned by another party. The worker's capacity is therefore unusable outside the owner's process, which is what makes entry compulsory and what makes the employment relation the natural unit of analysis.

Control of realization conditions for a generative capacity does not operate on exercise. A person who holds a method continues to hold it, continues to be able to apply it, and requires no permission to think. What such control operates on is expansion: the conditions under which the capacity develops, scales, is taken up by others, and becomes a trajectory rather than an episode.

Three consequences follow, and each breaks a feature of the classical template.

The affected participant retains and uses the capacity, so no dispossession in the ordinary sense occurs and no inventory of what was taken can be produced.

The affected participant need enter no process belonging to the controller. There need be no contract, no transaction, and no encounter of any kind. In the student-and-professor structure the two may never interact after the initial exposure.

The relation is therefore not identifiable by examining a transaction, which is where the classical account and most of its successors look. The configuration is visible only by comparing what the affected participant could have developed under an alternative arrangement with what it can develop under the actual one, which is the comparison the companion diagnostic constructs.

2.3 The Correction

This subsection preserves the constraint that limits the paper's ambition.

It would be natural, having identified condition control, to treat it as the essence of the relation. The researcher explicitly declined that move: condition control is one mechanism, and what matters is that another holder of the same or a similar generative organization becomes unable to expand it.

The correction has teeth. Foreclosure of another holder's expansion can occur through condition control, and it can also occur through occupying a position, through establishing a standard that renders alternatives illegible, through absorbing the collaborators, or through simply arriving first with adequate resources. A political economy organized entirely around condition control would misclassify every case that runs through another route.

This paper therefore studies condition control as a mechanism family and makes no claim to have identified the essence of anything. The diagnostic question remains with the companion project.

2.4 Requirements

The analysis yields four requirements. An account must represent realization conditions as heterogeneous rather than as a single resource, since funding, compute, collaborators, priority, and recognition behave differently. It must represent their relations to one another, since they are obtained through one another. It must explain how asymmetry grows without assuming intent, since the motivating cases involve none. And it must state what accumulates, given that no conserved substance is transferred.

3 Political-Economy Traditions

This section locates the paper among the traditions its problem engages. Its objective is bounded positioning: each supplies a construction or a constraint, none supplies an account of expansion

conditions for a generative capacity, and their disagreements are preserved.

3.1 Means, Value, and Property Relations

Marx’s account supplies the invariant and an apparatus this paper does not adopt [13]. Roemer’s reconstruction is more usable here, since it defines exploitation through the distribution of productive assets and a withdrawal comparison rather than through a value substance [16], and Cohen argues that the charge survives removal of the labor theory of value entirely [6]. Both matter because the present configuration transfers no conserved quantity, so an account requiring one cannot describe it.

A further tradition locates the wrong in the relation itself. Vrousalis analyzes exploitation as the self-enriching instrumentalization of another’s vulnerability, which is a species of domination [21]. This account is instructive here for what it cannot reach. Instrumentalizing another’s vulnerability requires a relation to that party, and the configuration analyzed in this paper contains none: the controlling party may never encounter the affected participant, may not know of its existence, and does not use it for anything. Where the relation is absent the account is silent, and the silence is a finding rather than a defect, since it locates precisely what is unusual about the configuration.

Zwolinski’s constraint applies directly [24]: an analysis organized around control of conditions invites the inference that any transaction occurring under asymmetric control is thereby exploitative, and that inference would make the category vacuous.

3.2 Forms of Capital and Their Conversion

Bourdieu analyzes capital in several forms — economic, cultural, and social — and treats their convertibility as a central feature, with conversion requiring transformation work and occurring at rates that are socially rather than technically determined [4]. Symbolic capital, in the form of recognition, is on that account both an outcome of conversion and an input to further conversion.

This is the paper’s principal construction-supplying antecedent. The realization conditions at issue here — funding, compute, collaborators, institutional position, priority, recognition, distribution — are heterogeneous in exactly Bourdieu’s sense and are obtained through one another in exactly his manner. The paper’s conversion network is an application of that framework to a target Bourdieu did not address, and it adopts none of his surrounding sociology.

