

From Analogy to Analysis: The Quantum-Continuity Model and Discontinuous Change in World Politics

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Abstract

Drawing on a limited structural analogy to quantum theory, this article develops a framework for identifying when public interpretation changes the actionable identity of a political occurrence—and the warrants that follow—rather than merely expectations about it. The focus is registration: the public classification, circulation, and uptake through which an occurrence becomes operative under a politically consequential description. Accounts of rapid political change explain shifts in behavior through changing information, expectations, or mobilization, but have greater difficulty distinguishing belief revision from a change in the political relationship within which action becomes intelligible. The Quantum-Continuity Model (QCM) makes that distinction empirically assessable through three conditions—non-composability, relational necessity, and constitutive affordance. Within the quantum turn in International Relations, the article shifts the question from whether quantum concepts are illuminating in principle to when quantum-informed analysis generates distinctions that established accounts do not independently provide. It pairs the three-condition test with a two-dimensional distinction between public expectations and institutional settlement and evaluates the framework through Tunisia, Gafsa 2008, TuniLeaks, and Bahrain 2011. The comparison distinguishes publicity from constitutive change, scalar updating from shifts in political standing, and expectational convergence from institutional closure.

Keywords: quantum International Relations; complementarity; registration-relativity; discontinuous change; Luhmann

1. The Debate and Its Underdeveloped Criteria

Quantum approaches to world politics now constitute a recognizable research program, with ontological, methodological, critical, and interpretive variants. Alexander Wendt's wager that mind and social life are quantum phenomena, the collective agenda assembled by James Der Derian and Wendt, Peter Katzenstein's contrast between Newtonian and post-Newtonian worldviews, K. M. Fierke's complementarity-inspired account of global entanglement, and Michael Murphy's effort to quantize critical theory have given quantum International Relations a literature, a set of internal disagreements, and a growing skeptical reception.¹

The debate has also sharpened the burden of justification. Wendt frames quantum social theory as bearing a burden of proof relative to established approaches while denying that established baselines are thereby exempt from scrutiny; Kratochwil presses the analogical problem more directly, arguing that a borrowing must demonstrate theoretical generativity rather than merely recast a familiar problem in new vocabulary.² What remains comparatively underdeveloped, then, is not the demand for justification but a procedure for adjudicating it in concrete political episodes: what structure must be identified, what evidence would count, what established accounts must independently reproduce to establish redundancy, and what findings would require the quantum-informed claim to retreat.

That problem persists even when literal ontology is set aside. Nonliteral approaches avoid the claim that social systems are physically quantum, but they do not escape the harder analytical question: does quantum language identify anything beyond processes already described as framing, performativity, reflexivity, signaling, or second-order observation? A serious quantum-informed theory must therefore specify what it borrows, where the analogy stops, how the proposed structure can be identified in social evidence, and what would show that the borrowing adds no analytical value.

This article begins from that burden. It develops the Quantum-Continuity Model (QCM) as a proposed structural transfer: a limited borrowing of a relation or pattern from quantum theory without transferring its mathematics or claiming that the underlying physics governs politics. The model focuses on *registration*: the public processes through which an occurrence becomes legible under a politically consequential description. The quantum parallel, developed in Section 3, is a Bohr–Barad³ reading of measurement in which what

¹ Wendt 2015; Der Derian and Wendt 2020, 2022; Katzenstein 2022; Fierke 2019, 2022; Murphy 2021; for the skeptical case, see Waldner 2017; Jaksland 2023.

² Wendt 2022, 121; Kratochwil 2022, 177.

³ Niels Bohr was one of the principal architects of quantum mechanics. In the interpretation drawn on here, his writings emphasize that what can be meaningfully attributed to a quantum phenomenon depends on the experimental arrangement through which it is observed. This article

becomes determinate depends on the experimental arrangement; QCM transfers only that relational structure to the social domain. An official resignation, a circulated image, or a public concession can acquire different political consequences depending on how it is publicly registered; competing arrangements can render the same occurrence actionable in incompatible ways, supplying different reasons, permissions, obligations, and expectations. A protest may be registered as criminal disorder, legitimate grievance, or revolutionary rupture; a ruler's departure may be registered as constitutional succession, flight, or deposition. These are not merely different labels on a complete political fact; they organize different warrants and alter what actors take themselves to be entitled or required to do.

The article's quantum-specific proposal is deliberately narrow. Indeterminacy itself is not the distinctive loan: talk of live possibilities, contingency, and undecided futures predates quantum mechanics, and William James's account of live options is an important part of that genealogy.⁴ The mathematical machinery and physical mechanisms such as entanglement, tunneling, and collapse are likewise left aside. In the Bohr–Barad reading adopted here, what becomes determinate in measurement depends in part on the experimental arrangement through which it is registered. QCM transfers that relation to the social domain as *registration-relativity*: the claim that the politically actionable identity of an occurrence can depend on the public arrangement through which it is registered. The aircraft carrying Ben Ali departed on 14 January regardless of description. What varied was the political identity under which that occurrence became publicly operative — flight, temporary incapacity, constitutional succession, or removal — and therefore what actions it licensed. The test asks whether, in some political episodes, rival arrangements of registration bring different actionable identities into force; whether those identities supply incompatible warrants within the same decision setting (the same institution, decision authority, issue, and interval); and whether explaining the episode's trajectory requires the interaction between those registrations. Whether any episode actually satisfies that conjunction is an empirical question.

To make that question tractable, the article develops two linked analytical devices. The first is a three-part test for determining when the proposed structural borrowing from quantum theory adds analytical value:

- **Condition 1 (C1), non-composability**, where rival registrations generate incompatible warrants within the same decision setting;
- **Condition 2 (C2), relational necessity**, where explaining the episode's trajectory requires the interaction between those registrations; and
- **Condition 3 (C3), constitutive affordance**, where public uptake brings a new politically actionable identity into force.

does not treat that interpretation as uncontested; Section 3 specifies the limited relation QCM borrows from it; see Bohr 1958.

