

Open Problems in the Jurisprudence of Generativity

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Abstract

Companion work develops a framework in which value is generated by a relational configuration rather than by any party to it, and is therefore not decomposable in advance into shares belonging to parties who existed before the configuration did. Applying that framework to questions of ownership, transfer, and remedy produces a determinate negative result and then stops. This paper states where it stops. Twenty-one problems are set out, each with the argument that produces it, the downstream questions it renders unanswerable, and what would defeat it. The problems are not independent. One of them asks whether a generative capacity and the conditions of its exercise can be separately identified at all, and if that question has no affirmative answer then six of the others are not problems in their own right but appearances of it. Two further problems are independent of that question and survive any answer to it: that a capacity transferred without diminution defeats the exclusion and depletion premises of the property model, and that comparing what two holders would generate requires a measure across kinds that may not exist. Three entries are marked, and the marks matter. One records an error in the author's own reasoning rather than a difficulty in the subject, one records a repair that was proposed and then defeated, and one records the single question the framework has settled, included so that the list cannot be read as uniformly negative. The paper claims that stating this structure is a result. A framework that returned confident answers here would be one that had smuggled back in the decomposition it set out to deny, and the strongest reason for setting the problems out in order is to make that smuggling visible when it occurs.

Keywords: generativity; property; inalienability; individuation; counterfactual attribution; artificial intelligence; open problems.

Discussion Paper Note

This paper is a preliminary discussion paper intended to share an evolving idea and invite further dialogue, criticism, revision, and independent development. Its problems, arguments, and structural claims remain provisional. Circulation across scholarly and practical communities is part of the purpose of releasing the manuscript at this stage.

The author treats the viewpoints, concepts, and lines of reasoning presented here as contributions to a shared field of inquiry. Similar or related ideas may have appeared in other intellectual, cultural, and disciplinary traditions, and Section 11 states those the author is aware of. The manuscript separates the researcher-origin proposal from later formal reconstruction and leaves historical priority open pending a systematic originality review.

Readers are encouraged to question, test, revise, extend, reinterpret, or independently develop the material presented here. A problem list invites solution more directly than an argument does, and the author would regard any entry below being closed as the best possible use of the document. Where appropriate, acknowledgment of this paper as one point of encounter in the development of a related idea is appreciated. Such acknowledgment records an intellectual route; the ideas themselves remain available for criticism, revision, and independent development.

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One caution is specific to this manuscript. A list of unsolved problems can be used to argue that nothing can be decided, and a party that benefits from a present arrangement may find that conclusion convenient. Section 10 therefore states what the framework does settle, and Problem 15 records an occasion on which the author himself drew an unwarranted conclusion in favour of an existing holder. The author asks that the document be read with that entry in view, and that no entry below be cited as showing that a question has no answer when what it shows is that the author has not found one.

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Notices

Status. This working draft records an evolving stage of the author’s position and is circulated for discussion. The problems, their numbering, and their dependency structure remain subject to revision. Formal treatment of any individual problem, empirical work, and an originality audit remain future research stages.

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Statement on the use of language models. The exploratory discussions and preparation of this paper involved Anthropic’s Claude and OpenAI’s ChatGPT. These systems supported exploratory dialogue, literature and legal survey with subsequent verification against publisher, journal, court, and institutional pages, argumentative criticism, and drafting in L^AT_EX. Several of the problems below were arrived at by a process in which a proposed resolution was advanced and then defeated, and the record of those defeats is retained in the text where it is informative. The author selected the research questions, directed and approved the theoretical commitments and epistemic status of the claims, and bears sole responsibility for the manuscript. Every source cited here has been verified against a publisher, journal, court, or institutional page; sources encountered in survey and not so verified are excluded from the manuscript and recorded separately in the accompanying literature audit.

Companion papers. This paper states the unsolved remainder of a programme whose settled portions appear elsewhere: *Relational Value Exploitation: Taxonomy and Mechanisms*, which supplies the lifecycle, the aspect grammar, and the corpus of sites referred to below; *Relational Colonization: Power, Grammar, and the Reconfiguration of Relational Spacetime*, which supplies the grammar and closure apparatus; and two papers developing a gauge-theoretic account of value circulation, *The Geometry of Value* and *The Structure of Exploitation on Heterogeneous-Value Loops*.

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1 Introduction

This section states the object of the paper, the reasons for presenting a problem list as a result, the admission standard each entry meets, the meaning of the three marked entries, and the scope of what follows.

Companion work develops a framework in which value is generated by a relational configuration rather than by any party to it. Its founding commitment holds that such value has no decomposition, in advance, into shares belonging to parties who existed before the configuration did. Applied to questions of ownership, transfer, and remedy, that commitment yields determinate negative results and then reaches its limit. It establishes why certain allocations are unavailable. It leaves open what should be done in their place, and on several questions it leaves open whether the question is well formed. The present paper states where the framework reaches its limit, and states it as an ordered structure of twenty-one problems, each carrying the argument that produces it, the downstream questions it renders unanswerable, and the finding that would close it. The entries are ordered by dependency.

Three considerations support presenting such a list as a result, of which the third is operative. The first is that the entries are derived. Each is accompanied by an argument, and each stands or falls with that argument. Problem 4 argues that the portion of a generative capacity which makes it generative rather than productive lies outside the evidence by construction. Problem 16 argues that attribution requires a separation between a capacity and the conditions of its exercise which co-evolution withholds. A reader who rejects an entry rejects an argument.

The second consideration is that the dependency structure carries information. Twenty-one unrelated difficulties would constitute a scattered field. Section 3 argues that these compose a single trunk, descending from one question about the existence of the object, together with branches that survive any answer to that question. The structure indicates where work is productive and where it is redundant.

The third consideration is the operative one. The framework's central commitment is a denial of decomposability, so any proposed solution to the allocation problems below requires examination for whether it has reintroduced a decomposition under another name. A confident answer in this region constitutes *prima facie* evidence of such a reintroduction, and a problem list stated in dependency order is the instrument by which the reintroduction becomes visible. The list serves as a record of what remains unknown and equally as a test that proposed answers have to pass.

Four conditions govern admission to the list. An entry is derived, in the sense just given. An entry states something shown to be unavailable, or a question shown to be ill posed, or a proposition whose truth value remains undetermined; a call for a theory of some subject falls outside this standard. An entry names what fails downstream if it stands, which is the feature that makes the list usable. And an entry states what would close it, so that an entry for which the author can imagine no settling finding counts as a posture and is excluded.

Three entries carry marks, and the distinctions among the marks are load-bearing. Problem 15 records an error in the author's own reasoning. Having argued that the unpredictability of future generation defeats a proposal to reallocate a capacity, the author took the same unpredictability to support leaving the capacity with its present holder. That inference fails, and it contradicts a position the framework holds elsewhere; the entry retains the error in its statement. Problem 18 records a repair proposed and then defeated. Confronted with the unavailability of counterfactual generation, the author proposed that legal certainty requirements measure at the wrong level, and that claims about the persistence of a grammar remain available where claims about its products do not. That repair fails for the reason given in the entry, and the entry retains it because the manner of the failure locates the difficulty more precisely than the original statement does. Problem 22

states a settled result and appears in the numbered sequence so that the list resists reading as uniformly negative. A document recording only the difficulties of a subject, and neither its author's errors nor his settled conclusions, offers a reader no means of calibrating the remainder.

Three exclusions bound the paper. It solves no entry, and where the author holds an inclination the entry marks it as an inclination. It supplies no normative theory, and the normative entries in Section 9 appear as open. It takes no position on any contested question of politics, sovereignty, or comparative ethics, and contains no example drawn from such a question. The generative artificial intelligence material used at Problem 19 and elsewhere appears because that setting renders an abstract structure enumerable, and carries no view about the industry.

Section 2 fixes the objects the problems range over. Section 3 states the dependency structure and the format of an entry. Sections 4 to 9 give the entries in five layers. Section 10 states the results the framework settles, Section 11 the traditions in which several entries have prior statements, and Section 12 the limits of the document, its intended uses, a summary table, and the conclusion.

2 Preliminaries

This section fixes the commitment on which every entry rests, the four objects the entries range over, an illustration in which those objects come apart cleanly, and one result carried forward from companion work as a premise. Nothing in this section is argued; the companion papers supply the arguments, and the statements here are given in the form the later entries use.

2.1 Commitment on the composition of relational value

Definition 2.1 (Relational Value). Relational value is value generated by a relational configuration rather than by any party to it, and is accordingly not decomposable in advance into shares belonging to parties who existed before the configuration did.

Trust, shared language, coordination routines, tacit knowledge, standing, and the capacity to generate again are all of this kind. Definition 2.1 is the source of every negative result in this paper. Where an allocation requires a decomposition, the commitment denies that the decomposition exists, and the allocation fails.

2.2 Objects of the analysis

The problems below turn on distinctions among four things that are routinely conflated.

