

Diplomacy in a World of Heterogeneous Knowledge Systems

Exploring Generative Relational Systems Perspectives and Formal Models

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Abstract

International arrangements are made among parties that differ in what counts, for each of them, as showing that a claim is so. This paper treats that difference as its object, taking a knowledge system to be the verification component of a normative order given dynamics of its own, and asks what two such parties can hold in common, what holding it costs, and what becomes of a claim in the passage between them. Four constructions are supplied. A joint description is represented as a common factor of the parties' dynamics, yielding the absence of a greatest such description and the result that an arrangement may cease to describe the parties' situation while every obligation it imposes continues to be performed. The passage of a claim is represented as an event carrying no content together with a construal operating on the receiving party's current state, under which the vocabulary of exchange is recovered where the receiving state is irrelevant, and under which exchange and the registration of divergence are shown to stand in an exact identity, so that the coarsening which secures agreement is the same operation that conceals misconstrual. Disclosure is represented as the consumption of a stock, giving a bounded lifetime attestation and a maximum arrangement length reached with no party defecting. Epistemic standing is represented as a directed graph whose failure of transitivity constitutes the office of the intermediary without conferring authority. Three bodies of institutional material are read by mechanism, and the account is stated in constraint form throughout, its condition concerning whether a party can bring a divergence onto the record and alter the terms on which the record is kept.

Keywords: heterogeneous knowledge systems; diplomacy; verification; joint description; generative relational theory

Draft. This is a preprint draft. It is circulated for comment, and its arguments, formulations, and open questions are subject to revision. Correction and criticism are welcome at huangwanhong@serendip.ngo.

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Use of generative artificial intelligence. Generative AI assistants (Anthropic’s Claude and OpenAI’s ChatGPT) were used extensively in preparing this manuscript: for literature survey, for drafting prose from the author’s specifications, for adversarial review of the argument, for the enumerations and numerical computations underlying the figures and the quantities reported in the text, for consistency and citation auditing, and for typesetting. Formulations and objections arose in the course of that exchange as well as from the author. Every claim, argument, and citation was reviewed and decided by the author, who is responsible for the content and for any errors. Bibliographic details, and in particular the treaty provisions and institutional descriptions in Section 11, are to be verified against the primary instruments before reliance.

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A note on the standing of this paper

The constructions offered here are simple, and they were chosen for being simple enough to reason about. Each represents a great deal by a little: a party's whole apparatus for settling what is so by a state space and a map, a document or a statement by an element of a set carrying no content, the admission of another's certificates by an edge in a graph. Whether such representations hold anything worth having is a question the paper puts and leaves open.

The statement blocks are of two kinds and the difference matters. A proposition is a statement about a construction. Some are proved from the definitions in a line or two, and I have preferred to state those plainly in place of dressing them; others are established by exhibiting a case found by enumeration, and those are only as good as code that nobody but me has read. A claim is a reading of a construction onto an arrangement, and a reading uses terms the construction does not contain. Where a claim does that I have tried to say so at the point where it happens.

Where numbers appear they come from enumerating small constructed systems, and they describe those systems and no arrangement in the world. Some quantities I had measured in earlier drafts turned out to restate the parameters I had chosen for the drawing, and those have been removed. The quantities the constructions use have no established counterpart in the diplomatic record, and I do not know how any of them would be measured.

Three bodies of institutional material are read through the constructions. That reading is one reading. The material was in each case assembled by others for other purposes, and a reader who knows any of the three well may find that what I have taken as an instance of a mechanism is better explained in its own terms. The published study on which the first case rests reports its findings under a framework this paper sets aside; I have tried to state its findings as their author states them before offering a different account of them, and any distortion in that restatement is mine.

I would be glad to be shown wrong on any of the following. Joint descriptions among heterogeneous parties may admit a canonical maximum, in which case the multiplicity result fails. Disclosure may leave the process it discloses intact, in which case the third construction has no subject. Epistemic standing may in practice compose, in which case the office of the intermediary needs a different explanation. And divergence in construal may be registrable independently of how coarse a shared frame is, in which case the identity that carries much of the argument does not obtain.

The transposition of dynamical and topological vocabulary is a place where I may have taken more from the mathematics than it will bear, and Section 16 sets out what I believe was carried and what was left behind. The treaty material in Section 11 awaits checking against the primary instruments. Corrections and objections are welcome at the address on the title page.

1 INTRODUCTION

This paper concerns the difference between two parties in what counts, for each of them, as showing that a claim is so, and the consequences of that difference for what they can agree, for what they can verify of one another, and for what their agreement can be relied upon to mean once it is in force. Its objective is to give that difference a formal representation, to derive from the representation a small number of results about joint description and about the passage of a claim between parties, and to read documented institutional material through those results. The method is dialectical in the exposition and constructive in the formal sections: prior formulations are surveyed and conceded before the account's own position is stated, the position is given four constructions at successive levels of detail, every numerical statement is produced by computation before the proposition reporting it is written, and the case material is read by mechanism.

The setting is familiar in outline. A plural international order is ordinarily analysed as an order of plural interests, and the apparatus built for it is an apparatus of bargaining, of relative capability, and of the credibility of commitments. That apparatus was extended long ago to matters of belief and meaning. Constructivist scholarship established that the categories through which states apprehend one another are made and sustained in practice (Wendt, 1999; Kratochwil, 1989). The literature on epistemic communities established that networks holding shared causal beliefs and shared criteria of validity shape the coordination of policy across borders (Haas, 1992). Comparative work in science and technology studies established that polities differ in the ways they make a public claim credible, and that the differences are institutionally embedded and durable (Jasanoff, 2005). The practice turn established that diplomatic competence is a form of knowing which resists statement in propositional form (Pouliot, 2010; Adler and Pouliot, 2011; Sending et al., 2015). And a sustained body of work treats diplomacy as a knowledge occupation (Neumann, 2012; Rana, 2011), now including a detailed study of how contributions were handled across the lifetime of a single United Nations negotiation process (Andersen, 2026). That knowledge matters to international politics is settled, and this paper takes it as settled.

What remains undescribed lies one level down. Each of the accounts just named treats the parties as differing in what they believe, in what they have come to take for granted, or in the competence they have acquired. A prior difference is available and has attracted less attention. Two parties may differ in what would count, for each of them, as showing that a claim is so. One may treat a matter as settled when an accredited body has certified it, another when a responsible official has attested to it, another when a published procedure has been followed and its output survives inspection, and another when those who bear the consequences have said that they recognise the description. These are conditions of admission and not contents of belief, and parties can share their beliefs entirely while diverging in them.

Where such a divergence obtains, the ordinary remedies are unavailable by construction. Supplying more information does not help a party that has no procedure for admitting information of that kind. Establishing a common authority presupposes what is at issue. And the residual practice of building trust, valuable as it is, names an outcome and leaves the mechanism unstated.

Four constructions carry the argument, and their results may be stated compactly here since the sections that establish them are technical. A joint description of two parties is represented as a common factor of their dynamics: a system onto which each party's own motion is carried by a map of its own. Three results follow. The order of such descriptions has no greatest element in general, so a choice among incomparable joint descriptions remains which no property of the two systems settles, and enumeration found several maximal common factors in 6.5 per cent of random pairs on five states and in 24.5 per cent on six. A joint description holds only while it remains compatible with the current dynamics of both parties, and changing one party's dynamics at a single point, with the other party unchanged and the agreed description untouched, removed about one previously available description in five. And from this follows the result the paper regards as its principal one: an arrangement may cease to describe the parties' situation while every obligation it imposes continues to be performed, so that an observer monitoring compliance observes nothing, since compliance is a property of conduct and the failure is a property of the relation between the text and the parties' systems.

The second construction represents the passage of a claim. What crosses between parties is a material event carrying no content, and the receiving party's construal of it is an operation upon the state that party already occupies. The vocabulary of exchange is then recovered exactly where the receiving party's own state makes no difference to the joint description of the outcome, which is a severe condition and a rare one. And the central result is an identity: exchange obtains at a point exactly where any divergence present there goes unregistered, so that the proportion of successful exchanges and the proportion of divergences a joint description can register sum to unity at every coarseness. Success under the vocabulary of exchange and the failure to detect that the parties have understood differently vary together, and an assessment counting the first reports its highest values where the second is worst.

The third construction represents the cost of rendering a claim checkable. Substantiating a claim requires disclosing the process that produced it, and in the international setting that process is frequently the one whose disclosure is most costly. The cost therefore falls on a stock and not on a flow: the total attestation a party can deliver over any horizon is bounded, the level of disclosure fixing the rate at which the budget is spent and leaving its size untouched. An arrangement demanding substantiation at a steady rate accordingly admits a maximum length, beyond which no level of disclosure satisfies both the demand and the budget, and which is reached without any party defecting from the arrangement and without any change in either party's intentions.

The fourth construction represents the admission of one party's organs by another as competent to produce a fact. The relation is directed, it is granted for classes of output, and it composes poorly, since a grant by one party to another addresses no third party. A party to whom no other accords standing retains the capacity to act and loses the channel by which a statement is received. And the gap between direct admission and reachability is what an intermediary supplies, which constitutes the office without conferring authority over the parties.

The position from which the constructions are stated is the generative relational one. A concept, on that view, is a relational being. It has presence within a configuration of relations and within the language systems, broadly understood, that interpret and represent it, and the relations and their dynamics are what bear witness to it. Witnessing is positioned, partial, and open to deviation, and the deviation may be distributed unjustly. The position has substantial ancestry, which the paper concedes in full before marking its own difference, and the constructions are stated without reliance upon it and hold for a reader who declines it.

The case material is read by mechanism. A United Nations negotiation process supplies the first case, and four of its reported findings, presented there as departures from the model under which it was studied, follow from the constructions as consequences: the dispersal of function across participants, the bundling of distinct operations into single practices, the absence of the expected sequence, and the implicit character of the whole. What the organizational framing describes accurately is the handling of material within a party holding one admission standard and one record. What it leaves undescribed is the passage between parties holding different ones, and each of the four findings concerns that passage. Two further cases follow, chosen so that each exhibits mechanisms the others do not: the verification of arms limitation agreements, whose two modes differ precisely in the draw they make on the attestation budget, and technical standard-setting, where instruments already exist that register a divergence without refining the joint description and therefore raise registration without paying the price the identity fixes.

Three limits are declared at the outset. The propositions hold of the constructions and establish nothing about any negotiation or any state, and the case material displays mechanisms and measures nothing. The quantities appearing in the constructions have no established counterpart in the diplomatic record, so the results are comparative and directional and support no statement about any arrangement's position on any scale. And the account is stated in constraint form: it rules arrangements out and orders none, so it identifies what an arrangement forecloses and leaves the choice among the arrangements it permits to those who bear the consequences. The condition it states concerns whether a party can bring a divergence onto the record and can alter the terms on which the record is kept, and it says nothing about which construal is correct.

The exposition proceeds as follows. Section 2 fixes the object and the bounds observed in handling the case material. Section 3 surveys the prior formulations and states the residue.

Section 4 states the position on the mode of being of a concept and concedes its ancestry. Section 5 fixes the knowledge system as the account's object and sets aside the assumption of a single knowledge base. Sections 6 through 10 give the four constructions. Section 11 reads the case material. Sections 12 and 13 state the descriptive residue and the failure modes. Sections 14 and 15 treat composition over time and the constraint form of the account. Section 16 states the boundaries, and Section 17 the questions the account opens.

The paper belongs to a series applying generative relational theory to governance. It draws on the treatment of plural normative orders and of warranting, on the treatment of the translation burden, on the treatment of value conversion, on the account of relational crystallisation, on the account of interfaces in stratified coupled systems, and on the metamodel for ontologically heterogeneous social dynamics, and it cites those results where it uses them.

2 SCOPE, COMPANION PAPERS, AND THE BOUNDS OF THE CASE MATERIAL

2.1 *The Object of the Account and the Level at Which It Is Pitched*

The object of this account is a difference between parties in what counts, for each of them, as showing that a claim is so, together with the consequences of that difference for joint action. The object is a condition of arrangements and not a property of any party, and it is pitched at the level of the mechanism: the account asks what a given difference forecloses, what it makes available, and what it renders undetectable, and it leaves the question of which parties in fact stand in such a difference to be settled case by case.

Three things fall inside the object. The first is the passage of a claim between parties whose conditions of admission differ. The second is the joint description that two such parties can construct and the properties that description has. The third is the standing under which a party's organs are admitted by another as producers of fact. Three further things lie outside it. The genesis of a difference between knowledge systems is treated as given, and Section 16 states what would be needed to treat it. The individuation of a party and of a system is left open, in the terms already used for the individuation of the relata in the treatment of value conversion. And the design of institutions is left to those who build them: the account supplies conditions, and a condition constrains a design without producing one.

The level of generality is that of two coupled systems, and the international setting enters as the case in which the four conditions that make the problem sharp hold together. Those conditions are the absence of a common adjudicator, the availability of exit, the legal protection of each party's internal processes from inspection by the other, and the routine achievement of joint action in spite of the first three. Organisations, professions and jurisdictions satisfy some of these conditions and not others, and the account extends to them with the strength that the satisfied conditions allow.

2.2 *The Division of Labour with the Papers on Nomoi, Translation, and Conversion*

Four companion papers hold results that this paper uses and does not re-derive. The treatment of plural normative orders holds the distinction between the two evidence regimes, the derivation of the distribution of the translation burden from verification asymmetry, the device of warranting, and the account of inclusion as the holding of a claim that is never required to be converted (Huang, 2026a). The treatment of the translation burden holds the alignment default and the claim that an incumbent grammar is written into the criteria of competence (Huang, 2026b). The treatment of value conversion holds the conversion operation, the sense of nomos adopted, and the criterion of generative preservation (Huang, 2026c). The treatment of multilingual democracy holds the residue that survives perfect translation and the graded thesis relating language to relational structure (Huang, 2026d). The treatment of relational crystallisation holds the four failure modes (Huang, 2026e), and the treatment of interfaces in stratified systems holds the results on the composition of two orders, the exchange interval, and the channels through which one process enters another (Huang, 2026f).

What this paper holds is the following. It isolates the verification component of a normative order and gives it dynamics of its own, so that conflicts of fact between parties who may share their values fall inside the account. It represents a joint description as a common factor and derives the properties of that representation. It represents disclosure as the consumption of a stock. It represents epistemic standing as a directed graph. It represents emission and construal as an action upon the receiving system, and recovers the vocabulary of exchange as a limiting case. And it reads a documented multilateral process through those representations.

2.3 *The Standing of the Formal Constructions*

The constructions in this paper are stipulated models, and their propositions hold of the models, some by proof from the definitions and some by exhibition. Each proposition is stated with the assumptions that carry it, and the assumptions differ across the levels of detail: the algebraic level assumes a state space and a composition law and nothing further; the stochastic level assumes measurable structure and the existence of the kernels; the field theoretic level assumes stationarity and locality in addition, and its quantities are unmeasurable in the present setting. Section 8 states which level carries which result, and the results relied upon elsewhere in the paper are those available at the algebraic and stochastic levels.

The transposition of dynamical and topological concepts to relations among knowledge systems is disciplined in the manner already adopted for the crystallisation of relational plurality and for the stratification of coupled systems. Features that carry are named, features that fail to carry are named, and all normative content is imported from political theory and derived from no formal result. Where a numerical claim is made, it is produced by computation before the proposition that reports it is stated, and the computation accompanies the

paper.

2.4 The Political Bounds Observed in Treating a Live Multilateral Process

The case material is drawn from a multilateral process that remains in progress, and three bounds are observed in handling it. The material is organised by mechanism throughout, so that a practice is presented together with the construction that reads it and never as an episode in the conduct of any delegation. States are named where the published record and the study relied upon already name them, and then only for a procedural fact. And the account reaches verdicts on mechanisms and reaches none on the conduct of any party, on the merits of any position advanced in the process, or on the substance under negotiation.