⁴ James 1896.

The second is a two-dimensional state space — a conceptual map of the possible configurations an episode can occupy — organized along two dimensions:

- **Expectational field (E):** how contested or convergent public expectations are;
- **Action/institutional field (A):** how reversible or settled actions and institutional commitments are.

These dimensions can diverge. Institutions can close a situation through coercion while expectations remain divided; expectations can converge before action settles; and a regime may appear consolidated because preferences are falsified while latent opposition remains high. QCM therefore treats registration as one route of movement through the state space, not as the universal cause of political resolution.

The Tunisian uprising provides the main empirical demonstration, read against the strongest available accounts of preference falsification, informational cascades, protest diffusion, and mediated framing. The contrast set assigns different evidentiary roles to the comparison cases. The 2008 Gafsa Mining Basin revolt, sustained but regionally contained, illustrates a failure of public registration at national scale. The TuniLeaks disclosures test whether extensive publicity and uptake can occur without the proposed complementarity-like structure. The sequence from Mohamed Bouazizi's self-immolation in Sidi Bouzid through Ben Ali's departure on 14 January 2011 is the candidate in which all three conditions may jointly obtain. Bahrain's 2011 uprising provides a boundary case in which Gulf Cooperation Council intervention and sustained coercive capacity produced institutional closure despite continuing public contestation.

Sections 2–3 situate and rebuild the quantum analogy; Section 4 develops the state space and evidentiary tiers; Section 5 tests the framework contrastively and against Luhmann; Section 6 states implications and failure conditions; Section 7 concludes.

2. Three Wagers of the Quantum Turn

The quantum turn is better understood as a set of overlapping wagers than as a single doctrine.⁵ The categories below are ideal types: individual authors cross their boundaries, and the same work may combine ontological, worldview, and critical-analogical claims. The distinction helps identify the different burdens of justification carried by each wager.

2.1 The ontological wager

The ontological wager holds that quantum theory describes more than a useful formalism or metaphor for social inquiry. In its strongest version, the relevant substrate of mind and

⁵ “Wager” is used here to describe a theoretical commitment adopted under conditions of uncertainty. Wendt similarly characterizes ontological commitments as positions on which social scientists effectively wager; see Wendt 2018. The three wagers distinguished here are analytical ideal types developed for this article, not categories proposed by Wendt.

social life is itself quantum. Wendt's *Quantum Mind and Social Science* is the most ambitious statement of this position in IR. Its importance lies partly in refusing the conventional division between physical ontology and social meaning: if consciousness is a macroscopic quantum phenomenon, then social structures constituted through consciousness cannot be fully understood within a classical ontology.⁶

The ontological wager has the advantage of clarity. If the target domain is literally quantum, quantum concepts would apply as part of the relevant ontology rather than as analogical borrowings. But the wager also bears the heaviest evidential burden. It must show that the target domain exhibits quantum properties at the relevant scales, survive objections from decoherence — the environmental suppression of observable quantum interference that helps explain why macroscopic systems behave classically — and specify what findings would count against the claim. QCM sets that wager aside: its argument requires neither quantum consciousness nor quantum formalism applied to collective behavior.

2.2 The worldview wager

A second wager treats quantum theory as a challenge to the background worldview through which inquiry is organized. On this view, the central contrast shifts from literal versus metaphorical quantum systems to broader habits of thought. The classical ideal type privileges separable units, stable identities, and explanation through states specifiable independently of observation; the post-Newtonian ideal type foregrounds uncertainty, constitutive relations, analytically relevant unrealized possibilities, and observation that helps determine what becomes salient. Katzenstein's account of worldviews places these background commitments within the study of world politics, while the broader quantum IR literature uses the classical/post-classical contrast to make otherwise tacit assumptions visible.⁷

The worldview wager does not require social systems to sustain quantum coherence. At the level of background assumptions, quantum theory unsettles the presumption that classical categories are the only natural starting point and encourages inquiry to treat multiple possible futures as analytically significant rather than merely as uncertainty about an independently determined state of affairs. Whether those possibilities are genuinely open is a stronger question this article need not settle. The case-level issue is what follows when registration helps constitute a politically actionable identity and resolution is produced through the episode.

2.3 The critical and analogical wager

The third wager uses quantum concepts as critical or structural resources without requiring literal quantum ontology. Barad's agential realism is central: it reworks the

⁶ Wendt 2015.

⁷ Katzenstein 2022; Der Derian and Wendt 2022.

relation among apparatus, phenomenon, and observer, treating the cut as constitutive rather than as passive revelation of pre-existing properties.⁸ Fierke brings complementarity into IR: different arrangements can disclose mutually exclusive aspects that cannot be combined into a single description yet may both be necessary to characterize a phenomenon. Murphy uses quantum ideas as constraints on critical theory rather than as conceptual ornament. Der Derian and Wendt's collective project contains multiple variants of this wager — Biersteker on quantum pedagogy, Waters on the genealogy of entanglement, Ghose on what the physics does and does not license.⁹ Recent work has extended this critical quantum agenda to debates over science, ethics, and algorithmic governance.¹⁰

QCM belongs primarily in this third category. It borrows relations or patterns rather than mathematics or physical mechanisms, and its intended contribution is to specify criteria for judging when that borrowing adds analytical value. This location also places QCM within established IR traditions of reflexivity, relationalism, performativity, and constitutive theory. Hamati-Ataya's account of IR's reflexive turn and Kurki's relational ontology form part of the intellectual lineage within which a case-level account of registration must be situated.¹¹

The strongest objection is straightforward: if the quantum concepts are not literal and no quantum mathematics is being used, what prevents them from becoming new labels for familiar social-science processes? QCM therefore needs a stopping rule. The borrowed structure must produce distinctions or expectations that can be tested against evidence and that the nearest nonquantum account does not independently produce.