Definition 2.2 (Product). A *product* is something a configuration has generated. Products are indivisible, datable, and in the ordinary case ownable.

Definition 2.3 (Generative Capacity). The *generative capacity* $\mathcal{G}$ of a configuration is its capacity to generate value that has not yet been generated.

Definition 2.4 (Grammar). The *grammar* $\mathcal{L}$ of a configuration is the structure that fixes which interactions are available within it. Interactions realized under a grammar are distinct from the grammar itself, so a position may operate on $\mathcal{L}$ while performing no interaction.

Definition 2.5 (Conditions). The *conditions* $\mathcal{C}$ of a configuration are what has to obtain for its grammar to be exercised: resources, infrastructure, standing, time, and the continued availability of the parties.

Two further notations recur. Ω_t is the space of relations available to a party at time t ; a contraction of Ω is the formal shape of a foreclosure. O_t is a product generated at t .

The relation ordinarily assumed between these objects is written at Equation (1), in which a capacity is exercised under conditions to yield a product.

$$O_t = \mathcal{G}(\mathcal{C}_t) \tag{1}$$

Problem 1 asks whether Equation (1) is well formed, and every problem in Sections 5 and 6 presupposes an affirmative answer to that question.

2.3 Separation of the objects in generative artificial intelligence

Generative artificial intelligence separates the four objects with unusual clarity, and the separation is worth stating once here because it recurs.

A provider holds a model. A user contributes an interaction history. Products are generated. Under the terms of major providers, whatever rights the provider may hold in the outputs are assigned to the user, and the assignment is qualified: the operative language in the terms of several providers assigns such rights “if any” [6]. That qualification is not drafting caution. In the United States, the human authorship requirement means that material generated without sufficient human contribution is not copyrightable at all [26, 25], so a contractual assignment may operate over subject matter in which no property right subsists.

The user therefore holds products and holds nothing else. The model, the infrastructure, the memory mechanism, and the terms on which future generation may occur are all held by the provider. What the user and the model jointly constitute over a long history is a fifth thing, and that fifth thing is the object of this paper.

Remark 2.6 (Scope Of The Artificial-Intelligence Example). The example is used throughout because it makes an abstract structure legible and because its components can be enumerated, not because the paper takes a position on the industry. Problem 19 states what is peculiar to it. Everything else is general.

2.4 Result carried forward from companion work

One conclusion from the companion work is used as a premise below rather than re-argued, and appears here because several problems depend on it.

Settled Result 2.7 (Constitutive Contribution And Subsequent Generation). That a party brought a configuration into being, or contributed to the constitution of a party who later enters other configurations, grounds no claim over what those configurations subsequently generate. The argument is that any contrary principle fails to terminate, since every configuration has constitutive ancestry without limit, and that the resulting claims would be collected by whoever is positioned to press them rather than by whoever is entitled.

Settled Result 2.7 is applied in both directions throughout, and Problem 22 records why its symmetry has to be defended against erosion.

3 Architecture of the Problem List

This section states the dependency structure among the twenty-one entries, the arrangement of those entries into five layers, the format in which each entry appears, and a caution governing the

Table 1: Layers of the list and their presuppositions

Layer	Question	Problems	Presupposes
0	Does the object exist as a persisting thing?	1, 2	Nothing.
1	Can it be known?	3–6	That there is something to know, hence Layer 0.
2	What are its boundaries?	7–10	That it can be identified, hence Layer 1.
3	Can it be allocated?	11–15	That it has boundaries, except for the two independent entries.
4	Can loss be attributed?	16–19	That allocation questions have determinate objects.
5	What is owed?	20–22	Nothing above; independent.

use of the list. The dependency structure constitutes the paper’s principal structural claim, and it holds that the entries compose a connected structure rather than a set of independent difficulties.

3.1 Dependency structure

Claim 3.1 (Dependency Structure). Problem 1 asks whether a generative capacity and the conditions of its exercise can be separately identified. If that question has no affirmative answer, then Problems 3 through 10 are not problems in their own right; they are appearances of it under different descriptions. Two further problems are independent of it and survive any answer: Problem 11, concerning transfer without diminution, and Problem 14, concerning value across kinds. The normative problems of Section 9 are likewise independent.

The practical import of Claim 3.1 is a research instruction. Work on identification, on boundaries, on the identity conditions of a grammar, and on partial transferability may all be work on a single question that has not been posed. A solver’s time is better spent on Problem 1 than on any of its descendants.

The two independent branches are worth naming for the opposite reason. They cannot be dissolved by any progress on the trunk, and they are the entries most likely to be closed by ordinary means, since neither requires an answer to the ontological question.

3.2 Arrangement by layer

Table 1 gives the arrangement. The layers are ordered by what each presupposes: a layer cannot be worked on coherently unless the layers above it are either answered or explicitly bracketed.

3.3 Format of an entry

Each entry has four parts.

The *statement* gives the problem in a form that could in principle be answered.

The *derivation* gives the argument that produces it. This is the part that carries the weight, and a reader who wishes to reject an entry should engage here.

The *consequences* name what fails downstream if the entry stands.

The *defeater* states what would close it. Where the author regards a defeater as likely, the entry says so.

3.4 Caution on the use of the list

A list of open problems can be deployed to argue that nothing may be decided, and the party favoured by an existing arrangement will find that argument convenient. Two features of the document are intended to prevent it.

Section 10 states what the framework does settle, and one settled result appears within the numbered sequence. Problem 15 records an occasion on which the author drew precisely the convenient conclusion and was wrong to do so. The inference from “neither party can prove its case” to “the present holder retains” requires a premise the framework denies elsewhere, and the entry preserves the error rather than the correction alone, because the error is the more instructive object.

4 Layer 0: Existence of the Object

This section states the two entries concerning the existence of a persisting object. Its role in the paper is foundational: an unfavourable answer to either entry alters the status of most later entries, per Claim 3.1. The method is analysis of the standard functional form in which a capacity is related to its conditions, followed by examination of what survives if that form fails. Problem 1 concerns the separate identification of a capacity and the conditions of its exercise; Problem 2 concerns what remains available if such identification fails.

Problem 1 (Separability Of Capacity And Conditions). *Can a generative capacity $\mathcal{G}$ and the conditions $\mathcal{C}$ of its exercise be separately identified?*

Derivation. Equation (1) writes a product as a capacity exercised under conditions, and in doing so treats $\mathcal{C}$ as exogenous. That treatment is what licenses the counterfactual on which almost every legal and normative question in this area depends: what this capacity would yield under other conditions.

The treatment is not obviously correct. A capacity is exercised, and the exercise alters the conditions under which the next exercise occurs. A laboratory that publishes acquires standing, which alters its access to resources, which alters what it can attempt next. A user who converses with a model accumulates a history, which alters what the next exchange can be built on. The relation is at least as well described by Equation (2) as by Equation (1).

$$(\mathcal{G}_t, \mathcal{C}_t) \mapsto (\mathcal{G}_{t+1}, \mathcal{C}_{t+1}) \quad (2)$$

Under Equation (2) the question “what would $\mathcal{G}$ yield under $\mathcal{C}'$ ” has no determinate referent. The history that would have produced $\mathcal{C}'$ rather than $\mathcal{C}$ is the same history that produced $\mathcal{G}$; a world in which the conditions differ is not a world in which the same capacity meets different conditions, because the capacity was formed by the conditions it met. The counterfactual asks us to hold fixed a term absent from the alternative history.

Consequences. By Claim 3.1, Problems 3 through 10 presuppose an affirmative answer here. If there is no answer, those six are appearances of this one rather than problems in their own right, and work on them separately is misdirected.

The consequences reach further than the list. Attribution of loss requires the separation, as Problem 16 sets out. Any statement of the form “the capacity survived but the conditions changed” requires it. So does its negation. The three descriptions that Problem 18 shows to be observationally indistinguishable are not merely hard to tell apart; if this problem has no affirmative answer, the distinction among them is not well formed.

Defeater. An argument that the coupling between $\mathcal{G}$ and $\mathcal{C}$ is weak enough over relevant intervals that the exogenous treatment is a good approximation would close this, and would close it for practical purposes even if strictly false. That is the author’s expectation of how it will be closed, if it is. The argument would need to specify the interval and the tolerance, and to say what happens at the boundary, since an approximation that fails exactly where intervention occurs is not useful.

A second and less likely defeater would be a demonstration that some component of $\mathcal{G}$ is genuinely condition-independent, so that the object splits into a portable part and a coupled part. The author regards this as unlikely for the same reason that Problem 9 is hard: partitions of this kind tend to be stipulated rather than found.

Problem 2 (Persistence Short Of Identity). *If $\mathcal{G}$ and $\mathcal{C}$ are not separately identifiable, is there some persistence weaker than identity that nonetheless makes statements about a configuration’s continued generating true or false?*

Derivation. Suppose Problem 1 has no affirmative answer. Then there is no object that persists across time in the way ownership requires, and the failure of the property model is immediate. But the failure does not stop there. “This laboratory has been producing good work for a decade” would also fail, and so would “this relation is no longer generating what it did.” These statements plainly have content. People assert them, act on them, and are sometimes shown to be wrong about them, which is the ordinary mark of a claim with a truth value.