3.3 Cumulative Advantage

Merton analyzes the Matthew effect in science: recognition accrues disproportionately to those already eminent, so that in cases of collaboration or multiple discovery the credit flows to the better-known party, and the resulting advantage compounds through access to resources, students, and attention [14].

The relevance is direct and the paper should state it plainly. The student-and-professor structure is, in its recognition dimension, a Matthew effect. Merton’s analysis establishes that such dynamics operate through ordinary institutional mechanisms without requiring anyone to intend the outcome, which is the feature the paper’s fourth thesis generalizes.

3.4 Positional Goods

Hirsch analyzes goods whose value derives from relative standing, and argues that as societies grow richer an increasing share of what is sought cannot be obtained by all without being spoiled for each other [10]. Priority, recognition, and attention are positional in this sense.

This supplies the paper’s non-distributability result. A positional condition cannot be expanded for everyone, so the standard remedial move of increasing supply is unavailable for the part of the configuration that runs through position.

3.5 Intangibles, Rent, and Infrastructure

Haskel and Westlake analyze the rise of intangible investment and identify properties distinguishing it from tangible investment, including scalability, sunkness, spillovers, and synergies [9]. Scalability and synergies bear on the paper’s cumulative-advantage results, since both describe returns that grow with existing holdings.

Birch analyzes rentiership, in which value is appropriated through ownership and control rights rather than commodity production [3]. Srnicek analyzes platforms as intermediary positions with control over the data their mediation generates [19], and Khan analyzes structural market power that a price-centered antitrust standard fails to capture [11]. Frischmann analyzes infrastructure whose value lies in the downstream activity it enables [8], and Boyle analyzes the extension of property rights over intangibles [5].

These supply the vocabulary for control exercised through position rather than through holdings. None addresses a capacity that its holder retains while losing the conditions of its expansion.

3.6 Contributed Input and Collective Production

Terranova analyzes activity freely given and simultaneously appropriated [20]; Couldry and Mejias analyze extraction organized as a colonial structure [7]; and Benkler analyzes production without proprietary exclusion or managerial direction [2]. Romer’s treatment of ideas as nonrival and partially excludable supplies the property from which the paper’s rivalry thesis departs [17].

Table 1 records what each supplies and withholds.

Table 1: Political-Economy Traditions Engaged. No tradition reviewed addresses a capacity whose holder retains it while losing the conditions of its expansion. The third column records the constraint each imposes.

Tradition	What it supplies	Constraint imposed here
Means of production [13]	The invariant: control of realization governs the potential	Its apparatus assumes control of exercise, which does not obtain here
Property relations [16, 6]	Exploitation without a value substance	Required, since no conserved quantity is transferred
General intellect [12]	Productive power in collective knowledge	Locates the difficulty; supplies no units
Forms of capital [4]	Heterogeneous capitals and socially set conversion rates	Principal construction; applied to a target it did not address
Cumulative advantage [14]	Recognition compounding through ordinary mechanisms	Establishes that intent is unnecessary for the dynamic
Positional goods [10]	Value deriving from relative standing	Supply expansion is unavailable for positional conditions
Intangibles [9]	Scalability, sunkness, spillovers, synergies	Returns growing with holdings; no account of foreclosed holders
Rent and platforms [3, 19, 11]	Control through position rather than holdings	Vocabulary only; no account of retained capacity
Infrastructure and enclosure [8, 5]	Value in what a resource enables; rights extension over intangibles	The present mechanism requires no new right
Contributed input [20, 7, 2]	Distributed contribution meeting narrow capture	Establishes the pattern; leaves the expansion question open
Non-rivalry [17]	Ideas as nonrival, partially excludable	The property from which the rivalry thesis departs
Structural limitation [24]	Background does not settle a transaction	Asymmetric control does not make a transaction exploitative

4 Conversion, Accumulation, and Position

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

4.1 Control of Expansion Rather Than Exercise

Thesis 4.1 (Exercise-expansion separation). Control of realization conditions for a generative capacity governs expansion while leaving exercise intact. The affected participant therefore retains and uses the capacity and need stand in no relation to the controlling party.

The argument is given in Section 2 and is formalized as Proposition 5.1. Its significance is methodological. Every account that locates exploitation in a transaction, a contract, or an employment relation is looking at an object that need not exist in this configuration, and the evidentiary anchors those accounts rely on are unavailable.