The next section develops that test. It first identifies the limited feature of quantum measurement that QCM borrows, then specifies the social conditions under which the borrowing would add analytical value. Quantum cognition offers a useful comparison because it also uses quantum ideas without claiming that the brain is literally quantum, but it does so through formal probability models that can be compared directly with alternatives.¹² QCM does not use that formalism and therefore must justify its borrowing through the clarity and empirical performance of its own criteria.

⁸ Barad 2007.

⁹ Fierke 2019, 2022; Murphy 2021; Der Derian and Wendt 2022; Biersteker 2022; Waters 2022; Ghose 2022.

¹⁰ Murphy 2024; Svitych 2025.

¹¹ Hamati-Ataya 2013; Kurki 2020.

¹² Bussemeyer and Bruza 2012; Pothos and Bussemeyer 2013.

3. Rebuilding the Analogy

3.1 What the formalism says, minimally

Quantum mechanics represents a system's state mathematically. Measurable quantities are represented by operators, and the Born rule gives probabilities for the possible outcomes of a specified measurement. The formalism predicts those probabilities with extraordinary success; how the possibilities relate to the single definite result an observer records remains a matter of interpretation. Under ordinary quantum evolution, system and apparatus can become entangled, with several possible outcomes and corresponding records represented together rather than one selected. This is the measurement problem: the formalism alone supplies no uncontested account of why one definite outcome is recorded rather than the alternatives represented in the state.¹³

Decoherence helps explain why distinctly quantum interference becomes effectively unobservable in large systems as they interact with their surrounding environment. Those interactions stabilize certain macroscopic records and help explain why the everyday world appears to behave classically. Decoherence does not by itself settle the deeper interpretive question of why a measurement should be understood as yielding one unique outcome rather than one of several differently interpreted possibilities.¹⁴ Nothing in QCM depends on resolving that dispute.

This minimal account matters because describing quantum measurement simply as a disturbance of an already well-defined object would conflate distinct issues. A measurement interaction can physically alter a system, but the deeper issue is how the description of multiple possible outcomes relates to the definite result recorded, not that observation disturbs an already definite state. QCM borrows no mechanism for selecting outcomes; it takes from the Bohr–Barad interpretation a more limited relation: what becomes determinate depends in part on the arrangement through which it is registered.

3.2 Measurement without the disturbance analogy

The quantum interpretation used as QCM's source is drawn explicitly from a Bohr–Barad line of thought.¹⁵ On this reading, the apparatus is not a neutral device revealing properties of a fully independent object: what Bohr calls the phenomenon includes the experimental conditions under which a result becomes determinate. Barad extends this idea through the agential cut: the boundary between observed object and observing apparatus is produced within a particular material and conceptual arrangement rather than given beforehand.¹⁶

¹³ Albert 1992; Maudlin 2019.

¹⁴ Zurek 2003.

¹⁵ Bohr 1958.

¹⁶ Barad 2007.

The genealogy is deliberate: Bohr supplies the relation between arrangement and determinacy, Barad extends it to the constitution of boundaries. QCM borrows this relational structure, without mathematics or physical ontology, to analyze public registration: how an occurrence becomes publicly legible under a politically consequential description.

This interpretive commitment is specific to the Bohr–Barad line and does not presume agreement across interpretations of quantum mechanics. Interaction-based accounts of measurement, decoherence programs, Bohmian mechanics, many-worlds approaches, and epistemic interpretations organize the problem differently. QCM chooses the cut-oriented reading because its social hypothesis concerns how politically actionable identity depends on arrangements of public registration. The analogy therefore draws on a stated interpretation of quantum measurement rather than on quantum mechanics as such. The test is whether that structure yields a discriminating and independently defensible social account. This requires neither proving the Bohr–Barad reading uniquely correct nor transferring its ontology intact.

The corresponding social claim is limited. Registration does not create the occurrence itself. Ben Ali boarded a plane on 14 January 2011 regardless of whether the event was described as flight, removal, or temporary incapacity. What registration helps constitute is the occurrence’s politically actionable identity: the description under which institutions and publics recognize it, the standing attributed to the actors involved, and the warrants for action that follow. In Anscombe’s terms, action and consequence are intelligible under descriptions; in political life, some descriptions become operative through public arrangements of classification, circulation, and uptake.¹⁷

3.3 Registration-relativity and the transfer test

The three conditions previewed above are proposed social criteria heuristically motivated by complementarity, not transferred intact from quantum mechanics. They specify when an episode-level social analogy to complementarity is warranted. Their adequacy depends on whether they distinguish the relevant structure from adjacent accounts and generate discriminating case interpretations; none claims that the formalism transfers. The test therefore answers Kratochwil’s challenge at the level of case analysis: the borrowing must do more than mark a resemblance; it must generate distinctions that discriminate cases and constrain interpretation.¹⁸

Condition 1 (C1): Non-composability

The heuristic motivation comes from complementarity: different experimental arrangements permit different definite attributions and may be mutually exclusive. The proposed social formulation concerns the warrants generated by rival registrations — the reasons or

¹⁷ Anscombe 1979.

¹⁸ Kratochwil 2022, 177.

authorizations under which actions are treated as permitted, required, or justified. Within a specified decision setting — the same institution, the same decision authority, the same issue, and the same interval — rival registrations supply incompatible warrants for action that cannot be combined without changing what the occurrence is understood to be.

Different agencies pursuing different policies, or a government combining repression and concession, are insufficient on their own to establish C1. Such patterns may reflect ordinary division of labor or a coherent carrot-and-stick strategy. Non-composability therefore requires justification-tracking: examining the reasons used to justify action and the understanding of the episode those reasons presuppose. The analyst asks whether actions within the same setting are justified by rival understandings that produce incompatible warrants. Evidence is graded: the strongest is simultaneous action under rival registrations within one setting; rapid switching by the same authority is also strong, especially when it produces contradictory commands or paralysis; contradictions across agencies are only supportive, because they may reflect organizational complexity rather than competing understandings of the episode.