Two positions are available and the author cannot choose between them.

On the first, persistence obtains in a form weaker than identity. Something survives that is not a self-identical object: a continuity, a lineage, a characteristic manner. Statements about continued generating are true in virtue of it. The task is then to say what it is, and to say why it supports the statements it does without supporting ownership.

On the second, no such thing survives, and our language systematically posits an object here that is not there. The positing is useful, which is why it is stable, but claims resting on it inherit its status. The task is then to explain the utility of a fiction and to say which practices may safely rest on it.

Consequences. The two positions lead to different inquiries and different papers. On the first, Problem 8 is the central question and there is an answer to be found. On the second, Problem 8 is malformed and the correct response is to reconstruct the practices that presuppose it.

Defeater. A criterion of continuity for a generating configuration, weaker than identity, which supports the ordinary assertions and does not support ownership. The author does not have one. He notes that the requirement is demanding in a specific way, being strong enough to make “still generating” true and weak enough that “therefore ownable” does not follow, and criteria proposed for other purposes tend to fail one or the other.

5 Layer 1: Epistemic Access to the Object

This section states four entries concerning epistemic access to a generative capacity. Each pre-supposes an affirmative answer to Problem 1, so the section proceeds on the assumption that a capacity exists and admits description apart from its conditions. The method is to ask, for each of four objects of knowledge, what a record of past generation establishes about it: the grammar of a configuration at Problem 3, the unexercised range at Problem 4, generation under an alternative

grammar at Problem 5, and the trajectory of a capacity at Problem 6. The entries are ordered so that the third follows from the second.

Problem 3 (Identification Of A Grammar From Products). *Can the grammar of a configuration be identified from the products it has generated?*

Derivation. A grammar is a structure that produces an open set of admissible instances. Any finite set of instances is therefore compatible with many grammars, and the compatible grammars agree on the observed instances by construction.

The difficulty is not that the compatible grammars are numerous. It is where they differ. They agree on what has been produced and diverge on what has not, which is to say they diverge on everything a claim about generativity concerns. Observing that a configuration has produced a, b, c, d, e under conditions $\mathcal{C}$ narrows the field of candidate grammars but leaves them free wherever $\mathcal{C}$ has not obtained.

The resulting knowledge has a definite shape. It supports extrapolation along directions already realized, and lapses laterally. That a group has worked productively in one area under one arrangement gives some ground for expecting further work in that area under that arrangement. It gives essentially no ground for any expectation about a different area under a different arrangement, because the candidate grammars consistent with the record differ precisely there.

Consequences. Every downstream question that requires knowing what a configuration's grammar permits, rather than what it has done, inherits this. Two are worth naming.

Problem 8 asks when a grammar has changed. That question presupposes that the grammar can be identified at two times and compared. If identification is local in the sense above, the comparison is available only within the region where conditions have held constant, which is the region where nothing interesting has happened.

Problem 18 records a proposal that claims about a grammar's persistence are available where claims about its products are not. This problem defeats that proposal. Identifying a grammar is harder than predicting a product, not easier, because a product is a single thing and a grammar is a class of them.

Defeater. An identification result: conditions under which a finite product set, perhaps with structure or with active probing, determines a grammar up to some equivalence relevant to the questions asked here. The author notes that results of this general kind exist in the study of formal learning, that they typically require either negative examples, or a restriction of the hypothesis class, or a query mechanism, and that the availability of any of these for a social configuration is exactly what would need to be shown.

Problem 4 (Observability Of The Unexercised Range). *Is the part of a generative capacity that makes it generative, rather than productive, available to observation in principle?*

Derivation. A capacity has an exercised portion and an unexercised range. The exercised portion is a record of production: what was made, when, by whom, under what conditions. It is observable, and in a well-documented case it is observable in detail.

The unexercised range is what distinguishes a generative capacity from a productive one. A capacity whose outputs can be specified in advance is a production function; what makes a capacity generative is that it yields what has not been specified. That range has never entered the record, because entering the record is what exercise consists in.

A related asymmetry is established for knowledge: a knower may know more than the knower can tell, so that what is possessed exceeds what can be articulated [17]. The present claim is adjacent and distinct. There the gap is between possession and articulation, and the unarticulated portion is possessed. Here the gap is between exercise and range, and the unexercised portion has not been possessed in any sense that could be reported, since possession of a generative capacity consists in what it would do rather than in what its holder could say.

Hence the statement of the problem. The portion of a capacity that makes it generative is, by construction, outside the evidence. This is not a limitation of instruments and would not be relieved by better observation, because the object is constituted by what has not been observed. Observation converts generativity into production, one instance at a time, and what remains generative is what has not been so converted.

Consequences. Every legal or normative claim about generativity is a claim about the unobserved range. That a configuration produced well is a claim about the record. That it will, or would, or could produce well is a claim about what has never been seen. The recurring finding that such claims cannot be adjudicated is explained by this, and explained more precisely than by an appeal to uncertainty about the future: the difficulty is not that the future is uncertain but that the object of the claim is constituted by its unmanifested range.

Problem 5 is a corollary rather than an independent entry. Problems 16 and 17 inherit the difficulty in their respective forms.

Defeater. An account of a property of a capacity which is observable in the exercised portion and which entails something about the unexercised range. Dispositional properties in other domains have this character: a solubility is observed in particular dissolvings and is taken to license claims about occasions that never arise, because a theory connects the two. The defeater here would be the corresponding theory for generative configurations. Its absence is not obvious as a matter of principle, which is the reason this entry is a problem rather than a result.

Problem 5 (Counterfactual Generation). *Can it be established what a configuration would have generated under a grammar other than the one it operated under?*

Derivation. This follows from Problem 4 together with Problem 3. The counterfactual concerns the unexercised range, which is unobserved by construction; and it concerns a grammar other than the one instantiated, about which the record is silent by the lateral argument above. The entry is listed separately because it is the form in which the difficulty reaches legal doctrine, where a claim that a party would have generated some determinate thing is the ordinary vehicle for a claim of loss.

Consequences. The companion work states that a configuration under an imposed grammar generates a composition different from what it would otherwise have generated, and that no party can demonstrate the difference. That proposition is an implication of the framework and is not testable in the form given. The present entry records why, and locates the reason one level deeper than the companion paper does.

Defeater. Whatever defeats Problem 4 defeats this. Separately, a domain in which comparable configurations under differing grammars are available in sufficient number might support population-level counterfactuals even where individual ones remain unavailable. That would relieve the difficulty

at the level of rules while leaving it untouched at the level of cases, which is precisely the division that Problem 18 discusses.

Problem 6 (Trajectory Of A Capacity). *Can the trajectory of a generative capacity be predicted, as distinct from the products it will yield?*

Derivation. The two are different questions and the second does not reduce to the first. Even granting a fully identified grammar at t , its successor at $t + 1$ remains open. Which generative capacities are stable across time, which depend on a particular history and lapse when the history is interrupted, which transfer across domains and which do not, are questions about the map in Equation (2) rather than about any product.

Problem 6 stands independent of Problem 3. Identification concerns whether the grammar at a time can be recovered from the record. Evolution concerns whether, given the grammar at a time, its successor can be derived. A solution to either leaves the other open.

The independence has a practical form. A long record of productive work in an area under an arrangement licenses some expectation about continuation. It licenses much less about the same configuration in a different area under a different arrangement, and the reason is not only lateral ignorance of the present grammar but ignorance of how grammars change when conditions change. The second ignorance would remain even if the first were relieved.

Consequences. Any regime of remedy directed at the preservation of a capacity requires a judgement about whether a given intervention changed the trajectory. That judgement requires knowing what the trajectory would have been. Problem 8 is the acute form: without an account of how grammars evolve, there is no way to say whether an observed change is the grammar developing or the grammar ending.

Defeater. Empirical regularities in the persistence of generative capacity, of a kind that would support statements about the class even without supporting statements about any member. Such regularities may exist and would be discoverable by ordinary means. This is among the more tractable entries in the list, and the author expects it to be closed at population level well before the entries above it are closed at all.

6 Layer 2: Boundaries of the Object

This section states four entries concerning the boundaries of a generative capacity, presupposing the results of Sections 4 and 5. Three boundaries are treated in turn: the boundary among parties at Problem 7, the boundary across time at Problem 8, and the boundary between what moves and what remains under a transfer at Problem 9. Problem 10 closes the section by separating five operations that the word transfer conflates. The method throughout is to identify the determination each downstream claim presupposes and to ask what supplies it.

Problem 7 (Membership Of A Configuration). *Which parties belong to a generating configuration?*

Derivation. Relational value is generated by a configuration, so every claim about it presupposes an answer to which parties compose the configuration. The presupposition is rarely examined, and frequently constitutes the whole of what is in dispute.

