COGNITIVE INTEGRATION AS A RELATIONAL PROPERTY OF INSTITUTIONAL COORDINATION: PHILOSOPHICAL AND METHODOLOGICAL FOUNDATIONS

Oleg Khalabudenko[1]

DOI: https://doi.org/10.30525/978-9934-26-715-4-41

Abstract. Institutional coordination becomes theoretically problematic precisely where participants must act within a common order while occupying differentiated positions, relying on unequal resources of knowledge and authority, and maintaining non-identical interpretations, interests, and practical expectations. *Purpose.* The article reconstructs the philosophical and methodological premises for identifying cognitive integration within a structural-cognitive theory of institutional coordination. It asks why the analysis of institutionally organised interaction requires a relational level between individual practical orientation and coordinated behaviour under conditions of positional differentiation. *Methodology.* The study employs a problem-directed metatheoretical reconstruction. Rather than presenting a linear history of ideas, a Foucauldian genealogy, or an empirical test of causal mechanisms, it examines successive theoretical approaches in terms of the conditions they clarify and the explanatory limits they disclose. *Results.* The analysis shows that institutional structure, shared beliefs, rules-in-use, relational norms, cognitive scaffolding, boundary objects, trading zones, and structural conditions of social order each explain important conditions of coordination but do not by themselves characterise the practical connection among differentiated orientations. Cognitive integration is defined as a relational and context-dependent property of the institutionally organised practical connection among differentiated orientations within an institutional sequence. It is present where orientations retain mutually usable institutional reference points; relevant divergences can be detected, localised, and processed; and the results of one institutional operation remain usable as meaningful

[1] PhD in Law, Associate Professor,
Kyiv National University of Construction and Architecture, Ukraine
ORCID: https://orcid.org/0000-0001-9478-0164

© Oleg Khalabudenko

inputs for subsequent operations. Practically sufficient compatibility is thereby distinguished from consensus, shared cognitive contents, the formal availability of mediating mechanisms, and the mere continuation of interaction. *Practical implications.* The proposed framework provides analytical criteria for examining coordination, breakdown, correction, and repair in legal, administrative, organisational, economic, and political processes in which participants occupy differentiated positions and may maintain conflicting interpretations, interests, or expectations. *Value/originality.* The article does not claim that coordination without consensus is theoretically unrecognised. Its contribution lies in specifying cognitive integration as a distinct relational and context-dependent property of institutionally organised practical connection, irreducible to individual orientations, formal institutional norms, or mediating arrangements considered separately.

Key statements: Institutional coordination cannot be adequately characterised by institutional structure, convergence of cognitive contents, or the mere formal presence of mechanisms that mediate heterogeneous practices; Coordination without comprehensive consensus has been established in several traditions, including science and technology studies. Cognitive integration does not redescribe this possibility; it specifies the relational condition under which positionally differentiated orientations can remain practically compatible within an institutional sequence; Cognitive integration is not reducible to the properties of individual orientations, to the formal existence of institutional norms, or to the mere availability of mediating mechanisms. It is a relational and context-dependent property of the institutionally organised practical connection among differentiated orientations; Practically sufficient compatibility is present where orientations retain mutually usable institutional reference points; relevant divergences can be detected, localised, and processed; and the results of one institutional operation remain usable as meaningful inputs for subsequent operations; Continued coordinated interaction is neither a defining criterion nor a sufficient indicator of cognitive integration. It may be an outcome of practical compatibility, but it may also be sustained by coercion, hierarchy, routine, compensatory intervention, or repeated corrective work; Formal norms, informal practices, symbolic forms, procedures, material arrangements, and mediating mechanisms may sustain, weaken, repair, or

transform cognitive integration, but none of them constitutes it merely by being formally available.

INTRODUCTION

Institutional coordination is commonly explained through rules, incentives, statuses, organisational forms, procedures, cultural schemas, and reciprocal expectations. Institutions structure political, economic, and social interaction by establishing constraints, opportunities, and relatively stable points of orientation for action [29, p. 3]. Sociological institutionalism further treats institutions as configurations of regulative, normative, and cultural-cognitive elements that provide stability and meaning to social life [44, p. 56]. Practice-oriented and communicative approaches likewise show that institutional forms are sustained, interpreted, and transformed through recurrent practices, discourses, and communicative processes rather than through formal rules alone [17, pp. 25–28; 23, p. 215; 39, pp. 303–305; 40, pp. 1–4; 10, pp. 10–12].

Yet the transition from institutional structure to coordinated behaviour cannot be accounted for by the formal existence of rules or by the distribution of incentives alone. Participants must recognise a situation as institutionally significant, relate particular circumstances to available categories, interpret the positions of others, anticipate possible consequences, and orient their own conduct within a field of reciprocally relevant expectations. North's later account of institutional change explicitly links institutional development to beliefs, mental models, learning, and the interpretation of the environment [30, pp. 1–6]. Institutional coordination therefore presupposes more than an institutional structure or an individual orientation toward that structure: it also depends on the relation among the orientations of multiple participants.

This relational problem becomes particularly visible in legally and organisationally differentiated settings. Legal meaning is correspondingly produced and transformed through the reciprocal relation between institutional norms, observable practices, and the interpretative operations of differently situated legal actors [58, pp. 307–320]. A claimant and a defendant need not agree on the facts or legal consequences of a dispute; an administrative authority and the addressee of its decision need not share the same interpretation of the applicable rule; parties to a contract may pursue incompatible economic interests. Nevertheless, their interaction

may remain institutionally coordinated where they can identify the matter at issue, relate competing claims to available categories and procedures, locate and process relevant divergences, and use the results of institutional operations as meaningful points of reference for subsequent action.

The preceding study developed a positive structural-cognitive theory of institutional coordination. It proposed a sequential model in which institutional structure becomes practically effective through symbolic mediation, cognitive economy, cognitive integration, coordinated behaviour, and recurrent practices that support coordinative sustainability over time. Within that model, cognitive integration was defined as a relational and context-dependent property of institutionally mediated interaction in which differentiated orientations maintain practically sufficient compatibility without requiring identity of beliefs, complete consensus, or collective consciousness. The theory further distinguished cognitive integration from cognitive economy, coordinative sustainability from institutional invariability, and local dysfunction from institutional crisis [22].

The present article has a different purpose. It does not reproduce the positive mechanism of structural-cognitive theory, nor does it propose an alternative causal model of institutional coordination. Its purpose is to reconstruct the philosophical and methodological premises under which cognitive integration may be identified as a distinct relational category. The article asks: under what philosophical and methodological conditions is it possible to move from the analysis of the constitution of experience, social construction, symbolic mediation, intersubjective accessibility, and the cognitive conditions of practical orientation to the analysis of practically sufficient compatibility among institutionally differentiated orientations?

This question is not identical with the question of how institutions arise, how rules acquire formal validity, how individual actors make decisions, or how social order is maintained in general. Cognitive institutionalism has shown that institutions cannot be reduced to formal prescriptions alone and may be understood through self-sustaining shared beliefs, salient equilibria, rules-in-use, relationally enacted norms, and institutionally organised practices [1, p. 10; 33, pp. 18–22; 35, pp. 1–2, 10–11]. Related accounts treat institutions as public cognitive environments that structure attention, perception, evaluation, and action [57]. Science and technology studies has further shown that heterogeneous actors may cooperate through boundary

objects, translation, and trading zones without achieving comprehensive consensus [53, p. 393; 15, p. 783]. At the same time, institutional orders may be reproduced under conditions of conflicting interests, unequal positions, restricted access, and the continuing possibility of violence; order therefore cannot be equated with the elimination of difference or conflict [31, pp. 1–29]. The explanatory problem concerns an intermediate level: the relational and context-dependent property of the institutionally organised practical connection among differentiated orientations, where neither direct structural determination, full convergence of belief, nor the mere formal availability of mediating mechanisms can be assumed.

The article employs a problem-directed metatheoretical reconstruction, referred to below in a restricted sense as problem-genealogical. Its sequence is not organised as a history of philosophical schools, a Foucauldian genealogy of historical practices and power relations, or an attempt to synthesise heterogeneous theories into a comprehensive doctrine. Rather, each reconstructed position makes visible a particular condition of institutional orientation while simultaneously disclosing an explanatory limit. Institutional theory reveals that rules and structures require interpretative mediation, but it does not itself establish the conditions under which a situation is given as determinate and recognisable [30, pp. 1–6]. Transcendental philosophy shifts attention toward the conditions of possible experience [21, A19–22/B33–36, A50–51/B74–75], while the philosophy of symbolic forms directs attention to the cultural and symbolic objectification of meaning [6;7]. Radical constructivism, autopoiesis, and second-order cybernetics clarify the active, structurally conditioned, and reflexive character of cognition and observation [60, p. 7; 26, pp. 78–79; 27, pp. 43–52; 59, pp. 283–286]. Phenomenological sociology and social constructionism explain intersubjectivity, typification, objectivation, sedimentation, and the social reproduction of meaning [42; 43; 4, pp. 53–67]. Social ontology and semiotics further clarify institutional force and interpretive mediation [46, pp. 27–29, 43–44; 47, pp. 8–10; 13; 14].

No position considered here is treated as a direct source, historical anticipation, or deductive foundation of cognitive integration. The article does not claim that cognitive integration can be deduced from Kant, Cassirer, Maturana, Varela, von Foerster, Schutz, Berger, Luckmann,

Searle, Eco, Parsons, Luhmann, or any other author or tradition. Its claim is more limited: the successive clarification of the explanatory conditions and limits of institutional, constructivist, phenomenological, social-ontological, semiotic, cognitive, relational, and practice-based approaches makes it possible to identify a relational and context-dependent property of the institutionally organised practical connection among differentiated orientations.

Following the Introduction, the substantive argument unfolds in five stages organised by successive explanatory limits. Section 1 reconstructs institutional coordination as a philosophical and methodological problem and identifies the limits of explanations based on institutional structure, cognitive convergence, and the mere availability of mediating arrangements. Section 2 follows the movement from the constitution of experience to institutionally significant social reality and identifies the limit of constructivist, intersubjective, social-ontological, and semiotic accounts in characterising the relation among differentiated orientations. Section 3 examines the cognitive conditions of practical orientation and establishes the limit of individual practical sufficiency. Section 4 crosses the relational threshold by distinguishing relatability, practically sufficient compatibility, and cognitive integration. Section 5 specifies the explanatory status, limits, and analytical irreducibility of the problem-directed metatheoretical reconstruction. The Conclusions summarise the theoretical contribution and identify directions for subsequent positive and empirical research.

1. Institutional Coordination as a Philosophical and Methodological Problem

1.1. From Institutional Structure to the Problem of Recognition

A classical point of departure for institutional analysis defines institutions as humanly devised constraints that structure political, economic, and social interaction [29, p. 3]. Rules, constraints, incentives, and organisational forms delimit possible courses of action, stabilise expectations, and create conditions of relative predictability. Institutions are thus commonly treated as arrangements that reduce uncertainty by organising recurrent interactions through formal and informal rules, positions, procedures, and incentives [29, pp. 3–6; 44, pp. 56–59].

Yet the fact that an institutional environment is structurally organised does not by itself explain how a particular situation becomes institutionally meaningful for a participant. A rule may be formally enacted, a status may be legally defined, and a procedure may be normatively established; practical action nevertheless presupposes that participants recognise relevant circumstances as falling within the scope of that rule, status, or procedure. They must identify what is taking place, distinguish relevant from irrelevant features, relate an event to an available institutional category, and orient possible conduct toward anticipated consequences.

North's later account of institutional change makes this problem more explicit. In Understanding the Process of Economic Change, institutional development is connected with beliefs, mental models, learning, and historically formed modes of interpreting the environment [30, pp. 1–6]. Institutional structures do not determine behaviour directly. Their practical significance is mediated by the ways in which participants imagine causal relations, classify situations, perceive opportunities and constraints, and anticipate the consequences of their own and others' actions. Institutional change is accordingly linked to alterations in formal and informal rules and to transformations in the interpretative frameworks through which participants understand social reality [30, pp. 2–3].

This theoretical move changes the explanatory problem. Between institutional form and behaviour there appears a level of practical orientation. A rule must be recognised as relevant; a situation must be related to a category; the status of another participant must be interpreted; and possible actions must be assessed in relation to expected institutional consequences. Institutional order cannot therefore be explained solely through the existence of an external structure, because its practical reproduction depends on the ways in which that structure becomes available for orientation.