Specifying the decision setting before assessing whether C1 is present blocks conceptual gerrymandering: the setting cannot be narrowed after the outcome merely to produce incompatibility. The same rule for defining institutional role and decision setting must apply to positive and comparison cases.

Condition 2 (C2): Relational necessity

Complementarity provides the heuristic: different experimental arrangements can reveal aspects of a phenomenon that cannot be observed together but may both be needed for a fuller account. The proposed social condition is stricter. C2 holds when an adequate explanation of the episode's trajectory requires the interaction between rival registrations rather than treating them as different signals about a single underlying quantity, such as regime strength or opposition strength. "Necessity" here is explanatory, not a claim that registration is a necessary cause of the outcome. The explanatory work lies in the interaction between the registrations rather than in either one considered independently. C2 is assessed retrospectively through process tracing and counterfactual analysis for evidence of causal contribution.¹⁹

The key distinction is between a change in intensity and a change in kind. Informational-cascade models treat public signals as evidence about underlying conditions: concessions can signal weakness, repression can signal strength or desperation, and crowd size can signal opposition strength. A registration account asks whether the political relationship itself changed, so that the same signal no longer carried the same implications for action. In Tunisia, the candidate change is an authority shift. The political question moves from "how much will the ruler concede?" to "does the ruler retain the standing to concede?" Once

¹⁹ Bennett and Checkel 2015.

standing is withdrawn, an offer can fail not because it is too small but because the speaker is no longer recognized as entitled to settle the matter.

Three observable traces would support this claim. First is a transformation in the content of demands, from employment, dignity, and redress toward departure and removal. Second is evidence that a major address failed because the speaker lacked the standing to settle the matter, rather than because the offer was too small. Austin's speech-act theory gives this kind of failure a name: a performative can fail for want of felicity conditions, including standing and uptake.²⁰ Third is **constraint asymmetry**: once an authority shift is identified, the registration account more tightly constrains how a later concession should be received before the response is known. A model treating both registrations as signals about one underlying variable may have more freedom to reinterpret the concession after seeing whether it pacifies or intensifies mobilization.

Only in combination and within a process-traced sequence can these traces support relational necessity.

Condition 3 (C3): Constitutive affordance

Bohr's account of context-dependence provides the heuristic: which definite property can be attributed depends on the experimental arrangement used to measure it.²¹ This is distinct from the formal notion of contextuality in quantum foundations. The proposed social condition is more specific. Registration does not merely select or emphasize a political property already fixed. Through public uptake — circulation, recognition, and interpretation by relevant audiences — it can bring a politically actionable identity into force, altering what actors understand themselves to be permitted, obligated, or entitled to do.

C3 therefore concerns which meaning has become operative for action, not whether that meaning subsequently causes a particular behavioral outcome. Evidence includes avowals of new permission, obligation, or entitlement; the public identity actors invoke to justify their conduct; and how attempted re-registrations are received once that identity is in force. If a presidential hospital visit intended to absorb a grievance within a paternalistic frame is instead received as evidence that the grievance has become nationally consequential, that altered reception is evidence of the operative identity. Whether mobilization then expands is a separate question of causal contribution.

Registration therefore has a limited constitutive role. It creates neither the occurrence itself nor the inherited cultural vocabulary through which it is interpreted. Rather, institutions, media channels, classificatory procedures, and interpreting audiences help determine which public

²⁰ Austin 1962.

²¹ Bohr 1958.

identity becomes operative. That identity depends partly on the arrangement of registration; it is not created by language alone.

The conjunction

The three conditions capture different parts of the same structure. Registration brings warrants into force (C3). Rival warrants cannot be integrated within a specified decision setting (C1). Their interaction is required to explain the episode's trajectory (C2). The analysis therefore proceeds by identifying a Registration Episode — a temporally bounded process in which an occurrence is publicly registered and taken up — assessing C1 and C3 without reference to the eventual outcome, and evaluating C2 retrospectively through process tracing and counterfactual analysis. The criteria and supporting evidence are specified without reference to how the episode ends.

Framing theory — including the frame-contest tradition — along with performativity, perspectivism, and Searle's account of status functions can represent parts of this structure.²² These traditions provide substantial resources for analyzing rival interpretations, constitutive meanings, and the political consequences of classification. QCM's distinctive contribution is to treat the conjunction of the three conditions as an explicit episode-level object of analysis, specify criteria for identifying it, and connect it to movement in public expectations and institutional settlement.

3.4 Analogy discipline: what transfers and what does not

The analogy is intentionally asymmetric: quantum theory supplies a limited source structure and motivates questions, but the resulting social claims must stand or fall on social evidence.²³ Table 1 makes explicit what is borrowed, what is left behind, and what would count against the proposed transfer.

²² Searle 1995; Benford and Snow 2000.

²³ Hesse 1966; Morgan and Morrison 1999.

Table 1. Analogy-discipline matrix

Source-side structure	Proposed social analogue	What does not transfer	Failure condition
Superposition — supporting heuristic only	A temporarily unsettled field in which multiple political outcomes remain live in analysis and public expectation	Probability amplitudes, interference terms, Hilbert-space formalism, or any claim of literal social superposition	The same distinctions are fully captured by ordinary uncertainty or a single probability distribution without analytical loss
Measurement context / agential cut	A Registration Episode through which public uptake brings a politically actionable identity into force	A physical measurement process, consciousness-caused selection, or any mechanism selecting one physical state	No change in politically actionable identity or its associated warrants can be identified; registration merely circulates or emphasizes an identity already operative
Complementarity	The proposed conjunction of non-composability, relational necessity, and constitutive affordance	Noncommutation, uncertainty relations, or any claim that social descriptions are formally complementary	The three conditions fail to discriminate cases, fail to obtain jointly, or are independently generated by an established nonquantum account
Quantum-to-classical transition — supporting heuristic only	Consolidated political configurations may become relatively insensitive to further changes in public registration	Environmental decoherence as a social mechanism or any claim that political order becomes physically classical	Stability is better explained without the heuristic, or sensitivity to registration does not vary meaningfully across configurations
Entanglement, nonlocality, tunneling	No transfer in this article	All associated physical mechanisms, mathematical structures, and ontological claims	Any explanation that depends on these concepts exceeds the transfer licensed by the model

Indeterminacy and temporary openness are not uniquely quantum and cannot by themselves justify the borrowing. The measurement-context and complementarity rows specify the proposed relation between registration arrangements and actionable identity under conditions that can fail. The question is whether this limited structure can be justified on its own social-scientific terms.