Two ordinary cases show the shape. A family may or may not be a member of the household its adult child forms; whether it is settles whether subsequent arrangements are internal governance or

external interference, and the parties disagreeing about the arrangement are ordinarily disagreeing about the membership question without saying so. In generative artificial intelligence, whether the provider is a party to the configuration a long-standing user has built, or an external supplier of infrastructure to it, settles what obligations the provider bears, and no source of an answer is available.

Membership stands as a determination made rather than a background fact awaiting discovery. Deciding it is an exercise of the power the companion work names as schema power, since a position able to determine who counts as a party thereby determines against whom claims may be made and by whom. That makes the membership question the most upstream position in the apparatus and simultaneously the least settled.

Consequences. Every allocation problem in Section 7 presupposes a settled membership. So does every attribution problem in Section 8, since a loss is borne by a party and the party has to be inside. So does the application of the companion work's four admissibility conditions, each of which is applied to a named position within a configuration whose extent is assumed.

Defeater. A criterion of membership that is not itself an exercise of the power it would regulate. The obvious candidates fail in an instructive way. Contribution as a criterion collapses into the origin question closed at Settled Result 2.7. Consent presupposes an already-constituted party competent to give it. Dependence would make every supplier a member. The difficulty is that membership criteria are ordinarily supplied by one of the parties, and this problem is the general statement of why that is a defect rather than an administrative convenience.

Problem 8 (Identity Conditions For A Grammar). *Under what conditions is a grammar at $t + 1$ the same grammar as the grammar at t ?*

Derivation. Any obligation not to destroy a generative capacity requires a distinction between destruction and development. Without it, a party that has altered a configuration can always characterize the alteration as evolution, and a party complaining of loss can always characterize development as destruction. Neither characterization is answerable.

The framework as it stands offers scalar quantities. It has a direction of movement for Ω , the space of relations available to a party. It has an increase or decrease in $\mathcal{G}$ across a cycle. Neither is adequate here, because a grammar is not a scalar. Two grammars may license the same number of interactions and license entirely different ones, and the question of identity concerns which paths remain available rather than how many.

What is needed is structural: an account of which generative paths persist, which lapse, and which appear, together with a criterion for how much of that structure may change while the grammar remains the same one. The framework has no object of this type.

Consequences. Problem 9 is a special case: to say that a transfer preserved some fraction of a capacity presupposes that the transferred thing can be compared with the original, hence that identity conditions exist.

The consequence for remedy is severe. A continuity obligation, if one existed, would be an obligation not to destroy. Its content depends entirely on this problem, and in its absence such an obligation has no determinate content even where all parties agree that something has been lost.

Defeater. Identity conditions for structures of this kind, presumably weaker than isomorphism and stronger than mere continuity of the parties. Related notions exist in the study of dynamical systems, where an account of when a system has undergone a qualitative change rather than a quantitative one is available. Whether that account transfers is the question, and the author regards this entry as the most likely of the structural problems to be closed by importing apparatus from elsewhere.

Problem 9 (Partial Transferability). *What is the status of a capacity that is transferable in part?*

Derivation. The framework treats separability as binary. A capacity is either severable from its configuration or not, and the companion argument proceeds by showing that transfer destroys what it purports to move.

Actual cases are graded. Documented methods, institutional forms, corpora, tooling, and codified procedure move; standing, coordination, and the tacit component do not. What arrives at the destination is neither the whole nor nothing. The literature on the transfer of practice within organizations records exactly this: transfer is impeded rather than impossible, and the impediments admit degrees [22]. The theory of routines as organizational memory holds that routines are constitutively organizational, which is a claim about the residue rather than about the whole [15], and rests in turn on the observation that skill exceeds what its holder can state [17].

A graded phenomenon requires a graded treatment, and the framework supplies only the binary one. Worse, the natural way to state a grade presupposes Problem 8. To say that forty per cent arrived is to compare what arrived with what was there, which requires identity conditions for the compared objects. Absent those, the fraction has no denominator.

Consequences. This is a defect in the framework rather than a difficulty in the world, and it is recorded as such. The companion argument that severance destroys the object holds for the residue and overstates for the transferred part. A legal regime built on the binary claim would misdescribe the ordinary case.

Defeater. Closing Problem 8 would supply the denominator and reduce this to a measurement question. Alternatively, a demonstration that the transferable component is never the generative component, so that what moves is always product and never capacity, would restore the binary treatment. The author regards the second as unlikely: a codified method is not merely a product, and it does bear on subsequent generation.

Problem 10 (Senses Of Transfer). *Which of several distinct operations does “transferring a generative capacity” denote?*

Derivation. At least five operations are run together by the phrase.

Capacity transfer: the receiving party comes to be able to generate what the originating party could generate. *Control transfer*: authority over the conditions of exercise moves, while the capacity stays where it was. *Claim transfer*: a right or interest moves, with no change to any capacity or condition. *Access transfer*: the receiving party gains the ability to invoke a capacity that remains constituted elsewhere. *Relational transplantation*: the configuration itself is relocated, with its parties, into a different setting.

The five have different truth conditions and different consequences. Access transfer is the ordinary case in service arrangements and involves no movement of anything. Control transfer is

what occurs when a party acquires the infrastructure on which a configuration depends. Relational transplantation is what an acquisition of a team attempts.

The equivocation is not merely terminological, because a familiar dispute depends on it. Where one party learns another's method, whether this is transfer or replication has no answer until the sense is fixed: it is replication under capacity transfer, since the originating party retains what it had; it may be nothing at all under claim transfer; it is not transplantation, since no configuration moved.

Consequences. Arguments in this area proceed by equivocation more often than by disagreement. A claim that generativity cannot be transferred, if it is a claim about relational transplantation, is compatible with the routine availability of access and claim transfer; and a claim that it obviously can be transferred is frequently a claim about access.

Defeater. This entry is closed by stipulation rather than discovery, and the author regards it as the most easily closed on the list. It is included because the stipulation has not been made, and because several disputes dissolve once it is.

7 Layer 3: Allocation of the Object

This section states five entries concerning the allocation of a generative capacity among parties. Two of the five, Problems 11 and 14, stand independent of every preceding entry and survive any answer to Problem 1; the section marks them as independent where they appear. The method is to take the standard analytic apparatus of ownership, apply it to a generative capacity, and identify the components that fail. Problem 11 examines the exclusion and depletion premises; Problem 12 examines the four available allocation rules; Problem 13 examines the strongest objection to the preceding entry; Problem 14 examines the measure a comparative argument requires; and Problem 15 examines what follows where neither side can carry its case, and records an error the author made at that point.

Problem 11 (Depletion Under Conveyance). *If a capacity can be conveyed to a second party without diminishing the first party's capacity, does the property model apply to it at all?*

Derivation. The apparatus of ownership presupposes two features of its object that need not hold here.

The first is exclusion. The analysis of ownership into incidents begins with a right to possess and proceeds through rights to use, to manage, and to the income and capital of a thing [10]; each is stated against a background in which one party's holding is another's exclusion. Property rights are additionally in rem, imposing an obligation on an indefinite class of strangers, and the standardization of property forms is explained by the information costs that obligation imposes [14]. Both features assume that there is something a stranger can be excluded from.

The second is depletion. Where a thing passes from one holder to another, the first ceases to have it. The remedial apparatus follows: conversion, restitution, and damages all measure what the transferor lost by the transferee's gain.

A capacity conveyed by demonstration or instruction has neither feature. The originating party retains what it had. Nothing was subtracted, and no stranger was excluded from anything. The recipient now generates, and the originator generates no less.

The observation is not new for information goods generally, and the treatment of intangibles has long accommodated non-rivalry. What is not settled is whether a capacity behaves like an

information good in the relevant respect. A codified method may be copied and both parties hold it. A capacity that consists in the coordination of particular parties may not be copyable at all, as Problem 9 records. So the entry is not that generativity is non-rival, but that its rivalry is undetermined and that the property model presupposes an answer.

Consequences. This entry is independent of the whole trunk. Even granting that a capacity is separable from its conditions, identifiable, and bounded, the property model may fail to apply for a reason that has nothing to do with any of that. It is therefore among the strongest available grounds for the framework’s negative conclusions, and the author notes that he has relied on weaker ones.

Defeater. A demonstration that the generative component is rivalrous even where the codified component is not, so that what genuinely passes is always the non-generative part. This would restore exclusion and depletion to the object that matters and would also close Problem 9 in the same stroke. The author regards it as the most consequential single result that could be obtained anywhere in this list.

Problem 12 (Dependence Of Allocation On Decomposition). *Do the available allocation rules fail independently, or do they fail for a single reason?*

Derivation. Four rules are available for allocating an interest in a jointly generated capacity, and each is known to fail.