At the same time, the inclusion of mental models in institutional explanation does not determine the character of the relation among the orientations of different participants. Cultural transmission, linguistic environments, and partially shared experience may support similarities in some initial interpretative schemes. However, institutional interaction systematically occurs among participants who occupy different positions, possess unequal specialised knowledge, have different experiential

histories, and pursue divergent objectives. Under conditions of professional differentiation, unfamiliar circumstances, contested classifications, or conflicting interests, the assumption of sufficiently similar mental models loses explanatory force.

The problem consequently changes. It is no longer sufficient to ask how an individual participant acquires beliefs or forms an interpretation of an institutional situation. The question becomes: under what conditions can positionally differentiated modes of interpretation remain sufficiently relatable for participants to continue a common institutionally organised process? Before this relation can be characterised, however, it is necessary to determine how contemporary institutional theory locates cognition itself: in individual or shared representations, in institutionally organised practices, or in relations between agents and institutional environments.

1.2. Institutions as Shared Beliefs: Cognitive Institutionalism and the Limit of Convergence

Beliefs may be treated as factors that mediate the practical operation of already existing rules, or they may be treated as constitutive of what an institution is. The latter position is developed most

This account changes the place of cognition within institutional theory. Beliefs are no longer merely psychological supplements to a pre-existing structure of rules. They become part of the conditions under which the institution exists and reproduces itself. Where the shared representation of the relevant pattern of interaction is no longer sustained, the institution may lose practical efficacy even when a formal rule remains in force. Institutional change, in turn, can be understood as a transition between equilibrium representations when previously stabilised expectations cease to be confirmed in the experience of participants [1].

A related result appears in Elinor Ostrom's institutional analysis. Ostrom distinguishes rules as formally articulated prescriptions from rules-in-use, that is, the working understandings through which participants actually organise action, recognise positions, identify permissible conduct, and respond to violations in concrete settings [33, pp. 18–22]. The practical efficacy of institutional rules depends on their incorporation into such working understandings, while enduring institutional arrangements depend on participants' capacity to sustain workable, mutually intelligible

expectations concerning boundaries, positions, procedures, monitoring, sanctions, and the consequences of non-compliance [32, pp. 51, 88–102; 33, pp. 258–271].

Both approaches bring institutional analysis significantly closer to the subject of the present inquiry. Aoki shows that institutions cannot be treated as externally existing structures whose efficacy is independent of participants' expectations and interpretative orientations. Ostrom, however, complicates a purely representational account by directing attention to rules-in-use and to the practical enactment of institutional arrangements. Her analysis indicates that institutional efficacy depends not only on the content of beliefs but also on the recurrent practices through which rules, positions, expectations, monitoring, and responses to non-compliance become practically operative.

The difference is analytically important. In Aoki's account, the explanatory centre of gravity remains the sufficiently shared representation of a recurrent pattern of interaction. In Ostrom's account, working understandings are inseparable from the practical organisation of collective action. The latter shift opens a path from accounts centred on shared cognitive contents toward approaches that locate institutional cognition more explicitly in enacted practices and in the relations between participants and institutionally organised environments [1, p. 10; 32, p. 51; 33, pp. 18–22].

This problem becomes visible where participants remain within the same institutional process while maintaining substantively different orientations. Parties may recognise that a dispute must be processed through a court while disagreeing about legally relevant facts, the applicable rule, the allocation of burdens of proof, or the appropriate legal consequence. Shared beliefs and rules-in-use therefore make visible an indispensable cognitive dimension of institutional stability, but they do not by themselves characterise the relation among orientations that remain differentiated within continuing interaction. The significance of this unresolved relation becomes clearer once the cognitive dimension of institutions is considered beyond the framework of shared representations and practically operative understandings [1, p. 10; 32, p. 51; 33, pp. 18–22].

Recent work in cognitive institutionalism develops this shift in a more explicit relational and enactivist direction. Petracca and Gallagher [35, pp. 1–2] argue that an enactivist account of cognitive institutions

cannot retain the Northian framework in which institutional norms are ultimately grounded in shared mental models. They propose instead a strictly externalist and relational account: norms are located in the relation between individuals and institutions and are ontologically instantiated in practices as rules-in-action. On this view, the cognitive dimension of institutions is not exhausted by representations possessed by individual participants; it arises through active engagement with institutionally organised resources, practices, and forms of interaction [35, pp. 7, 10–11].

This intervention is significant for the present inquiry because it relocates the cognitive and normative dimensions of institutions from internally held or sufficiently shared contents to enacted practical relations. Institutions are not cognitive in abstraction from their use. Their cognitive relevance depends on forms of coupling in which participants engage with rules, symbols, artefacts, roles, procedures, and socially organised affordances. The practical efficacy of an institution is therefore inseparable from the ways in which its norms are enacted, maintained, and transformed within recurrent practices [35, pp. 7, 10–12].

The relationality developed in this account, however, concerns a different analytical question from the one addressed here. Petracca and Gallagher ask where norms are located within the ontology of cognitive institutions and answer that norms exist only in and through the practices in which they are enacted. The present inquiry accepts that institutional norms cannot be treated as self-subsisting contents independent of practice. It asks, more specifically, how orientations enacted from differentiated institutional positions can remain practically relatable within a common institutional sequence. The relational ontology of norms specifies the constitutive relation between agents, institutions, and practices; it does not by itself characterise the variable relational condition among differentiated orientations within a particular process of interaction [35, pp. 8–11].

Petracca and Gallagher further argue that the rationality of cognitive institutions should not be assessed solely through adaptive or ecological criteria, because institutions may belong simultaneously to the agent–institution coupling and to the task environment in which rationality is assessed. They therefore propose coordinative principles and criteria of institutional rationality. This proposal makes their account especially relevant to the present reconstruction. Yet a criterion for evaluating

institutional rationality is not identical with a category for describing the relational state among positionally differentiated orientations. The latter may vary even where an institution remains stable, its norms continue to be enacted, and its coordinative arrangements remain formally available [35, pp. 13–16].

A related contemporary account develops the externalist tendency in a more explicitly environmental direction. Trepp [57] characterises institutions as forms of public cognitive scaffolding: durable configurations of rules, roles, symbols, artefacts, routines, and evaluative standards that stabilise meanings, direct attention, and pre-structure perception and agency. Institutions are thereby understood not merely as externally imposed constraints or as deposits of prior agreement, but as cognitively consequential environments that make certain distinctions, reasons, actions, and outcomes salient, intelligible, and practically available. Trepp further describes the institutional reproduction of such scaffolds through processes of externalisation, routinisation, internalisation, enforcement, and recalibration. This account is relevant here because it makes explicit the role of institutional environments in structuring practical orientation and in reducing the cognitive demands of coordinated action [57].

The development from shared-belief accounts to relational, enactivist, and scaffold-based accounts of institutional cognition substantially changes the explanatory field. Aoki makes the cognitive constitution of institutional stability visible through shared beliefs concerning recurrent patterns of interaction. Ostrom directs attention toward rules-in-use and the working understandings through which institutional arrangements become practically operative. Petracca and Gallagher relocate norms into agent–institution relations enacted in practice, while Trepp emphasises the public cognitive environments through which institutions organise attention, perception, evaluation, and action. Taken together, these approaches remove any need to treat institutional cognition as the possession of identical representations by isolated individuals [1, p. 10; 32, p. 51; 33, pp. 18–22; 35, pp. 7–11; 57].

They do not, however, eliminate the relational problem addressed in this article. The fact that norms are enacted in practice, or that institutions provide cognitive scaffolding, does not itself establish the state of the practical connection among orientations enacted from differentiated institutional positions. The same institutional scaffold may support compatible, strained,

or practically disconnected relations among participants; conversely, participants may remain positionally differentiated while sustaining institutionally organised interaction. The question is therefore not whether institutional cognition is relational, enacted, or externally scaffolded, but under what conditions the practical connection among differentiated orientations possesses sufficient referability, divergence localisability, processability, and sequential usability to remain practically compatible within a continuing institutional sequence. These terms are specified in Section 4.

1.3. Coordination without Consensus: Boundary Objects and Trading Zones

The possibility of coordination without substantive consensus is not itself a new theoretical claim. Several traditions, particularly in science and technology studies, have examined forms of cooperation among actors whose perspectives, commitments, vocabularies, practical objectives, and forms of expertise remain heterogeneous. These approaches are important for the present inquiry because they demonstrate that the continuation of coordinated activity need not depend on the elimination of difference or on the formation of a comprehensive shared worldview.

Star and Griesemer's account of boundary objects provides a paradigmatic formulation of this insight. Their analysis concerns cooperation among actors belonging to different social worlds, including professional scientists, amateur naturalists, administrators, patrons, and other participants whose objectives and forms of knowledge do not fully coincide. Boundary objects make such cooperation possible because they are sufficiently plastic to adapt to local needs and constraints, while remaining sufficiently robust to maintain a recognisable identity across the sites and practices in which they are used. They may therefore support translation and coordinated work without requiring consensus on all relevant meanings, values, or purposes [53, p. 393].

Boundary-object theory thus blocks any simple identification of coordination with convergence of beliefs or aims. Actors may continue cooperative work while relating differently to the same object, using it for different purposes, and interpreting it through different local practices. The explanatory focus of this approach, however, falls primarily on the

object and on the translational and standardising work through which heterogeneous social worlds achieve coordination. The present inquiry concerns a related but distinct question: what characterises the practical connection among the differentiated orientations that boundary objects mediate?

Galison's concept of the trading zone sharpens this point further. In his analysis of modern microphysics, theorists, experimentalists, and instrument makers may develop local forms of exchange across divergent technical cultures without first achieving a comprehensive convergence of their conceptual commitments. Trading zones are partly symbolic and partly material sites in which local coordination of beliefs and actions becomes possible through restricted languages, shared practices, and forms of exchange. What is shared in such cases may be operational and local rather than a comprehensive common worldview [15, pp. 781–784].

The trading-zone approach is therefore already relational and expressly compatible with persistent difference. Its explanatory focus, however, is directed toward the locally organised site, language, practice, or arrangement through which exchange is made possible. Cognitive integration, as used in this article, does not designate such a site, object, or coordinating arrangement. It designates a relational and context-dependent property of the institutionally organised practical connection among differentiated orientations within an institutional sequence. Boundary objects, trading zones, procedures, symbolic forms, and other mediating mechanisms may support, weaken, or repair this property, but their formal existence does not by itself establish that it obtains.

Science and technology studies therefore establishes a result that the present theory must take as a starting point rather than claim as its own: cooperation and coordination may occur without comprehensive consensus. The remaining problem is more specific. Neither the existence of a boundary object nor the formation of a trading zone is identical with the practical compatibility of the orientations they connect. The same mediating object or coordinating arrangement may support compatible, strained, or practically disconnected relations among participants. The analytical task is therefore to characterise the relational condition of practically sufficient compatibility without reducing it either to convergence or to the institutional mechanisms and symbolic mediators through which it is supported.

1.4. Coordination under Conditions of Difference, Asymmetry, and Conflict

The preceding accounts establish that cooperation and local coordination may persist without substantive consensus among participants. Institutional theory raises a further question: how such differentiated coordination is embedded in durable social orders structured by positions, access, power, resources, enforceable procedures, and the continuing possibility of conflict. The theory of social orders developed by Douglass North, John Wallis, and Barry Weingast provides an important resource at this level. In Violence and Social Orders, institutional order is analysed through the organisation and control of violence, the structure of access, the configuration of dominant coalitions, and the distribution of resources and rents. Social order is not treated as the outcome of the elimination of conflict. It emerges and is reproduced under conditions in which conflicting interests, unequal positions, restricted access, and the possibility of violence persist but become institutionally structured [31, pp. 1–29].

This argument has decisive methodological significance for the present inquiry. Coordinated interaction does not require the prior identity of participants' aims, interests, values, or beliefs, and differences in position and conflict do not automatically negate the existence of order. The relevant question is whether such differences can be included within reproducible institutional relations in which participants can identify statuses, recognise the limits of permissible action, invoke procedures, formulate claims, anticipate institutional consequences, and respond to violations or contestation. Coordination should therefore be distinguished from consensus. Consensus concerns some degree of convergence in evaluations, preferences, or beliefs; coordination concerns the possibility of institutionally organised interaction under conditions in which such convergence may be incomplete or absent. The orderliness of such interaction does not depend on the disappearance of disagreement, but on whether disagreement can be related to institutionally recognisable positions, claims, procedures, and consequences [31, pp. 1–29].