Two further bounds follow from the account itself. The constructions identify conditions under which an arrangement forecloses a party's capacity to contest a description, and they supply no ground for deciding which party should yield where the conditions are met. And the process examined here is one in which the cost of substantiating a claim is unusually high, since demonstrating knowledge of an intrusion discloses the means by which it was detected. That feature makes the process a favourable case for the second construction, and Section 16 records the effect of the favourable selection on the weight the case can bear.

3 PRIOR FORMULATIONS OF KNOWLEDGE IN DIPLOMACY

This section surveys the formulations already available for the place of knowledge in international politics, states what each settles, and identifies the question each leaves open. The survey is ordered from the formulations closest to organisational practice through to those closest to formal epistemics, and it closes by stating the residue that the remainder of the paper occupies. Each formulation is conceded on its own terms, and the difference marked at the end of each subsection concerns the question asked and never the adequacy of the answer given.

3.1 The Organisational Framing of Knowledge in Multilateral Negotiation

Knowledge is treated in the organisational literature as an asset held by an entity and handled through a sequence of operations, being built, validated, held, mobilised, and applied (Liu, 2020; Davenport and Prusak, 1998). Applied to a multilateral negotiation, the frame yields a detailed empirical account of how contributions enter a process, how they are scrutinised, where they are retained, and by whom they are put to use (Andersen, 2026). The frame is adequate wherever one standard of admission governs and one body of retained material is at issue, and within a foreign ministry or a secretariat both conditions ordinarily hold.

Two commitments carry the frame and are worth stating precisely, since the paper returns

to them in Section 5. Validation operates as a gate, so that material is admitted or withheld against a criterion; a gate has one side. Mobilisation is defined as the movement of knowledge between persons, places, or owners, so that what arrives corresponds to what left. The question the frame leaves open is what becomes of these operations where several standards of admission are in force at once and no single body of retained material exists.

3.2 Epistemic Communities and the Convergence Case

Work on epistemic communities establishes that transnational networks holding shared causal beliefs and shared criteria of validity influence how policy is coordinated under uncertainty, and it specifies the conditions under which such a network acquires influence over the framing of an issue (Haas, 1992). The criteria are named directly in the defining formulation, which lists shared normative and principled beliefs, shared causal beliefs, shared notions of validity understood as intersubjective and internally defined tests for weighing and validating knowledge, and a common policy enterprise. That the tests are internal to the community is stated there as a deliberate choice, marked off against a usage in which such communities appeal to tests outside themselves. The observation that conditions of admission are held communally and intersubjectively therefore belongs to this literature, and the present account concedes it.

The mechanism the literature then develops is convergence: participants come to share the criteria, and the shared criteria travel into national positions.

The account is strongest where convergence occurs and is silent by design where it fails. Its subject is a community that comes to hold criteria in common; the subject of the present account is the pair of parties that do not, and which nevertheless act together. The question left open is what apparatus is available where the convergence the mechanism requires is absent.

3.3 Civic Epistemologies and the Comparative Study of Credibility

Comparative work in science and technology studies establishes that polities differ in institutionally embedded and durable ways in how a public claim is made credible, in who is permitted to speak for the evidence, and in what form of demonstration a public will accept (Jasanoff, 2005). The finding is close to this paper's premise and is adopted without qualification.

The comparative design fixes what the account can reach. Civic epistemologies are compared across polities by an analyst positioned outside them, and the polities in the comparison are not, within the study, required to transact with one another. The question left open is what happens when two such epistemologies must produce a description that both will act upon, and which of them bears the cost of producing it.

3.4 *Private Information and the Rationalist Account of Bargaining*

The rationalist account of conflict establishes that private information combined with an incentive to misrepresent it accounts for bargaining failures that complete information would remove, and it locates a class of outcomes that no appeal to irrationality is needed to explain (Fearon, 1995). The associated literature on signalling establishes how a costly action can convey what a statement cannot (Schelling, 1960).

The account assumes that the parties agree on what would count as evidence and differ in what they possess of it. On that assumption a signal is informative because both parties read it the same way. The present account takes up the prior case in which the parties differ in what would count, so that a signal costly to send may still fail to be received as evidence at all. The question left open is the case where the criterion, and not the holding, is what differs.

3.5 *Misperception and the Standing of an Error Term*

The literature on misperception establishes that decision makers systematically construe one another's actions through prior images, that the construals are resistant to disconfirming material, and that a substantial class of international outcomes follows from this (Jervis, 1976).

The account carries an error term. A misperception is a divergence from how matters stand, and the analyst occupies the position from which the divergence is measured. Where two knowledge systems differ in their conditions of admission, no such position is available within the arrangement, and a divergence between the parties' descriptions may obtain with neither description defective by the standards of the system that produced it. The question left open is how a divergence is to be treated where the vocabulary of error has no purchase.

3.6 *Common Knowledge and the Meet of Information Partitions*

Formal epistemics supplies the most exact of the available formulations. An agent's information is represented as a partition of a state space, common knowledge is represented as the meet of the agents' partitions, and it follows that agents with a common prior who reach common knowledge of their posteriors hold the same posterior (Aumann, 1976). The lattice operations on partitions are the exact ancestors of the joint description constructed in Section 7, and the debt is acknowledged there as well as here.

Three features of the construction fix what it settles. The partitions are defined on a shared state space. They are static, so that the question of whether a meet survives the agents' own subsequent development does not arise. And the meet is taken as given, so that no cost attaches to its coarseness. The question left open is what becomes of the construction when the shared state space is withdrawn, the partitions are given dynamics, and the coarseness of the meet is treated as a quantity with consequences.

Table 1: Prior formulations, what each settles, and the question each leaves open.

Formulation	What it settles	Question left open
Organisational knowledge management	The operations by which an entity handles material, and their empirical presence in a negotiation	The case of several standards of admission and no single retained body
Epistemic communities	The conditions under which shared criteria travel into policy	The apparatus available where convergence is absent
Civic epistemologies	That credibility is institutionally constituted and differs by polity	Which party bears the cost when two must produce one description
Private information	That withheld information with an incentive to misrepresent accounts for bargaining failure	The case where the criterion of evidence differs, and not the holding
Misperception	That prior images shape construal and resist disconfirmation	The treatment of divergence where the vocabulary of error has no purchase
Common knowledge	The exact representation of shared information as a meet of partitions	The withdrawal of the shared space, the dynamics, and the cost of coarseness
Diplomatic theory and practice	That separateness is constitutive of the institution	A representation precise enough to say which arrangements preserve it

3.7 Diplomacy and the Mediation of Estrangement in the Practice Literature

The theoretical literature on diplomacy establishes that the institution presupposes and preserves the separateness of the parties it relates, and that its office is the mediation of estrangement in place of its removal (Der Derian, 1987; Sharp, 2009). The practice turn establishes that diplomatic competence is a background knowing acquired through participation and resistant to statement in propositional form (Pouliot, 2010; Adler and Pouliot, 2011; Sending et al., 2015), and the occupational literature establishes that diplomats work as producers and interpreters of knowledge about other societies (Neumann, 2012; Rana, 2011).

This is the nearest ancestry the present account has, and it is claimed as ancestry. What the literature establishes is that separateness is constitutive of the institution. What it leaves open is a representation of separateness precise enough to say which arrangements preserve it, which consume it, and which conceal its consumption.

3.8 The Residue Left by the Foregoing Formulations

Table 1 collects the survey. Read together, the formulations establish that knowledge is institutionally constituted, that it differs across polities, that its distribution shapes bargaining, that its construal is shaped by prior images, that its sharing admits exact representation, and that the institution of diplomacy exists to relate parties that remain separate. The residue is narrower than any of these and is stated as follows.

Claim 3.1. (The residue). *What the foregoing formulations leave undescribed is the division of labour imposed by a difference in the conditions of admission: where two parties differ in what would count as showing that a claim is so, the work of rendering a claim in terms the other is able to admit falls somewhere, the rendering consumes something, and what the rendering fails to carry becomes unavailable to the arrangement in a manner the arrangement itself is unable to record.*

Three consequences organise the remainder of the paper. The rendering has a structure, and Section 8 supplies it. The consumption has a subject, and Section 9 supplies it. And the failure to record has a formal source in the coarseness of the description the parties hold in common, which Section 7 supplies.

4 THE MODE OF BEING OF A CONCEPT IN GENERATIVE RELATIONAL TERMS

This section states the position on knowledge from which the constructions that follow take their reading, concedes the ancestry of that position, marks the limits placed upon it, and establishes that the formal results hold independently of it. The order is from the claim itself, through the account of what passes between parties, to the concessions, the limits, and the standing of the claim. The method is statement and concession: each element of the position is given, the literature that already holds it is named, and the difference this paper makes is marked in the same place.

4.1 *The Relational Constitution of a Concept*

A concept, on the generative relational account, is a relational being. It holds within a configuration of relations, it is interpreted and represented through the language systems, broadly understood, that a party has available, and its determination at any moment is an achievement of the relations and their dynamics. The account accordingly treats a body of knowledge as a state of a system in place of a stock held by a subject, and treats a criterion of admission as part of that system's operation.

The immediate consequence for the present subject is that two parties holding different relational configurations hold concepts whose determination differs even where the words coincide. The consequence is weaker than a claim about untranslatability, and Section 4.9 states the limits under which it is entered.

4.2 *Presence and the Withholding of Substance*

The mode of being ascribed to a concept here is presence within a configuration, and substantiality is withheld. A concept shows up; it is determinate for the parties whose relations

determine it; and it has no standing apart from them that would make it available for inspection independently of any relational position. The distinction between what is present in this sense and what is available as a thing on hand is Heidegger's, and the debt is acknowledged (Heidegger, 1927).

Withholding substantiality carries a cost that the section records at 4.11. An account that declines to treat knowledge as a thing owes an explanation of how anything can be invariant across the positions that hold it, and the topological construction supplies that explanation.

4.3 *Broad-Sense Language Systems and the Work of Interpretation They Perform*

A language system in the broad sense includes a natural language together with the classifications, procedures of demonstration, institutional forms, and habits of attention through which a party renders a situation determinate. Systems in this sense are what interpret and represent a concept, and they differ across parties in ways that survive translation between the natural languages involved.

The work such a system performs is generative. It produces determinations that were not available before it operated, and it produces them by its own operation, so that the determination reached depends on the system that reached it. Section 4.4 draws the consequence for what can pass between two of them.

4.4 *The Perturbation That Crosses and the Generation It Occasions*

What passes between two parties is a material event: a document, an utterance, a signal, a demonstration. The event carries no determination of its own. A party emits it out of an internal state, and the emission is many to one, so the internal state is unrecoverable from what crosses. A receiving party takes the event up through its own operation, and the determination reached on the receiving side is produced there.

Claim 4.1. (Occasioned generation). *A communication between two knowledge systems occasions a determination in the receiving system and conveys none to it. What the emitting party holds and what the receiving party comes to hold are determinations of two systems, and their agreement is a further question in place of a consequence of the event.*

Section 8 gives this claim its formal representation at three levels of detail. Two features of the representation are worth stating here, since they carry the reading of the case material. The event acts upon the receiving party's current state, so the same event occasions different determinations in different receivers and in the same receiver at different times. And the emitting party's own determination is one term of a comparison that can be made only through a description the parties hold in common.

4.5 The Prior Formulations of Non-Transfer in Communication and Systems Theory

The claim that communication conveys nothing is established and is conceded here in full. The critique of the vocabulary of transfer, and of the expressions in ordinary language that carry it, is Reddy's (Reddy, 1979). The account of a perturbation that triggers a response it does not specify, the response being determined by the structure of the system perturbed, is Maturana and Varela's (Maturana and Varela, 1980), and the social theory built upon it holds that communication is a selection among possibilities in place of a transmission (Luhmann, 1995). The exclusion of meaning from what a channel carries is Shannon's (Shannon, 1948). The account of how an object can be taken up differently on each side while remaining stable enough to travel is Star and Griesemer's (Star and Griesemer, 1989), and the anthropological treatment of a term taken up divergently on each side of an encounter is Viveiros de Castro's (Viveiros de Castro, 2004).

This paper claims none of that. What it adds is the conjunction of the non-transfer account with three further constructions, and the results obtained from the conjunction: the recovery of the vocabulary of exchange as a limiting case, the trade-off between the availability of agreement and the registrability of divergence, and the consequences of both for the distribution of the evidential burden.

4.6 The Conditions Under Which the Vocabulary of Exchange Remains Adequate

The organisational vocabulary of knowledge exchange is adequate under stated conditions, and the account is a conditioned plurality in place of a symmetric one. Where one standard of admission governs, where the receiving parties' prior states are alike in the respects that bear on construal, and where the description in which success is assessed is coarse enough to be insensitive to the residual differences, the vocabulary of exchange holds and is the efficient one to use. A firm ordinarily satisfies these conditions and a multilateral negotiation ordinarily does not.

The qualification matters for a reason internal to the account. A plurality of vocabularies entered without conditions makes each of them immune to challenge from the other, which returns the mutual uncontestability already identified in the treatment of plural normative orders (Huang, 2026a). Section 8.5 states the conditions exactly.

4.7 The Positionality and Fallibility of a Witnessing Relation

The relation in which a party stands to a concept determined through its own system is a witnessing relation. A witness is positioned, so what is available to it is available from somewhere. A witness is partial, so its access omits. A witness is fallible and correctable, so its report may be revised without the concept being revised with it. And a witness is not the author of what it witnesses, which is what distinguishes the position taken here from the view that a party

constructs what it knows.

The literature holding this is substantial and is conceded by name. Positioned and partial vision as the ground of objectivity in place of a view from nowhere is Haraway's (Haraway, 1988); the associated reconstruction of objectivity is Harding's (Harding, 1991); and the treatment of knowing and being as a single question, with phenomena in place of things, is Barad's (Barad, 2007). The difference this paper marks is one of question: that literature establishes that knowing is positioned, and this paper asks what two positions can jointly hold and what the dynamics of their coupling do to it over time.

4.8 *The Deviation and the Injustice Available to a Witnessing Position*

A witnessing relation admits of deviation, and the deviation may be distributed unequally across the parties. Where a party's report is received with a discount attaching to the party in place of the report, and where the resources for making a situation intelligible are absent for the party that undergoes it, the deviation is an injustice and has been analysed as one (Fricker, 2007). The present account inherits that analysis and adds the structural condition under which the deviation escapes notice, which Section 8.8 supplies: a description coarse enough to permit agreement may be too coarse to register that the parties have diverged.

4.9 *The Limits Placed on the Claim by Semantic Translatability*

The claim of this section is entered in a graded form, and the strong form is declined. The strong form holds that parties operate within conceptual schemes between which translation fails, and the objection to it is that a scheme identified as a scheme has already been rendered in the identifying party's terms (Davidson, 1974). The objection is accepted, and the account concedes full semantic translatability between the natural languages of the parties.

Claim 4.2. (The graded claim). *Parties differ in the relational configurations through which determinations are reached, and the differences bear on which determinations require no argument, how determinations are ranked where they conflict, and which acquire institutional form. The differences neither exhaust nor determine what a party is able to state, and they survive the availability of complete translation between the languages the parties speak.*

The graded claim is the one already defended in the treatment of multilingual democracy (Huang, 2026d), and it is imported here in place of being re-argued.