No ownership. The capacity is left unallocated. This is coherent, and it supplies no protection to any contributor and no ground for any complaint. It also imports an assumption that does not hold: the design principles developed for common-pool resources are framed for goods that are subtractable, so that one party’s use diminishes what is available to others [16], and a capacity may not be subtractable at all, as Problem 11 records.

Ownership by the configuration. The configuration holds the interest itself. This requires that the configuration be a rights-holder, which requires constitution as a legal person, which adds decision procedures, organs, and an entry and exit regime. The entity that then holds the interest is not the configuration that generated it.

Proportional shares. Each party holds a share. This requires a decomposition of the jointly generated value, and the difficulty is old: in team production the joint output exceeds the sum of separable contributions and the marginal product of each input is not separately observable [1]. Definition 2.1 makes the stronger claim that no decomposition exists to be observed.

Stewardship. A party holds the interest for the configuration. This requires selecting the steward, and the authority to select is the authority in question. The rule is circular at the point where it does its work.

The problem is whether these are four failures or one. The author’s inclination, stated as an inclination, is that they are one. Each rule requires a determinate answer to the question of who holds how much of what, and each fails at the point where that answer would be supplied. The rule of unallocated holding answers that nobody holds any of it, and thereby denies the question in place of answering it. Configuration ownership answers “the configuration holds all of it” and has to constitute an entity capable of holding, which changes what is held. Proportional shares answers directly and requires the decomposition denied. Stewardship defers the answer to a selection procedure that presupposes it.

If that is right, the four horns are one horn seen from four sides, and the horn is that allocation presupposes decomposition.

Consequences. The reduction, if it holds, converts a catalogue into a theorem and identifies where a solution would have to intervene. It also supplies the test named at Section 1: any proposed allocation rule requires examination for where it supplies the decomposition, and the examination is not satisfied by a rule that supplies it implicitly.

The literature has not made this reduction. The argument from team production treats non-separability as a problem of metering and of information cost, dissolved in principle by a monitor [1]. The present claim is that the decomposition is unavailable rather than expensive.

Defeater. Problem 13 is the most serious candidate and is stated separately. Failing that, an allocation rule that is not one of the four, or a demonstration that one of the four does not require what is claimed. The author notes that the metering-cost reading of team production, if correct as against Definition 2.1, would defeat this entry: on that reading the decomposition exists and is merely unobserved, which is a different situation entirely.

Problem 13 (Division Of Incidents Among Parties). *Can distinct parties hold distinct incidents in respect of a single capacity, so that allocation proceeds without decomposition?*

Derivation. Ownership decomposes into incidents that may be held separately [10], and jural relations are relations among persons rather than between a person and a thing [8, 9]. Nothing in either analysis requires that a single party hold all the incidents.

The divisibility of incidents suggests an escape from Problem 12. One party might hold control over the conditions of exercise, another a provenance interest, another a right of access, another an immunity against destruction, without any party holding a share of the capacity and without the capacity being divided. The value is not decomposed; the incidents are, and the incidents are not portions of the value.

The proposal is serious and the author cannot dismiss it. It is the strongest objection to Problem 12 available and has not been tested.

Two difficulties are visible without settling it. Each incident requires a determinate object: a right of access is access to something, an immunity is immunity in respect of something, and the specification of that something may reintroduce the decomposition at one remove. And the incidents may not be jointly exhaustive here as they are for a thing: a party holding all of control, access, and provenance may still not hold what the framework calls the capacity, in which case the bundle picture describes the arrangements around the object without reaching the object.

Consequences. If this succeeds, Problem 12 is closed and a substantial part of the framework's negative programme is relieved. Much of the legal apparatus already operates this way, and a regime of divided incidents would be constructible from existing materials rather than requiring new ones.

Defeater. This entry is a candidate solution rather than an obstacle, so the question is whether it works. A worked scheme of incidents for a generative capacity, showing for each incident what its object is and how the object is specified without decomposition, would close both this and Problem 12. The author regards constructing that scheme as the single most productive piece of work available on this list.

Problem 14 (Comparison Of Value Across Kinds). *Can it be established that one holder would generate more value than another, where the values generated are of different kinds?*

Derivation. A consequentialist argument for reallocating a capacity compares what one holder would generate with what another would. The comparison requires a measure common to both.

Where the generated values are of one kind the requirement is met. Where they are of different kinds it may not be. A configuration may generate knowledge, income, standing, care, coordination, and the conditions of further generation, and there is a developed position that goods of different kinds admit different modes of valuation and that the imposition of a single measure is itself a substantive move rather than a neutral one [19, 18].

The entry draws its importance from the narrowness of its requirements. It requires no premise about uncertainty, no claim about the future, and no position on any problem above it. Even granting perfect prediction of what each holder would generate, the comparison does not go through if the generated values are not commensurable. The consequentialist argument therefore fails at a point earlier than the epistemic one, and fails for a reason that better information cannot relieve.

Consequences. This is the second independent branch. It also corrects a defect in the author's earlier reasoning. Confronted with a proposal to reallocate a capacity toward higher expected future generation, he resisted it on grounds of unpredictability, which is the weakest available ground and is in principle relievable by better method. The present entry was available and stronger, and he did not use it.

Defeater. A demonstration that the values a generative configuration produces are commensurable, or that a defensible common measure exists for the comparison at hand even if not in general. The author observes that markets supply such a measure where they exist, and that the configurations most at issue here are those for which no market exists.

Problem 15 (Allocation Of The Burden Of Proof). *Where neither the case for reallocation nor the case for the present arrangement can be established, what follows?*

Derivation. By Problems 4 and 5, no party can establish what a configuration would generate under a different holder. The consequentialist argument for reallocation therefore cannot be started.

The error. The author took that result to support leaving the capacity where it was. It does not. The unavailability is symmetric: the same argument that defeats "the other party would generate more" equally defeats "the present party would generate more." Awarding the benefit of the unavailability to the incumbent requires a further premise, that present holding is itself a ground of entitlement, and the framework denies that premise at Settled Result 2.7. Having held that origin confers no claim, the author cannot hold that possession does. The inference was unwarranted and is recorded here rather than silently corrected.

What remains. One response is available and it is procedural rather than substantive. Where a question cannot be resolved on its merits, a legal system allocates the burden of proof and decides against the party bearing it. That does not answer who should hold the capacity. It answers who loses when nobody can show anything, which is a different and more modest thing.

The residual problem is that the allocation of the burden is itself a substantive choice with distributive consequences, and the framework supplies no ground for making it. Placing the burden on the party seeking change reproduces the incumbent bias by another route. Placing it on the holder would require a justification the framework equally lacks.

Consequences. If no ground for allocating the burden is available, the framework's contribution in this region is confined to showing that the substantive question has no answer, without indicating what a decision procedure should do.

Defeater. A principled basis for allocating the burden of proof that does not covertly reinstate either possession or origin as a ground of entitlement. The author notes that existing law allocates such burdens on grounds of access to evidence, and that access to evidence about a configuration is ordinarily held by the party controlling it. That observation points toward placing the burden on the controlling party, and the author records it as a direction rather than a conclusion, since it has not been checked against the framework's commitments.

8 Layer 4: Attribution of Loss

This section states four entries concerning remedy. Each presupposes that the allocation questions of Section 7 have determinate objects, which that section leaves open; the assumption is granted here because the difficulties recorded below are additional to it. The method is to take the elements a claim for remedy requires and to ask what supplies each. Attribution is treated at Problem 16, the head of damage at Problem 17, the level at which legal certainty operates at Problem 18, which records a defeated repair, and the underlying legal interest at Problem 19.

Problem 16 (Independence Conditions For Attribution). *Does counterfactual attribution remain available where a capacity and the conditions of its exercise co-evolve?*

Derivation. Attribution of loss proceeds counterfactually. It asks whether the outcome would have obtained had the defendant not acted, and it obtains an answer by removing one factor while holding the remainder fixed.

The operation requires that the factor be separable from the remainder. Where the conduct complained of has itself shaped the conditions under which the capacity developed, and the capacity has in turn shaped those conditions, the factor cannot be removed while the remainder stands. What removal would take away is partly constitutive of what would remain, and the subtraction has no determinate result.

The point is worth distinguishing from a familiar one. It is often said that causal questions of this kind are difficult, that they involve many variables and long chains, and that judgement is required. That is a claim about tractability. The present claim is different: the operation that attribution performs requires a separation which, under Equation (2), is not present. The limitation lies in the instrument rather than in the reasoner: attribution requires an independence that the object withholds.

Consequences. Any remedy predicated on showing that a defendant's conduct diminished a capacity inherits this. Problem 17 states a form of damage that does not require showing what would have been generated, and it does not escape the present problem, since establishing that a contraction occurred still requires distinguishing the contraction from what would have happened anyway.

Defeater. Whatever defeats Problem 1 defeats this. Separately, a form of attribution that does not proceed by removal would suffice. Doctrines that shift a burden where the defendant's conduct has itself made proof impossible have this character in outline, and whether they extend to a case where the impossibility is structural rather than evidential is a question the author has not resolved.