The theory of social orders therefore establishes a structural condition that a theory of institutional coordination must retain: durable order may be reproduced under conditions of positional differentiation, unequal access, asymmetrical resources, and persistent conflict. At the same time,

the explanatory object of Violence and Social Orders differs from that of the present inquiry. Its analysis of limited-access and open-access orders, rent creation, elite coalitions, and the control of violence identifies the structural conditions under which social order may be stabilised. It does not, however, provide a distinct analytical category for describing the relational and context-dependent property of the institutionally organised practical connection among differentiated orientations within a particular institutional sequence. The importance of this approach for the present reconstruction therefore lies in establishing the compatibility of durable order with persistent difference, rather than in specifying the practical conditions under which differentiated orientations remain mutually relatable and practically compatible [31, pp. 30–76].

1.5. The Relational Limit of Existing Explanations

The approaches considered above progressively transform the explanatory problem. Institutional analysis shows that rules, positions, incentives, and organisational arrangements do not become practically effective independently of interpretation and orientation. Cognitive institutionalism demonstrates the constitutive role of beliefs, expectations, working understandings, and enacted practices. Relational and enactivist approaches locate norms in agent–institution relations enacted in practice, while scaffold-based accounts emphasise the cognitive environments through which institutions organise attention, perception, evaluation, and action. Science and technology studies further demonstrates that heterogeneous actors may cooperate through boundary objects, translation, and local forms of exchange without comprehensive consensus. Theories of social order show that durable coordination may persist under conditions of positional asymmetry, restricted access, unequal resources, and continuing conflict.

Taken together, these approaches remove the need to explain institutional coordination either through direct structural determination or through convergence of cognitive contents. Yet they do not make every relational question disappear. Institutions may contain differentiated positions; practices may enact relational norms; boundary objects may mediate several social worlds; trading zones may permit local exchange; and social orders may organise persistent conflict. In each case, a more specific question

remains: what is the relational and context-dependent property of the institutionally organised practical connection among orientations enacted from differentiated positions?

This property cannot be inferred from the separate existence of its components or from the formal availability of mediating arrangements. The presence of a rule does not establish that a concrete event has been recognised as falling within its scope. The existence of a status does not determine how another participant's conduct will be related to that status. The availability of a boundary object does not establish that its locally differentiated uses remain mutually usable. Nor does the formation of a trading zone determine whether the result of one participant's operation can function as a meaningful input for the next. Institutional forms, symbolic media, and coordinating arrangements make particular relations possible, but they do not by themselves establish the practical compatibility of the orientations connected through them.

Metatheoretical Proposition 1. Institutional coordination cannot be adequately characterised by institutional structure, by convergence of cognitive contents, or by the mere formal presence of mechanisms that mediate heterogeneous practices. Cognitive integration designates the relational and context-dependent property of the institutionally organised practical connection among differentiated orientations within an institutional sequence. It is not reducible to the properties of individual orientations, to the formal existence of institutional norms, or to the mere availability of mediating mechanisms. Its further specification requires an account of the conditions under which institutionally significant situations become determinate, symbolically accessible, and practically available for orientation.

2. From the Constitution of Experience to Institutionally Significant Social Reality

2.1. The Transcendental Question: Conditions of the Constitution of Experience

The relational limit identified in the preceding section directs the inquiry toward the conditions under which an institutionally significant situation can acquire determinate, symbolically accessible, and practically available form. A rule becomes practically relevant only in relation to

circumstances that participants can identify as falling within its scope and relate to institutionally available categories, symbols, and procedures. The methodological question therefore concerns how a multiplicity of what is given can appear as an ordered, differentiated, recognisable, and symbolically articulable situation capable of institutional qualification.

A methodological model for this form of inquiry is found in Immanuel Kant's transcendental philosophy. In the Critique of Pure Reason, critical inquiry does not begin with the world as a collection of already determined objects. It asks instead about the conditions of possibility of experience in which objects can be given and known. Space and time are treated as pure forms of intuition, while the categories of understanding belong to the conditions under which a manifold of intuition may be synthesised into the unity of experience and recognised as an object [21, A19–22/B33–36, A77–79/B102–104].

The relevant point is not the direct application of Kant's table of categories to social institutions. Institutional statuses, rules, procedures, legal classifications, and organisational roles are historically formed, socially reproduced, contestable, and variable across institutional orders. They are not a priori forms of cognitive capacity; conversely, Kantian categories are not social institutions. Kant's methodological significance lies elsewhere: explanation may be directed toward an already determined object and toward the conditions under which its determinacy is possible.

When a participant classifies an act as performance of an obligation, identifies another person as the holder of a particular status, or relates a sequence of events to a procedural rule, institutional analysis already operates with an experience in which relevant differences have acquired determinate form. The transcendental mode of questioning directs attention to a prior issue: how can a multiplicity of circumstances be organised in such a way that distinctions necessary for institutional attribution can be made at all?

The point is not to search for a set of a priori institutional categories. It is to refuse, as a matter of method, to treat the determinacy of an institutional situation as self-evident. A legal rule can be applied only where something becomes recognisable as a possible instance of the rule. A competence can be exercised only where a participant, act, event, or decision becomes identifiable as falling within a relevant institutional distinction. A procedure

can organise action only where a sequence of events becomes available as a procedurally meaningful sequence rather than a mere succession of occurrences.

At the same time, the Kantian formulation establishes a limit of its own. Transcendental conditions of possible experience have a universal status in Kant and concern the structure of cognitive capacity as such. Institutionally significant distinctions, by contrast, exist within historically changing languages, classificatory practices, symbolic systems, and forms of social objectivation. The general possibility of determinate experience does not explain the cultural plurality of forms through which social reality becomes meaningful, communicable, and available for practical orientation.

2.2. Symbolic Forms and the Cultural Objectification of Meaning

Ernst Cassirer provides an essential transition at this point. Extending the critical project from a critique of knowledge to a critique of culture, Cassirer directs analysis toward the plurality of symbolic forms through which human beings organise and objectify experience. His philosophy of symbolic forms treats culture, rather than scientific knowledge alone, as the relevant field for investigating the conditions under which a meaningful world becomes available to human orientation [6;7].

Language, myth, and scientific cognition provide paradigmatic modes of symbolic objectification; more broadly, Cassirer's philosophy of culture treats symbolic forms as distinct ways in which a meaningful world is organised. Each symbolic form organises experience in a distinctive way, establishes characteristic relations among objects, meanings, space, time, causality, and value, and makes possible a particular configuration of the world as meaningful. In this sense, Cassirer's project transforms the Kantian critique of reason into a critique of culture: the question extends from the universal forms of knowledge to historically developed symbolic orders through which human beings constitute cultural worlds [6].

The symbol is not an external mark added to a meaning that has already been completely formed in an inner sphere of consciousness. Symbolic form participates in the articulation and objectification of meaning itself. It permits distinctions to be drawn, stabilised, repeated, communicated, and made available beyond a singular act of immediate experience. A word, legal designation, document, ritual act, visual sign, or institutional title

participates in the way social reality becomes recognisable, publicly available, and practically actionable rather than functioning as a label attached to a fully constituted reality.

For the present reconstruction, this move is decisive. Between the manifold of what may be given in experience and its institutionally significant interpretation lies a level of symbolic mediation. Meaning should not be understood as a ready-made inner content that subsequently receives an external sign. Sign forms participate in making meaning articulate: they enable particular distinctions, stabilise them through repetition, and render them accessible beyond the unique temporal horizon of an individual act of experiencing.

Institutional rules, statuses, competences, procedures, and roles acquire symbolic expression in texts, classifications, records, professional vocabularies, technical interfaces, and recurrent communicative practices. Through such forms, participants can identify institutional positions and relevant circumstances, distinguish procedural acts, formulate claims, record decisions, and contest interpretations.

The relevance of this line to institutional theory is a current concern rather than a historical one: recent work reconstructs Cassirer's account of symbolic forms as a foundation for understanding the symbolic constitution of institutions [28, pp. 3824–3842].

However, Cassirer's philosophy of symbolic forms is not a theory of institutional coordination, and cultural objectification is not identical with institutional validity. The fact that meanings can be symbolically articulated and publicly transmitted does not itself explain how a particular participant forms, maintains, revises, or rejects a concrete orientation in the course of experience. This remaining problem shifts the inquiry from the symbolic articulation of meaning to the active formation of cognitive orientation.

2.3. Viability and the Active Character of Cognitive Orientation

Radical constructivism, particularly in the work of Ernst von Glasersfeld, reformulates the problem of cognition by rejecting the image of knowledge as passive reproduction of a ready-made external reality. Cognition is treated as an active process in which the knower constructs distinctions, categories, relations, and regularities that make experience navigable. The relevant criterion is not an exhaustive correspondence

between cognitive representation and an independently accessible reality, but viability: a construction is viable insofar as it enables the knower to organise experience, anticipate consequences, resolve practical problems, and continue effective operations within the experiential domain available to that knower [60, p. 7].

Viability is not equivalent to truth understood as direct correspondence with reality. Nor does it signify arbitrary subjectivism. A cognitive construction can fail: it may become non-viable when it no longer permits successful orientation, produces contradictions that cannot be resolved within the existing framework, or repeatedly frustrates practical action. The failure or maintenance of a construction is evaluated from within the continuing organisation of experience rather than through a standpoint outside all possible cognitive operations.

This result is important for institutional analysis because it excludes the assumption that participants simply receive already completed meanings of rules, statuses, or situations. Institutionally relevant orientation is formed through active operations of distinction and relation. The same formally established rule, status, or symbolic form may therefore support different practical determinations because participants construct their orientations within different experiential histories and practical contexts.

At the same time, viability must not be equated with practical sufficiency. Viability concerns the relation between a cognitive construction and the experience of a particular constructor. It indicates whether a way of constructing can be maintained within that constructor's experiential domain. Practical sufficiency concerns whether an orientation enables a participant to act adequately enough in relation to a concrete task under conditions of limited time, information, attention, and capacity for calculation.

Viability also does not explain the limits of the constructor's own operations. Radical constructivism presupposes a constructor capable of forming, maintaining, modifying, and abandoning cognitive constructions, but it does not fully specify the organisational conditions under which such operations are possible. This limit shifts the inquiry from the viability of cognitive constructions to the organisation and structural constraints of the system through which such constructions are formed.

2.4. Operational Closure and the Limits of the Constructor

The limit identified above directs attention to the organisation of the system through which cognitive operations are produced and constrained. At this level, the theory of autopoiesis developed by Humberto Maturana and Francisco Varela changes the object of analysis. Its relevance does not lie in adding a biological explanation to radical constructivism. Rather, it shifts the unit of analysis from an individual cognitive construction to the organisation of the living system within which cognitive operations become possible. An autopoietic system is understood as a self-producing system that continuously regenerates the network of processes constituting it as a unity [26, pp. 78–79; 27, pp. 43–48].

Autopoietic systems are organisationally or operationally closed. This does not mean that they are isolated from their environments or incapable of interaction. It means that environmental events do not directly determine the internal operations of the system. The environment may perturb the system, but the way in which such a perturbation is registered, differentiated, and incorporated into further operations depends on the system's own structure. The system is structurally determined in the sense that its possible changes occur within a range conditioned by its organisation and present structure [26, pp. 88–89; 27, pp. 95–97].

Structural coupling prevents operational closure from being misunderstood as solipsistic isolation. It refers to a history of recurrent interaction in which a system and its environment undergo mutually relevant structural changes. Each new interaction occurs against the background of prior interactions, and the system's current possibilities of response are shaped by that history. Operational autonomy and recurrent interaction are therefore not mutually exclusive: a system may remain operationally closed while participating in durable relations of structural coupling with other systems and with its environment [26, p. 107; 27, p. 75].

For the present reconstruction, this result has two consequences. First, cognitive activity cannot be treated as unlimited or arbitrary. The capacity to distinguish, relate, retain, and transform orientations depends on the organisation of the system and on the history of its structural coupling. Cognitive limits are enduring conditions of the way in which a living system can orient itself within a changing environment, rather than

temporary deficits of information that could in principle be eliminated by accumulating additional data.