4.10 *The Span of Witnessing and the Cospan of Agreement*

Two directions are involved and the account keeps them apart. Witnessing runs outward from a coupled configuration to each party's own representation of it, giving a pair of maps with

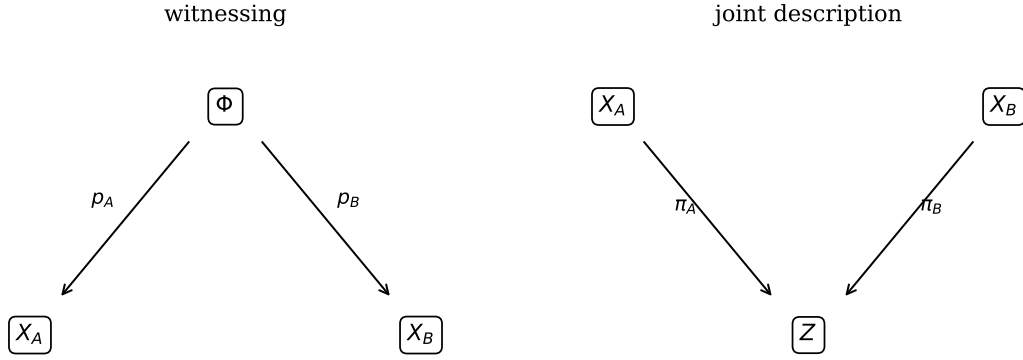


Figure 1: Witnessing and joint description run in opposite directions. On the left each party’s representation is reached from the coupled configuration by a projection of its own; on the right each party’s own space is carried onto a shared one. The diagrams carry no numerical content.

a common source. Agreement runs inward from each party’s representation to a description the parties hold in common, giving a pair of maps with a common target. The first pair carries the partiality of each position; the second carries the coarseness of what the two can jointly state.

A question arises from holding both, and Section 7 takes it up: whether a description the parties agree upon is faithful to what their positions jointly witness. The two directions are distinct, and an arrangement may be well constructed in one and defective in the other.

4.11 *The Invariance Compatible with the Withholding of Substance*

An account that withholds substantiality from a concept owes an explanation of invariance, since the constructions that follow rest on quantities that two parties compute in their own terms and agree upon. The explanation is available and it is structural. An invariant, in the sense used throughout this paper, is what every admissible transformation preserves. A statement of invariance is therefore already a statement about a class of relations in place of a statement about a thing standing behind them, and the two commitments agree.

Claim 4.3. (Invariance without substance). *Withholding substantiality from a concept is compatible with the existence of invariants, since an invariant is defined by preservation under a specified class of transformations. The specification of the class is where the substantive work lies, and a change in the class changes what is invariant without anything being discovered or lost.*

4.12 *The Reflexive Standing of the Present Claim*

The position stated in this section applies to itself. It is a determination reached within a relational configuration, it is offered from a position, and it is revisable. Its standing is that of a proposal entered into a historical process of revision, and it claims no exemption from the account it gives. The consequence is that the account is defeasible in the ordinary way, and Section 16 states the four observations that would defeat it.

4.13 *The Independence of the Formal Results from the Ontological Position*

The constructions of Sections 6 to 10 are stated without reliance on the position of this section, and they hold for a reader who declines it. A reader who treats a body of knowledge as a stock held by a subject will read the common factor as a shared summary, the attestation stock as an ordinary cost, the standing graph as a matter of institutional recognition, and the construal operator as an unusually elaborate model of interpretation. The propositions are the same, and their proofs use no premise from this section.

What the position supplies is the reading under which the results cohere and under which the case material is least surprising. That relation between a stated position and a formal result is the one already adopted for the crystallisation of relational plurality (Huang, 2026e): the normative and ontological content is imported and stated, and the formal results are derived from the constructions alone.

5 THE OBJECT OF THE CONSTRUCTIONS AND THE ASSUMPTIONS SET ASIDE IN FIXING IT

This section fixes the object the constructions represent. It isolates the component of a normative order that the account gives dynamics to, states the assumption about a single knowledge base that the organisational framing carries and that this account sets aside, exhibits the tension internal to that framing which makes the setting aside possible without any charge about metaphysics, records the open status of the individuation of a system, and states the discipline observed in transposing dynamical and topological concepts to relations among knowledge systems.

5.1 *The Isolation of the Verification Component from the Nomos*

A normative order in the sense adopted in the companion treatment of plural orders fixes three things: what counts as value, what counts as a valid claim about it, and what counts as verification (Huang, 2026a). The present account takes the third of these, isolates it, and gives it dynamics of its own.

Definition 5.1. (Knowledge system). *A knowledge system is the verification component of a normative order, taken together with the operations by which that component reproduces and revises itself. It fixes what counts as an established fact, the procedures by which a claim becomes one, who is competent to run those procedures, and the conditions under which a question is treated as settled.*

The isolation earns its place by what it makes visible. Two parties may agree on what is valuable, on what would be a valid claim about it, and on the substantive outcome they seek, and remain unable to act jointly because each holds a procedure for settling matters of fact that the other has no way of running. Conflicts of that shape fall outside an account organised around plural values, and they are common in the international setting, where the substantive interest in avoiding a given outcome is frequently shared and the question of whether the outcome has occurred is the one that resists settlement.

Two constraints follow from the isolation. The account inherits the individuation problem of the order it isolates a component from, which Section 5.4 records. And a knowledge system so defined has an inside: the operations that reproduce it belong to the party that holds it, so a description of it from outside is a description under a projection, which is the condition Section 4 treated under the heading of witnessing.

5.2 The Assumption of a Single Knowledge Base and Its Setting Aside

The organisational framing surveyed in Section 3 carries an assumption that this account sets aside, and the assumption is one its proponents state, in place of one attributed to them here. The knowledge base is singular. It is defined in the case study relied upon here as the body of knowledge at the foundation of the negotiation process, upon which work is conducted and decisions are based (Andersen, 2026). Every stage of the model operates on that base: material is built into it, validated for admission to it, held within it, moved around it, and applied from it.

Three operative commitments follow from the assumption, and each of them holds under determinate conditions. Validation operates as a gate with one admission standard. Mobilisation carries material between holders with its content preserved. And the base is common to the parties, so that all of them working from one repository is recorded as an outcome to be sought.

The conditions under which the three commitments hold are the conditions of a single organisation: one standard of admission, one authority competent to apply it, and one record. Where those conditions obtain the framing is adequate and the present account claims nothing against it. The claim is about reach. In an arrangement among parties each of which holds its own standard, its own competent authority, and its own record, the three commitments fail together, and the framing can register their failure only as difficulty in its own operation.

5.3 *The Internal Tension Between Non-Separability and Transportability*

A tension inside the organisational framing gives the setting aside a firmer footing than any claim about its assumptions could. The framing relies on the inseparability of tacit knowledge from the knower, and it defines mobilisation as movement between knowers.

The first commitment is explicit and load-bearing. Tacit knowing is held to be constitutively personal, embodied in individuals and rooted in their practice (Polanyi, 1966), and it is from this that the framing derives the importance of retaining experienced personnel: what an organisation knows tacitly departs when its holders depart, so retention is a condition of holding (Andersen, 2026). The second commitment is equally explicit. Mobilisation is the movement of knowledge from one place, person, or ownership to another (Liu, 2020), and the framing catalogues the practices through which it occurs between persons.

Non-transportability and transportability are therefore both doing work within a single framework. The tension is visible in that framework's own findings. The case study reports that building, validation, and mobilisation were bundled into single practices that could not be told apart, and that the stages were observed out of the sequence the model gives them (Andersen, 2026). Those findings are attributed there to the political character of the setting. The present account offers a different source for them, and Section 8 supplies it: where what crosses between parties occasions a construction at the receiving end, the operations of producing, admitting, and moving a claim are performed in one act, since the receiving party performs all three at once upon material that carries none of them.

5.4 *The Individuation of a Knowledge System and Its Open Status*

The question of what counts as one knowledge system, and of where the boundary between two of them falls, is left open by this account. A state is treated as holding one system where the case material treats it so, and the treatment is a convenience of exposition and carries no claim. The same question was left open in the companion treatment of value conversion under the heading of the individuation of the relata (Huang, 2026c), and the position taken there is adopted here.

Three considerations bear on the openness and are recorded so that the constructions are read with the right strength. A party in an international process is internally plural, holding ministries, agencies, and courts whose admission conditions differ, so the treatment of a party as one system is a coarsening performed by the analyst. The constructions are indifferent to the level at which the parties are individuated, and they apply to two ministries of one state on the same terms as to two states. And where a result depends on the individuation, the text says so at the point where the result is stated.

5.5 *The Discipline Governing the Transposition of Dynamical Concepts*

The constructions that follow use vocabulary from dynamical systems, from topology, and from field theory. The discipline observed in transposing that vocabulary is the one adopted for the crystallisation of relational plurality and for stratified coupled systems, and it has three clauses (Huang, 2026e,f).

Features that carry are named where they are used, and features that fail to carry are named in Section 16. All normative content is imported from political theory and is derived from no formal result, so that a proposition about a construction is never offered as a reason for an arrangement. And every numerical statement is produced by computation before the proposition reporting it is written, with the computation accompanying the paper, so that a caption asserts what its figure displays.

One further clause is specific to this paper. The constructions are presented at three levels of detail, and the assumptions differ across them. Results relied upon elsewhere in the paper are those available at the algebraic and the stochastic levels, and the field theoretic level establishes that the same structure admits a realisation in continuous variables without carrying any proposition of its own.

6 THE FIELD-THEORETIC CONSTRUCTION OF THE COUPLED SYSTEM

This section constructs the coupled system that the later sections take invariants of. Its objective is to write two knowledge systems and their coupling as one dynamical object while retaining the distinction between the systems and the coupling, and to give the coupling a motion of its own without making it derivative. The construction proceeds by fixing the configuration, separating the free part from the interaction part, naming the channels through which one system enters another, introducing the coupling kernel, separating the scales on which the states and the kernel move, stating the action over trajectories together with the reading it forbids, and recording what the construction leaves unrecoverable.

6.1 *The Field over Subsystem States and Relational Structure*

The configuration carries three groups of variables. Each party i holds an internal state x_i taking values in a space X_i , whose coordinates represent the quantities its own operations act upon: what it treats as established, what it holds open, and the standing of its procedures. The coupling carries a structure r , representing what obtains between the parties independently of either: channels in use, standing accorded, instruments in force. Writing $\varphi = (x_A, x_B, r)$, the configuration is a section of a bundle over a label set, and the language of fields is used for φ throughout.

Two features of this choice are worth stating at the outset. The relational structure r is a

variable of the configuration and not a parameter of it, so that an arrangement between the parties is a state of the system and is subject to its dynamics. And no metric is imposed on X_A or X_B , and none is imposed between them: the construction supplies no distance between a state of one party and a state of the other, in keeping with the metamodel for ontologically heterogeneous social dynamics, where the imposition of a metric was shown to decide substantive questions by notation (Huang, 2026g).

6.2 *The Free Part and the Internal Reproduction of a Knowledge System*

The free part governs a system left to itself. Each party reproduces its own knowledge system continuously through operations that require no counterparty: inquiry, adjudication, promulgation, training, the retirement of settled questions and the reopening of others. Writing the systematic component of that motion as F_i , the free evolution of party i obeys

$$\dot{x}_i = F_i(x_i) + \xi_i, \quad \langle \xi_i(t) \xi_i(t') \rangle = 2D_i \delta(t - t'), \quad (1)$$

with ξ_i representing the variability of the internal process and D_i its amplitude.

Two properties of the free part carry weight later. Equation (1) runs whether or not any arrangement is in force, so a party continues to revise what it treats as established while bound by an agreement, which is the source of the persistence question in Section 7. And F_A and F_B are defined on different spaces and are given by different expressions, so the two parties differ in their dynamics and not only in their present states.

6.3 *The Interaction Part and the Coupling of Two Knowledge Systems*

The interaction part governs what one system does to another. Written with a kernel K that fixes the form of the coupling, the joint motion is

$$\begin{aligned} \dot{x}_A &= F_A(x_A) + G_A(x_A, x_B, r; K) + \xi_A, \\ \dot{x}_B &= F_B(x_B) + G_B(x_A, x_B, r; K) + \xi_B, \end{aligned} \quad (2)$$

together with a motion for r driven by both parties. The decomposition into a free part and an interaction part is retained throughout this paper, and Section 6.7 states what retaining it costs and where it fails.

A property of Equation (2) distinguishes it from an aggregation. The pair (x_A, x_B) admits no reduction to a single variable whose motion is closed, since G_A and G_B are given by different expressions and act on different spaces. The corresponding result for stratified systems, where a coupled pair of constituents was shown to admit no autonomous equation in the aggregate, is used here in the form established there (Huang, 2026f).

Table 2: The channels through which one knowledge system enters another, with the quantity each alters.

Channel	Point of entry	Instance in an arrangement
Common force	A term acting on all parties alike	A published finding, a shared instrument, an event both must accommodate
Internal source	A contribution inside the receiving system's own accounting	A submission entered into the receiving party's own procedure
Boundary condition	A condition fixed at the edge of the receiving system	Admissibility requirements, deadlines, the terms on which material may enter
Determinant of a rule	A coefficient of the receiving system's own dynamics	A change in what the receiving party treats as sufficient, in who is competent, or in what counts as settled

6.4 The Channels Through Which One System Enters Another

The interaction term admits a decomposition by channel, and the count of channels is fixed while the count of processes that use them is open. The result is taken from the treatment of stratified coupled systems, where four channels were established, and it is transposed here without re-derivation (Huang, 2026f).

Claim 6.1. (The fourth channel). *Three of the four channels alter the state of the receiving system and leave its rule intact. The fourth alters the rule, so that the receiving system may process subsequent inputs differently. Its effect is therefore absent from the state at the time the channel operates and appears, where it appears at all, in later responses.*

Claim 6.1 is the formal position of the distinction between a generation blocked within an intact grammar and a grammar rewritten, and the correspondence is stated here and used in Section 8, where the two channels appear as a source coupled to a field and a source coupled to a coefficient.

6.5 The Coupling Kernel and Its Position in the Construction

The kernel K fixes the form of the interaction: which of the channels are open, with what strength, in which direction, and on what material. Two parties in a relation of long standing and two parties meeting for the first time differ in K and may agree in x_A and x_B , so the kernel carries what the states do not.

The kernel occupies a position that neither party occupies. It is a property of the pair, it is altered by what the parties do, and it enters the motion of each of them. An arrangement in

force is a constraint upon K and not a term added to F_A or to F_B , so that the question of what an arrangement does is the question of what it fixes in the kernel and of what it leaves free.

6.6 *The Separation of Scales Between the Motion of States and the Motion of the Kernel*

The kernel moves. Channels open and close, standing is extended and withheld, and the terms on which material may enter are revised, all through the history of the coupling. Writing the motion of the kernel with a small parameter ϵ ,

$$\dot{K} = \epsilon H(x_A, x_B, r; K), \quad 0 < \epsilon \ll 1, \quad (3)$$

the states move on a time of order one and the kernel on a time of order $1/\epsilon$.

The separation is what allows the decomposition to be retained while the coupling acquires a motion of its own. On the fast scale the kernel is fixed and Equation (2) governs; on the slow scale the states have already relaxed, and the kernel is driven by time averages of fast quantities. The structure is that of an adiabatic approximation and of a flow on the space of couplings, and it answers the objection that a decomposition into a free part and a fixed interaction leaves the coupling static: the interaction is not fixed, it is slow.

6.7 *The Retention of the Decomposition and the Cost It Carries*

The decomposition into a free part and an interaction part is retained here by choice, and the choice has a cost that is stated in place of being concealed. The cost is that the decomposition is well defined only where the scales separate.

Claim 6.2. (The failure of the decomposition). *As ϵ approaches unity the kernel moves on the time scale of the states, the fast motion has no interval over which the kernel may be held fixed, and the assignment of a portion of the motion to the free part and the remainder to the interaction becomes arbitrary. The regime in which the decomposition fails is the regime in which the terms of a relation are being rewritten at the speed at which the parties are acting within it.*

A second condition defeats the decomposition independently of the first. A party whose procedures of verification were themselves constituted by the arrangement has no free part that the arrangement could be subtracted from, so that F_i and G_i cannot be told apart at any value of ϵ . The condition holds of bodies established by an instrument and of parties whose competent authorities were created to administer one, and it is common in international practice.

Claim 6.2 and the condition just stated identify circumstances and supply no remedy. Where it holds, the constructions of this paper describe a system whose parts have ceased

to be separable, and the results that presuppose the separation are unavailable. Section 16 records this as the sharpest limit on the reach of the account.