Problem 17 (Contraction Of Range As A Head Of Damage). *Is there a form of damage that consists in the contraction of a capacity to generate, as distinct from the loss of any particular thing generated?*

Derivation. Suppose a party's space of available future relations contracts, as at Equation (3), without any determinate outcome being prevented.

$$\Omega' \subsetneq \Omega \tag{3}$$

Nothing specific has been lost. What has been diminished is the system that would have produced things not yet specified.

The existing heads of damage accommodate a loss of a different shape. Lost profit requires an identified stream. Expectation damages require a promised performance. Loss of a chance, where it is available, requires an identified opportunity whose probability can be stated. Each presupposes a specified object whose non-occurrence is the loss. Here the object is unspecified by construction, per Problem 4, and specifying it would convert the generative capacity into a production forecast.

The question is whether a head of damage can be constructed whose object is a contraction of range. Two features would distinguish it. Its measure would be structural rather than monetary in the first instance, since what contracted is a set of available paths. And its proof would concern the alteration of conditions rather than the non-occurrence of outcomes.

Consequences. This is the point at which the framework's descriptive results would acquire remedial consequence, and its absence is why they presently do not. The companion work identifies arrangements in which a configuration's capacity to generate is consumed while every transaction passes inspection. Without a head of damage of this kind, that identification supports no claim.

Defeater. A worked head of damage, or a demonstration that an existing one extends. Injunctive relief is the more promising route and is discussed at Problem 18, since an obligation not to contract a range may be statable where a monetary measure of the contraction is not. The author regards the construction of such a head as the most valuable practical work available on this list, alongside the scheme of incidents at Problem 13.

Problem 18 (Level Of Measurement For Legal Certainty). *Does the unavailability of counterfactual products leave claims about a grammar's persistence available?*

The repair as proposed. Legal certainty requirements operate on outcomes. A claimant is required to show what would have been earned, produced, or received, and Problem 5 shows that such a showing is unavailable for generative capacity.

The author proposed that this measures at the wrong level. A grammar is more stable than its instances; that is what makes it a grammar. Any particular sentence of a language is unpredictable while the language remains the same language from year to year, and the two facts are consistent. If so, the following might be provable without predicting any product: that the configuration previously generated in a certain manner, which is a fact about the past; that an intervention removed a condition on which that manner of generating depended, which is a claim about structure; and that generation of that manner has since ceased, which is a further fact. Together these appear to establish destruction of a capacity with no counterfactual product anywhere in the argument.

Failure of the repair. It requires that the manner of generating be identified, and by Problem 3 identification is harder than prediction rather than easier. A grammar observed only under one set of conditions is compatible with many grammars that differ elsewhere. When conditions change and generation of the observed kind ceases, three descriptions fit the evidence equally: the capacity was destroyed; the capacity is intact and the new conditions do not instantiate it; the capacity has

become a different one whose products are not recognized as of the same kind. Nothing distinguishes them.

The repair therefore relocates the difficulty without relieving it. Worse, if Problem 1 has no affirmative answer, the three-way distinction is malformed rather than merely undecidable, since it presupposes that capacity and conditions can be separately identified.

Grounds for retention. Two reasons. The failed repair locates the difficulty more precisely than the original statement did, by showing that moving to the level of the grammar does not help and why. And the repair contains a correct observation that survives its failure: the division between the rule level and the case level in existing law is principled rather than inconsistent. A legislator may hold that a class of incentive increases a class of generation, which is a claim about a distribution; a court may not hold that this party would have generated this thing, which is a claim about an individual counterfactual. Generativity is unavailable at the second and not necessarily at the first.

Remaining doctrinal routes. Loss of a chance, in jurisdictions and contexts where it is available, awards for the loss of an opportunity without requiring proof that the outcome would have obtained. Whether it extends to the loss of a capacity to generate unspecified opportunities is open, and this route is the most likely doctrinal approach to Problem 17.

Goodwill valuation shows that courts accept a price for a capitalized expectation of future generation. The acceptance is qualified in a way that matters here: what is accepted is a valuation the market has made, not one the court has made. Goodwill is also treated as inseparable from the business to which it attaches [11]. Configurations with no market, which include most of those at issue here, fall outside the qualification.

Injunctive relief is forward-looking and requires no monetary measure. An obligation not to destroy may therefore be statable where a claim for the value of what was destroyed is not. This is the most promising of the three and depends entirely on Problem 8, since an obligation not to destroy has no content without a criterion distinguishing destruction from development.

Problem 19 (Legal Characterization Of An Accumulated Generative Relation). *What legal interest, if any, is constituted by an accumulated generative relation?*

Derivation. The generative artificial intelligence case makes the difficulty enumerable, which is why it is used.

Four things are stored and can be listed. The model is stored, as parameters. The interaction history is stored, as text, which a user may typically read, export, alter, or delete without any parameter changing. The outputs are stored. The infrastructure that brings model and history together is implemented in code.

The capacity that a long-standing user and a model jointly constitute is not on that list. It is not a stored object at all. It is a disposition that exists when the model and the history are brought together in an act of generation, and between acts it is nowhere. The enumeration is what makes this more than an assertion: in other settings the claim that a capacity resides in a configuration rather than in a place is a metaphysical thesis requiring argument, and here the components can be listed and it is not among them.

The legal position around this absence is instructive. Existing categories attach to the enumerable items. Outputs raise questions of authorship, and in the United States the human authorship requirement means that material generated without sufficient human contribution is not copy-rightable at all, with registration guidance requiring that such material be disclaimed [26, 25, 24]; other systems reach different results by other routes: the United Kingdom deems the author of a

computer-generated work to be the person who made the arrangements necessary for its creation [23], and a Chinese court has found an AI-generated image copyrightable on the basis of the human prompter’s selections [2]. Interaction history raises questions of personal data and of portability. The model raises questions of trade secret and of contract.

The accumulated capacity raises none of these, because it is none of these things. It is not a work, since it is not a determinate expression. It is not personal data, since it is not a record about a person. It is not a thing to which a right in rem could attach, for the reasons at Problem 11. And a contractual allocation of the outputs does not reach it: the providers’ assignment of output rights, qualified in the operative terms as an assignment of such rights “if any” [6], allocates the products while leaving the capacity and every condition of its exercise where they were.

The natural experiment. The setting supplies a test that other settings do not. Export the interaction history and instantiate it against a different model. The history transfers completely; there is no loss in the copying, no ambiguity about what moved, and none of the ordinary impediments to transferring practice within organizations [22], since the transfer is mechanical. What follows is a different capacity. Everything transferable was transferred and the result differs, which is the signature of an object that is not of a transferable kind.

The test is cheap and repeatable, which distinguishes it from the acquisition case, where a failure of capability transfer can always be attributed to poor integration.

Consequences. Whatever obligations exist in respect of an accumulated generative relation have no object under existing categories. This bears directly on Problem 17: a head of damage requires an interest, and the interest is missing before the measure is.

Defeater. A characterization of the interest that does not reduce to one of the four enumerable items. The author notes that portability regimes give a right over the history and expressly give nothing over what the history generates, and that this is not an oversight: the right is given where an object can be individuated and withheld where it cannot. That pattern, together with the inseparability of goodwill from its business [11] and the protection of trade secrets through relations of confidence rather than through a right in a thing [21], suggests that law has met this difficulty before and has responded the same way each time, which is a fourth instance rather than a solution.

9 Layer 5: Obligations in Respect of the Object

This section states the three remaining entries. Problems 20 and 21 are normative and stand independent of every preceding entry: each arises whatever answer Problem 1 receives, and each would remain open if every other entry were closed. Problem 22 states a settled result and appears here for the reason given in Section 1. The method for the two open entries is to identify structures in which obligations run without ownership, and to ask what their application here would require.

Problem 20 (Grounds Of Wrongfulness For Unowned Capacity). *Can the destruction of something that cannot be owned be a wrong, and if so on what ground?*

Derivation. Suppose the negative results hold: a generative capacity is not an object of property, no allocation of it can be made, and no party holds it. It does not follow that anything may be done to it. The inference from unowned to freely destructible requires the premise that wrongs against a thing are wrongs against its owner, and the standing of that premise remains open.

Structures exist in which obligations run without ownership. A fiduciary owes duties in respect of interests the fiduciary does not own, and the duty is owed to a beneficiary rather than derived from the fiduciary's holding. Obligations of confidence protect a relationship rather than a thing; the classical statement is that the property may be denied while the confidence cannot [21]. Environmental obligations attach to objects no party owns and are frequently owed to no determinate party at all.

The structure is therefore available. What is missing is its application here, and two specific gaps prevent it.

The first is the identification of the party to whom the duty would be owed. A fiduciary duty runs to a beneficiary and a confidence to a confider. If the capacity belongs to a configuration, and the configuration is not a person, then the duty has no obligee unless one is constituted, and constituting one raises Problem 12 in its second form.