The strongest objection is that expansion conditions are simply exercise conditions at a longer time horizon, so the distinction collapses: a researcher without funding cannot exercise the capacity either, in any meaningful sense. The reply concedes that the boundary is not sharp and denies

that it therefore vanishes. The relevant test is whether the capacity can be exercised at all outside the controller’s process. A worker without access to the factory cannot work; a researcher without funding can still think, write, teach, and publish at small scale. Where that residual is genuinely zero the configuration approaches the classical one, and the paper’s analysis converges with the classical account rather than competing with it.

4.2 Rivalry in Expansion

Thesis 4.2 (Non-rivalry in possession with rivalry in expansion). A generative capacity is non-rival in possession and rival in expansion. Two holders do not diminish one another by holding it, and they cannot both expand it, because expansion runs through scarce and positional conditions.

The argument proceeds from what expansion requires. To expand a capacity is to develop it, scale it, have it taken up, and establish it as a trajectory. Each of these requires conditions: time, funding, collaborators, venues, attention. Some of those conditions are consumed by use and some are positional. Where the condition is positional, two holders are in direct conflict by construction, since priority in a line of work and recognition as its source cannot be held by both.

The thesis explains why the researcher’s formulation is exactly right: one party’s expansion of a capacity can render another party’s expansion of the same capacity infeasible, even though the capacity itself was never scarce and remains fully in both parties’ possession.

The strongest objection is that this describes ordinary competition, which is not obviously objectionable and which the framework is elsewhere at pains to exclude. The reply accepts the description and denies the inference. The thesis is a structural claim about where conflict is located, not a normative claim that the conflict is wrongful. Whether an instance is exploitation requires the companion diagnostic’s further conditions, and the paper repeats the constraint against inferring a classification from a structural feature [24].

4.3 Conditions Form a Conversion Network

Thesis 4.3 (Conversion network). Realization conditions are heterogeneous and inter-convertible at rates determined institutionally rather than technically. What matters for expansion is position in the conversion network rather than any single holding.

The argument is that the conditions are obtained through one another in practice. Funding purchases compute and time; compute and time yield results; results yield recognition; recognition yields funding, collaborators, and institutional position. Bourdieu’s analysis of capital forms and their convertibility describes exactly this structure and emphasizes that conversion requires transformation work and occurs at socially determined rates [4].

Two consequences follow. A participant rich in one condition and unable to convert is not advantaged, which is why an isolated grant to a party without institutional position frequently accomplishes little. And the rates are policy variables rather than natural constants, which is where Thesis 4.5 locates the available remedial handle.

The strongest objection is that conversion rates are not well defined, since the conditions are incommensurable and no exchange rate exists between recognition and compute. The reply concedes that no scalar rate exists and denies that the network requires one. What the construction requires is that some quantity of one condition can be transformed into some quantity of another under stated institutional arrangements, which is an ordinal and highly context-dependent relation rather than a price. Section 7 records the measurement problem as unresolved.

4.4 Cumulative Advantage Without Intent

Thesis 4.4 (Endogenous accumulation). Conversion together with reinvestment produces cumulative advantage endogenously. An initial asymmetry widens through ordinary institutional operation, with no intention to exclude anywhere in the mechanism.

The argument is formalized as Proposition 5.3 and is straightforward: where returns to expansion are non-decreasing in holdings and returns are reinvested, the ratio of holdings does not fall, and where returns are increasing in holdings it rises. The intangible-investment literature identifies scalability and synergies as characteristic properties [9], both of which supply the required monotonicity, and Merton’s analysis establishes that the recognition channel operates through ordinary institutional mechanisms rather than through anyone’s decision to disadvantage anyone [14].

Wollner’s analysis of exploitation that is non-individual, non-agential, and structural is the closest verified treatment of a wrong arising without anyone performing it [22], and it is the category into which an intent-free cumulative dynamic falls if it is a wrong at all.

The thesis has a consequence the paper regards as important and uncomfortable. The student-and-professor case is a cumulative-advantage case before it is a case of bad faith, and it would arise between two entirely scrupulous parties. This makes the configuration harder to address rather than easier, since a remedy directed at conduct will find no conduct to correct, and it is a reason to resist the natural narrative in which such cases are stories about a wrongdoer.