6.8 The Probabilistic Content of the Action over Trajectories

The dynamics of Equations (2) and (3) admit a formulation over whole trajectories. For a path $\varphi(\cdot)$ over an interval, the weight

$$\mathcal{S}[\varphi] = \frac{1}{4} \int \|\dot{\varphi} - \mathcal{F}(\varphi; K)\|_{D^{-1}}^2 dt \quad (4)$$

assigns to each trajectory a quantity whose exponential is proportional to the probability density of that trajectory, with $\mathcal{F}$ collecting the systematic terms and D the noise amplitudes. The formulation is the Onsager–Machlup one, set in the field theoretic framework of Martin, Siggia, and Rose, and it is used in the same form in the companion treatment of developmental dynamics (Huang, 2026h).

Three properties make the formulation useful here. It scores whole trajectories in place of instantaneous states, so that a history of a relation is the object evaluated. It makes the expected waiting time for a rare passage computable from the height of a barrier. And it composes across subsystems, so that the coupling of two parties is written by adding a term.

Claim 6.3. (The content of the extremum). *Equation (4) is a log-probability. Its extremum is the most probable trajectory of the system under the stated dynamics, which is a statement about likelihood and about nothing else. That a trajectory is the most probable one supplies no reason for any arrangement that produces it, and no party's benefit follows from that status.*

Claim 6.3 is stated here because an extremal principle invites the reading that a system optimises and therefore that what it optimises is what it is for. Section 15 states the wall that reading would breach and the grounds on which the account refuses it.

6.9 The Constitutive Role of Truncation at Finite Order

The systematic terms F_i and G_i are unknown functions, and the construction proceeds by expanding them in a polynomial basis and truncating at finite order. The number of coefficients through order p in n variables grows as $\binom{n+p-1}{p}$, so the truncation is severe in any application with more than a few variables.

The truncation is constitutive of the hypothesis class and is not a narrowing of a complete one. A model truncated at second order has constant sensitivity to its parameters and exhibits no fold at any parameter value, while a model carried to fourth order exhibits large changes in state under small changes in a control, so the order at which the expansion is cut determines

which phenomena the construction can represent at all (Huang, 2026h). The choice of order is therefore an assertion about what kinds of transition are to be admitted, and it is stated wherever a result depends on it.

6.10 *The Quantities the Construction Leaves Unrecoverable*

Three quantities are absorbed by the construction and cannot be recovered from it. A variable that is not observed is absorbed into the coefficients where it correlates with the state and into the noise where it does not, and the construction is silent as to which has occurred. The circulating part of the systematic motion, which performs no work upon the potential landscape, is identified only under an assumption about the noise amplitudes, and the gradient case is taken here because it is identifiable. And the grammar of each party, in the sense of the rules by which its states are formed rather than the states themselves, lies outside the expansion, which treats motion within a fixed rule and reaches the alteration of a rule only through the fourth channel of Table 2.

The third of these marks the same boundary that the metamodel for ontologically heterogeneous social dynamics reached, where mechanisms acting on a fixed congruence were formalised exactly and the rewriting of the congruence lay beyond the formalism (Huang, 2026g). The constructions of the following sections work within that boundary, and Section 16 states what lies past it.

7 THE TOPOLOGY OF THE COUPLED SYSTEM AND THE INVARIANTS AVAILABLE TO TWO PARTIES

This section constructs a joint description of two knowledge systems and derives its properties. Its objective is to establish what two parties can hold in common without either adopting the other's coordinates, what that holding costs, and what becomes of it as each party continues to move. The method is to represent a joint description as a common factor of the two parties' dynamics, to derive properties of that representation, and to check each numerical statement by enumeration over finite systems before the proposition reporting it is stated. The enumerations are carried out by the accompanying code, and Table 3 collects their results.

7.1 *The Recurrent Structure of the Coupled System*

The construction of Section 6 supplies each party with a dynamics on its own space. Writing (X_A, f_A) and (X_B, f_B) for the parties considered on the fast scale, with the kernel held fixed, the objects of the present section are these two systems and the relations between them.

Two features of the setting fix what may be asked. The spaces X_A and X_B are distinct and no map between them is given, so a description held by one party and a description held by the other admit no direct comparison. And each system carries its own motion, so a description

that holds at one moment faces the question of whether it continues to hold. The recurrent structure of each system, meaning the states to which it returns and the transitions among them, is what the constructions below take as available for common description.

7.2 The Common-Factor Construction of a Joint Description

A joint description makes only distinctions that both parties are able to make, and it must be carried along by the motion of each of them. Both requirements are captured by a single condition.

Definition 7.1. (Common factor). *A common factor of (X_A, f_A) and (X_B, f_B) is a system (Z, g) together with surjections $\pi_A : X_A \rightarrow Z$ and $\pi_B : X_B \rightarrow Z$ satisfying $\pi_i \circ f_i = g \circ \pi_i$ for $i \in \{A, B\}$. A joint description of the two systems is a common factor of them.*

The definition requires no space common to the parties. It requires of each party a map from its own space onto a shared one, and it requires that the map carry the party's own motion onto the motion of the shared system. The arrangement is a cospan: two systems, one shared image, and a map from each. The witnessing relation of Section 4 runs in the opposite direction and forms a span, and Section 8 treats the question of whether the two compose.

Two remarks fix the reading. A common factor is a description and not an agreement: the parties may hold one without having stated it, and an arrangement in force is a common factor that has been written down. And the condition $\pi_i \circ f_i = g \circ \pi_i$ is the formal content of the requirement that a joint description survive what each party does next, which Section 7.8 treats.

7.3 The Semiconjugacies and the Coordinate-Independence of an Invariant

A quantity computed on a common factor is available to both parties without either adopting the other's coordinates. Party A computes it by applying π_A to its own state and evaluating in Z ; party B computes it by applying π_B to its own state and evaluating in Z ; the values agree because both are values of the same function on Z .

This is the property that distinguishes the construction from a compromise. A compromise builds a shared object into which each party's claim is rendered, and it therefore requires a common currency. A quantity invariant under the semiconjugacies requires none: each party works in its own frame, and the agreement holds of the values and not of the descriptions that produced them. The invariance is relative to a specified class of maps, so the analytical work lies in fixing that class, and in the present setting the class is the maps under which each party regards its own claim as preserved.

7.4 The Multiplicity of Incomparable Common Factors

Common factors may be compared: (Z, g) stands below (Z', g') when Z is itself a factor of Z' . The comparison is a partial order, and the question is whether it has a greatest element, meaning a finest joint description of which every other is a coarsening.

Proposition 7.2. (Multiplicity). *The partial order on common factors has no greatest element in general. Two systems may admit common factors neither of which is a factor of the other, so that a choice among joint descriptions is available which no property of the two systems settles.*

The proposition is established by exhibition and its frequency was measured. Enumerating all compatible partitions of both systems, forming the quotient systems, identifying those that occur for both up to relabelling, and counting the maximal elements of the resulting order gives, over random maps on five points, several maximal common factors in 6.5 per cent of pairs with at most two of them; over random maps on six points, several in 24.5 per cent of pairs with at most three. Multiplicity is therefore uncommon in the smallest systems and becomes ordinary as the systems grow.

The consequence for the account is the one reached by a different route in the treatment of relational crystallisation (Huang, 2026e). Where several incomparable joint descriptions are available, the selection among them rests on something other than the properties of the parties' systems, and the present account identifies conditions on that selection and supplies no ordering of the descriptions that satisfy them.

7.5 The Degenerate Factor and the Limit of Coarsening

One common factor exists for every pair. The one-point system, on which every state of either party is mapped to the same point, satisfies Definition 7.1 trivially, and it appeared in every enumeration.

Claim 7.3. (The degenerate factor). *The one-point system is a common factor of any two systems, and it lies below every other common factor in the order. A joint description that has reached it distinguishes no state of either party from any other, so an arrangement resting upon it constrains nothing while satisfying every requirement placed on a joint description as such.*

Claim 7.3 identifies the form of a familiar object. An agreed text that distinguishes nothing is a joint description in good standing, and a criterion that rewards the availability of a common description is satisfied by it maximally. Section 8 shows that the same coarsening which secures the description is what removes the capacity to register a divergence, so the two properties vary together.

7.6 Conjugacy at the Opposite Limit and Its Correspondence with Homogenisation

At the other end of the order stand common factors whose maps lose nothing. Where π_A and π_B are bijections, the two parties' systems are conjugate and each is a relabelling of the other.

Claim 7.4. (The upper limit). *A common factor whose semiconjugacies are injective exists only where the parties' systems are isomorphic. An arrangement approaching this limit approaches the condition in which the parties differ in labels alone, which the account of relational crystallisation identifies as homogenisation and treats as a failure (Huang, 2026e).*

The two claims together fix the interval within which a joint description is of interest. The lower limit distinguishes nothing and the upper limit preserves nothing of the difference between the parties, and the requirement that a joint description stand strictly between them is a constraint and supplies no point within the interval as preferred.

7.7 The Entropy Bound on a Shared Description

A factor cannot be more complex than the system it is a factor of. In the standard setting this is the statement that topological entropy does not increase under a factor map (Walters, 1982), from which a common factor of two systems has entropy at most the smaller of the two entropies.

The finite systems used for enumeration here have zero entropy, so the bound is stated for them in a finite counterpart, which admits a direct argument. Write $c_L(f)$ for the number of distinct orbit segments of length L . A semiconjugacy π_i carries the orbit segment of x under f_i onto the orbit segment of $\pi_i(x)$ under g , and π_i is surjective, so every orbit segment of Z is the image of one of X_i and $c_L(Z) \leq c_L(f_i)$ for each i . Hence $c_L(Z) \leq \min\{c_L(f_A), c_L(f_B)\}$.

Proposition 7.5. (The bound on a joint description). *The complexity of a joint description is bounded above by the complexity of the less complex of the two parties' systems. A party that simplifies its own procedures thereby lowers the ceiling on what it can hold in common with any counterparty, and the lowering is independent of the counterparty's conduct.*

7.8 Persistence of the Factor Under the Parties' Own Evolution

Each party continues to move whether or not an arrangement is in force, and the free part of Section 6 runs throughout. A joint description persists exactly where the condition of Definition 7.1 continues to hold under the parties' current dynamics, so persistence is a property to be checked and never a consequence of the description having once been available.

Table 3: Results of the enumerations, computed before the propositions reporting them were stated.

Quantity	Setting	Result
Pairs admitting several maximal common factors	random maps, five points, 400 trials	6.5 per cent, at most two
Pairs admitting several maximal common factors	random maps, six points, 200 trials	24.5 per cent, at most three
Common factors surviving a one-point change in one party	random maps, five points	79.0 per cent
One-point system present among the common factors	every enumeration	always

The frequency of loss was measured. Changing the dynamics of one party at a single point, with the other party's dynamics unchanged and the description itself untouched, left 79.0 per cent of previously available common factors in place. A description available before the change was therefore lost about one time in five, and at least one common factor was lost in a clear majority of the trials in which more than one had been available.

Proposition 7.6. (Persistence). *A joint description holds only while it remains compatible with the current dynamics of both parties. A change internal to one party, involving no act directed at the other and no alteration of any agreed text, is sufficient to remove a description the parties previously held in common.*

7.9 The Failure of an Arrangement Under Continued Compliance

Proposition 7.6 has a consequence for what an observer of an arrangement can detect, and it is the principal result of this section.

Claim 7.7. (Failure without breach). *Read onto an arrangement, Proposition 7.6 gives the following. An arrangement may cease to describe the parties' situation while the obligations it imposes continue to be performed: the text is obeyed, no party acts against it, and the description it records has ceased to be a common factor of the parties' current dynamics. Compliance and the fit of the description come apart, since compliance concerns conduct and the fit concerns the relation between the text and the parties' systems, so monitoring the first gives no indication of the second. The reading carries the term obligation, for which the construction supplies no counterpart.*

Three features of Claim 7.7 bear on practice. Detection requires comparison of the parties' own dynamics with the description, which is an operation on material each party holds internally and is therefore expensive in the sense of Section 9. The failure accumulates, since the condition once lost is not restored by the party's subsequent motion, which is the form taken

here by the irreversibility of collapse established in the metamodel (Huang, 2026g). And the remedy of reaffirming the text addresses conduct and leaves the condition untouched.

7.10 *Continuity of the Rendering Map and the Pathology of a Threshold*

Where the parties' spaces carry a topology, the maps π_A and π_B may be required to be continuous, so that a small change in a party's own situation produces a small change in the joint description of it. The requirement is substantive and is frequently violated by design.

A threshold in an arrangement is a discontinuity in a rendering map. Where a determination turns on whether a quantity has crossed a stated line, two situations arbitrarily close in a party's own terms receive joint descriptions that differ maximally. Two consequences follow. Effort is displaced from the situation to its position relative to the line, since a small movement there produces a large movement in the description. And the divergence between the parties' construals of a case near the line is at its greatest exactly where the arrangement treats the case as settled.

7.11 *The Conley Decomposition and the Shared Invariance of the Order Among Regimes*

A weaker joint description than a common factor is available. Conley's decomposition theorem establishes that a continuous flow on a compact metric space decomposes into a chain recurrent part and a part on which the motion is gradient-like, with a continuous Lyapunov function strictly decreasing off the chain recurrent set (Conley, 1978); the name by which the result is now widely known was proposed later (Norton, 1995). A Morse decomposition of the chain recurrent set carries a partial order recording which pieces can be reached from which.

Two properties of the construction bear on its use here, and both are stated with the qualifications the mathematics attaches. Chain recurrence is defined through chains that admit a fixed error at each step, so the decomposition tolerates imprecision in the dynamics by construction. And the Conley index of an isolated invariant set is invariant under continuation, so a piece of the decomposition persists under small perturbations of the flow, which is weaker than the claim that a given decomposition is preserved entire. The compactness hypothesis is required for the theorem as stated, and extensions to non-compact and to discrete settings are due to others.

The order among regimes may therefore be held in common where no common factor of the full systems is available. Two parties may characterise a situation in entirely different terms and agree on which situations can follow which, and an arrangement resting on that agreement holds a joint description of transitions while holding none of states.

Claim 7.8. (The order as the shared object). *What two parties hold in common may be the order among regimes and not any description of a regime. An arrangement whose*

provisions concern which passages are available makes a weaker demand on the parties' knowledge systems than one whose provisions concern what obtains, and the pieces carrying that order persist under small perturbations of either party.

7.12 *Structural Stability of the Arrangement Under Perturbation of the Parties*

The question an arrangement faces is whether its joint description survives small changes in the parties' dynamics, which is the question of structural stability transposed. Proposition 7.6 supplies the negative half of the answer at the level of exact common factors, where a one-point change removed about a fifth of them. Claim 7.8 supplies the positive half, since the order among regimes is stable where the states are not.

The transposition carries an obligation. Results on the genericity of structural stability are theorems about diffeomorphisms of manifolds, and they do not transfer to arrangements among parties. What transfers is the question, which is whether a description remains available under small changes, and the answer here is supplied by the enumeration reported above and by nothing imported.

7.13 *The Bandung Formula Read Through the Factor Construction*

A formula in the diplomatic vocabulary of the twentieth century, associated with the Asian-African Conference of 1955, holds that parties should seek what they have in common while preserving their differences. Read through the present construction, the formula acquires a determinate content and ceases to be a maxim of forbearance.

Three readings are available for the common part, and they differ. It may be the overlap of what the parties already hold, which is generally thin. It may be the finest description both can state, which is a common factor and is attained by coarsening each party's own distinctions. Or it may be a quantity invariant under the maps, computed by each party in its own frame with the values agreeing. The third requires no shared description at all, and it is the only one of the three under which the second half of the formula is satisfied strictly, since the parties' own frames are untouched by it.

The preservation of difference then reads as the requirement that the joint description remain strictly between the two limits of Claim 7.3 and Claim 7.4. It is a constraint upon the arrangement and supplies no preferred point within the interval it defines.