Second, the same circumstance need not generate identical cognitive results for different participants. Differences in interpretation need not be treated solely as error, irrationality, or lack of information. They may arise from differences in experiential history, position, prior learning, practical involvement, and the structurally conditioned modes through which distinct systems organise their cognitive operations.

For the present reconstruction, the decisive limit lies elsewhere. The theory of autopoiesis explains why cognitive operations are structurally conditioned and why different systems may organise the same circumstances differently. It does not explain how multiple autonomous constructors orient themselves toward one another, form reciprocal expectations, or sustain interaction while their orientations remain non-identical.

2.5. Multiple Constructors, Reflexivity, and Double Contingency

The autonomy and structural conditioning of cognitive operations shift the problem from the individual constructor to a plurality of constructors whose orientations are mutually relevant but not structurally identical. Social interaction must therefore be explained without assuming that all participants reproduce the same externally given situation.

This shift receives a methodological formulation in Heinz von Foerster's second-order cybernetics. Von Foerster distinguished first-order cybernetics, concerned with observed systems, from second-order cybernetics, concerned with observing systems. The latter includes the observer within the domain of description and thereby treats observation as a reflexive operation rather than as a neutral standpoint external to the system being observed [59, pp. 283–286]. Any description presupposes an observer who draws distinctions, selects what counts as relevant, and produces the description. The observer cannot therefore be fully separated from the process through which the observed situation becomes determinate.

In the present reconstruction, observer does not designate only an external scientific researcher. The term has methodological significance for social interaction: each participant performs distinctions through which a situation becomes identifiable, interprets the conduct of others, and forms an orientation toward possible action. The institutional meaning of an event

therefore depends on the operations through which a participant identifies and classifies it within the relevant context.

A participant is oriented toward the way in which they define a situation and toward how, in their own expectation, another participant may define it. A primary orientation is supplemented by an orientation toward the anticipated orientation of the other. The other participant may undertake an analogous operation, taking account of the situation and of the expected way in which the first participant may interpret and act within it. Interaction thereby acquires a recursive structure.

This recursion should not be interpreted as an infinite psychological modelling of another person's inner consciousness. For institutional coordination, the more relevant implication is that the actions of others already enter the situation as anticipated, interpreted, and practically consequential. A participant relates conduct to a situation that already includes possible reactions, claims, objections, recognitions, decisions, and subsequent actions by other participants. Reflexivity thus introduces the mutual consideration of orientations into the constructivist analysis of social interaction.

Social theory has described this reciprocal dependence of expectations through the concept of double contingency. In Talcott Parsons's formulation, the action of ego depends on expectations concerning alter's action, while alter's action in turn depends on expectations concerning ego. Parsons assigns an integrative role to shared symbolic systems and normative orientations, through which reciprocal expectations can acquire sufficient stability for interaction to proceed [34, pp. 36–37]. Niklas Luhmann reformulates double contingency as the starting problem of social order. In his account, it is not a temporary deficit that must first be removed by pre-existing normative consensus. It is the condition under which social order becomes possible through the recursive continuation of communicative operations [24, pp. 103–136].

However, the two accounts locate the problem differently. Parsons assigns greater explanatory weight to normative-symbolic stabilisation, whereas Luhmann shifts the focus to the recursive reproduction of communication. Neither account by itself explains how differentiated participant perspectives become related within a common field of practical interaction.

Mutual consideration does not itself establish compatibility. Recursive expectation may stabilise interaction, but it may also amplify divergence. One participant may mistakenly attribute an expectation to another; the other may act on an equally mistaken assumption; and subsequent interaction may reproduce rather than resolve the resulting indeterminacy. The formal possibility of observing the observation of another does not establish the conditions of durable coordination.

The question therefore becomes: under what conditions can different perspectives be related to a common, typified, and practically accessible social world without assuming their identity?

2.6. Intersubjectivity and the Reciprocity of Perspectives

Alfred Schutz's phenomenological sociology addresses the possibility of a common social world for participants whose biographical situations, systems of relevance, and perspectives do not coincide. The central problem is no longer only the reflexive observation of another participant, but the intersubjective conditions under which another person, their conduct, and the social world they inhabit can become intelligible within everyday practical orientation.

Schutz does not assume that participants occupy identical experiential worlds. Each actor encounters the social world from a particular biographical situation, defined by a specific history of experience, a stock of knowledge at hand, practical projects, and structures of relevance. The social world becomes meaningful through typifications that organise experience and make it possible to identify persons, actions, objects, motives, roles, and situations as familiar or institutionally relevant [42; 43].

The reciprocity of perspectives does not eliminate this differentiation. It does not mean that participants possess the same knowledge, interpret events in identical ways, or assign the same degree of relevance to the same circumstances. Rather, it concerns the practical idealisation through which actors presume that their respective perspectives can be sufficiently translated and related for ordinary interaction to proceed. Participants act on the assumption that, notwithstanding differences in biography and relevance, they inhabit a common social world in which words, gestures, objects, roles, and actions can be mutually understood to a practically sufficient degree [41, pp. 11–12].

For institutional coordination, this means that participants occupying different institutional positions need not share the same substantive interpretation of a situation in order to participate in a common institutional process. They may nevertheless recognise the interaction as belonging to a typified institutional form. Such recognition does not remove disagreement; it makes disagreement identifiable as disagreement about something institutionally recognisable.

The remaining limit concerns the durability of this common social world beyond immediate interaction. Reciprocity of perspectives does not itself explain how socially available meanings become objectivated, historically sedimented, institutionally stabilised, and reproducible across changing participants and situations.

2.7. Social Objectivation and the Reproduction of a Common World

The problem now concerns the durability of socially available meanings across time and changing constellations of participants. Institutional interaction requires roles, categories, procedures, and expectations to remain recognisable beyond the immediate horizon of particular encounters.

Peter Berger and Thomas Luckmann describe institutionalisation as arising when habitualised actions are reciprocally typified by types of actors. An institution emerges when recurrent patterns of action cease to be treated as merely individual or contingent practices and become mutually available as typical ways in which typical actors are expected to act [4, p. 54]. Habitualisation transforms repeated action into a relatively stable pattern and reduces the need to decide anew how each recurrent situation should be handled. Once actions have become habitualised, they can be recognised as instances of a repeatable type. Reciprocal typification extends this process beyond the orientation of one individual: participants come to recognise both the action and the actor in typified terms.

Institutionalisation arises when these reciprocal typifications become socially shared and durable. Participants can then orient themselves toward their own recurrent practices and toward the expectation that others will recognise corresponding actions, roles, and patterns of conduct. The institutional order thereby establishes a background of pre-structured expectations: it identifies typical actors, typical actions, typical relations, and typical consequences.

The resulting institutional world acquires an appearance of objectivity. It confronts individual participants as a reality that precedes their particular acts and provides already established roles, categories, expectations, and constraints. This objectivity is not natural or independent of human activity. Objectivation is the process through which externalised products of human activity attain the character of objectivity. The institutional world is therefore objectivated human activity: it is socially produced, but it may confront later participants as an already existing external reality [4, pp. 60–61].

Meaning becomes socially effective when it can be externalised, retained, transmitted, recognised by subsequent participants, and applied in new circumstances beyond a single encounter. Repeated action may become habitualised; habitualised actions may become reciprocally typified; reciprocal typifications may become institutionalised; and the resulting institutional world may become objectivated as a relatively stable background for later orientation. This is not a rigid chronological law. It is an analytical account of how recurrent practical patterns can become socially available beyond the singular acts and participants through which they first arose.

The social durability of this world depends further on sedimentation, transmission, and legitimation. Sedimentation concerns the retention of experiences and meanings as recognisable and memorable elements of a stock of knowledge. Intersubjective sedimentation becomes fully social when shared experiences are objectivated in sign systems, which make reiterated objectification and transmission possible. Legitimation generates or connects meanings in ways that render institutional arrangements intelligible and justify them to participants, including those who did not take part in their original formation [4, pp. 67–68, 92–93].

Berger and Luckmann thus explain how meanings become socially durable, historically transmissible, and institutionally objective. Yet social objectivation does not establish institutional validity in the specific sense relevant to legally and normatively organised orders. A socially objectivated practice may be customary, habitual, or culturally entrenched without conferring a formally recognised right, obligation, competence, status, or power. The remaining question is how socially objectivated distinctions acquire specifically institutional status and normative force.

2.8. The Constitutive Establishment of Institutional Facts

John Searle's social ontology specifies the transition from socially objectivated meanings to institutionally effective reality. The issue is how certain persons, acts, objects, or events acquire an institutional status that changes what they can count as, what consequences follow from them, and what rights, duties, powers, or obligations become attached to them.

Searle distinguishes constitutive rules from regulative rules [45, pp. 33–35]. Regulative rules organise forms of activity that may exist independently of those rules, whereas constitutive rules create or define forms of activity governed by them. In his later social ontology, this constitutive structure is developed through status functions and the formula X counts as Y in context C [46, pp. 27–29, 43–44; 47, pp. 9–10]. An entity, act, or event X acquires a status Y within an institutionally specified context C. Constitutive rules thereby create the possibility of institutional facts: forms of social reality whose existence depends on collectively recognised rules rather than on the physical properties of objects or persons alone.

A status function confers an institutional capacity that exceeds descriptive labelling and cannot be derived from the physical properties of the relevant person, object, or act. An entity or action acquires institutional significance because it occupies a recognised position within a system of constitutive rules and procedures.

The decisive feature of status functions is their connection with deontic powers. In Searle's account, institutional status functions generate rights, obligations, duties, responsibilities, authorisations, permissions, requirements, and other desire-independent reasons for action [47, pp. 8–9]. Institutions are therefore systems through which socially recognised distinctions acquire normative force and organise relations among participants.

This permits a distinction among the constitution of experience, cultural-symbolic constitution, social objectivation, and the constitutive establishment of institutional facts. The first concerns the conditions under which something can be given as determinate and knowable. The second concerns the symbolic articulation of meaning. The third concerns the durability of typified and habitualised social patterns. The fourth concerns the institutional conferral of status functions and deontic powers.

The constitutive establishment of institutional facts therefore explains how persons, acts, objects, and events acquire institutionally valid meanings and normative consequences. It does not determine how those meanings become cognitively accessible and interpretable to participants occupying different institutional positions. Institutional validity and symbolic accessibility must therefore be analytically distinguished.

2.9. Symbolic Mediation and the Limits of Interpretation

Institutional facts, statuses, competences, and deontic powers become practically available through symbolically organised forms such as language, documents, classifications, records, procedural acts, and technical interfaces. Symbolic mediation is therefore a condition under which institutional distinctions can be identified, communicated, repeated, verified, contested, and applied.

Institutionally significant meanings become practically accessible through the symbolic forms in which they are articulated and objectivated. Such forms enable participants to identify the type of institutional situation they confront, distinguish relevant positions and acts, and orient themselves toward institutionally available responses.

However, symbolic expression does not mean that interpretation is unlimited. Umberto Eco rejects both the assumption that a text or sign has a single mechanically fixed meaning and the opposite assumption that every interpretation is equally legitimate. Signs, texts, codes, and cultural repertoires permit interpretation, but they also constrain it through relations among expressions, contexts, codes, encyclopaedic knowledge, and the internal organisation of the interpretive object [13;14].

An institutional text, category, or procedure may admit competing interpretations without becoming semantically indeterminate. Participants may disagree about its application while still recognising a common object of interpretation and the institutional distinctions relevant to that disagreement.

The relevant distinction is not between fixed meaning and unrestricted interpretation. It is between symbolically mediated interpretation that remains connected to institutional codes, forms, procedures, and criteria of relevance, and interpretive breakdown in which participants can no longer identify what a sign, category, or procedure institutionally requires.

Symbolic limits make disagreement processable because they allow disagreement itself to be located with reference to a shared object of interpretation.

Interpretive boundedness therefore establishes an important but limited condition of institutional orientation. Participants may recognise the same symbolic object and remain within a common field of institutionally admissible interpretation while nevertheless forming different practical orientations toward it. Symbolic mediation constrains the range of interpretation; it does not by itself determine the relation among the orientations that emerge within that range.

2.10. The Limit of Constructivist Explanation

The reconstructed approaches identify indispensable conditions of institutionally organised orientation. The transcendental and symbolic traditions explain how experience becomes determinate and culturally articulated; constructivist approaches establish the active, viable, and structurally conditioned character of cognitive orientation; theories of reflexivity and intersubjectivity show how differentiated perspectives enter reciprocal social relations; social constructionism explains the objectivation and reproduction of socially available meanings; social ontology specifies the constitutive establishment of institutional facts; and semiotics clarifies the bounded but non-mechanical character of interpretation.