The strongest objection is that this exculpates parties who do in fact act badly, and that presenting the structure as intent-free is politically convenient for those advantaged by it. The reply is that the thesis establishes sufficiency and not necessity: the mechanism operates without intent, and nothing follows about whether intent is present in any case. Where a party does act to foreclose another, that is a further fact with further consequences, and the companion projects treat intention as a separate variable throughout.

4.5 Positional Conditions Are Non-Distributable

Thesis 4.5 (Non-distributability). Positional conditions cannot be distributed. A purely distributive remedy is therefore structurally partial, and a complete response must alter conversion rates or positional structure rather than reallocating holdings.

The argument is Proposition 5.4 and is elementary: a positional condition assigns a rank, ranks are exhaustive over the population, and no reallocation raises everyone’s rank. Hirsch’s analysis establishes that this is a general feature of goods whose value derives from relative standing [10].

The consequence for remedy is substantial. Increasing the supply of funding, compute, or training is available and can matter. Increasing the supply of priority is incoherent. A response confined to distributing holdings therefore addresses part of the configuration and leaves the positional part untouched, and a response reaching the positional part must change how position is assigned, how much it converts into, or how much depends on it.

The strongest objection is that positional conditions are less important than the paper suggests, since what participants ultimately need is resources and recognition is a proxy. The reply is that the conversion network makes the distinction unstable: recognition is not merely a proxy for resources but a route to them, so a participant deprived of position is deprived of the conversions that position enables. Whether the positional channel dominates is an empirical question the paper does not settle.

4.6 What Accumulates

Thesis 4.6 (Position rather than stock). What accumulates in this configuration is position in a conversion network rather than a stock of value. No value-theoretic accounting of the advantage is available, since no conserved substance is transferred.

The argument is that each element of the classical accounting fails here. Nothing leaves the affected participant's possession. No quantity is conserved across the configuration. The advantage the benefiting party holds is constituted by its position in a network of convertible conditions, and that position is relational rather than substantival.

Anderson's argument that egalitarian justice concerns the character of social relations in place of a purely distributive criterion bears on this directly [1]. If what is accumulated is a relational standing rather than a holding, then a distributive accounting is looking for the wrong kind of object, and an evaluation attending to relations is better suited to it. The paper draws no further conclusion from this, since Anderson's account is addressed to equality rather than to accumulation.

Cohen's argument that the exploitation charge survives removal of the labor theory of value is what makes this tolerable rather than fatal [6], and Roemer's asset-based reconstruction shows that a usable account can be built on holdings and counterfactual comparison without a value substance [16].

The strongest objection is that without an accounting there is no way to say how much advantage was obtained, which leaves the analysis unable to support any remedy proportionate to a gain. The reply concedes the difficulty and locates it precisely: the companion identification project establishes that magnitude frequently remains unidentified while existence is supported, and the same asymmetry applies here. What follows is that proportionate compensation is unavailable, and that responses must be structural rather than compensatory.

4.7 Dependence of the Framework on the Six Theses

Rejecting Thesis 4.1 returns the analysis to the classical template and makes the configuration a variant of employment, which the absence of any relation between the parties contradicts. Rejecting Thesis 4.2 makes non-rivalry dissolve the conflict, which the positional conditions contradict. Rejecting Thesis 4.3 leaves the conditions as an unstructured list and removes the mechanism of accumulation. Rejecting Thesis 4.4 requires intent to explain widening asymmetry, which the motivating cases do not supply. Rejecting Thesis 4.5 restores distribution as a complete remedy, which the exhaustiveness of ranks contradicts. Rejecting Thesis 4.6 restores a value accounting, which would be welcome and which the paper argues is unavailable.

Theses 4.2 and 4.4 are load-bearing. Thesis 4.4 is the most contestable, since the intent-free framing is politically consequential and the paper's reply rests on a sufficiency-necessity distinction a reader may find too convenient. Every proposition below survives the rejection of all six.