3.5 The observer commitment, decomposed

Because the analogy turns on arrangements of registration, it matters who or what is doing the registering. In social settings, “observer” can collapse several distinct roles, which QCM separates into three components:

- **Registration apparatus:** the institutions, platforms, protocols, and classificatory procedures through which a record can be produced and circulated. Examples include news organizations, social-media infrastructures, polling procedures, diplomatic recognition protocols, court rulings, and official statistical classifications.
- **Registered record:** the publicly legible claim, image, ranking, recognition, or other record through which an occurrence becomes available under a political description. Registration is often temporally extended rather than instantaneous. A record may have an identifiable onset, while its uptake unfolds through circulation, commentary, repetition, and contestation.
- **Uptake field:** the audiences that encounter, interpret, contest, and potentially act upon the registered record. Uptake is observable and distinct from settlement. A record can circulate widely without reorganizing public expectations or institutional action.

This decomposition prevents the public from being folded into the apparatus or the outcome into the cause. The analyst is a second-order observer of how participants and institutions register and interpret the episode, applying fallible criteria to apparatus, record, uptake, and consequences. The analogy concerns registration arrangements and what becomes politically operative, not correspondences between social actors and physical entities.

Registration may be distributed across sites and communications rather than hinge on one statement or record. Bouazizi’s self-immolation became a national symbol through local testimony, images, social circulation, satellite media, protest, and official response. QCM represents this as a bounded episode with identifiable onset and developing uptake while preserving its extended character.

3.6 Luhmannian ancestry and the residual claim

Quantum IR has already placed systems theory in direct dialogue with quantum approaches, particularly around observation and meaning.²⁴ In Luhmann’s systems theory, communication occurs as events; expectations are central to social reproduction; second-order observation means observing how others draw distinctions; and different systems can observe the same occurrence through their own irreducible codes without combining

²⁴ Albert and Bathon 2020.

them into a single account. *Organization and Decision* likewise places decision events and their recursive consequences at the center of organizational analysis.²⁵

QCM therefore treats the dependence of observation on distinctions and the recursive effects of communication as inherited rather than distinctive claims. Its residual claim concerns what remains after that shared ground is acknowledged. QCM identifies a particular configuration of rival registrations at the episode level, supplies outcome-independent criteria for recognizing it, and later distinguishes movement in public expectations from movement in institutional settlement. A Luhmannian redundancy claim must therefore show that its own resources independently generate those same distinctions rather than merely redescribing them after QCM has supplied them.

The affirmative residual claim has three parts.

First, QCM locates non-composability within a specified decision setting in which a common decision is institutionally required. Polycontexturality allows different systems to observe through their own codes without requiring synthesis; C1 addresses the more specific case in which one authority must decide while rival registrations supply incompatible warrants. Contradictory commands, rapid switching, or paralysis are therefore potential evidence of non-composability rather than merely evidence that different systems observe differently. Whether that conflict contributes to the episode's trajectory is the separate question posed by C2.

Second, QCM supplies outcome-independent criteria for discriminating among cases. A Luhmannian vocabulary may describe Gafsa, TuniLeaks, and Sidi Bouzid retrospectively; the stronger question is whether its own resources generate the same episode-identification criteria, case distinctions, and counterfactual expectations.

Third, QCM distinguishes changes in public expectations from changes in institutional settlement. Public interpretation and institutional force need not move together: an episode may remain publicly contested while becoming institutionally settled, or public expectations may converge before institutional commitments become durable. The model developed below represents these as separate dimensions. Whether that distinction can itself be reproduced from Luhmannian resources forms part of the reconstruction test.

The reconstruction test sets a demanding standard. Section 5.6 assesses the strongest Luhmannian reconstruction against three possible losses: the specified decision setting, outcome-independent discrimination across cases, and the distinction between expectational and institutional movement. Descriptive translation alone would not establish redundancy. Redundancy requires generative reproduction: the rival account must generate the same distinctions, indicators, temporal sequence, and failure expectations from its own theoretical resources.

²⁵ Luhmann 1995, 2018.

4. The Quantum-Continuity Model: A Two-Dimensional State Space

The “continuity” in QCM refers to graded movement within political dimensions, not to a single continuum from openness to settlement. A single continuum would conflate two processes that need not move together: the organization of public expectations and the stabilization of action and institutions. QCM therefore represents them as separate dimensions in a two-dimensional state space, a conceptual map of the configurations an episode can occupy.

4.1 The axes and the mechanism map

The model has two axes: the expectational field (E) and the action/institutional field (A).

The **E-axis** tracks how contested or convergent publicly expressed expectations and interpretations are. It does not attempt to capture all private beliefs or preferences. The question is whether relevant audiences converge on one expected trajectory or continue to contest several. What they converge on is recorded separately: regime continuity, collapse, constitutional succession, revolutionary rupture, or another outcome.

The **A-axis** tracks how open or settled action and institutional commitments are. Indicators include reversibility, the cost and availability of defection, enforcement capacity, compliance with authoritative commands, and the durability of commitments. The A-axis is open where commitments remain reversible, control is uncertain, and defection remains possible; it is settled where commitments have become difficult to unwind.