Taken together, these approaches explain how social reality can become constituted, viable, intersubjectively accessible, socially objectivated, institutionally valid, symbolically expressed, and interpretively bounded. They establish the conditions under which institutionally significant distinctions can be available to participants as meaningful forms of orientation.

The remaining explanatory problem concerns the relation among the orientations that arise under these conditions. The fact that a situation is determinate, symbolically articulated, socially objectivated, institutionally valid, and interpretively bounded does not establish how differently situated participants orient themselves within it. Access to a common institutional form therefore leaves open the question of how multiple orientations can support continuing institutionally organised interaction.

Metatheoretical Proposition 2. *Constructivist, phenomenological, social-ontological, and semiotic approaches explain how institutionally significant reality becomes determinate, symbolically mediated, intersubjectively accessible, objectivated, and normatively effective. They leave open the relational problem of how institutionally differentiated orientations are organised in continuing interaction.*

3. Cognitive Conditions of Practical Orientation

3.1. Cognitive Boundedness as an Anthropological Precondition

Institutional interaction is undertaken by human participants whose capacities for perception, attention, memory, interpretation, anticipation, and practical action are finite. Participants act under conditions of incomplete information, limited time, selective attention, unequal access to specialised knowledge, and restricted capacity to relate simultaneously all possible positions, rules, facts, consequences, and alternatives. Cognitive boundedness should therefore be treated not as a contingent psychological weakness of particular actors but as an anthropological precondition of social and institutional interaction.

Cognitive boundedness functions here as an anthropological condition of institutional interaction rather than as a causal reduction of institutions to biological or psychological processes. Social complexity may increase through the multiplication of rules, organisations, procedures, technologies, information flows, specialised roles, and institutional interdependencies, while the cognitive capacities of each participant remain finite. The practical problem of institutional coordination consequently involves a persistent asymmetry between the complexity of the social environment and the limited capacity of participants to orient themselves within it.

Herbert Simon's concept of bounded rationality provides a central formulation of this condition. Simon rejects the assumption that actors possess complete information, unlimited computational capacities, and the ability to identify and maximise a globally optimal outcome. Bounded rationality refers instead to forms of rational conduct compatible with the information and computational capacities that actors actually possess in the environments in which they act [48; 50, p. 198].

Finite cognitive capacities make exhaustive reconstruction of institutionally relevant situations impracticable. Participants require

pre-established means for identifying relevant distinctions, positions, permissible actions, and expected consequences. Rules, categories, roles, procedures, records, and symbolic forms can provide such orientation by reducing the cognitive demands of recurrent interaction.

Cognitive boundedness therefore explains why institutionally organised forms of orientation remain necessary even when their substantive content is contested. Participants may disagree about the qualification or interpretation of a situation while still relying on established categories and procedures to identify what requires decision or response. The next question is how action can remain rational under such conditions without requiring exhaustive knowledge or optimisation.

3.2. Procedural Rationality and Practical Sufficiency

Simon's account of bounded rationality leads to a reconsideration of rational action. Where actors cannot survey all possible alternatives or calculate globally optimal outcomes, rationality cannot be understood exclusively as substantive optimisation [48]. Simon therefore develops the idea of satisficing: instead of identifying the best possible option under conditions of unlimited information and calculation, an actor searches among available alternatives until finding one that reaches an acceptable threshold in relation to a practical objective [49, pp. 103–111; 50, pp. 204–205].

Procedural rationality concerns the quality of the process through which a decision or action is reached. It shifts attention from whether an outcome is abstractly optimal to whether the procedure of orientation, search, evaluation, and choice is appropriate to the cognitive resources and environmental conditions within which the actor operates [51, pp. 130–131; 52, pp. 27–30].

For the present article, the key result is practical sufficiency. An orientation is practically sufficient when, under the relevant constraints of a situation, it enables a participant to identify institutionally relevant distinctions, relate them to an available course of action, and continue acting without exhaustive reconstruction of all possible interpretations and alternatives. Practical sufficiency does not require complete information or final correctness. It characterises the adequacy of an orientation for continuing action in a concrete practical setting while remaining open to later revision or correction.

A procedurally rational orientation may therefore be provisional, incomplete, and revisable while remaining sufficient for action. Institutional procedures often allow participants to continue interaction by identifying the next relevant step without requiring a complete resolution of the situation at once.

Practical sufficiency should be distinguished from viability. Viability concerns whether a cognitive construction can be maintained within the experience of a constructor; practical sufficiency concerns whether an orientation enables action in relation to a concrete task. This remains an individual-level category. It establishes the adequacy of an orientation for one participant's continued action but does not yet characterise the relation among the orientations of differently situated participants.

3.3. Situated, Environmental, and Distributed Cognitive Work

Practical institutional orientation is environmentally and materially organised. Participants rely on material, procedural, communicative, and temporal environments that provide resources for perception, memory, calculation, verification, interpretation, and action. Cognitive work is therefore organised through the interaction of individual capacities with documents, artefacts, signs, technical systems, procedures, professional roles, and distributed tasks.

Lucy Suchman's analysis of situated action provides an important point of departure. Plans may guide, represent, and support action, but they do not determine the concrete course of situated activity in a direct step-by-step manner. Human action remains situated because its practical organisation depends on changing circumstances, available resources, material environment, and locally emerging contingencies [54, pp. 49–52].

For institutional analysis, this means that rules and procedures function as resources for situated orientation. Their practical use depends on how participants identify relevant circumstances, employ available symbolic and material supports, and respond to contingencies arising in the course of action.

Edwin Hutchins's theory of distributed cognition develops this point further. Cognition in naturally occurring, culturally organised activity may be distributed across several persons, external

Institutional processes frequently distribute cognitive work across participants, records, technical systems, procedural sequences, and

specialised roles. No participant needs to retain or reconstruct the whole process at every moment: documents preserve prior determinations, procedures sequence operations, and institutional records make earlier results available for subsequent action.

The temporal dimension is essential. Distributed cognitive work depends on duration, ordered sequences of operations, and retention of results between them. A record preserves a fact after the immediate event has passed; a procedural act establishes a condition for a subsequent act; and a decision fixes a point from which an appeal, enforcement measure, or further institutional response may proceed.

Andy Clark's work on extended cognition further supports the view that external structures may function as active components of cognitive processes rather than as passive background conditions. External notes, symbols, diagrams, tools, and representational arrangements can reduce memory demands, facilitate calculation, stabilise attention, and reorganise the practical problem space within which an individual or group acts [8; 9]. The relevant claim concerns the organisation of human cognition through external supports rather than the attribution of cognition to institutions themselves.

Gallagher and Crisafi [16, pp. 45–51] argue that institutions may be understood as participating in the organisation of cognitive activity rather than merely providing an external social setting for it. What matters methodologically is that these results characterise the relation between a participant and a structure; the relation among participants occupying different positions within the same structure is not thematised.

However, the situated and distributed organisation of cognitive work does not guarantee cognitive integration. Documents may be inaccessible, procedures may be opaque, technical systems may distribute tasks without creating mutual intelligibility, and recorded results may be interpreted incompatibly by different participants.

3.4. Cognitive Economy

Cognitive economy characterises the reduction of cognitive and communicative costs required for practical orientation within institutionally organised situations. Simplification reduces the number of distinctions that

must be made; cognitive economy reduces the costs of making distinctions while preserving those relevant to the practical task.

A simple rule may be cognitively uneconomical if it suppresses distinctions necessary for correct qualification, makes atypical cases unintelligible, or generates costly corrective procedures. Conversely, a more differentiated institutional form may be cognitively economical when it allows participants to identify relevant features more quickly, allocate tasks more clearly, preserve results for later use, and avoid repeated renegotiation of basic meanings.

The concept is consistent with research on categorisation, in which cognitive economy concerns the functional balance between information retained and the effort required to retrieve, process, and use it [37, pp. 28–29; 36, pp. 303–343]. It also corresponds to institutional accounts in which public representations, cognitive artefacts, and established categories reduce the costs of practical orientation [19, pp. 1–18; 55].

For present purposes, the relevant costs include time, attention, memory, information search, interpretation, communication, verification, error correction, and repeated reconstruction of previously established points of relevance. Institutional categories, procedures, records, and other symbolic supports may reduce these costs by making relevant distinctions and the results of prior operations available for further action.

Cognitive economy is a functional effect of institutionally organised symbolic and material environments and cannot be reduced to an individual participant's mental efficiency. It may arise through the interaction of symbolic forms, records, technical systems, professional roles, procedural arrangements, and institutional memory. External supports participate in the practical organisation of human cognitive work only through participants' capacities to recognise, interpret, and use them.

Cognitive economy depends on making relevant distinctions and preserving their results so that they remain available for later operations. An institutional arrangement becomes cognitively uneconomical when participants must repeatedly reconstruct facts, categories, procedural sequences, or meanings that should remain institutionally retrievable.

Cognitive economy must be assessed by the functional adequacy of the distinctions it enables participants to maintain. Excessive standardisation may conceal relevant differences, exclude atypical cases, erase context,

or reproduce unjust classifications. An institutionally economical form therefore reduces the costs of making relevant distinctions while preserving sufficient accuracy of orientation and the possibility of correction.

Cognitive economy therefore characterises the cost structure of practical institutional orientation rather than the mere simplicity of institutional forms. Its operation depends on whether symbolically organised distinctions and preserved results are actually available for recognition, interpretation, and use by participants in concrete situations. This brings the analysis to symbolic accessibility as a relation among symbolic form, institutional meaning, and the participant's capacity for practical orientation.

3.5. Symbolic Accessibility as a Relation

Symbolic accessibility concerns whether institutionally significant meaning expressed through a symbolic form can become practically available to a participant in a concrete situation. Formal publication, visual clarity, or physical availability of a document does not by itself establish such accessibility, because practical use depends on whether the participant can recognise the institutional significance of the form and relate it to the relevant situation.

Symbolic accessibility is a relational characteristic arising from the connection among the organisation of a symbolic form, the institutional meaning expressed through it, and a participant's cognitive capacity to recognise, interpret, relate, and use that meaning in a relevant practical situation. A symbolic form is accessible when the participant can identify its relevance, distinguish its operative elements, connect them with an available institutional category or task, and use the resulting interpretation to orient further action.

Symbolic accessibility varies along three analytically distinct dimensions. The first concerns the organisation of the sign form itself, including the clarity and stability of the distinctions through which institutional meaning is expressed. The second concerns the participant's institutional position, knowledge, procedural capacities, and available resources. The third concerns the practical situation, including temporal, procedural, informational, and technical conditions under which the symbolic form must be used.

Accessibility cannot be inferred from formal publicity or linguistic clarity alone. A publicly available form may remain practically inaccessible when its institutional significance cannot be related to the participant's situation, while a complex symbolic form may remain accessible where the participant can rely on stable categories, procedures, and available means of verification.

The situated character of accessibility follows from the dependence of practical action on concrete circumstances rather than on abstract rules alone [54, pp. 49–52]. Its distributed character follows from the participant's reliance on documents, records, technical systems, professional roles, and other external cognitive supports in recognising and using institutional meaning [20; 8;9].

Symbolic accessibility establishes whether an institutional distinction can function as a usable point of orientation for a participant. Different participants may nevertheless form different practical orientations while relying on the same accessible symbolic form. Accessibility therefore characterises the relation between symbolic form, institutional meaning, and participant orientation; it does not yet characterise the relation among the resulting orientations of different participants.

3.6. The Limit of Individual Practical Sufficiency

Cognitive economy and symbolic accessibility explain how an individual participant may acquire a practically sufficient orientation toward an institutional situation. Their explanatory reach remains limited to the relation between that participant, the relevant institutional distinctions, and the practical task to be performed.

An orientation that is practically sufficient for one participant may coexist with a substantially different orientation held by another participant toward the same institutional situation. Individual sufficiency therefore cannot be treated as evidence of coordination at the level of interaction.

Practical sufficiency concerns the relation between a participant's orientation and the task that participant must perform. The relational problem begins where the orientations of multiple participants must be considered in relation to one another within the same institutional process. Individually sufficient orientations may rest on different criteria of relevance, expectations, assumptions about authority, procedural sequences,

or interpretations of consequences. Coordination therefore cannot be inferred from the mere aggregation of individually sufficient orientations.