8 EMISSION, CONSTRUAL, AND THE REGISTRATION OF DIVERGENCE

This section constructs the passage of a claim between two parties. Its objective is to represent what crosses, what the receiving party does with it, and what a joint description can record

of the outcome, and to derive from that representation the conditions under which the vocabulary of exchange holds and the conditions under which a divergence in construal can be registered at all. The construction is given at three levels of detail. The algebraic level carries the results relied upon elsewhere in the paper, the stochastic level supplies a bound available with measurable structure, and the field theoretic level establishes that the same arrangement admits a realisation in continuous variables. Numerical statements were computed before the propositions reporting them were written, and Table 4 collects them.

8.1 *The Rendering of an Internal State into a Material Event*

Emission is a map from a party's internal state into a space of material events. Writing E for a set whose elements are documents, utterances, signals, and other things that occur, the emission of party A is a map

$$e_A : X_A \longrightarrow E. \quad (5)$$

Two properties of E carry the construction. Its elements have no semantic structure: an element of E is an occurrence, and it holds no content that could be extracted from it by inspection alone. And e_A is many-to-one, so that x_A is not recoverable from $e_A(x_A)$, which follows from the finitude of any record set against the range of situations a party may be in.

The claim that nothing is transferred between the parties is contained in these two properties and requires no further premise. What crosses is an element of E . A state of A and an occurrence in E are objects of different kinds, and no operation carries the first across.

8.2 *The Monoid of Received Events and Its Action on the Receiving System*

Construal is an operation performed by the receiving party upon its own state. It takes an event and a current state and returns a state:

$$r_B : E \times X_B \longrightarrow X_B, \quad r_B(\varepsilon_1 \varepsilon_2, x) = r_B(\varepsilon_2, r_B(\varepsilon_1, x)), \quad (6)$$

where the second identity extends r_B to the free monoid E^* on the event set, so that receiving a sequence is receiving its members in order.

The second argument is what distinguishes construal from reception of a message in the ordinary sense. An event does not determine a state of B ; it acts upon the state B already occupies. Two parties in different states receiving the same event arrive at different states, and the same party receiving the same event twice may move differently on the second occasion.

Equations (6) make X_B a set acted upon by a monoid, which is the structure treated in the metamodel for ontologically heterogeneous social dynamics, with the monoid of received events in the place of the monoid of mechanisms (Huang, 2026g). The results established there apply here without re-derivation, and Section 8.3 states the one that matters most.

8.3 The Collapse of Distinctions Under Construal

Receiving an event may leave the receiving party unable to distinguish two situations it previously told apart. Writing $\Delta(w)$ for the set of pairs that the word $w \in E^*$ renders indistinguishable in X_B , three properties transfer from the metamodel.

The collapse is irreversible: a pair collapsed by w remains collapsed under every continuation of w . The collapse accumulates: $\Delta(w) \subseteq \Delta(w'w)$ for every continuation. And an action by invertible operations collapses nothing, so the non-invertibility of construal is exactly what makes a received event consequential. Enumeration over random construal operators confirmed the containment in all 400 trials and found the second message collapsing strictly more in 81 per cent of them.

Claim 8.1. (Accumulated collapse in the receiver). *A sustained sequence of events narrows the distinctions the receiving party is able to make, monotonically and without any of the events being false. What a party can no longer tell apart is unavailable to it thereafter, and no subsequent event restores the distinction.*

Claim 8.1 is the mechanism of the poverty of grammar treated in the companion account of absorption in relational systems (Huang, 2026i), stated here at the level of a single receiver.

8.4 The Map from One System's States into the Endomorphism Monoid of the Other

Composing emission with construal gives the operation that one party performs upon another:

$$x_A \mapsto r_B(e_A(x_A), \cdot) \in \text{End}(X_B). \quad (7)$$

Claim 8.2. (What is sent). *A party sends an operator on the other party's state space. An element of X_A and an element of $\text{End}(X_B)$ are objects of different kinds, so no reading of Equation (7) supports the description of the passage as a movement of anything from one party to the other.*

The claim is a restatement of what the two properties of Section 8.1 and the second argument of Section 8.2 jointly establish, and it is given a label because the remainder of the section is organised around it.

8.5 The Commuting Case and the Irrelevance of the Receiver It Requires

The vocabulary of exchange holds where the outcome of construal corresponds to the state the sending party was in. Correspondence requires a joint description in which to state it, and the common factor Z of Section 7 supplies one, with $\pi_A : X_A \rightarrow Z$ and $\pi_B : X_B \rightarrow Z$.

Definition 8.3. (Exchange). *Exchange obtains at Z when $\pi_B(r_B(e_A(x_A), x_B)) = \pi_A(x_A)$ for every $x_A \in X_A$ and every $x_B \in X_B$.*

The universal quantifier over x_B carries the content of the definition. Exchange requires the outcome to be independent of the state the receiving party occupied, so that construal is constant in its second argument as read in Z .

Claim 8.4. (The condition exchange imposes). *Exchange obtains exactly where the receiving party's own state makes no difference to the joint description of the outcome. The organisational framing of Section 3 is therefore recovered as the case in which that condition holds, and the framing is adequate wherever it holds and inapplicable elsewhere.*

8.6 The Non-Commutation of Internal Evolution with Construal

Two operations act on X_B : its own evolution f_B and construal $r_B(\varepsilon, \cdot)$. Whether they commute determines whether the moment at which an event arrives affects where the receiving party ends.

The two operations commute where f_B carries the effect of an event onto the effect the same event would have had later, which the construction imposes nowhere. The obstruction is a commutator, and it is the same obstruction that governs the composition of two orders in the treatment of stratified coupled systems, appearing here at the scale of a single received event (Huang, 2026f). A frequency measured over randomly drawn operators would report how often two arbitrary maps happen to commute, which is a property of the drawing and not of the arrangement, so none is given.

8.7 The Representability of Divergence in the Joint Frame

Divergence is the case in which construal delivers something other than what faithful reception would have delivered. Writing $\rho : X_A \rightarrow X_B$ for the correspondence that faithful reception would realise, and setting $\pi_A = \pi_B \circ \rho$ so that faithful reception is described alike by both parties, divergence at (x_A, x_B) is the condition $r_B(e_A(x_A), x_B) \neq \rho(x_A)$.

Divergence and its registration are distinct. A divergence is registered at Z when π_B separates the outcome from the faithful outcome, and it goes unregistered when π_B identifies them. A joint description that distinguishes few states registers few divergences, and the divergences it fails to register are invisible to every party using it.

8.8 The Coarseness of the Frame and the Divergence It Cannot Register

The relation between the two quantities is an identity and not a tendency.

Table 4: Exchange and the registration of divergence at each coarseness of the joint description, over random emission and construal operators on eight states with four events.

States in Z	Proportion satisfying Definition 8.3	Proportion of divergences registered	Weighted sum
1	1.000	0.000	1.000
2	0.544	0.522	1.000
4	0.298	0.804	1.000
6	0.192	0.925	1.000
8	0.126	1.000	1.000

Proposition 8.5. (The trade-off). *Exchange obtains at (x_A, x_B) exactly where any divergence present there goes unregistered at Z . Consequently the proportion of cases satisfying Definition 8.3 and the proportion of divergences registered at Z sum, after weighting by the rate of divergence, to unity, and no arrangement improves one without losing the other in equal measure.*

The proof is immediate. Where no divergence is present the outcome equals the faithful outcome and the two are identified by any map. Where divergence is present, π_B either separates the outcome from the faithful outcome, in which case the divergence is registered and the condition of Definition 8.3 fails, or identifies them, in which case the divergence is unregistered and the condition holds. The three cases exhaust the possibilities.

The identity was confirmed by enumeration and the magnitudes were measured. At a divergence rate of 0.874, holding fixed across all frames, the one-point frame gave exchange at every point and registered no divergence; the finest frame gave exchange at 12.6 per cent of points and registered every divergence; and the weighted sum was 1.000 at every intermediate coarseness.

Claim 8.6. (The common source). *Success under the vocabulary of exchange and the failure to register divergence vary together with the coarseness of the joint description. An assessment that counts successful exchanges reports its highest values exactly where the arrangement has least capacity to detect that the parties have understood differently.*

8.9 Iterated Construal and the Regimes of Contraction, Persistence, and Drift

Repeated emission and construal in both directions gives a sequence of divergences, and three regimes are available. The divergences may contract toward zero, in which case the parties' construals converge. They may remain bounded away from zero without growing. Or they may grow.

The account prefers none of the three. Complete contraction is the condition of Claim 7.4, in which the parties differ in labels alone, and the treatment of relational crystallisation records

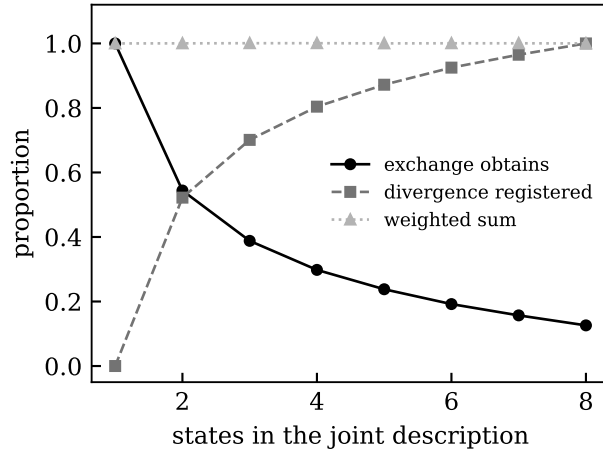


Figure 2: The proportion of points at which exchange obtains falls from 1.000 to 0.126 as the joint description is refined from one state to eight, while the proportion of divergences registered rises from 0.000 to 1.000. The weighted sum is constant at 1.000 across the range, to within 0.0007 at one point of the plotted grid.

that condition as a failure (Huang, 2026e). Growth without limit removes the joint description altogether. What the account requires of an arrangement concerns registration and not the regime, and Section 15 states the requirement.

8.10 *The Annotation of a Record Beside the Frame It Does Not Enter*

An arrangement may hold a distinction on its record without admitting that distinction into the joint description. A reservation, an interpretive declaration, an agreed minute, and a difference filed against a standard all have this form: a party states how it construes a provision, the statement is recorded, and the joint description continues to make the distinctions it made before.

The device is intelligible on the present construction and unintelligible on a transfer account. Where a claim is transmitted with its content preserved, nothing remains to be recorded once transmission has succeeded, and a recorded disagreement about what was agreed is a defect. Where construal occasions a construction at the receiving end, the divergence is expected, and recording it is the only means by which a party may later show what it had understood.

Claim 8.7. (Annotation and the trade-off). *An annotation registers a divergence without refining the joint description. It therefore raises the proportion of divergences that can be shown without lowering the proportion of cases in which exchange obtains, and it is the device by which the exchange of Proposition 8.5 is relaxed.*

8.11 *The Correspondence with the Device of Warranting*

The annotation stands in the same relation to a joint description that warranting stands in to a normative order. In the companion treatment of plural orders, warranting supplies a guarantee in the receiving party's currency while the claim itself remains unconverted (Huang, 2026a). An annotation supplies a record in the arrangement's own terms while the construal itself remains unadmitted to the joint description.

The correspondence is structural and carries a consequence. Warranting was argued there on grounds of what is owed to the party bearing the cost of untranslatability. The present construction supplies a second and independent ground: an annotation is the only device that improves registration without paying the price Proposition 8.5 fixes. The two grounds are separate and neither is derived from the other.

8.12 *The Stochastic Refinement and the Bottleneck at the Event*

Replacing the maps of Sections 8.1 and 8.2 with kernels, emission becomes $E_A(d\varepsilon \mid x_A)$ and construal becomes $R_B(dx' \mid \varepsilon, x_B)$, and the composite is a kernel from X_A to X_B formed by integration over E . The setting is that of a category of Markov kernels (Fritz, 2020).

The refinement supplies a bound the algebraic level cannot state. Since the composite factors through E , no processing performed by B recovers information about x_A that e_A discarded, which is the data processing inequality applied to the chain $x_A \rightarrow \varepsilon \rightarrow x'_B$ (Cover and Thomas, 2006). The event is a bottleneck, and the bound holds however sophisticated the receiving party is.

The measurement of divergence is deliberately kept qualitative at this level. A numerical divergence between distributions would supply a scalar recording how badly a passage went, and Section 15 states why the account withholds such a quantity.

8.13 *Sufficiency and the Conditions Under Which Exchange Obtains*

The stochastic counterpart of Definition 8.3 is a sufficiency condition. Exchange obtains at Z when ε is sufficient for $\pi_A(x_A)$, meaning that the conditional distribution of $\pi_A(x_A)$ given ε and given x_B does not depend on x_B .

Stated this way the condition is recognisable and its severity is visible. It requires the event to carry everything about the sending party's state that the joint description records, and it requires the receiving party's own state to contribute nothing. Where either fails, the composite kernel delivers a distribution over outcomes that depends on where the receiving party stood.

8.14 The Field-Theoretic Realisation and the Response Given by the Receiver's Propagator

At the level of the construction of Section 6, an event enters the receiving party's dynamics as a source. Writing J for the source associated with an emission and G_B for the response function of the receiving system in its linear regime, the change in the receiving party's expected configuration is

$$\delta\langle\varphi_B\rangle = G_B * J, \quad (8)$$

the convolution of the source with the receiving system's own response function.

Equation (8) states in continuous variables what Section 8.2 states algebraically. The same source produces different responses in different receiving systems, since G_B belongs to the receiver and enters every response it makes. Outside the linear regime a source arriving near a barrier may carry the receiving system across it, so that a small emission produces a large and lasting change of state, with the expected waiting time governed by the height of the barrier (Huang, 2026h).

8.15 The Source Coupled to a Coefficient and the Alteration of the Receiver's Rule

A source may couple to the receiving system's configuration or to a coefficient of its dynamics, and the difference is the difference between the first three channels of Table 2 and the fourth.

Claim 8.8. (Two kinds of emission). *An emission coupled to the configuration moves the receiving party's state and leaves its rule of construal intact. An emission coupled to a coefficient alters the rule, so that subsequent events may be construed differently. The second is undetectable by observation of the state alone, since its effect appears only in responses to events that have not yet occurred.*

Claim 8.8 supplies the practical distinction the section is for. A statement that changes what a counterparty believes and a statement that changes what a counterparty will thereafter treat as sufficient are different acts, and an arrangement that registers only the first has no record of the second.

8.16 The Prior Formulations of Information Flow in Categorical Terms

The construction of this section has a close antecedent, and it is conceded without qualification. The theory of information flow in distributed systems represents a component by a classification of tokens under types and represents the relation between components by an infomorphism, a contravariant pair of maps running one way on types and the other on tokens (Barwise and Seligman, 1997). The pair is the emission and construal arrangement of Sections 8.1 and 8.2, and the account of how a claim about one component supports a claim about another is developed there in detail.

Two differences fix what the present section adds. The antecedent is static and logical, and the components carry no dynamics of their own, so the questions of accumulation under repeated reception, of non-commutation with internal evolution, and of persistence under a party's own motion do not arise there. And the antecedent has no counterpart to the trade-off of Proposition 8.5, since registration is treated as a property of the logic and the coarseness of a shared classification is not a variable of the account.

Three further formulations are conceded here. The critique of the vocabulary in which communication is described as the sending of contents in containers established that the vocabulary misdescribes what occurs (Reddy, 1979). The theory of structural coupling established that a perturbation triggers a response the perturbing system does not specify, the response being determined by the structure of the system perturbed (Maturana and Varela, 1980). And the systems-theoretic account of communication established that communication is constituted by a synthesis of selections performed within a system, and that nothing passes from one system into another (Luhmann, 1995). The claim of Section 8.4 is theirs, and what the present section claims is the consequences drawn from it in Sections 8.5 through 8.11.

8.17 The Assumptions Carried at Each Level of Detail

The three levels carry different assumptions and support different results, and the correspondence is stated here so that a result is read with the strength its level allows.