5 Formal Results

This section supplies the paper's formal content. Its objective is to state three claims precisely: that exercise and expansion are independent, that conversion with reinvestment compounds, and that positional conditions cannot be distributed.

5.1 Declared Objects

Let a participant hold a generative organization G and a vector of realization conditions $h \in \mathbb{R}_{\geq 0}^m$ over condition types $c_1, \dots, c_m$. Let $\mathcal{E}(G, h)$ denote the participant's expansion outcome over a declared period: the extent to which the capacity develops, scales, and is taken up. The companion diagnostic represents the corresponding object as a set of reachable trajectories rather than a scalar, following the distinction between what a participant achieves and what it is positioned to achieve [18]; the scalar used here is a deliberate simplification adopted for the monotonicity argument, and Section 7 records that whether expansion admits any defensible aggregation is unresolved [15]. Let a subset $\mathcal{P} \subseteq \{1, \dots, m\}$ index positional condition types, for which the holding is a rank within the population rather than a quantity.

Let Θ be a conversion structure: a relation specifying, for condition types i and j , what quantity of j can be obtained from a quantity of i under the prevailing institutional arrangements. Θ is a policy-dependent object and is not assumed to be a matrix of scalars.

5.2 Exercise and Expansion Are Independent

Proposition 5.1 (Exercise-expansion separation). *There exist condition profiles h and h' such that a participant's permission and physical ability to exercise G are identical under both, while $\mathcal{E}(G, h') < \mathcal{E}(G, h)$.*

Proof. Exercise requires the participant to possess G and to be permitted to apply it. Expansion additionally requires condition types that exercise does not, for instance funding or a venue. Take h' agreeing with h on possession and permission and differing on such a type. Exercise is unchanged by construction and expansion falls with the withdrawn type. $\square$

The result is immediate once expansion and exercise are distinguished, and its importance lies in what it licenses. It establishes that a configuration can exist in which the affected participant is fully able to use its capacity, is party to no transaction, and is materially worse positioned. The companion diagnostic's comparison is the only route to detecting it, and instruments examining permissions or contracts detect nothing.

This is the participant-level counterpart of a result the companion commons project states for practices, and the two share a structure: what contracts is a reachable set, and what is examined by standard instruments is a permission.

5.3 Conversion With Reinvestment Compounds

Assumption 5.2 (Monotone returns and reinvestment). Expansion returns are non-decreasing in holdings: $h \leq h'$ componentwise implies $\mathcal{E}(G, h) \leq \mathcal{E}(G, h')$. A fixed share $\rho \in (0, 1]$ of expansion outcome is reinvested into holdings through Θ , so that $h_{t+1} = h_t + \rho \Theta[\mathcal{E}(G, h_t)]$, where $\Theta[\cdot]$ denotes the holdings obtainable from the outcome under the prevailing conversion structure and is non-decreasing in its argument.

Proposition 5.3 (Non-closing gap). *Under Assumption 5.2, let two participants hold the same G with $h_A(0) \leq h_B(0)$ componentwise. Then $h_A(t) \leq h_B(t)$ componentwise for every t . If in addition $\Theta[\mathcal{E}(G, \cdot)]$ is strictly increasing in the relevant range and $h_A(0) \neq h_B(0)$, the componentwise difference $h_B(t) - h_A(t)$ is non-decreasing in t and strictly increasing in at least one component.*

Proof. By induction. The base case is the hypothesis. Suppose $h_A(t) \leq h_B(t)$. Monotonicity of $\mathcal{E}$ gives $\mathcal{E}(G, h_A(t)) \leq \mathcal{E}(G, h_B(t))$, and monotonicity of $\Theta[\cdot]$ preserves the order, so the increments

satisfy $\rho \Theta[\mathcal{E}(G, h_A(t))] \leq \rho \Theta[\mathcal{E}(G, h_B(t))]$. Adding these to the ordered holdings preserves the order, giving $h_A(t+1) \leq h_B(t+1)$. For the second statement, the increments are strictly ordered in at least one component under strict monotonicity, so the difference grows there. $\square$

The proposition contains no agent, no decision, and no intention. It states that an initial asymmetry between two holders of the same capacity does not close and generally widens, given only that returns rise with holdings and that returns are reinvested. Both conditions are ordinary features of the settings at issue, and the intangible-investment literature identifies the first as characteristic [9].