Private expectations or preferences hidden beneath the public field constitute what QCM calls latent load. It is a background condition, not a third axis. The concept matters because public convergence may conceal private opposition, a problem captured by Kuran’s theory of preference falsification.²⁶ A regime can therefore appear equally settled in $E \times A$ while being genuinely consolidated or only pseudo-consolidated, with very different sensitivity to new registration.

Registration Episodes are expected to act primarily on E by changing an occurrence’s operative identity, the expectations attached to it, and the warrants available for action. Changes in E can then affect A through mobilization, defection, command refusal, or institutional decisions. Coercion, fiat, military defection, resource exhaustion, and material lock-in can move A more directly.

This yields a clear scope condition. Registration should matter most where public expectations influence institutional action. Where coercion maintains settlement, for example, public meaning may change substantially without corresponding movement in A.

²⁶ Kuran 1991.

4.2 Four configurations

The two axes generate four basic configurations, summarized in Table 2, with an important subdivision inside the convergent-settled cell.

Table 2. The E × A state space

Public contestation of the expectational field (E)	Action/institutional lock-in (A)	Configuration
Open or contested	Open	Full Transition Zone: expectations and institutional action remain unsettled; several trajectories retain practical availability
Convergent	Open	Anticipatory convergence without settlement: publics or elites converge on a trajectory before authoritative action and institutional commitments have locked in
Divided or contested	Settled	Coerced closure: institutions are settled without public convergence; the configuration is relatively registration-resistant because closure does not depend on E
Convergent	Settled	Consolidated resolution: subdivided into genuine consolidation, with low latent load and relative insensitivity to further registration, and pseudo-consolidation, with high latent load and vulnerability to registration

A full Transition Zone combines contested expectations with reversible institutional commitments. Several trajectories remain practically available; the uncertainty is not merely the analyst's ignorance of a fixed outcome. Anticipatory convergence occurs when actors increasingly expect one outcome before institutions settle, allowing expectations to run ahead of action and make defection or compliance newly rational.

Coerced closure separates settlement from public consensus. A regime can retain control through enforcement, external intervention, or fiat while the public field remains divided. Post-intervention Bahrain, discussed in Section 5.4, illustrates this pattern: Gulf Cooperation Council intervention and sustained coercive capacity settled A despite continuing contestation in E.

Consolidated resolution appears stable in both dimensions, but latent load matters. In genuine consolidation, new registrations have limited leverage. In pseudo-consolidation, apparent convergence rests on preference falsification, silencing, or suppressed alternatives, leaving the system more sensitive to evidence that private grievances are shared. Pre-2010 Tunisia is a candidate case, subject to empirical verification.

4.3 Continuity, discontinuity, and hysteresis

Continuity in QCM means change by degree along both axes. Public contestation can intensify or diminish, and institutional commitments can become more or less reversible. The model is therefore continuous in representing where an episode stands.

Discontinuity occurs when a marginal change produces a qualitative shift in reversibility or response: commitments become costly to unwind, defection opens or closes, enforcement orders cease to command compliance, or a previously effective registration no longer organizes conduct. Such a shift marks a threshold. Hysteresis — the asymmetry between entering a configuration and reversing it — provides an observable signature: return requires more than reversing the marginal change. If a regime loses command authority, restoring it requires rebuilding compliance, not merely issuing another order. If a revolutionary identity becomes publicly entrenched, a paternalistic concession may no longer restore the earlier grievance relation.

This account preserves QCM's focus on discontinuous change while locating thresholds in changes in reversibility and response dynamics within the social domain itself. Quantum vocabulary neither defines nor supplies those thresholds.

The quantum-to-classical analogy enters only as a supporting heuristic. Genuinely consolidated configurations should be relatively insensitive to further registration: new records or reinterpretations do not readily reorganize public expectations or institutional settlement. Pseudo-consolidated configurations may look equally stable in $E \times A$ while remaining more sensitive to registration because latent opposition persists beneath apparent convergence. The analogy characterizes this contrast in sensitivity; decoherence is not a social mechanism.

4.4 Registration Episodes and three evidentiary tiers

A **Registration Episode** is a temporally bounded process through which an occurrence becomes publicly legible under one or more politically actionable identities. QCM uses three evidentiary tiers to keep different claims separate: whether a Registration Episode occurred at the scale claimed, whether it exhibits the proposed C1+C3 type conditions, and whether the interaction between rival registrations contributed to the episode's trajectory.

Tier 1: Episode identification. A candidate requires a publicly available record with an identifiable onset and meaningful uptake. Uptake means circulation and active interpretation among relevant audiences and is not inferred from later settlement. A private disclosure, local event, or uncirculated image may be politically important without constituting a Registration Episode at the scale claimed.

Tier 2: Outcome-independent type diagnosis. Tier 2 asks whether the episode supports C1 (non-composability) and C3 (constitutive affordance) using criteria independent of the final outcome. Do rival registrations supply incompatible warrants within fixed decision settings, and does public uptake bring a politically actionable identity into force, as shown by avowals,

justifications, permissions, obligations, or attempted re-registrations? Wide circulation alone is insufficient.

Tier 3: Retrospective causal validation. Process tracing and counterfactual analysis evaluate C2 (relational necessity). Did the interaction between rival registrations contribute to changes in E and, through E, to changes in A? What would likely have differed in the episode's trajectory, timing, or institutional response without the registration contest? Alternative mechanisms must be stated at their strongest, and the evidence assessed for sequence, within-case variation, and its ability to distinguish among explanations.²⁷ Table 3 summarizes the three tiers, their evidence, and what failure at each implies.