The algebraic level assumes a set of states for each party, a set of events, and composition of received events. Claims 8.1, 8.2, 8.4, 8.6, 8.7, and Proposition 8.5 rest on this level alone, and they are the results used elsewhere in the paper. The stochastic level assumes measurable structure and the existence of the kernels, and it supports the bottleneck bound and the sufficiency condition. The field theoretic level assumes in addition that the receiving system admits a response function, which requires stationarity and locality, and it supports Claim 8.8 as an interpretation and no proposition of its own. The response function G_B has no established counterpart in the diplomatic record, and Section 16 records the consequence.

9 ATTESTATION AND THE STOCK IT CONSUMES

This section constructs the cost a party incurs in rendering a claim checkable by another. Its objective is to establish that the cost falls on a stock and not on a flow, to derive what follows for the distribution of the evidential burden and for the length of time an arrangement can be sustained, and to identify the device that relaxes the resulting constraint. The method is a stock model whose exact bound is derived and confirmed by simulation before the propositions reporting it are stated.

9.1 Disclosure, Receivability, and the Erosion of the Generative Process

A claim becomes checkable by another party through disclosure of the process that produced it. Writing $a \in [0, 1]$ for the level of disclosure and k for the capacity of that process to produce further claims, the construction takes

$$\dot{k} = -c a k + \rho (k_0 - k), \quad (9)$$

with $c > 0$ fixing the rate at which disclosure erodes the process and $\rho \geq 0$ its rate of recovery. The attestation delivered over an interval is $D = \int a k dt$, since a party can substantiate only from the capacity it holds.

Two features distinguish this from the treatment of a costly signal. The cost is borne by the same capacity that produces the party's future claims, so paying it lowers what can be paid later. And in the international setting ρ is small for the processes whose disclosure matters most, since a method of detection once described is a method that may be evaded.

9.2 The Bound on Lifetime Attestation

Setting $\rho = 0$ in Equation (9) gives $\dot{k} = -c a k$, so that $D = \int a k dt = -\frac{1}{c} \int \dot{k} dt = (k_0 - k(T))/c$.

Proposition 9.1. (The lifetime bound). *Without recovery, the total attestation a party can deliver over any horizon is at most k_0/c , whatever levels of disclosure it chooses and however long the arrangement runs. The level of disclosure fixes the rate at which the budget is spent and leaves the size of the budget untouched.*

Simulation confirmed the bound as an equality in the long run and confirmed its independence of the disclosure level. At $c = 0.5, 1.0$, and 2.0 , and at disclosure levels $0.1, 0.3$, and 0.9 , the delivered attestation equalled k_0/c in every case to four decimal places. With recovery the budget grows: at $\rho = 0.01$ the delivered attestation over a fixed interval was 2.87 times the no-recovery value, and at $\rho = 0.05$ it was 9.31 times.

9.3 The Burden Asymmetry Given a Stock Dimension

The companion treatment of plural normative orders derives the direction of the translation burden from the difference between the two evidence regimes: the burden falls on the party whose claims are verifiable after the fact and from within (Huang, 2026a). The present construction adds a dimension to that result.

A party whose claims are checkable in advance by published procedure discloses at no cost to its own capacity, which is c near zero, and its budget is unbounded. A party whose claims are substantiable only by disclosing how they were produced has c bounded away from zero

and a finite budget. At a per-round demand of 0.05, the first party sustains an arrangement indefinitely while the second sustains 100 rounds at $c = 0.2$, 20 rounds at $c = 1.0$, and under 7 rounds at $c = 3.0$.

Claim 9.2. (The asymmetry compounded). *The party bearing the evidential burden also faces a finite budget for bearing it, while a party whose own claims are checkable by published procedure faces a budget the construction leaves unbounded. Repeated demands for substantiation therefore have an asymmetric effect that no single exchange displays, and the asymmetry grows with the length of the arrangement.*

9.4 The Region of Jointly Feasible Disclosure and Its Contraction with the Horizon

Joint action over T rounds requires each party to deliver at least θ per round while remaining within its budget, so a sustained level a is admissible when $a \geq \theta$ and $aT \leq k_0/c$. The admissible set in (a_A, a_B) is a product of intervals, and its area is $(k_0/(cT) - \theta)^2$ where that quantity is positive.

At $\theta = 0.01$, $c = 1$, and $k_0 = 1$, the area falls from 3.61×10^{-2} at $T = 5$ to 8.1×10^{-3} at $T = 10$, 1.6×10^{-3} at $T = 20$, and 6×10^{-6} at $T = 80$, reaching zero at $T = 100$.

Proposition 9.3. (The sustainable horizon). *An arrangement demanding substantiation at rate θ from a party with budget k_0/c admits a maximum length $T^* = k_0/(c\theta)$, beyond which no level of disclosure satisfies both the demand and the budget. The arrangement ends without any party defecting from it and without any change in either party's intentions.*

The region is open where it is non-empty, so the account identifies the admissible pairs and selects none of them, in the form used for the admissible region in the treatment of relational crystallisation (Huang, 2026e).

9.5 Warranting and the Preservation of the Budget

A guarantee supplied in the receiving party's own terms secures joint action without disclosure of the process that produced the claim. In the vocabulary of the companion treatment this is warranting, and the receiving party's question is answered as a question about its own exposure (Huang, 2026a).

Claim 9.4. (The budgetary ground for warranting). *A warrant delivers receivability at a cost that falls outside k . It therefore leaves T^* of Proposition 9.3 unchanged while satisfying the demand that would otherwise consume the budget, and an arrangement resting on warrants admits horizons that an arrangement resting on disclosure does not.*

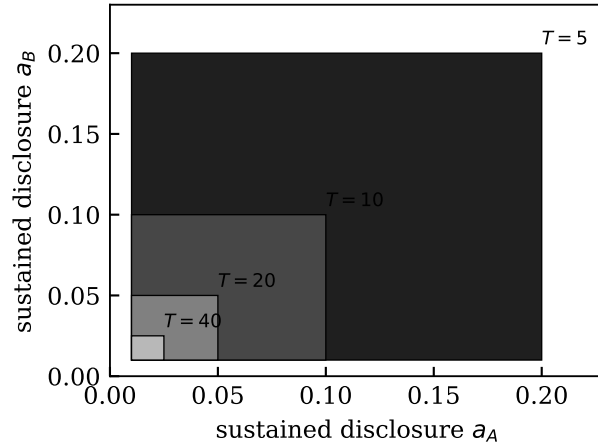


Figure 3: The set of sustained disclosure levels admitting an arrangement of length T , at $\theta = 0.01$, $c = 1$, and $k_0 = 1$. The areas are 3.61×10^{-2} , 8.1×10^{-3} , 1.6×10^{-3} , and 2.25×10^{-4} at $T = 5, 10, 20$, and 40 , and the set is empty for $T \geq 100$.

Claim 9.4 supplies a ground for warranting distinct from the ground argued in the companion paper, which rests on what is owed to the party bearing the cost of untranslatability. The present ground rests on the arithmetic of a stock and holds whatever view is taken of what is owed. Together with Claim 8.7 the paper now offers three independent grounds for the same device.

9.6 The Pathologies Attaching to Attestation Itself

Three failures attach to the device of the preceding subsection and to the practice of substantiation generally, and they are stated so that neither is read as a solution.

A warrant repeatedly supplied at a settled magnitude hardens into a rate of conversion, at which point the claim it was to have protected has been converted after all, which is the capture path identified in the companion treatments of conversion and of plural orders (Huang, 2026c,a). A demand for substantiation addressed to one party alone reproduces the asymmetry of Claim 9.2 under the appearance of a neutral requirement, since the party with c near zero satisfies it without cost. And a party facing repeated demands may raise c deliberately by ceasing to produce the claims whose substantiation would be demanded, which preserves the budget by removing what it was for. The third is the form taken here by the redirection identified in the account of relational degradation, and Section 13 treats it.

10 EPISTEMIC STANDING AND ITS TRANSITIVITY

This section constructs the relation by which one party admits another's organs as competent to produce a fact. Its objective is to establish what follows for a party to whom that admission is

withheld, to measure how far the relation composes, and to locate the office of the intermediary within the construction. The method is a directed graph whose properties are measured by enumeration over random instances before the propositions reporting them are stated.

10.1 *Recognition and the Admission of Another's Organs to the Production of Fact*

Recognition in international practice extends beyond the acknowledgement of a political status. To recognise a party is to admit its passports, its certificates, its registries, its judgments, and its statistics as things that establish what they purport to establish. The apparatus is extensive and familiar: legalisation and apostille, comity, the enforcement of foreign judgments, the acceptance of consular documents, and the mutual recognition of qualifications.

Definition 10.1. (Standing). *Party j accords standing to party i when j admits the outputs of i 's verification procedures into its own record without independently reproducing them. Standing is a directed relation, and it is granted for classes of output and not globally.*

The relation is directed in a way that recognition in the political sense is frequently not. A party may admit another's certificates of origin and decline its judgments, and the admission may run one way between the same pair. This is the object the present section represents.

10.2 *The Standing Graph and the Reachability of a Claim*

Writing G for the directed graph whose vertices are parties and whose edge $i \rightarrow j$ records that j accords standing to i , a claim originating with i is receivable by j directly when the edge is present. Where it is absent, the claim may still arrive by a path, with each intermediate party admitting the previous one and being admitted by the next.

Direct admission and reachability come apart wherever the graph is sparse and connected, and the size of the gap between them is fixed by the structure of admissions in a given case. The construction identifies the gap and supplies no measure of it, since a figure obtained from randomly drawn edges would report the density chosen for the drawing.

10.3 *Withheld Standing and the Passage from Statement to Demonstration*

A party to whom no other accords standing retains the capacity to act and loses the channel by which a statement is received. The position is available in any graph that has a vertex without an incoming edge, and how often it is occupied in practice is a question about admissions and not about the construction.

Claim 10.2. (The remaining channel). *Where standing is withheld, a party's statements are not received as establishing anything, while its conduct continues to be observed.*

The channel that remains open to it is demonstration, meaning the production of a state of affairs that requires no admission to be registered.

Claim 10.2 is stated at the level of the construction and quantifies over parties in general. It identifies a mechanism and offers no account of any particular episode, and Section 16 records why the paper declines to supply one.

10.4 *The Failure of Transitivity Across Recognised Pairs*

Standing composes poorly, and the reason lies in Definition 10.1 in place of any measurement. Admission is granted by one party to another for a specified class of output, and the grant records a judgement that party makes about that party's procedures. Nothing in a grant by j to i addresses k , and nothing in a grant by k to j addresses i .

Proposition 10.3. (Intransitivity). *That j accords standing to i and k accords standing to j supplies no ground on which k accords standing to i . Standing is granted pairwise and for classes of output, so the composition of two grants is a grant that neither party has made.*

How far standing composes in a given arrangement is an empirical question about that arrangement. A proportion computed over randomly drawn edges answers it for the drawing alone, since the closing edge of a two-step path is present there with the probability chosen for the graph, and no such proportion is offered here.

10.5 *The Intermediary and the Supply of Transitivity*

The gap between direct admission and reachability is what intermediate parties supply, and a party admitted by many and admitting many closes it for the pairs whose paths run through it.

Claim 10.4. (The office of the intermediary). *An intermediary supplies transitivity that the parties do not hold between themselves. Its office is constituted by the intransitivity of Proposition 10.3 and calls for no authority over the parties, since it consists in being admitted by parties that do not admit one another.*

The gain is purchased and the price is stated. A claim arriving by a path has passed through the intermediary's construal, so what reaches the destination is the intermediary's rendering and not the original claim, and the divergence of Section 8 compounds along the path. An intermediary therefore extends reach and lengthens the chain within which Proposition 8.5 operates.

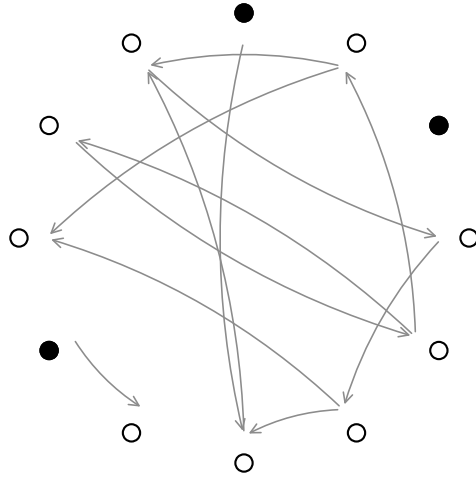


Figure 4: A standing graph on twelve parties, with an arrow from i to j where j accords standing to i and filled vertices marking the parties with no incoming edge. The drawing illustrates the objects of Definition 10.1 and carries no measurement.

10.6 *The Bearing of the Construction on the Decentering Problem*

The companion treatment of adaptive mediation leaves open whether an intervener can be dispensed with, and records the tendency toward distribution alongside the difficulty of doing without a centre under present conditions (Huang, 2026j). The present construction bears on that question and settles a part of it.

Claim 10.4 identifies what an intermediary supplies, and the supply is divisible. Transitivity may be furnished by many parties each admitted by a few, provided the paths exist, so nothing in the construction requires a single centre. What the construction does require is that some party be admitted by parties that do not admit one another, and a configuration in which no party holds that position leaves the intransitivity of Proposition 10.3 unrelieved. The decentering question is therefore not whether a centre is necessary, which the construction answers in the negative, but whether the admissions that make paths available can be sustained without one, which it leaves open.

11 CASE STUDIES

This section reads three bodies of institutional material through the constructions. Its objective is to display the mechanisms the constructions identify in arrangements that were built without reference to them, and to exhibit the mechanisms under conditions that differ enough for the differences to be informative. The section states the principle by which the cases were

selected, sets out the conditions along which they differ, treats each case through the constructions it displays, and closes with the coverage of the constructions across the three and with a statement of what the cases establish.

11.1 The Principle Governing the Selection of the Cases

A case earns its place here by exhibiting a mechanism the others do not, under institutional conditions that differ from theirs along stated dimensions. Selection by that principle produces variety by construction and supplies a reason for each inclusion that can be checked against the material.

Five conditions were used. Whether the difference between the parties' knowledge systems is institutionally recognised. Whether the cost of substantiation is high or low in the sense of Section 9. Whether standing is granted directly between the parties or supplied through an intermediary. How fine the joint description in force is. And whether any instrument of the arrangement registers a divergence in construal.

11.2 The Conditions Along Which the Cases Differ

The three cases occupy different positions on all five conditions, and the positions are stated here so that each case may be read against the others.

In the first, the difference between the parties' knowledge systems goes institutionally unrecognised, the cost of substantiation is at its highest, standing among non-state contributors runs through an accreditation procedure, the joint description is produced by consensus and is coarse, and no instrument registers divergence. In the second, the difference is recognised and the arrangement is designed around the cost of substantiation, which is the highest of the three, and standing is conferred and withheld by express provision. In the third, the political stakes are low, the joint description is fine and technical, and instruments register divergence directly.

The third case is therefore the positive one, in which the machinery the constructions describe is present and works. Its inclusion prevents the section from reading as a catalogue of failures, and the arc across the three cases runs from divergence unregistered, through an arrangement whose design turns on the cost of substantiation, to divergence registered by instrument.

11.3 The First Committee Negotiations and the Documentary Record Available

The first case is the sequence of United Nations negotiations on developments in the field of information and telecommunications in the context of international security, conducted from 1998 through Groups of Governmental Experts and subsequently through Open Ended Working Groups. The material used here is a published study of the whole sequence, conducted

under a five stage model of knowledge management and based on the documentary record together with interviews of participants (Andersen, 2026).

Three features of the process bear on the reading. It proceeds by consensus, so that its output is a text to which every participating party has assented. Its subject is one in which substantiating a claim about an event frequently requires disclosing the means by which the event was detected. And its participants rotate, since diplomatic assignment is periodic while the process has run for more than two decades.

11.4 Validation by Association, by Personal Expertise, and by Political Acceptance

The study reports that material contributed to the process was scrutinised and that some of it was established as valid, and it groups the practices by which this occurred into three kinds: validation by association or proxy, validation by personal expertise, and validation through political acceptance (Andersen, 2026). None of the three consists in running a procedure that settles whether the material is so.