Metatheoretical Proposition 3. Individual practical sufficiency is a necessary condition of institutional action but not a sufficient condition of institutional coordination. Institutional coordination therefore requires analysis at a relational level irreducible to the practical sufficiency of separate participants' orientations.

4. From the Relatability of Orientations to Cognitive Integration

4.1. The Relatability of Institutionally Differentiated Orientations

The remaining problem is relational. The relevant unit of analysis is the relation among institutionally differentiated orientations. This relation cannot be reduced to an isolated participant, an individual mental model, a set of shared beliefs, the relational constitution of norms in institutional practice, or the mere availability of mechanisms that mediate coordination across differentiated positions.

Institutional interaction is organised through differentiated positions that distribute competences, claims, obligations, powers, informational access, and practical tasks. Participants therefore encounter a common institutional process from structurally different positions rather than from a single undifferentiated standpoint.

These differences are constitutive of institutional interaction rather than accidental deviations from a common orientation. Institutionally differentiated positions generate distinct perspectives, expectations, competences, informational horizons, and practical stakes that may remain non-identical throughout the interaction.

Institutional coordination requires the relatability of differentiated orientations. Relatability refers to the possibility of establishing institutionally relevant reference relations among interpretations, expectations, competences, and modes of action associated with differentiated positions within a common practical process. It does not require identity among those orientations.

Relatability differs from shared belief because it concerns the structure of relation among orientations rather than convergence in their substantive content. Participants may disagree about the interpretation or evaluation of an institutional situation while remaining relatable where their orientations

retain institutionally identifiable reference points in a common object, process, or sequence of action.

Relatability also differs from mere mutual awareness. Knowledge of another participant's existence, position, or likely reaction does not itself establish a practical relation among orientations. Relatability exists where institutionally available categories, procedures, forms of communication, and criteria of relevance provide mutually usable reference points through which differentiated orientations can be connected within an identifiable institutional process.

4.2. Practice as the Space of Testing Relatability

Relatability becomes practically observable in interaction. Practice is the space in which the relation among orientations is tested, confirmed, challenged, corrected, and reproduced. Its practical configuration becomes manifest and testable through interaction rather than existing as an invisible mental relation prior to action or merely appearing as the external manifestation of already completed orientations.

Schatzki characterises social life as occurring within a mesh of practices and material arrangements. Practices are organised nexuses of doings and sayings, while material arrangements include objects, bodies, artefacts, spaces, and infrastructures through which practical activity takes place [38]. This places interaction within a concrete organisation of action rather than treating it as a relation among disembodied beliefs.

In institutional settings, orientations become practically manifest through claims, decisions, procedural acts, documentary operations, and other institutionally recognisable forms of action. Such acts provide institutionally recognisable indications of what participants treat as relevant, how they interpret the situation, which expectations they attribute to others, and what institutional consequences they anticipate.

Practice makes relatability operationally observable by showing whether differentiated orientations retain institutionally identifiable reference points and whether participants' acts can be located within the same institutional sequence. A claim, objection, decision, or other institutional act becomes relationally significant when participants can locate it within a common practical process and respond to it through available institutional forms. Failures of this connection indicate a problem of practical relatability rather than merely an error within an isolated participant's orientation.

The temporal character of practice is essential. Institutional interaction unfolds through duration, ordered sequences of operations, and the preservation of results between them. Earlier acts and determinations must remain identifiable, retrievable, verifiable, revisable, and practically usable as reference points for institutionally subsequent operations. Relatability is therefore tested over time through the preservation of sequential usability: results produced at one stage must remain available as meaningful inputs for subsequent operations.

4.3. Difference, Detection, and Processing

Persistent difference among institutionally differentiated orientations makes the detection, localisation, and processing of relevant divergence central conditions of their practical compatibility. Difference, error, conflict, and competing interpretations may remain present where their institutional relevance can be identified and addressed through available forms of interaction.

Karl Weick's account of sensemaking is useful because it treats organising as a process through which equivocality is reduced through enactment, selection, and retention. Participants act, retrospectively interpret consequences, select workable interpretations, and retain them as resources for subsequent orientation [61]. The value of this account lies in attention to the recursive relation among action, interpretation, selection, and retained meaning.

A divergence becomes practically relevant when it can be detected and localised. Detection means recognising a discrepancy among interpretations, expectations, classifications, claims, or projected courses of action that is institutionally relevant to the operation at issue. Localisation means relating that discrepancy to an identifiable point of institutional relevance, such as a factual assertion, category, rule, competence, procedural step, or anticipated consequence.

Localisation converts an indeterminate experience of disruption into an institutionally identifiable problem. A divergence that cannot be related to a recognisable point of relevance remains difficult to examine or correct because participants lack a sufficiently determinate object to which further operations can be directed.

Processing requires more than identifying and naming a divergence; it requires the availability and practical applicability of institutionally

recognised operations to the identified difference. Processing may transform one or more orientations, specify the institutional object at issue, or establish an authoritative basis for subsequent action without requiring the underlying difference to disappear.

Argyris and Schön's distinction between single-loop and double-loop learning clarifies the depth of such processing. Single-loop learning concerns detection and correction of error while preserving governing values, strategies, and assumptions. Double-loop learning involves questioning and revising those governing variables themselves, including norms, assumptions, values, or strategies that structure action [2, pp. 18–26; 3, pp. 20–22]. The distinction shows that some differences may be corrected through existing rules or procedures, whereas others may require revision of an interpretative framework, institutional category, procedural design, or normative assumption.

The depth of processing required depends on the character of the divergence. Many differences can be handled through established categories and procedures without reopening their underlying assumptions. Recurring divergences, however, may indicate that the difficulty lies in those categories, competences, procedures, or interpretative frameworks themselves. In such cases, treating a structural problem as a series of local errors reduces the adaptive capacity of institutional interaction. The existence of a processing mechanism must therefore be distinguished from the relational capacity to use it with respect to the divergence at issue.

4.4. Practically Sufficient Compatibility

Practically sufficient compatibility characterises the relation among institutionally differentiated orientations where their organised practical connection preserves the institutional reference points required for mutually relevant action. The shift from individual practical sufficiency to compatibility therefore marks the transition from the adequacy of a single orientation to the relational adequacy of differentiated orientations within an institutional sequence.

Compatibility does not require identity of interests, knowledge, expectations, interpretations, or preferred outcomes. Institutionally differentiated orientations may remain substantively different while still being related to common institutional objects and to available procedures of

communication, verification, decision, correction, or review. Compatibility therefore concerns the organisation of difference rather than its elimination.

Practical compatibility is sufficient where differentiated orientations retain mutually usable institutional reference points; remain related to an identifiable institutional object or sequence; allow institutionally relevant divergences to be detected and localised; leave those divergences amenable to available operations of checking, clarification, correction, translation, decision, or review; and produce results that remain usable as inputs or reference points for subsequent institutionally defined operations.

Compatibility weakens where one or more of these relational conditions cease to hold. Participants may still act, communicate, or comply formally, but the relation increasingly depends on repeated reconstruction, external clarification, compensatory intervention, or authoritative substitution of the categories, procedures, and criteria of relevance required for subsequent operations.

The criterion is practical because it does not require semantic unity or normative harmony. A legal proceeding may exhibit practically sufficient compatibility where the parties can identify what is disputed, relate their competing claims to the same procedural sequence, submit and contest evidence through recognisable forms, locate disagreement in institutionally relevant categories, and treat a decision as an input into the next available procedural operation. Conversely, a formally consensual setting may lack practical compatibility where participants use the same vocabulary while attaching incompatible meanings to key categories or cannot determine which authority is competent.

The judicial example also shows why cognitive integration cannot be inferred from the mere continuation of interaction. Proceedings may continue formally even where the judge and the parties no longer relate the relevant categories, procedural acts, or evidentiary consequences in a way that makes divergence effectively processable. In such a case, continued interaction may be sustained through repeated compensatory clarification, procedural intervention, or authoritative correction without establishing practically sufficient compatibility among the relevant orientations. Continuation is therefore neither a defining criterion nor a sufficient indicator of practical compatibility. It is a possible outcome of compatibility, but it may also be produced by coercion, compensatory intervention, hierarchical

substitution, or repeated corrective work.

Practical compatibility is relational because it belongs to the institutionally organised practical connection among differentiated orientations. Formal validity, symbolic accessibility, and individual practical sufficiency may persist while compatibility declines at the relational level. Practical compatibility is therefore not reducible to the properties of individual orientations, to the formal existence of institutional norms, or to the mere availability of mediating mechanisms.

The proposed account must be distinguished from theories of sufficiently aligned representations because both employ a threshold of sufficiency. Shared reality theory concerns experienced commonality with another's inner state regarding a shared referent, while related accounts of joint attention, cultural learning, and shared intentionality explain mechanisms through which common orientation may emerge [18, pp. 28–84; 12, pp. 496–521; 56, pp. 675–691]. Practically sufficient compatibility does not measure experienced commonality or representational alignment. It concerns the relational organisation through which differentiated orientations retain mutually usable reference points and institutionally relevant divergences remain identifiable, localisable, processable, and sequentially usable.

Taken as a model of institutional coordination, an alignment model may suggest a positive relation between increasing convergence and coordination. Under conditions of positional differentiation, however, that relation is not monotonic. If the orientation of a judge converges with that of one party to the point at which the independent orientation required by the judicial position is no longer maintained, the capacity institutionally assigned to that position is compromised. Likewise, convergence between a supervisory body and the entity subject to supervision becomes dysfunctional when it prevents the supervisory body from maintaining the differentiated orientation required for its institutional function. The relevant criterion is therefore not the degree of convergence as such, but whether the relation among differentiated orientations preserves the capacities institutionally assigned to their respective positions while preserving the relational conditions required for their institutionally differentiated operations to remain mutually usable.

4.5. Cognitive Integration as a Relational Category

Cognitive integration is not reducible to the properties of individual orientations, to the formal existence of institutional norms, or to the mere availability of mediating mechanisms. It is a relational and context-dependent property of the institutionally organised practical connection among differentiated orientations within an institutional sequence. Cognitive integration is present where that relation exhibits practically sufficient compatibility in the sense specified above. Its presence makes coordinated interaction possible without requiring convergence of the orientations themselves.

Its relational character means that cognitive integration belongs to the organisation of interaction rather than to the cognitive properties of any individual participant. Individually adequate orientations may coexist with weak integration, while cognitively integrated interaction does not require any participant to possess a comprehensive representation of the institutional setting. Cognitive integration is therefore neither an aggregate of individual cognitive states nor a collective consciousness shared in identical form by all participants.

Its institutional character means that the practical connection among orientations is mediated through institutionally organised symbolic, procedural, material, formal, and informal forms. These forms provide distinctions and practical means through which participants can relate their positions and actions within a common institutional process. They mediate the relation but do not constitute cognitive integration merely by being available. The same procedure, symbolic form, boundary object, trading zone, or coordinating arrangement may support different relational states depending on how differentiated orientations are practically connected through it.

Cognitive integration is compatible with persistent difference because its criterion is practically sufficient compatibility rather than consensus. Relevant divergences may remain present where they are institutionally identifiable, localisable, processable, and compatible with the sequential usability of differentiated operations. Cognitive integration does not require those divergences to disappear; it requires that they remain available for institutionally organised reference and practical treatment.

Cognitive integration has a temporal dimension because practically sufficient compatibility must be reproduced across successive institutional operations rather than arise only within an isolated encounter. Its temporal dimension concerns the preservation and renewal of relational compatibility across an institutional sequence. Results produced at one stage must remain sufficiently identifiable, accessible, revisable, and practically relevant to subsequent stages for differentiated orientations to remain related through further operations.

Cognitive integration is a threshold rather than an ideal state. The threshold is reached where the relational conditions specified above are jointly sufficient for differentiated institutional operations to remain mutually usable under the actual constraints of interaction. It does not require exhaustive mutual understanding, semantic uniformity, complete agreement, or error-free action.

Cognitive integration must also be distinguished from research on shared mental models. Such research shows that compatible knowledge structures concerning tasks, roles, interdependencies, and procedures can improve reciprocal anticipation and coordination [5, pp. 221–246; 25, pp. 273–283; 11, pp. 32–53]. Cognitive integration, as defined here, does not designate similarity among individual knowledge structures. It characterises a relational and context-dependent property of institutionally organised interaction; compatible individual knowledge structures may contribute to that property but do not constitute it.