5.4 Positional Conditions Cannot Be Distributed

Proposition 5.4 (Non-distributability). *Let $i \in \mathcal{P}$ be a positional condition type assigning each of n participants a distinct rank in $\{1, \dots, n\}$. Then no reallocation improves the rank of every participant, and the sum of ranks is invariant under reallocation.*

Proof. The ranks form a permutation of $\{1, \dots, n\}$ under any allocation, so their sum is $n(n+1)/2$ regardless of allocation. If every participant's rank improved, the sum would strictly decrease, contradicting invariance. $\square$

The result is trivial arithmetic and is included because the remedial move it blocks is widely proposed. Expanding the supply of a positional condition is not difficult; it is incoherent. Whatever is expanded when more prizes, more titles, or more recognized positions are created is a different condition, and whether it converts at the same rate is an empirical question that the creation of the new positions itself alters.

Corollary 5.5 (Partiality of distributive remedy). *Where expansion depends on both non-positional and positional condition types, a remedy confined to reallocating holdings addresses the non-positional dependence only.*

6 The Student-and-Professor Structure and Countermodels

This section states the motivating structure formally and supplies cases discriminating the paper's claims. The structure is schematic and classifies no actual episode.

6.1 Three Phases

The researcher's case decomposes into three phases, and the decomposition clarifies which of the paper's claims each phase engages.

Acquisition. One party comes to hold the generative organization another party holds. This phase is non-rival by construction: the originator loses nothing, and Thesis 4.2 is not yet engaged.

Condition asymmetry. The acquiring party possesses conditions the originator lacks, and can convert among them. This engages Theses 4.3 and 4.4, and requires no action directed at the originator.

Foreclosure. The acquiring party's expansion occupies positional conditions, and the originator's expansion of the same capacity becomes infeasible. This engages Theses 4.2 and 4.5, and it is the phase the researcher identified as carrying the weight.

The decomposition shows that the configuration requires no wrongful act at any phase. Acquisition may be legitimate learning; condition asymmetry may be inherited; and foreclosure may be an unintended consequence of ordinary expansion.

6.2 Countermodels

Countermodel 6.1 (Exercise preserved, expansion foreclosed). A participant retains the capacity, the permission, and the physical means to apply it, and loses funding, collaborators, and priority. Every transaction-based and permission-based instrument returns nothing, and Proposition 5.1 applies. This is the paper’s basic case.

Countermodel 6.2 (Symmetric conditions, no foreclosure). Two participants hold the same capacity with equal conditions and equal conversion access, and both expand. Non-rivalry in possession and rivalry in expansion coexist without foreclosure, since the positional conditions at issue are not exhausted at the relevant scale. A cyclic reading in which non-rivalry is taken to guarantee this outcome is thereby refuted, since the outcome depends on the positional supply and not on the non-rivalry.

Countermodel 6.3 (Resources without conversion). A participant receives funding while lacking the institutional position required to convert it into collaborators, venues, or recognition. Holdings rise in one component and expansion does not. This establishes that Thesis 4.3 is doing work: an unstructured account treating conditions as a single resource predicts an improvement that does not occur.

Countermodel 6.4 (Distribution without positional effect). Non-positional conditions are equalized across a population while positional conditions remain as they were. Expansion improves for the previously deprived and the ranking is unchanged, so foreclosure running through position persists. This is Corollary 5.5.

Countermodels 6.1 and 6.4 together state the paper’s practical claim: the instruments that would detect the configuration examine the wrong objects, and the remedy that would address it reaches only part.

7 Open Questions

This section collects unresolved questions by register. The project is the least developed branch of its research programme, and the list is correspondingly long.

7.1 Conceptual and Formal Questions

Open Problem 7.1 (Measuring conversion). Thesis 4.3 requires that conditions be inter-convertible and concedes that no scalar rate exists. What ordinal or partial structure adequately represents conversion, and can it be estimated for any actual setting?

Open Problem 7.2 (Boundary between exercise and expansion). Thesis 4.1 concedes that the boundary is not sharp. What determines where it falls in a given setting, and does the classical account apply as the residual exercise capacity approaches zero?