Read through Definition 5.1, the three are the verification component of the process operating without a single admission standard. Validation by association admits material on the standing of its source, which is the relation of Section 10. Validation by personal expertise admits it on the standing of an individual, which is the same relation borne by a person and not an organ. Validation by political acceptance admits it where enough parties decline to contest it, which is an operation on the record and not on the material. The study's own finding that the stages of its model were bundled into single practices follows: where admission is constituted by these three operations, producing a claim, admitting it, and carrying it forward are performed in one act.

11.5 Silence and Its Operation on the Record

The study reports that a claim assessed as inaccurate could be handled by declining to acknowledge it, on the reasoning that acknowledgement confers weight and may carry the claim forward through repetition, and that political calculation entered the decision whether to contest at all (Andersen, 2026).

Silence is therefore an operation and not the absence of one. In the terms of Section 8, declining to acknowledge is an emission whose event is the non-occurrence of a response, and it acts on the receiving parties' states as any event does. Two consequences follow. The operation is available to a party that lacks the budget of Section 9 for contesting, so silence substitutes for substantiation where substantiation is unaffordable. And the record retains no trace of it, so an examination of the documentary record understates the extent of the disagreement it settled.

11.6 *The Synthesis of Contributions into Consensus Language*

The study reports that a chair and a supporting team received contributions from participating parties and worked them into successive drafts and finally into an agreed text, and that this synthesis is described as working with the substance without changing it (Andersen, 2026).

This is the operation of Section 7 performed by a named office. The synthesised text must make only distinctions that every participating party can make and assent to, so it is a common factor of the participants' systems, and the requirement of consensus drives it toward the coarse end of the order. The description of the synthesis as preserving substance is exactly the claim that Claim 7.3 and Proposition 8.5 deny: a common factor of many parties collapses distinctions that at least one of them makes, and the collapse is what makes assent available.

11.7 *Rotation, Tacit Holding, and the Asymmetry Generated by Retention*

The study reports that participants rotate on a cycle of several years while the process runs across decades, that much of what is needed to operate in it is held tacitly by individuals, and that continuity of participation therefore confers advantage, with the overlap of experts across successive groups recorded (Andersen, 2026).

The asymmetry so produced arises from the manner of holding and not from the resources of the parties, which is the claim advanced on other grounds in the companion treatment of relational grammar (Huang, 2026k). Read through Section 8, a party whose participants have received the accumulated sequence of events holds a state that a newly arrived participant does not, and Claim 8.1 gives the consequence: the two construe the same event differently, and the difference grows with the length of the sequence one of them has received.

11.8 *The Documentary Record and the Liability It Carries for the Contributing Party*

The study reports, in assessing why a formal system for handling knowledge might fail to attract participation, that parties may decline to have their contributions durably recorded because a record exposes them to political risk, reduces their room for manoeuvre, and remains available to be cited against them later, and that parties may prefer the benefits of memories fading (Andersen, 2026).

The study presents this as an obstacle to the adoption of such a system. The present account states it as a structural property, and Proposition 9.1 supplies its form: substantiating a claim consumes a capacity that also produces the party's later claims, so the record is a draw against a budget. Proposition 9.3 supplies the consequence for the process, which is that an arrangement demanding substantiation at a steady rate has a maximum length, and that the length is reached without any party defecting.

11.9 Accreditation and the Standing of Non-State Contributors

The study reports that contributors other than states enter the process through accreditation procedures, that those without accreditation have on occasion entered as members of delegations that hold it, and that the parties determine which contributions enter the text (Andersen, 2026).

Accreditation is the standing relation of Definition 10.1 administered by an institution. Entry through another party's delegation is the path of Section 10.2: standing is obtained indirectly where it is unavailable directly, and the intermediary is the accredited party. The material therefore exhibits both the intransitivity of Proposition 10.3, since accreditation with one body confers nothing with another, and the office of Claim 10.4, discharged here by parties holding accreditation in place of any organ established for the purpose.

11.10 Verification by National Means and the Cost It Was Designed to Avoid

The second case is the verification of arms limitation agreements. Two modes are available within it, and the material is read by mode and not by party.

The first mode rests on each party's own means of observation, employed without access to the other's territory and without disclosure of how the observation is performed. Agreements of the early period provide that compliance is verified by such means and undertake that the parties will not interfere with them. Read through Section 9, the design is a response to the cost of substantiation: verification proceeds without either party drawing on the capacity that Proposition 9.1 bounds, since neither is required to describe how it knows. The arrangement purchases this at a price that the material also records, which is that a party's assessment rests on evidence it declines to exhibit, so a dispute about compliance admits no shared examination.

11.11 Inspection on Site and the Standing It Requires

The second mode admits the other party's inspectors to designated facilities and to the observation of designated activities. Agreements of the later period provide for it in detail, specifying what may be inspected, on what notice, by whom, and with what equipment.

Read through Section 10, on-site inspection is the express conferral of standing under Definition 10.1: a party admits the outputs of the other's procedure into its own record without reproducing them, and it does so for classes of output specified in advance. The specification by class is what Proposition 10.3 predicts, since standing granted for one class of output carries to no other. And the negotiation of the specification is itself the negotiation of the joint description, since what may be inspected determines what the arrangement can distinguish.

11.12 *The Contrast Held Within a Single Regime*

The two modes stand within one body of practice, addressed to the same subject and frequently to the same parties, which makes the comparison a controlled one in a way that comparisons across regimes are not.

The contrast displays the trade-off directly. The first mode preserves the budget of Proposition 9.1 and produces a coarse joint description, since what neither party will exhibit cannot be jointly described, and by Proposition 8.5 a coarse description registers few divergences. The second mode refines the description and draws on the budget, and the drawing is recurrent, since inspections are periodic. Proposition 9.3 then supplies a prediction that the material can be used to examine: an inspection regime whose demands are steady has a horizon, and its approach should be visible in the frequency and intensity of disputes about the scope of inspection rather than about the substance of compliance.

11.13 *Filed Differences and the Distinction Kept Beside the Standard*

The third case is technical standard-setting in which a party may record a difference between its own requirements and the international standard. The Convention on International Civil Aviation provides that a state whose regulations differ from an international standard shall notify the international organisation of the difference, and the organisation publishes the notifications.

The device is the annotation of Section 8.10 in institutional form. The international standard remains the joint description and is not refined by the notification. The party's own requirement remains its own and is not admitted to the joint description. And the difference between them is on the record, available to every other party, without either being converted into the other. Claim 8.7 gives what the device achieves: registration is raised without the joint description being refined, so the price fixed by Proposition 8.5 is not paid.

11.14 *Equivalence Determination and the Direction of the Burden*

The Agreement on the Application of Sanitary and Phytosanitary Measures provides that a party shall accept the measures of another as equivalent to its own where the exporting party objectively demonstrates that its measures achieve the importing party's appropriate level of protection, and that the exporting party shall afford reasonable access for inspection and other procedures to that end.

Two of the constructions read the provision directly. The direction of the demonstration is written into the text and follows the reference and not the strength of the party, which is the mechanism the companion treatment of plural orders derives from verification asymmetry (Huang, 2026a). And the acceptance of a different measure as achieving a stated end, without the measure being rendered into the accepting party's own terms, is warranting: the claim

Table 5: The constructions and the case material displaying each.

Construction	First Committee negotiations	Arms limitation verification	Standards and equivalence
Joint description as a common factor	Consensus synthesis by a chair and team	Scope of inspection negotiated as the description	International standard as the shared text
Emission and construal	Silence operating on the record; rotation and accumulated reception	Assessment resting on unexhibited evidence	Filed difference registering divergence
Attestation and its stock	Record declined for the liability it carries	Two modes differing in the draw on the budget	Demonstration of equivalence on the exporting party
Standing and transitivity	Accreditation; entry through another delegation	Inspectors admitted by class of output	Acceptance of another's measure on a guarantee

stays unconverted and a guarantee is supplied in the currency of the receiving party's concern.

11.15 *The Registration of Divergence Where the Political Stakes Are Low*

Both instruments of the third case operate in domains where the subject matter is technical, the parties are numerous, and the consequences of a divergence are borne in the first instance by operators and traders. The conditions differ from those of the first two cases on precisely this dimension, and the difference bears on what the case can show.

What it shows is that the devices are available and are used, which the constructions require and which neither of the other cases exhibits. What it cannot show is that they would be adopted where the stakes are high, and Section 16 records that the selection of a low stakes case for the positive instance leaves the transfer to high stakes settings unestablished.

11.16 *The Coverage of the Constructions Across the Cases*

Table 5 sets the constructions against the cases and records which mechanism each case displays.

Two observations follow from the table and are worth stating separately. Each construction is displayed by all three cases, so none of the four is an artefact of a single body of material. And no case displays every mechanism with equal clarity, which is what the selection principle of Section 11.1 was designed to produce.

11.17 *The Standing of the Cases and What They Establish*

The three cases are illustrations. Nothing in them was measured, no quantity appearing in the constructions was estimated from them, and no proposition of Sections 7 through 10 is

confirmed by their agreement with it. What they establish is that the mechanisms the constructions identify are present in arrangements built without reference to the constructions, and that practitioners have devised instruments answering to them.

Three limits on the reading are recorded here and taken up in Section 16. The first case is a single process in a domain where the cost of substantiation is at its highest, so it is favourable to the second construction. The second case is read from published provisions and not from the practice of any party. And the third case is drawn from domains of low political stakes, so its positive finding transfers to contested settings only by an argument the paper does not supply.

All treaty provisions and institutional descriptions in this section are to be checked against the primary instruments before the paper is circulated.

12 THE DESCRIPTIVE RESIDUE OF THE KNOWLEDGE-MANAGEMENT ACCOUNT

This section returns to the findings of the study used as the first case and states them in the terms the constructions supply. Its objective is to show that four results reported there as departures from a model follow from the constructions as consequences, and thereby to locate precisely what the organisational framing describes and what it leaves undescribed. The method is to take each finding as reported, identify the construction under which it follows, and state the finding positively.

12.1 *Dispersal of Function Across the Participants*

The study reports that no authoritative manager of knowledge emerged in the process, and that the functions its model assigns were performed by many participants in formal and informal settings alike (Andersen, 2026). The finding is recorded there among the characteristics that distinguish the observed approach from the model's expectations.

Section 10 supplies the source. Admission of material into a party's own record is granted pairwise under Definition 10.1, and Proposition 10.3 establishes that such admission composes poorly. A single office competent to admit material on behalf of all parties would require standing from every party, which is a configuration the enumerations of Section 10.2 show to be rare and which no participant in a consensus process holds by right. Dispersal is therefore what the standing relation produces where no party has conferred admission on a common organ.

12.2 *The Bundling of Building, Validation, and Mobilisation in a Single Practice*

The study reports that practices which the model treats as distinct were found bundled, with the same act serving to produce material, to establish it, and to carry it forward, and attributes

the bundling to the political character of the setting and to the mixed character of the material (Andersen, 2026).

Section 8 supplies a source that requires neither attribution. Where an event carries no content and construal occasions a construction at the receiving end, the receiving party performs production, admission, and carriage in one operation upon material that arrives holding none of them. The three functions are separable in a setting where content travels and can be inspected at each stage. Where the arrangement of Sections 8.1 and 8.2 obtains, they have no separate points of application.

12.3 The Sequence of Stages and the Order Observed

The study reports that the stages of the model were observed out of the order the model gives them, with some prominent throughout the process and others sparse, and that advancement from one stage to the next was frequently absent (Andersen, 2026).

A sequence of stages presupposes that a determinate object passes through them. Section 8.4 establishes that what passes between parties is an operator on the receiving party's states, and an operator has no position in a pipeline. What can be ordered under the constructions are the operations each party performs internally, and those are ordered by that party's own dynamics under Equation (1) and by nothing the arrangement fixes.

12.4 The Terms in Which the Same Findings Are Stated Positively

The four findings are recorded in the study as characteristics distinguishing what was observed from what the model expects. Stated in the terms of the constructions they are consequences, and this subsection gives the statements.

Dispersal of function is what pairwise standing produces where no common organ has been admitted by all. Bundling is what construal produces where an event carries no content that could be inspected between stages. Absence of sequence is what follows where nothing determinate passes between the parties. And the implicit character of the whole, reported as the absence of an articulated strategy, is what an arrangement looks like when its participants have built devices answering to conditions they have not stated, which the third case of Section 11 shows them doing elsewhere in explicit institutional form.

Claim 12.1. (The residue located). *The organisational framing describes accurately the handling of material within a party that holds one admission standard and one record. What it leaves undescribed is the passage of material between parties holding different ones, and each of the four findings reported as a departure from its model concerns that passage.*

Claim 12.1 fixes the relation between the two accounts and is stated in the positive form the paper uses throughout: the framing has a domain, the domain is identified, and the present

account occupies what lies outside it.

13 FAILURE MODES OF AN ARRANGEMENT AMONG KNOWLEDGE SYSTEMS

This section sets out the ways an arrangement among parties holding different knowledge systems fails. Its objective is to carry over the modes established in the companion accounts, to add the modes specific to the present object, and to state for each construction the failure it is exposed to. The method is to take each mode, give its form under the constructions, and identify the observation that would detect it.

13.1 *The Modes Inherited from the Account of Crystallisation*

Four modes are established in the companion treatment of relational crystallisation and are carried over without re-derivation (Huang, 2026e). Separation obtains where the parties cease to exchange. Domination obtains where one party's terms govern the arrangement throughout. Homogenisation obtains where the difference between the parties is removed. Extinction obtains where a party ceases to sustain its own system.

Two of the four have exact counterparts in the constructions of this paper. Homogenisation is the upper limit of Claim 7.4, where the joint description becomes a conjugacy and the parties differ in labels alone. Separation is the absence of any edge in the standing graph of Section 10.2, under which no claim of either party is receivable by the other. The remaining two operate on the parties themselves and are represented here through their effects on the free part of Equation (1).

13.2 *Redirection Under Conditions of Verification*

Redirection is the mode in which a party continues to generate while the space within which it generates has been reorganised, and it is established in the companion accounts of relational degradation (Huang, 2026k). Its form here is supplied by Section 9.

A party facing recurrent demands for substantiation may preserve its budget by ceasing to produce the claims whose substantiation would be demanded. The party continues to operate, its record shows compliance with every demand made of it, and the claims it no longer makes appear nowhere. Under Proposition 9.1 the conduct is rational for the party and under Claim 8.1 its effect accumulates, since what a party has ceased to produce it also ceases to be able to distinguish.

Claim 13.1. (Redirection under verification). *An arrangement that demands substantiation of a class of claim gives a party whose budget is finite a reason to produce fewer claims in that class. Where a party acts on that reason, the reduction lies outside any as-*

assessment conducted on the claims that are made, since it appears in the ones that are not. Whether parties in fact act on it is a question the construction leaves open.

13.3 Spurious Stability and the Change of Observable Required to Detect It

Spurious stability is the mode in which an arrangement displays every indicator of soundness while the condition those indicators track has ceased to obtain, and it is established in the companion treatment of stratified coupled systems (Huang, 2026f). Its detection requires a change of observable and no change of standard, which is what makes it difficult.

Its form here follows from Proposition 8.5. An assessment counting successful exchanges rises as the joint description coarsens, and the coarsening lowers the capacity to register divergence in equal measure. An arrangement moving toward the degenerate factor of Claim 7.3 therefore improves on every measure taken within the joint description while losing the capacity to detect that anything has gone wrong. No threshold is crossed and no indicator falls.

13.4 Silent Invalidation and Its Specificity to the Diplomatic Setting

A mode specific to the present object is the removal of a claim from an arrangement by the withholding of response. The first case supplies the material: declining to acknowledge a claim can remove it from consideration, since acknowledgement confers weight and repetition carries a claim forward (Andersen, 2026).