Cognitive integration must further be distinguished from cognitive economy. Cognitive economy concerns the costs of making, preserving, retrieving, and using institutionally relevant distinctions; cognitive integration concerns the relational organisation of differentiated orientations through which those distinctions become mutually and sequentially usable. An institutional arrangement may therefore be cognitively economical without producing practically sufficient compatibility among the orientations of its participants.

4.6. Distinctions from Adjacent Categories

The conceptual value of cognitive integration depends on its differentiation from adjacent categories that identify important but non-identical aspects of institutional order.

Table 1

Cognitive Integration and Adjacent Categories: Analytical Distinctions

Category	What it captures	Why it is not cognitive integration
1	2	3
Consensus	Convergence of judgments, preferences, evaluations, or outcomes	Cognitive integration may persist under substantive disagreement where differentiated orientations retain mutually usable institutional reference points and relevant divergences remain identifiable, localisable, processable, and sequentially usable.
Sufficient alignment / shared reality	Sufficient convergence or experienced commonality of orientations or representations regarding a referent	Cognitive integration concerns the relational organisation through which differentiated orientations retain mutually usable reference points and relevant divergences remain identifiable, localisable, processable, and sequentially usable. Under positional differentiation, increasing alignment may even impair the capacities attached to distinct institutional positions.
Shared beliefs	Convergent beliefs concerning relevant features or recurrent patterns of interaction	Shared beliefs may support coordination, but they do not characterise the relational and context-dependent property through which differentiated orientations remain mutually referable, divergences become processable, and institutional operations remain sequentially usable.
Common knowledge	Reflexive knowledge that participants know, and know that others know, a proposition	Common knowledge may facilitate coordination but does not characterise the relational property through which differentiated interpretations, expectations, and positions remain mutually referable, divergences become processable, and institutional operations remain sequentially usable.
Inter-subjectivity	Practical availability of a common social world despite differentiated perspectives	Intersubjectivity establishes conditions of mutual intelligibility; cognitive integration concerns the relational and context-dependent property through which differentiated orientations remain practically compatible within institutionally organised interaction.

End to Table 1

1	2	3
Shared mental models	Compatible individual knowledge structures concerning tasks, roles, procedures, and interdependencies	Shared mental models may facilitate reciprocal anticipation and coordination, but cognitive integration is a relational and context-dependent property of institutionally organised interaction rather than similarity or compatibility among individual knowledge structures.
Cognitive economy	Reduction of the cognitive and communicative costs required to make, preserve, and use institutionally relevant distinctions	Cognitive economy concerns the cost structure of making, preserving, retrieving, and using institutionally relevant distinctions; cognitive integration concerns the relational organisation through which those distinctions become mutually and sequentially usable.
Boundary objects / mediating artefacts	Objects, documents, classifications, or artefacts that support cooperation and translation across heterogeneous social worlds or institutionally differentiated positions	They are mediating forms through which differentiated orientations may be connected. Their availability does not determine the relational and context-dependent property produced through their practical use.
Trading zones / coordinating arrangements	Local sites, languages, practices, or arrangements that enable exchange and coordination across heterogeneous communities or differentiated practices	They designate sites or arrangements of coordination. Cognitive integration characterises the relational property of the differentiated orientations connected within such arrangements.
Behavioural regularity	Recurrent or predictable patterns of conduct	Regularity may result from habit, coercion, imitation, dependency, routine, or hierarchical control without practically compatible orientations. Behavioural regularity, including continued interaction, is an outcome-level property and cannot serve as a sufficient indicator of cognitive integration.
Organisational unity	Formal membership, hierarchy, common identity, or structural coherence	Formal organisational unity may persist while orientations remain poorly related and interaction requires continual compensatory coordination.
Legitimacy	Recognition of an order, authority, decision, or procedure as acceptable or justified	Legitimacy may support coordination but does not itself establish practical relatability, compatibility, or the processability of divergence among orientations.

Metatheoretical Proposition 4. Cognitive integration is analytically distinct from the properties of individual orientations, from their substantive convergence, and from the institutional mechanisms through which differentiated positions are connected. It designates a relational and context-dependent property of their institutionally organised practical connection, characterised by mutually usable institutional reference points, the identifiability, localisability, and processability of relevant divergence, and the sequential usability of institutionally produced results.

5. The Explanatory Status and Limits of the Problem-Directed Metatheoretical Reconstruction

5.1. What the Reconstruction Establishes

The method employed in this article is a problem-directed metatheoretical reconstruction. For brevity, it may be described as problem-genealogical in the restricted sense that it follows the successive reformulation of an explanatory problem through the limits disclosed by different theoretical positions. It does not designate a Foucauldian genealogy of historical practices, contingent processes of emergence, relations of power, regimes of truth, or forms of subjectivation. Nor does it reconstruct the historical origin of cognitive integration. Its purpose is explanatory: to identify the conditions, distinctions, and limits through which a relational level between individual practical orientation and coordinated behaviour becomes analytically necessary.

The reconstruction establishes the theoretical justification for distinguishing a relational level between individual practical orientation and coordinated behaviour. The approaches examined in the preceding sections specify different conditions under which institutionally significant reality becomes recognisable, symbolically accessible, practically interpretable, and actionable for bounded participants. Their cumulative limit appears where these conditions remain individually satisfied while the relation among positionally differentiated orientations remains uncharacterised.

An explanatory limit, as used here, does not imply that the reconstructed approach is false, internally deficient, or normatively objectionable. It indicates only that the approach does not answer the more specific question introduced at the next stage of the reconstruction. Each position is therefore

treated as disclosing an indispensable condition of institutional orientation while leaving open a further explanatory problem.

This limit provides the conceptual ground for treating cognitive integration as a distinct relational category. Its analytical object is the state of the relation among orientations associated with different institutional positions, rather than the properties of those orientations considered separately or the degree of their substantive convergence.

The reconstruction also establishes a more precise vocabulary. Relatability concerns the possibility of establishing mutually usable institutional reference relations among differentiated orientations. Practically sufficient compatibility concerns the relational adequacy of their institutionally organised practical connection: the preservation of mutually usable reference points, the identifiability, localisability, and processability of relevant divergence, and the sequential usability of institutionally produced results. Cognitive integration concerns the relational and context-dependent property of an institutional sequence in which these conditions are maintained and reproduced through formal, informal, symbolic, procedural, and material forms of mediation.

5.2. What the Reconstruction Does Not Establish

The limits of the present reconstruction follow from its problem-directed and metatheoretical character. It identifies conditions and explanatory limits relevant to a specified conceptual problem; it does not provide a general history of ideas, a causal theory of institutional development, an empirical test of coordinative mechanisms, or a normative critique of institutional orders.

The reconstruction does not establish a historically necessary sequence among the authors, traditions, or concepts considered. The order of analysis follows successive explanatory limits generated by the problem under examination; it does not claim that Kant, Cassirer, radical constructivism, autopoiesis, second-order cybernetics, phenomenological sociology, social constructionism, social ontology, semiotics, cognitive institutionalism, science and technology studies, and cognitive science form a linear intellectual tradition or a developmental sequence culminating in the present category.

The reconstruction does not deductively derive structural-cognitive theory, or the category of cognitive integration, from any of its predecessors. The approaches considered contribute conceptual conditions, distinctions, and explanatory limits rather than components of a single cumulative doctrine. Their relevance lies in the problems they clarify and in the points at which their explanatory resources become insufficient for characterising the relational level identified here. The reconstruction therefore does not synthesise the examined traditions into a comprehensive philosophical system.

The reconstruction does not empirically verify the positive structural-cognitive model. It does not establish which symbolic forms, procedures, material artefacts, technologies, informal practices, or organisational arrangements actually sustain, weaken, repair, or transform cognitive integration in a specific legal, organisational, economic, or political setting. Nor does it provide a metric for measuring degrees of cognitive integration, identify causal weights among its conditions, or establish that cognitive integration is the only possible category for describing the relevant relational level. These are tasks for subsequent positive, comparative, and empirical research.

Finally, the reconstruction does not imply normative endorsement of every coordinated order, nor does it provide a full critical genealogy of the conditions through which coordination is produced. A coordinatively sustainable institution may reproduce inequality, domination, exclusion, unjust classifications, or violence. Moreover, the categories, symbolic forms, procedures, and criteria of relevance through which divergences become recognisable and processable may themselves be shaped by asymmetrical relations of power and may reproduce exclusion or domination.

The present analysis therefore distinguishes the descriptive and metatheoretical question of how differentiated orientations may remain practically compatible from the normative question of whether the institutional conditions that support such compatibility are legitimate, symmetrical, inclusive, or just. Critical analyses of communicative, symbolic, and disciplinary power identify a further problem that this reconstruction does not resolve.

5.3. The Irreducibility of the Relational Level

The claim that a distinct relational level exists requires justification of its analytical irreducibility rather than its ontological independence. Cognitive integration does not exist apart from orientations, institutional norms, symbolic forms, practices, and mediating mechanisms. It is, however, not reducible to the properties of individual orientations considered separately, to the formal existence of institutional structures, or to the mere availability of mediating arrangements. Two parallel reductionist objections must therefore be addressed. The first treats the relation between orientations as a derived magnitude fully determined by the properties of the orientations themselves, so that a relational category merely redescribes what has already been stated at the level of participants. The second derives the relation from institutional structure, which distributes positions and thereby fixes the relations possible among them. Both objections reduce the relational level to elements already available and render it analytically superfluous.

The first reduction fails because relatability and compatibility are not properties of a single orientation and do not arise by summation. Considered in isolation, a judge's orientation may be practically sufficient or insufficient for the task of legal qualification, but it is neither relatable nor compatible. Both characteristics arise with respect to another orientation and disappear together with it. This is the ordinary logical difference between a relation and a property, and here it has a substantive consequence. Two orientations may each remain unchanged while the relational and context-dependent property of their institutionally organised practical connection alters – most clearly when a form for processing divergence becomes practically applicable or ceases to be practically applicable. A property that varies while the orientations remain unchanged is not reducible to the properties of those orientations considered separately.

A minimal analytical counterexample makes this distinction explicit. Consider two participants whose respective orientations toward an institutional issue remain unchanged: each retains the same interpretation, expectations, and intended course of action. Their formal positions, competences, governing institutional structure, and formally available mediating arrangements also remain constant. The same orientations may nevertheless enter different practical relations in the temporal course of

interaction. At t1, the acts through which these orientations are expressed remain mutually referable, so that a relevant divergence can be detected, localised, and processed through practically applicable institutional forms. At t2, without alteration of either orientation, institutional position, or formal structure, the continued enactment of those orientations no longer provides mutually usable points of reference or sequentially usable results for the next institutional operation. What varies is therefore the relational and context-dependent property of their institutionally organised practical connection, rather than either orientation considered separately or the formal structure within which they are positioned.

The second reduction fails because institutional structure assigns positions, competences, procedures, and formal possibilities of action rather than determining the orientations enacted from those positions in a particular interaction. The distribution of competences determines which distinctions a participant is authorised to draw, while leaving open which distinctions are in fact drawn, recognised, contested, or practically connected to the actions of others. One and the same structure is therefore compatible with different states of the relational connection among orientations. The formal availability of an appeal procedure may make the processing of a divergence possible without establishing whether that divergence has been detected, localised, or made practically processable. Structural explanation specifies the conditions and boundaries of the possible; it is insufficient for characterising the relational and context-dependent property that is instantiated within them.

Metatheoretical Proposition 5. Cognitive integration is a relational and context-dependent property of the institutionally organised practical connection among positionally differentiated orientations. It is analytically irreducible to the properties of individual orientations considered separately, to their substantive convergence, and to the formal institutional structure that distributes positions and makes mediating mechanisms available. This property may vary while orientations and formal structures remain constant, and while the same institutional arrangement supports different states of referability, divergence processing, and sequential usability.

5.4. The Boundary between Metatheory and Positive Structural-Cognitive Theory

This article establishes the conceptual place of cognitive integration within the structural-cognitive theory of institutional coordination. It shows why a relational category is needed once the limits of structural, constructivist, phenomenological, social-ontological, semiotic, and individual-cognitive explanations are made explicit.