The second is the content of the duty. An obligation not to destroy requires the distinction at Problem 8, and an obligation to preserve raises Problem 21.

Consequences. Without this, the framework's descriptive results have no normative consequence whatever. It can say that an arrangement consumes a capacity while every transaction passes inspection, and it cannot say that anything has gone wrong.

Defeater. An account of duties in respect of unowned generative capacity, specifying the obligee and the content. The author observes that the environmental case is the most promising analogue precisely because it dispenses with a determinate obligee, and that it does so by statute rather than by derivation from a general principle, which may be the honest lesson.

Problem 21 (Duties To Sustain Generation). *Is any party under an obligation to maintain a generative capacity, as distinct from an obligation not to destroy one?*

Derivation. This is the furthest entry on the list and the author has least to say about it.

If generative capacity has value, and if no party owns it, the question arises whether anyone is required to sustain it. The question is not answered by Problem 20: a duty not to destroy is negative and requires only forbearance, whereas a duty to maintain is positive and requires expenditure, and the grounds for the two differ in the ordinary case.

A difficulty specific to this entry should be recorded, since it may show that the duty has no content even if it exists. Under Problem 1 a capacity is not stored anywhere; it is a disposition obtaining when components are brought together. Altering any component may therefore alter it. The reasons for altering components are ordinarily good ones: correcting defects, improving performance, reducing risk, responding to circumstances that have changed. If almost every alteration has such a reason, then an obligation qualified as one not to destroy *without cause* may be satisfied everywhere and bind nowhere.

The author does not regard this as settled. It may be that the qualification is the wrong one, and that what is owed is notice, or an opportunity to migrate, or a preservation of the components rather than of the capacity. Each of these has content that survives the difficulty, and each would need to be argued for separately.

Consequences. This entry bears on what a continuity interest could amount to in the generative artificial intelligence case and in every case with the same structure. If it has no answer, then the most that can be claimed there is portability of the enumerable components, and the capacity itself supports no claim of any kind.

Defeater. Either a positive account of a duty to sustain, or a demonstration that the obligations available in this region are exhausted by notice, portability, and forbearance, so that the question does not arise. The author regards the second as the more likely outcome and states it as an expectation rather than a conclusion.

Problem 22 (Constitutive Contribution And Subsequent Generation). *Does contributing to the constitution of a party or a configuration ground a claim over what that party or configuration subsequently generates?*

Status. This entry is not open. It appears in the numbered sequence for the reason given in Section 1. A document recording only difficulties gives a reader no way to calibrate its other entries, and this result is repeatedly under pressure from arguments that would otherwise be admitted elsewhere in the list.

The result. Origin confers no claim. That a party brought a configuration into being, or contributed to the constitution of a party who subsequently enters other configurations, grounds no claim over what those configurations generate.

The argument. A but-for account of entitlement does not terminate. Every configuration has constitutive ancestry without limit: those who constituted the parties, those who constituted them, the language in which every subsequent interaction is conducted, the institutions supplying the conditions. If contribution to constitution grounded a claim over subsequent generation, every party would hold claims over every other, and what would determine who collected is who was positioned to press a claim. That is a theory of collection rather than of entitlement.

A second argument runs from Definition 2.1. A claim to a share requires a decomposition of jointly generated value, and the constituting party was not a member of the configuration that generated it. The founding commitment denies that its contribution can be decomposed out.

A third is structural. The constitutive contribution went into a party. The value at issue was generated by a configuration of which that party is one member. Standing follows participation in the generating configuration rather than causal ancestry of one of its members.

Grounds for defence. The result is symmetric and its symmetry is what makes it stable. It denies that a constituting party holds claims over what the constituted party subsequently generates. It equally denies that a party who has contributed over time to the accumulation of a capacity thereby holds a claim over the capacity. Applied in one direction only it would be a convenient position rather than a principle, and the pressure to apply it in one direction only is considerable, since the two directions favour different parties in the cases that matter.

Defeater. An account of a claim arising from constitution that terminates, and that does not require the decomposition denied at Definition 2.1. The author notes that a claim to reciprocity within the constituting relation is untouched by this result and is not denied: what is denied is the conversion of such a claim into an interest in a different configuration.

10 Settled Results of the Framework

This section states the four conclusions the framework establishes, together with an account of the division between its settled and its open results. The section serves a calibrating function: a

list of open problems standing alone would misrepresent the position of the framework, suggesting that it has determined nothing, and a party favoured by an existing arrangement would find that suggestion useful. Each result appears with its argument compressed; the companion papers supply the full versions. The section closes by identifying the appropriate targets for a reader who holds the framework to be mistaken.

Four results are settled in the sense that the author regards the arguments as sound and is not aware of a defeater. They are stated with the argument compressed; the companion papers supply the full versions.

10.1 Statement of the results

Settled Result 10.1 (Decomposition Requirement In Proportional Allocation). Any assignment of shares in a jointly generated capacity presupposes a decomposition of that capacity into contributions attributable to parties who existed beforehand. Definition 2.1 denies that such a decomposition exists. The consequence is negative and determinate: proportional allocation is unavailable, and the unavailability is a matter of principle rather than of measurement difficulty.

The qualification at Problem 12 should be kept in view. What is settled is that proportional allocation fails. Whether the other three rules fail for the same reason is the open part, and Problem 13 may show that allocation without decomposition is possible by another route.

Settled Result 10.2 (Scope Of Output Ownership). Holding rights in what a configuration has produced entails nothing about rights in its capacity to produce further. The two are distinct objects, and no argument carries from one to the other.

The generative artificial intelligence case makes this concrete. A user may hold the outputs, by contract and subject to whatever the law recognizes, and hold nothing whatever in respect of the conditions under which further outputs may be generated. The reverse also holds: a provider's ownership of a model entails nothing about the capacity that model and a particular history jointly constitute.

Settled Result 10.3 (Symmetry Of The Constitutive-Contribution Result). Stated and argued at Problem 22. Contribution to the constitution of a party or configuration grounds no claim over what that party or configuration subsequently generates, and the result applies in both directions.

Settled Result 10.4 (Foreclosure Of Unrepresentable Value At Valuation). Where a position determines the forms in which value may be recognized, what a configuration generates outside those forms receives no low valuation. It receives no term, and a claim resting on it has no place to be lodged. The companion work develops this; it is settled and is the basis of several descriptive results.

10.2 Division between settled and open results

The division has a shape worth naming. The framework settles negative results and leaves positive ones open. It establishes the unavailability of certain allocations, the failure of certain inferences to carry, and the absence of a vocabulary for certain losses. It leaves open what should be put in their place. The division follows from the framework's commitments and reflects something other than the distance the work has travelled. A framework whose founding commitment is a denial of decomposability will generate negative results readily, since most positive proposals in this region require the decomposition. The positive results, if they come, will come from Problem 13 or from

Problem 17, both of which look for structures that do not require decomposition rather than for better decompositions.

Remark 10.5 (Targets For Objection). Settled Results 10.1 through 10.4 are the appropriate targets for a reader who thinks the framework wrong. They carry commitments, and refuting one of them costs the framework more than closing any open problem would. A reader who points to the length of the list has established nothing, since the list is offered and not concealed.

11 Antecedents

This section records the traditions in which several of the entries above have prior statements, and identifies for each the boundary between what those traditions establish and what the present paper adds. The paper claims priority in none of them. The method is to take each entry with a known antecedent, name the source, and state the difference where a difference exists. Two qualifications arising from survey appear at the end of the relevant paragraphs, since each weakens support the paper might otherwise be taken to have.

Non-separability of jointly produced value. Problem 12 restates, for capacities, a difficulty long known for outputs: in team production the joint product exceeds the sum of separable contributions and no marginal product is separately observable [1]. The difference is in the modal status claimed. That literature treats non-separability as a problem of metering and information cost, in principle relieved by monitoring. Definition 2.1 claims the decomposition does not exist. If the metering reading is correct as against the framework, Settled Result 10.1 fails, and the author records this as the most consequential unresolved disagreement between the framework and an established position.

Non-extractability of organizational capability. Problems 9 and 19 restate, in a legal register, the claim that routines function as organizational memory and cannot be extracted from the organization that enacts them [15], which rests on the prior observation that a knower knows more than the knower can tell [17], together with the finding that the transfer of practice is impeded even within a single firm [22]. The mechanism is theirs. What the present paper adds is the proposal that this bears on what can be an object of property rather than only on what can be managed, and the enumeration argument at Problem 19, which converts a metaphysical thesis into a checkable one in the one setting where the components can be listed.