Three features make the mode distinctive. It leaves no record, so an examination of the documentary output finds the claim absent and finds no account of its absence. It is available at no cost to the budget of Proposition 9.1, so it is the cheapest response available to a party facing substantiation costs. And its effect under Claim 8.1 is an accumulated collapse in the receiving parties, since what has never been acknowledged becomes a distinction they cease to make.

13.5 Undetected Divergence Under Continued Compliance

The mode established at Claim 7.7 is the one the constructions of this paper add to the inherited list. An arrangement ceases to describe the parties' situation while every obligation it imposes continues to be performed.

Its two sources are distinct and both were measured. Under Proposition 7.6, a change internal to one party removes a description the parties held in common, and one-point changes did so about one time in five. Under Proposition 8.5, a divergence in construal goes unregistered wherever the joint description fails to separate the outcomes, and the proportion unregistered is fixed by the coarseness of that description. The first source concerns the fit between the text

Table 6: The failure each construction identifies and the observation that would detect it.

Construction	Characteristic exposure	Observation required
Joint description as a common factor	The description ceases to fit while conduct conforms	Comparison of each party's current dynamics with the description
Emission and construal	Divergence in construal goes unregistered	Refinement of the description, or an annotation registering the divergence
Attestation and its stock	Production of the claims whose substantiation is demanded declines	Examination of the claims a party has ceased to make
Standing and transitivity	A party without incoming admission ceases to be addressable in statements	Examination of which parties admit whose outputs, by class

and the parties' dynamics; the second concerns what the text can record. An arrangement may fail through either with no conduct to observe.

13.6 *The Exposure Characteristic of Each Construction*

Each construction identifies a failure to which arrangements read through it are exposed, and Table 6 states them with the observation each would require.

Two properties of the table bear on practice. Every observation in the right column is more expensive than the observation of conduct, and three of the four require material that a party holds internally, which is the condition Section 9 treats. And no failure in the middle column is detected by an indicator computed within the joint description, since the joint description is what each of them concerns.

14 THE COMPOSITION OF TWO KNOWLEDGE SYSTEMS OVER TIME

This section treats what follows from advancing two knowledge systems separately and exchanging between them at intervals. Its objective is to bring the results established for the composition of coupled orders to bear on the arrangements of the present paper, and to identify the quantities an arrangement fixes which belong to neither party. The results are carried over from the companion treatment of stratified coupled systems and are used without re-derivation (Huang, 2026f).

14.1 *The Results Carried Over from the Account of Interfaces*

Advancing two subsystems separately and exchanging between them introduces three quantities that belong to neither subsystem: the order in which the parts are applied, the interval between exchanges, and the operator that carries material across the interface. The obstruction

to composing the two advances in either order is a commutator, and a symmetric alternation cancels its leading term.

Each of the three has a counterpart here. The order of application is the precedence among the parties' procedures, treated in Section 14.3. The interval is the cycle on which an arrangement meets, treated in Section 14.2. And the operator carrying material across is the emission and construal pair of Section 8, whose properties this paper has established at length. The commutator obstruction appeared independently in Section 8.6, where the same commutator governs internal evolution against construal, so the obstruction is present at the scale of a single received event as well as at the scale of a composed advance.

14.2 The Review Cycle and the Exchange Interval of a Multilateral Process

An arrangement fixes the occasions on which the parties exchange: a reporting period, a review cycle, a conference of the parties, an audit round. The interval so fixed bounds what the arrangement can register, since a movement completed within one interval and reversed before the next appears nowhere in the record.

Two consequences bear on the results of this paper. Proposition 7.6 establishes that a party's own evolution may remove a joint description, and the removal is discoverable only at an exchange, so the interval fixes the delay between a failure and the earliest occasion for detecting it. Proposition 9.3 establishes a maximum arrangement length in rounds, and lengthening the interval extends that horizon in calendar time while lowering what the arrangement can observe. The two run against each other, and the account identifies the trade and selects no point on it.

14.3 Precedence Among Orders and Its Recording in Neither

Where two parties' procedures are applied in a fixed order, the fixed order confers an advantage that appears in the rules of neither procedure. A party whose determination is made first supplies the material the second works upon, and the second operates on a record already shaped.

Claim 14.1. (Precedence unrecorded). *A settled precedence among the parties' procedures is a property of the arrangement and of neither party's rules. An examination of the two procedures separately finds it nowhere, and an arrangement that alternates precedence removes its leading effect.*

Claim 14.1 is the transposition of the symmetric composition result, and its condition is stated with it: alternation requires that each party's operation admit division into parts that can be applied on either side of the other's, which holds of procedures conducted in stages and fails of procedures that deliver a single determination.

Claim 14.2. (The composition supplies no objective). *The results of this section state what a given precedence, interval, and carrying operator exclude. They supply no reason to exchange more frequently, to alternate precedence, or to refine the carrying operator. An arrangement exchanging continuously and preserving every magnitude across the interface still fails the condition of Section 15 where it closes the path by which a party may reopen a determination.*

15 THE CONSTRAINT FORM OF THE ACCOUNT

This section states the form in which the account's normative content is held. Its objective is to fix the relation between the constructions and any reason for action, to state the condition the account places on an arrangement, and to record the sentence the account must remain able to refuse. The method is to take each quantity the constructions supply, state what it licenses, and state the inference it does not support.

15.1 *The Wall Between Dynamical Description and Normative Justification*

The constructions describe mechanisms. That a mechanism operates, that it produces a stable configuration, and that a configuration serves the unfolding of some party's dynamics are observations, and the account treats them as such. None of them is offered here as a reason for an arrangement, for a determination, or for the treatment of any party.

The separation is maintained deliberately and requires maintenance, since the account uses one vocabulary for description and for what it values. A mechanism that in fact conduces to the operation of a system is thereby neither intelligible nor reasonable at the level of that system, and the description of it here supplies no such reading. Where a normative statement appears in this paper it is imported from political theory and it is attributed at the point of use.

15.2 *The Extremal Principle and the Reading It Invites*

Equation (4) assigns a quantity to each trajectory and the trajectory of least value is the most probable one. An extremal principle invites the reading that the system optimises, and from there the reading that what it optimises is what it is for.

Claim 6.3 blocks the passage and its grounds are three. The quantity is a log-probability, so its extremum is a statement about likelihood. An extremal principle is a summary of a differential equation and carries no content the equation lacks. And the most probable trajectory is preferred by no party and benefits no party, so nothing in its status recommends it.

15.3 *The Limits of What the Action Licenses*

Three statements are available from the constructions and three are withheld.

Available: that a configuration is stable under the stated dynamics, that a transition between configurations requires a passage whose expected waiting time is computable from the barrier between them, and that certain observations would detect a given failure. Withheld: that a stable configuration is thereby sound, that a transition is thereby a harm, and that a barrier maintaining a configuration is any part of a case for the arrangement it maintains.

15.4 *The Prohibition on Aggregation Across Parties*

The account admits no quantity summed across parties. The signature of the utilitarian form is aggregation and not the vocabulary of maximisation, and the operative test is whether a formulation permits one party's capacity to be traded against another's.

Three quantities in this paper invite the trade and are withheld from it. The complexity of a joint description in Proposition 7.5 is bounded by the less complex party's system, and the bound is a constraint on what is available and no reason to alter either party. The attestation budget of Proposition 9.1 belongs to a party, and no sum of budgets across parties appears anywhere. And the proportion of divergences registered in Proposition 8.5 is a property of an arrangement and is entered in no objective function.

15.5 *The Detectability of Divergence and the Standing to Reopen It*

The question left open in Section 4, of whether what a party generates upon receiving an event is good, is answered here in the only form the account admits.

Condition 15.1. (Detectability and reopening). *An arrangement is defective in respect of a party when a divergence between what that party construes and what the arrangement records cannot be brought onto the record by anything the party does, and when nothing the party does within the arrangement can alter the terms on which the record is kept. The condition concerns the availability of the operation and not the content of any construal.*

Two features of the condition are stated so that it is not read as more than it is. It says nothing about which construal is correct, and it therefore licenses no party to determine that question for another. And it is a conjunction: an asymmetry in registration alone leaves an arrangement intact, and the closure of the path to reopening is what completes the defect. The form matches the conditions used in the companion treatments of translation and of conversion (Huang, 2026b,c).

The account declines the alternative answers. Convergence between the parties' construals is the upper limit of Claim 7.4, which the companion treatment of crystallisation records as a failure, so an arrangement aiming at it has adopted a failure state as its objective. And an assessment of whether generation is good by its contribution to the arrangement's operation is the aggregation prohibited in Section 15.4.

15.6 The Instruments That Register Divergence in Place of Removing It

Condition 15.1 is met by instruments that already exist, and the third case of Section 11 exhibits them. A reservation, an interpretive declaration, an agreed minute, and a difference filed against a standard each put a divergence on the record while leaving the joint description unrefined.

The devices are intelligible on the present account and are anomalous on an account in which content is transmitted. Under Claim 8.7 they raise registration without paying the price Proposition 8.5 fixes, and they are the only devices with that property, which is why the condition is stated in terms of registration and reopening in place of terms of agreement.

15.7 The Sentence the Account Must Remain Able to Refuse

A test of the account is whether it can refuse the following sentence: that where excluding a party's knowledge system from an arrangement would in fact raise what the remaining parties can jointly describe, achieve, or sustain, the exclusion is permissible.

The account refuses it, and three features secure the refusal. The conditions it states are quantified over parties individually and are no aggregate, so a gain to the remainder answers nothing. They are constraints and no objective, so the region they define is open and contains no point the account recommends. And their normative force is imported and is derived from no result about factors, stocks, or graphs, so no computation within the constructions bears on whether the exclusion is permissible.

The sentence is refusible because a party's standing to have its divergence registered and to reopen a determination rests on nothing it contributes. Were that standing grounded in the contribution, the sentence would follow, and the account would have supplied the argument it exists to withhold.

16 THE BOUNDARIES OF THE UNDERTAKING

This section states the boundaries within which the account holds. Its objective is to fix what the case material can bear, what the constructions leave unmeasurable, which features of the dynamical vocabulary were carried and which were left behind, and which questions the account treats as given. Each boundary is stated as a property of the undertaking, together with

what would have to be established for it to be moved.

16.1 The Standing of a Single Case in Cyber Security

The first case is one negotiation process, studied through its documentary output and through interviews with participants, in a domain where substantiating a claim about an event frequently discloses the means by which the event was detected. The domain is therefore the one in which the second construction operates most strongly, and the case was available because it had been studied and not because it was representative.

Moving this boundary requires cases in domains where substantiation is cheap and the other three constructions still apply. The third case of Section 11 supplies material of that kind and supplies it at low political stakes, so the pairing that would settle the question, high stakes with cheap substantiation, is absent from the paper.

16.2 The Quantities the Constructions Leave Unmeasurable

Four quantities carry the propositions and none has an established counterpart in the diplomatic record. The complexity of a party's knowledge system, which bounds a joint description under Proposition 7.5. The stock k and the erosion rate c , which fix the horizon under Proposition 9.3. The coarseness of a joint description, which fixes the registered proportion under Proposition 8.5. And the response function G_B , which governs Equation (8).

The consequence is stated plainly. The propositions are comparative and directional: they establish that a quantity moves with another, and they support no statement about any arrangement's position on any scale. Where the text reports a number, the number is a property of an enumeration over constructed systems and of nothing else.

16.3 The Features of the Dynamical Analogy Left Behind

Five features of the dynamical and topological vocabulary were carried into the account and are used in the propositions: a state space for each party, a motion on it, a map preserving that motion, an order among descriptions, and a decomposition of a system into recurrent parts with an order among them.

Five were left behind and are recorded here. Parties have interests and interpretations, which states in a dynamical system do not, so nothing in the constructions represents what a party wants. There is no energy, so nothing in the paper is conserved and no quantity is minimised by the systems described. Results on the genericity of structural stability are theorems about diffeomorphisms of manifolds and were not transposed, and Section 7.12 says so at the point of use. Topological entropy was used only through the standard bound under factor maps and was checked in a finite counterpart, since the finite systems enumerated have

entropy zero. And the constructions supply no metric within or between the parties' spaces, so no statement here involves a distance between one party's description and another's.

16.4 The Individuation of Parties and of Systems

The account treats a party as holding one knowledge system where the material treats it so, and the treatment is a convenience. A state in an international process holds ministries, agencies, and courts whose admission conditions differ, and the treatment of it as one system is a coarsening performed by the analyst and not a finding.

The constructions are indifferent to the level at which parties are individuated, and they apply to two organs of one party on the same terms as to two parties. What they cannot do is settle where the boundary falls, and that question is open in the same terms in which the companion treatment of value conversion leaves the individuation of the relata open (Huang, 2026c).

16.5 The Genesis of Difference and Its Position Outside the Account

The constructions take the parties' knowledge systems as given, each with its own dynamics, and derive what follows for what they can hold in common and for what passes between them. How two knowledge systems come to differ is outside the account.

Two consequences follow and both bear on how the paper should be read. The account describes difference sustained and reshaped by relational dynamics and it establishes nothing about difference generated by them, so a claim that heterogeneity emerges from relation finds no support here. And the free part of Equation (1) is posited and is derived from nothing, so the account inherits whatever the parties' histories have made of them and supplies no history of its own. Moving this boundary requires a construction in which a party's own dynamics are produced within the model, and Section 17 states what such a construction would have to settle first.

16.6 The Conditions Under Which the Central Decomposition Fails

Claim 6.2 and the condition stated beside it identify circumstances in which the separation of a free part from an interaction part becomes arbitrary: where the coupling moves at the speed of the states, and where a party's procedures of verification were themselves constituted by the arrangement.

This is the sharpest limit on the reach of the account, since the second circumstance is common in international practice, holding of bodies established by an instrument and of parties whose competent authorities were created to administer one. Where it obtains, the results resting on the decomposition are unavailable, and the results of Section 7 and Section 8 survive only in the form in which they are stated for systems given independently.

17 QUESTIONS OPENED BY THE ACCOUNT

This account identifies a structure that the existing formulations of knowledge in diplomacy leave undescribed: the difference between parties in what counts, for each of them, as showing that a claim is so, together with what follows for joint description, for substantiation, for standing, and for the passage of a claim between them. If that structure is real, the following questions arise immediately, and the account answers none of them.

Q1. The multiplicity of Proposition 7.2 leaves a choice among incomparable joint descriptions that no property of the parties' systems settles. On what does the selection in fact rest, and which party's position does a given selection favour?

Q2. The order among regimes was proposed in Claim 7.8 as a shared object more robust than any description of a regime. Which existing arrangements rest on an order among passages, and do they display the predicted robustness under changes in the parties?

Q3. Proposition 9.3 gives an arrangement a maximum length fixed by the stock, the erosion rate, and the demand. What observable accompanies the approach to that length, and does the predicted displacement of dispute from substance to scope occur?

Q4. The identity of Proposition 8.5 fixes registration against exchange at a given coarseness. Are there devices beyond annotation that relax it, and does any of them avoid the pathologies of Section 9.6?

Q5. Claim 10.4 constitutes the office of the intermediary from the intransitivity of standing. Under what conditions do the admissions that make paths available arise without a party holding a position no other holds, and what sustains them?

Q6. Claim 13.1 holds that a demand for substantiation reduces the production of claims in the class demanded. The reduction appears only in claims not made, so what design of observation would detect it?

Q7. Claim 6.2 identifies a regime in which the free part and the interaction part cease to be separable. What replaces the constructions of this paper where a party's procedures were constituted by the arrangement it is party to?

Q8. The account takes the parties' knowledge systems as given. What would have to be settled before a construction could produce a party's own dynamics within the model, and would the individuation left open in Section 16.4 have to be settled first?

Q9. Condition 15.1 turns on whether a party can bring a divergence onto the record and can alter the terms on which the record is kept. Which existing instruments satisfy it, and does any arrangement satisfy it for every party to it?

Q10. The devices of Section 15.6 register divergence at low political stakes. Do the same devices survive where the stakes are high, or does a party facing a costly divergence prefer the coarse description that conceals it?

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