It does not provide a full positive account of the mechanisms through which formal norms, informal practices, symbolic forms, cognitive economy, procedures, material arrangements, and organisational structures sustain, weaken, repair, or transform the relational conditions of practically sufficient compatibility over time. The specification and empirical investigation of those mechanisms belong to the positive structural-cognitive theory of institutional coordination.

The distinction is methodological. Problem-directed metatheoretical reconstruction identifies the explanatory need for a category, establishes its analytical level, specifies the conditions under which it can be meaningfully attributed, and clarifies its relation to adjacent concepts. Positive theory specifies the mechanisms, conditions, forms of failure, processes of repair, and empirical indicators through which the corresponding relational and context-dependent property is sustained, weakened, restored, transformed, or destroyed in concrete institutional settings.

CONCLUSIONS

This article has reconstructed the philosophical and methodological premises for identifying cognitive integration within a structural-cognitive theory of institutional coordination. The reconstruction shows that institutional coordination requires analysis of a relational level between individual practical orientation and coordinated behaviour: the institutionally organised practical connection among orientations enacted from differentiated positions.

The problem-directed metatheoretical reconstruction establishes the conditions that make this relational problem intelligible. Institutionally significant reality must become determinate, symbolically articulated, socially objectivated, institutionally valid, cognitively accessible, and practically usable by bounded participants. Institutional structure, shared

beliefs, rules-in-use, relational norms, cognitive scaffolding, boundary objects, trading zones, and structural conditions of social order each clarify important conditions of coordination. None of them, however, by itself characterises the relational and context-dependent property of the practical connection among differentiated orientations.

The article therefore does not claim that coordination without consensus is theoretically unrecognised. Rather, it specifies the remaining analytical question: under what conditions can positionally differentiated orientations remain practically compatible within a common institutional sequence? Cognitive integration designates the relational and context-dependent property of their institutionally organised practical connection. It is not reducible to the properties of individual orientations, to the formal existence of institutional norms, or to the mere availability of mediating mechanisms.

Cognitive integration is present where differentiated orientations retain mutually usable institutional reference points; where relevant divergences can be detected, localised, and processed through available formal, informal, symbolic, procedural, and material forms; and where the results of one institutional operation remain usable as meaningful inputs for subsequent operations. Practically sufficient compatibility thus concerns the relational adequacy of this connection rather than identity of interests, knowledge, interpretations, or outcomes.

Continued coordinated interaction is neither a defining criterion nor a sufficient indicator of cognitive integration. It may be a consequence of practically sufficient compatibility, but it may also be produced by coercion, hierarchy, routine, compensatory intervention, or repeated corrective work. Cognitive integration is therefore compatible with disagreement, asymmetry, review, correction, and revision, provided that relevant divergences remain institutionally identifiable, processable, and compatible with the sequential usability of differentiated operations.

The contribution of the article is metatheoretical rather than a complete positive account of institutional coordination. It establishes the analytical irreducibility, rather than the ontological independence, of the relational level and clarifies the conceptual place of cognitive integration within structural-cognitive theory. Subsequent positive and empirical research must specify the formal norms, informal practices, symbolic forms, material arrangements, procedures, technologies, and other mechanisms through

which the relational conditions of cognitive integration are sustained, weakened, repaired, transformed, or destroyed in concrete institutional settings.

References:

1. Aoki, M. (2001). *Toward a comparative institutional analysis*. MIT Press.
2. Argyris, C., & Schön, D. A. (1978). *Organizational learning: A theory of action perspective*. Addison-Wesley.
3. Argyris, C., & Schön, D. A. (1996). *Organizational learning II: Theory, method, and practice*. Addison-Wesley.
4. Berger, P. L., & Luckmann, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge*. Doubleday.
5. Cannon-Bowers, J. A., Salas, E., & Converse, S. A. (1993). Shared mental models in expert team decision making. In N. J. Castellan Jr. (Ed.), *Individual and group decision making: Current issues* (pp. 221–246). Lawrence Erlbaum Associates.
6. Cassirer, E. (2020a). *The philosophy of symbolic forms: Vol. 1. Language* (S. G. Lofts, Trans.). Routledge. https://doi.org/10.4324/9780429282447 (Original work published 1923)
7. Cassirer, E. (2020b). *The philosophy of symbolic forms: Vol. 3. Phenomenology of cognition* (S. G. Lofts, Trans.). Routledge. https://doi.org/10.4324/9780429282508 (Original work published 1929)
8. Clark, A. (1996). *Being there: Putting brain, body, and world together again*. MIT Press. https://doi.org/10.7551/mitpress/1552.001.0001
9. Clark, A. (2008). *Supersizing the mind: Embodiment, action, and cognitive extension*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195333213.001.0001
10. Cornelissen, J. P., Durand, R., Fiss, P. C., Lammers, J. C., & Vaara, E. (2015). Putting communication front and center in institutional theory and analysis. *Academy of Management Review, 40*(1), 10–27. https://doi.org/10.5465/amr.2014.0381
11. DeChurch, L. A., & Mesmer-Magnus, J. R. (2010). The cognitive underpinnings of effective teamwork: A meta-analysis. *Journal of Applied Psychology, 95*(1), 32–53. https://doi.org/10.1037/a0017328
12. Echterhoff, G., Higgins, E. T., & Levine, J. M. (2009). Shared reality: Experiencing commonality with others' inner states about the world. *Perspectives on Psychological Science, 4*(5), 496–521. https://doi.org/10.1111/j.1745-6924.2009.01161.x
13. Eco, U. (1976). *A theory of semiotics*. Indiana University Press.
14. Eco, U. (1990). *The limits of interpretation*. Indiana University Press.
15. Galison, P. (1997). *Image and logic: A material culture of microphysics*. University of Chicago Press.
16. Gallagher, S., & Crisafi, A. (2009). Mental institutions. *Topoi, 28*(1), 45–51. https://doi.org/10.1007/s11245-008-9045-0

17. Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. Polity Press.

18. Hardin, C. D., & Higgins, E. T. (1996). Shared reality: How social verification makes the subjective objective. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: The interpersonal context* (Vol. 3, pp. 28–84). Guilford Press.

19. Hodgson, G. M. (2010). Choice, habit and evolution. *Journal of Evolutionary Economics, 20*(1), 1–18. https://doi.org/10.1007/s00191-009-0134-z

20. Hutchins, E. (1995). *Cognition in the wild*. MIT Press.

21. Kant, I. (1998). *Critique of pure reason* (P. Guyer & A. W. Wood, Eds. & Trans.). Cambridge University Press. https://doi.org/10.1017/CBO9780511804649 (Original work published 1781)

22. Khalabudenko, O. (2026). A structural-cognitive theory of institutional coordination: Symbolic mediation, cognitive integration and coordinative sustainability. *Metaverse Science, Society and Law, 2*(3). https://doi.org/10.69635/mssl.2026.2.3.60

23. Lawrence, T. B., & Suddaby, R. (2006). Institutions and institutional work. In S. R. Clegg, C. Hardy, T. B. Lawrence, & W. R. Nord (Eds.), *The SAGE handbook of organization studies* (2nd ed., pp. 215–254). SAGE.

24. Luhmann, N. (1995). *Social systems* (J. Bednarz Jr., with D. Baecker, Trans.). Stanford University Press. (Original work published 1984)

25. Mathieu, J. E., Heffner, T. S., Goodwin, G. F., Salas, E., & Cannon-Bowers, J. A. (2000). The influence of shared mental models on team process and performance. *Journal of Applied Psychology, 85*(2), 273–283. https://doi.org/10.1037/0021-9010.85.2.273

26. Maturana, H. R., & Varela, F. J. (1980). *Autopoiesis and cognition: The realization of the living*. D. Reidel Publishing Company.

27. Maturana, H. R., & Varela, F. J. (1987). *The tree of knowledge: The biological roots of human understanding*. Shambhala.

28. Meyer, R. E., Leixnering, S., Kornberger, M., Jancsary, D., & Höllerer, M. A. (2024). Ernst Cassirer and the symbolic foundation of institutions. *Journal of Management Studies, 61*(8), 3824–3842. https://doi.org/10.1111/joms.13038

29. North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press. https://doi.org/10.1017/CBO9780511808678

30. North, D. C. (2005). *Understanding the process of economic change*. Princeton University Press.

31. North, D. C., Wallis, J. J., & Weingast, B. R. (2009). *Violence and social orders: A conceptual framework for interpreting recorded human history*. Cambridge University Press.

32. Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press. https://doi.org/10.1017/CBO9780511807763

33. Ostrom, E. (2005). *Understanding institutional diversity*. Princeton University Press.

34. Parsons, T. (1951). *The social system*. Free Press.
35. Petracca, E., & Gallagher, S. (2025). Norms are relational: Cognitive institutions, practices, and the "where" question. Journal of Institutional Economics, 21, e39, 1–19. https://doi.org/10.1017/S174413742510026X
36. Pothos, E. M., & Chater, N. (2002). A simplicity principle in unsupervised human categorization. *Cognitive Science, 26*(3), 303–343. https://doi.org/10.1207/S15516709COG2603_6
37. Rosch, E. (1978). Principles of categorization. In E. Rosch & B. B. Lloyd (Eds.), *Cognition and categorization* (pp. 27–48). Lawrence Erlbaum Associates.
38. Schatzki, T. R. (2002). *The site of the social: A philosophical account of the constitution of social life and change*. Pennsylvania State University Press.
39. Schmidt, V. A. (2008). Discursive institutionalism: The explanatory power of ideas and discourse. *Annual Review of Political Science, 11*, 303–326. https://doi.org/10.1146/annurev.polisci.11.060606.135342
40. Schmidt, V. A. (2010). Taking ideas and discourse seriously: Explaining change through discursive institutionalism as the fourth "new institutionalism." *European Political Science Review, 2*(1), 1–25. https://doi.org/10.1017/S175577390999021X
41. Schutz, A. (1962). *Collected papers I: The problem of social reality* (M. Natanson, Ed.). Martinus Nijhoff.
42. Schutz, A. (1967). *The phenomenology of the social world* (G. Walsh & F. Lehnert, Trans.). Northwestern University Press. (Original work published 1932)
43. Schutz, A. (1970). *Reflections on the problem of relevance*. Yale University Press.
44. Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). SAGE.
45. Searle, J. R. (1969). *Speech acts: An essay in the philosophy of language*. Cambridge University Press.
46. Searle, J. R. (1995). *The construction of social reality*. Free Press.
47. Searle, J. R. (2010). *Making the social world: The structure of human civilization*. Oxford University Press.
48. Simon, H. A. (1947). *Administrative behavior: A study of decision-making processes in administrative organization*. Macmillan.
49. Simon, H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics, 69*(1), 99–118. https://doi.org/10.2307/1884852
50. Simon, H. A. (1957). *Models of man: Social and rational*. John Wiley & Sons.
51. Simon, H. A. (1976). From substantive to procedural rationality. In S. J. Latsis (Ed.), *Method and appraisal in economics* (pp. 129–148). Cambridge University Press.
52. Simon, H. A. (1996). *The sciences of the artificial* (3rd ed.). MIT Press.
53. Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, "translations" and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39. Social Studies of Science, 19(3), 387–420. https://doi.org/10.1177/030631289019003001

54. Suchman, L. A. (1987). *Plans and situated actions: The problem of human-machine communication*. Cambridge University Press.

55. Thornton, P. H., Ocasio, W., & Lounsbury, M. (2012). *The institutional logics perspective: A new approach to culture, structure, and process*. Oxford University Press.

56. Tomasello, M., Carpenter, M., Call, J., Behne, T., & Moll, H. (2005). Understanding and sharing intentions: The origins of cultural cognition. *Behavioral and Brain Sciences, 28*(5), 675–691. https://doi.org/10.1017/S0140525X05000129

57. Trepp, T. C. (2026). Cognitive governance: Institutional reality as engineered perception and action [Manuscript]. Zenodo. https://doi.org/10.5281/zenodo.19217344

58. van Schooten, H. (2009). War as an institutional fact: Semiotics and institutional legal theory. *International Journal for the Semiotics of Law, 22*(3), 307–320. https://doi.org/10.1007/s11196-009-9112-x

59. von Foerster, H. (2003). *Understanding understanding: Essays on cybernetics and cognition*. Springer.

60. von Glasersfeld, E. (1995). *Radical constructivism: A way of knowing and learning*. Falmer Press.

61. Weick, K. E. (1995). *Sensemaking in organizations*. SAGE.