Inalienability. Problem 11 sits beside a developed literature on why certain entitlements resist transfer, including the taxonomy separating non-transferability from non-salability [18], the treatment of inalienability as a distinct mode of protecting an entitlement [3], and the parameters marking markets as noxious [19]. The paper's framing differs and the difference is worth stating: that literature is predominantly normative, holding that certain goods ought not be sold. The present entries are ontological, holding that the individuation and severability conditions any property claim presupposes may not be satisfied. A reader who prefers the normative framing may reconstruct several entries in it, at the cost of inheriting the burden of showing what ought not be sold and why.

The apparatus of ownership. Problems 11 and 13 use the analysis of ownership into separately holdable incidents [10] and the reduction of property to relations among persons [8, 9], together with the account of property rights as in rem and of the standardization that follows [14]. These supply the test that Problem 11 applies; they are not modified here.

Non-severable relational value in existing law. Problem 19 observes a pattern rather than discovering it. Goodwill is treated as inseparable from the business to which it attaches [11], and a mark carries no significance apart from the goodwill it symbolizes, so that an assignment without the business is void [27]; trade secrets are protected through a relation of confidence rather than by a right in a thing [21]; personality theory grounds interests that resist transfer in the connection between a creator and a work [12]. The author notes one qualification arising from survey: the rule against assignment of a mark in gross rests substantially on protection against consumer deception rather than on non-severability, so the trademark limb is weaker support than the goodwill limb and is cited accordingly.

Capacity as a peculiar object of transaction. The observation that a capacity transacts differently from a thing, being sold for a period rather than conveyed, and remaining inseparable from the person whose capacity it is, is stated in the analysis of labour power [13]. Problem 11 generalizes the structure from a person to a configuration.

Option sets and exit. Problem 17 uses a contraction of the space of available relations as the object of a loss. Assessing advantage over the set of achievable functionings rather than over holdings is established [20], as is the analysis of exit cost and its effect on the burden borne by voice [7], and the requirement that authority over a party hold open what that party will later be able to exercise [5]. The present use is a restriction of these to relations rather than functionings or rights.

Relational ontology. Definition 2.1 rests on treating transactions and relations as primitive and parties as what relations produce [4]. The companion papers concede this at length.

The generative artificial intelligence structure. Problem 19 relies on the observation that providers assign output rights in terms qualified as an assignment of such rights “if any,” while the law may recognize no underlying right to assign [6], against the background of the human authorship requirement [26, 25] and the divergent approaches taken elsewhere [23, 2]. That mismatch between contractual allocation and absent underlying right is documented and is not claimed here. What is added is the extension from outputs to the capacity, and the observation that the same structure appears wherever products are allocated while the conditions of further production are retained.

12 Limits, Intended Use, and Conclusion

This section states the limits of the document, its intended uses, a summary table of the entries, and the conclusion. The limits appear in descending order of severity. The intended uses are given as four, together with one use the document is written to resist.

12.1 Limits of the document

The limits appear in descending order of severity.

The list is one author’s. It records the problems encountered by a particular line of inquiry, and the completeness of such a list cannot be established. A problem absent here may be absent because it does not arise or because it was not met.

The dependency structure is argued and not proven. Claim 3.1 asserts that six entries are appearances of Problem 1. The assertion rests on each of them presupposing the separation that problem questions, which is shown case by case rather than in general. A reader who finds an entry

that survives an unfavourable answer to Problem 1 has refuted the structure without refuting the entries.

Several entries would dissolve under a different starting point. Definition 2.1 is a commitment, not a result. A framework admitting that jointly generated value decomposes in principle, however difficult the decomposition in practice, would find Problem 12 and much of Section 7 unnecessary. Section 11 records that an established position takes exactly this view.

The defeaters are uneven. Some name a specific result that would close an entry. Others name a direction. An entry whose defeater is a direction is weaker as a problem, since it has not been shown what would settle it, only where one might look.

Nothing here is formalized. Several entries invite formal treatment, particularly Problems 1, 8, and 9, and the absence of formalization means that the arguments have been checked for consistency in prose alone.

The generative artificial intelligence material carries more weight than a single domain should. It is used because its components can be enumerated, and the enumeration argument at Problem 19 has no counterpart elsewhere. If that setting is atypical in some respect the author has not noticed, several entries are weaker than they appear.

The legal material is stated from a limited survey and is uneven across jurisdictions. Positions are given where the survey established them and are otherwise omitted, and the paper makes claims only about the jurisdictions it names.

12.2 Intended uses of the list

Four uses are intended and a fifth is not.

As a research map. Claim 3.1 identifies where work is worth doing. Problem 1 is the trunk and dominates six descendants. Problems 13 and 17 are the constructive entries, where a solution would be built rather than discovered, and the author regards them as the most valuable. Problem 10 is closed by stipulation and could be closed tomorrow.

As a test on proposed solutions. Section 1 states this use, which the author regards as the principal one. Any allocation rule offered for this region is to be examined for where it supplies the decomposition that Definition 2.1 denies. A rule that appears to allocate without decomposing has either solved Problem 12 or concealed a decomposition, and the list is the instrument for telling which.

As a constraint on the author's own companion work. Each open entry marks a place where those papers stop. Where a companion paper states a limit that corresponds to an entry here, the correspondence is recorded in that paper. A reader of the companion papers who finds a confident claim in a region covered by an open problem here has found an inconsistency, and the author would want to know of it.

As an invitation. A problem list invites solution more directly than an argument does. Any entry closed is a better outcome than the entry standing.

Not as a demonstration that nothing can be decided. The framework settles four results, stated at Section 10, and one entry in the numbered sequence records an occasion on which the author drew precisely that convenient conclusion and was wrong. Citing an entry as showing that a question has no answer, where what it shows is that the author has not found one, misuses the document.

12.3 Summary

Table 2 lists the twenty-one entries with their layer, their dependence, and the character of what would close them.

Table 2: Entries by layer, dependency, and character of defeater

No.	Problem	Layer	Depends on	Character of a defeater
1	Separability of capacity from conditions	0	Nothing	A weak-coupling approximation with stated interval and tolerance
2	Persistence weaker than identity	0	1	A continuity criterion supporting assertion without supporting ownership
3	Identification of a grammar from products	1	1	An identification result under stated restrictions
4	The generative portion is unobservable	1	1	A theory linking exercised properties to unexercised range
5	Counterfactual generation	1	4	Whatever defeats 4; or population-level comparison
6	Evolution of a capacity	1	1	Empirical regularities at class level
7	Membership of the configuration	2	1	A criterion not itself an exercise of the power it regulates
8	Identity conditions of a grammar	2	3	Identity conditions imported from dynamical systems
9	Partial transferability	2	8	Closing 8; or showing the transferable part is never generative
10	The meanings of transfer	2	Nothing	Stipulation
11	Transfer without depletion	3	Independent	Showing the generative component is rivalrous
12	Allocation presupposes decomposition	3	7	13; or a fifth rule; or the metering reading
13	Divided bundles as an escape	3	12	A worked scheme of incidents
14	Value across kinds	3	Independent	A defensible common measure for the comparison at hand
15	Symmetric failure of proof (<i>records an error</i>)	3	5	A principled basis for allocating the burden of proof
16	Independence required for attribution	4	1	Attribution not proceeding by removal
17	Generative loss as a head of damage	4	4	A worked head of damage; or extension of loss of a chance
18	Measurement at the wrong level (<i>defeated repair</i>)	4	3	Loss of a chance; goodwill valuation; injunctive relief
19	The absent legal object	4	11	A characterization not reducing to an enumerable item
20	Wrongness without ownership	5	Independent	Duties specifying obligee and content
21	A duty to sustain generation	5	20	A positive account; or exhaustion by notice and forbearance
22	Origin confers no claim (<i>settled</i>)	5	Independent	A terminating account of constitutive claim

12.4 Conclusion

A framework holding that value generated by a configuration has no decomposition into prior shares will produce negative results in abundance and positive ones with difficulty. This paper states where the difficulty begins and what shape it has.

The shape is a trunk and two branches. One question asks whether a generative capacity and the conditions of its exercise can be separately identified, and six further problems are appearances of it if the answer is unfavourable. Two problems stand apart and survive any answer: that a capacity conveyed without diminishing its source defeats the exclusion and depletion on which the property model rests, and that comparing what two holders would generate requires a measure across kinds that may not exist. The normative problems stand apart likewise.

Three entries are marked and the marks are the document’s calibration. One preserves an inference the author drew and should not have, from the unavailability of proof on both sides to the retention of the present holder. One preserves a repair that was proposed and defeated, because the manner of its defeat locates the difficulty better than its statement did. One records the single result that is settled, and which requires symmetric defence, since applied in one direction only it would be a convenience rather than a principle.

The claim advanced is that setting this out is a result. The framework’s founding commitment is a denial, and a denial invites the reintroduction of what it denies under other names. A list of problems stated in dependency order, with the argument for each and the defeater for each, is the instrument by which such a reintroduction becomes visible. A framework returning confident answers in this region would be one that had smuggled the decomposition back in, and the author includes his own error at Problem 15 because the smuggling is easiest to perform when the conclusion is congenial.

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