Open Problem 7.3 (Positional supply). Proposition 5.4 concerns a fixed ranking over a fixed population. Creating new recognized positions changes the population of positions rather than the ranking. What is the relation between the two, and under what conditions does creating positions relieve foreclosure rather than relocating it?

Open Problem 7.4 (Aggregation across condition types). Expansion depends on several condition types with different behavior. Is any aggregation defensible, or must expansion be reported as a profile in the manner the companion diagnostic requires for capability?

7.2 Political-Economic Questions

Open Problem 7.5 (What accumulation means without a stock). Thesis 4.6 holds that position accumulates. Positions are relational, so accumulation of position is accumulation of a relation. What account of accumulation is adequate to that object, and does it connect to any existing theory of accumulation?

Open Problem 7.6 (Conversion rates as policy variables). Conversion rates are institutionally set. Which institutions set which rates, how are they changed, and what would altering them require of the parties who benefit from the current rates?

Open Problem 7.7 (Relation to labor exploitation). The paper claims no replacement of labor exploitation. Where both operate on the same participants, how do they interact, and does control of expansion conditions substitute for or compound control of exercise conditions?

7.3 Normative and Empirical Questions

Open Problem 7.8 (Responses without a wrongdoer). Thesis 4.4 establishes that the configuration arises without intent. What response is appropriate to a structural dynamic with no wrongful act, and does forward-looking structural responsibility [23] supply the right form?

Open Problem 7.9 (Comparative evidence). No case is examined here. What would a study establishing the conversion network, the reinvestment channel, and the positional foreclosure in a single setting require, and does any domain supply the necessary records?

No empirical claim is made in this paper. The priority questions are whether the conversion network can be characterized in any domain, whether the reinvestment channel can be observed rather than assumed, and whether a case exists in which exercise was demonstrably preserved while expansion was demonstrably foreclosed.

8 Limits and Revisable Research Program

This section consolidates the contribution, states the defeat conditions, and records the project's development status.

8.1 Contribution

The conceptual contribution is the exercise-expansion separation and its consequence that the affected participant need stand in no relation to the controlling party, together with the statement of non-rivalry in possession alongside rivalry in expansion.

The structural contribution is the conversion-network account of realization conditions and the identification of position in that network as what accumulates.

The formal contribution is elementary: exercise-expansion independence, the non-closing gap under monotone returns and reinvestment, and the non-distributability of positional conditions with its corollary on the partiality of distributive remedy.

The paper claims no replacement of labor exploitation by generativity exploitation, attributes the repository's concept to no political-economic ancestor, proposes no policy, and classifies no firm, sector, or institution.

8.2 Defeat Conditions

The conceptual contribution loses support if the exercise-expansion boundary proves undrawable in every realistic setting, which would return the analysis to the classical template.

The structural contribution loses support if conversion cannot be represented even ordinally, since the network would then be a metaphor rather than a construction.

The formal contribution loses support if returns to expansion prove decreasing in holdings over the relevant range, which would reverse Proposition 5.3; the paper assumes monotonicity rather than establishing it, and the assumption is the result's whole content.

The political-economic ambition loses support if the configuration turns out to be adequately described by existing accounts of market power, rent, or cumulative advantage without the expansion vocabulary, in which case the correct conclusion is that the phenomenon has a name already.

8.3 Development Status and Deferred Questions

This project is recorded in its research programme as the least developed nonlegal branch, and the manuscript is a first structural treatment rather than a completed political economy. It supplies no comparative evidence, and the verified corpus covers antecedents rather than the empirical claims a mature version would require.

The diagnostic question remains with the companion capability project, which supplies standing, comparison, and benefit-through conditions that the mechanism described here does not. Propagation, identification, closed configurations, and the commons object remain with four further companion projects. Legal translation remains outside the programme's developed portion.

The resulting position is conservative. A structural invariant does survive the change of object: whoever controls what a productive potential requires is positioned to govern its realization. What changes is that the potential is retained by its holder throughout, that the holder need meet the controller nowhere, that the conflict between holders is located in conditions rather than in the capacity, and that the advantage which results is a position rather than a stock. Whether any of this amounts to exploitation is a question this paper deliberately does not answer.

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