Table 3. Tiered criteria and possible findings

Tier	Question	Evidence	If this tier fails
1. Episode identification	Did a public record receive meaningful uptake at the scale claimed?	Datable onset; circulation; active interpretation among relevant audiences	No Registration Episode at the claimed scale
2. Outcome-independent type diagnosis	Did the episode exhibit non-composability (C1) and constitutive affordance (C3)?	Fixed decision settings; justification-tracking; public claims of new permissions, obligations, or warrants; altered reception of attempted re-registrations	Meaningful uptake occurred, but the QCM type is not established
3. Retrospective causal validation	Did the interaction between rival registrations contribute to changes in public expectations and institutional action?	Process-traced sequence; changes in demands or authority; behavioral and institutional consequences; counterfactual assessment; evidence distinguishing among rival explanations	The C1+C3 registration pattern is identifiable but lacks demonstrated causal leverage; QCM remains diagnostic rather than explanatory

Registration has different effects in different configurations. The same kind of record may destabilize pseudo-consolidation, accelerate movement within an open Transition Zone, or leave genuine consolidation and coerced closure unchanged for different reasons. Publicity alone has no universal causal effect; its leverage depends on the configuration it enters.

²⁷ Bennett and Checkel 2015.

4.5 Definitions and scope conditions

For reference, QCM's core terms are:

- **Registration apparatus:** the institutional, technological, and classificatory arrangement through which a public record can be produced and circulated.
- **Registered record:** the claim, image, ranking, recognition, testimony, or official act made publicly legible under a political description.
- **Registration Episode:** a temporally bounded process involving the production, circulation, contestation, and uptake of a registered record under one or more politically actionable descriptions.
- **Uptake field:** the audiences that encounter, interpret, contest, and potentially act upon the registered record.
- **Expectational field (E):** the publicly registered distribution of expectations and interpretations, characterized by the degree of contestation and the content of convergence. The E-axis represents variation in this field.
- **Action/institutional field (A):** the degree of action and institutional lock-in, characterized by reversibility, the availability and cost of defection, enforcement capacity, and the durability of commitments. The A-axis represents variation in this field.
- **Latent load:** the unobserved distribution of private expectations or preferences beneath the publicly visible expectational field, which can make apparent convergence either robust or fragile.
- **Transition Zone:** the region in which both public expectations and institutional action remain substantially unsettled.
- **Threshold:** a qualitative change in reversibility or response dynamics marking movement into a different political configuration.
- **Pseudo-consolidation:** apparent public convergence combined with institutional settlement despite substantial latent opposition, making the configuration more sensitive to subsequent registration.
- **Coerced closure:** institutional settlement maintained despite continuing public contestation through mechanisms that act directly on A.

QCM is expected to have greatest explanatory leverage where public registration can reorganize expectations, institutional action responds to those expectations, and reversibility can change within a bounded episode. Its causal claims are expected to weaken where institutions are insulated from public interpretation, change accumulates slowly, or coercion settles A independently of E. In such settings, registration may alter public meaning without corresponding institutional movement. These scope conditions guide the comparison cases in Section 5.

5. Tunisia under Rival Registrations: A Contrastive Demonstration

Established explanations of the Tunisian uprising account for important parts of its mobilizational dynamics. Preference falsification, informational cascades, protest diffusion, coercive capacity, and mediated framing explain how opposition became visible, participation expanded, and protest spread. QCM adds a different explanatory dimension: how the politically operative identity of the regime–public relationship changed, so that concessions, repression, and other public acts acquired different meanings for action as authority was reconstituted. Registration-relativity therefore asks whether political change involved not only revised estimates of regime or opposition strength, but a change in the relationship within which those signals were interpreted. The test is whether QCM generates distinctions and causal expectations that those established accounts do not independently produce.

5.1 The rival accounts at full strength

Kuran's theory of preference falsification explains how apparently stable authoritarian orders can rest on public displays of support that individuals privately reject. Individuals conceal opposition because they believe others support the regime or because the costs of dissent appear prohibitive. A public act can reveal hidden discontent, lower participation thresholds, and produce a rapid cascade that appears surprising only because private preferences were unobserved.²⁸ Lohmann's model of informational cascades similarly shows how public participation conveys information about regime vulnerability and opposition strength. As more actors join, the informational meaning of participation changes, making further participation increasingly rational.²⁹

Beissinger's work on modular political phenomena — portable models for emulation across settings — and on revolutionary cities adds diffusion, emulation, and urban concentration: actors adapt examples across places, learn tactical repertoires, and revise expectations as a previously improbable outcome becomes imaginable.³⁰ Lynch and other analysts of the Arab uprisings emphasize the role of transnational and social media in accelerating this circulation, while Brownlee, Masoud, and Reynolds show that diffusion was filtered through regime structure, coercive institutions, and strategic response.³¹

Together, these approaches explain latent opposition, public signaling, belief updating, coordination, diffusion, and nonlinear participation. QCM asks whether these dynamics can also transform the political relationship in which signals are interpreted. A concession from

²⁸ Kuran 1991.

²⁹ Lohmann 1994.

³⁰ Beissinger 2007, 2022; Weyland 2012.

³¹ Lynch 2012; Brownlee et al. 2015.

a ruler whose authority is taken for granted and the same concession after that authority becomes publicly contestable may be different political acts, not merely signals of different magnitude, because the speaker's standing and the warrants attached to the act have changed.

Cascade models can represent concessions, repression, and participation as signals about regime strength, opposition size, or participation costs. QCM asks whether the episode also changes who has standing, what kind of claim is being made, and which warrants for action remain intelligible. The empirical test is therefore whether politically consequential acts acquired different meanings because the authority relation itself changed, not merely whether expectations changed.

Constructivist, framing, and cascade accounts can incorporate identity, legitimacy, and discourse. The comparison is therefore generative rather than lexical: do their standard mechanisms independently generate the same authority shift, non-composable warrants, and constraints on how later acts should be interpreted? QCM's claim is that registration-relativity links these features in one episode-level structure and connects them to changes in public expectations and institutional settlement.

5.2 The registration contest

Sidi Bouzid: from grievance to an actionable public identity

Mohamed Bouazizi's self-immolation in Sidi Bouzid in December 2010 could be publicly registered under several politically consequential identities: an isolated personal tragedy, a local administrative grievance, evidence of economic exclusion, an instance of state humiliation, or a symbol of a regime-wide denial of dignity. Through circulation, testimony, protest, official response, and media amplification, these competing identities became available to wider publics and increasingly consequential for how the event was understood.³²

The state initially had strong incentives to retain a public-order or localized-grievance registration. That identity licensed containment, policing, selective concession, and paternalistic redress. A rival registration connected Bouazizi's act to dignity, shared humiliation, and the broader character of the regime. Under that identity, participation could be justified not as support for one aggrieved family but as action on behalf of a public whose separate injuries had become recognizable as a shared condition.

C3 (constitutive affordance) asks whether this rival registration brought new warrants for action into force. The relevant evidence lies not in protest growth but in what actors publicly claimed they were permitted, entitled, or obligated to do: slogans generalizing the grievance from one man's case to a shared condition, public justifications for participation, and official attempts to reabsorb the event into a narrower identity — attempts whose reception is examined below. Together, these traces support the interpretation that

³² Lynch 2012; Brownlee et al. 2015.

registration helped make a shared dignity claim politically actionable. On this reading, registration did more than reveal pre-existing discontent; it altered the public terms under which that discontent could be recognized and acted upon.

28 December: a candidate case of non-composability

Within the episode, 28 December 2010 offers the strongest candidate for C1 (non-composability). On that day, Ben Ali delivered his first televised address on the unrest, condemning street violence by “a minority of extremists,” warning that the law would be applied “in all firmness,” and attributing the trouble to fabrications circulated by foreign broadcasters. The same day, he visited Bouazizi in the burn ward near Tunis in images released by the presidency itself.³³ Both acts came from the same presidential authority, concerned the same episode, and occurred within a single day, making them a stronger C1 candidate than a generic contrast between police repression and presidential concession.

The question is whether the two acts formed one coherent strategy or reflected rival registrations. A carrot-and-stick strategy could treat the episode throughout as manageable disorder: punish disruption while compensating a victim. C1 instead requires the hospital visit to recognize a legitimate grievance in ways that conflict with the criminal-disorder understanding expressed in the address and enforcement response. Justification-tracking is therefore decisive. The 28 December record is consistent with C1: the presidency publicly recognized the grievance while denying the legitimacy of the broader claim. The stronger QCM interpretation is that the presidency was acting on incompatible understandings of what the episode had become, rather than simply using two instruments within one strategy.

The reception of the hospital visit is relevant first to C3. Lim reports that the presidential image spread widely on Facebook and Twitter.³⁴ Once released into that wider uptake field, the attempt to narrow and absorb the grievance no longer remained under presidential control. Whether that altered reception accelerated mobilization is the separate Tier 3 causal question.

Rules of engagement and within-setting switching

A second candidate site for C1 concerns the rules of engagement. Lethal force was used against demonstrators in Kasserine and Thala in the second week of January; on the evening of 13 January, Ben Ali publicly ordered that live fire cease except in self-defense; and within an hour of that order, police shootings continued in the suburbs of the capital.³⁵ The sequence presents a possible contradiction between authoritative order and enforcement, but it does not by itself establish non-composability. Continued police firing

³³ Al Jazeera 2010; BBC News 2011.

³⁴ Lim 2013.

³⁵ Al Jazeera 2011c.

could instead reflect organizational fragmentation, command failure, noncompliance, or declining coercive control.

To count as C1, the evidence must show more: within the relevant decision setting, authoritative actions must be justified by incompatible understandings of what the mobilization had become. One treated it as illegitimate disturbance warranting suppression; the other as a public claim requiring restraint or concession. Contradictory commands, rapid reversals, or enforcement justified through rival warrants would strengthen the C1 interpretation. Police noncompliance alone is better explained by fragmentation, command failure, or declining authority. Whether demonstrated non-composability contributed to the regime's trajectory is the separate C2 question.

The army's role shows why the distinction between fact and public registration matters. The widely repeated story that the army chief of staff refused a presidential order to fire on protesters is contested: Ammar later testified that no such order was given or refused, and the narrative has since been traced to an activist who fabricated it because he believed the uprising needed a hero.³⁶ What is less contested is that the army did not fire on demonstrators while police units did, and the refusal story nonetheless circulated and acquired political significance. For QCM, a registered claim can have political effects even when it is false: a fabricated record can receive genuine uptake and shape how actors interpret the situation. An informational account remains available, however, in which the rumor functions simply as a false signal of regime weakness. The episode therefore demonstrates the distinction between factual accuracy and public uptake, not independent support for C2 (relational necessity).

The authority shift and the 13 January address

C2 is the most demanding empirical claim. On the evening of 13 January, Ben Ali delivered a televised address, his first in Tunisian dialect rather than formal Arabic, announcing that he would not seek re-election in 2014, ordering that live fire on demonstrators cease, pledging press freedoms and price reductions, and repeating the phrase that would come to name the moment: "I have understood you".³⁷ The lifting of censorship was visible within hours, as opposition figures appeared on television and blocked sites returned; shootings by security forces continued the same night, and the next day's crowds converged on the interior ministry to demand his departure.³⁸ A strong cascade account can read the speech as a weakness signal: concessions may reveal effective mobilization, declining coercive resolve, or fractured elite cohesion and can therefore intensify rather than pacify participation.

³⁶ Grewal 2016, 2024.

³⁷ Christian Science Monitor 2011; Al Jazeera 2011c.

³⁸ Al Jazeera 2011a, 2011c.

The failure of concessions alone is insufficient evidence of relational necessity. The proposed discriminator is an authority shift: the operative question had changed from how much Ben Ali would concede to whether he retained the standing to concede. The difference is between a scalar update, a change in degree, and a change in kind. Under the earlier grievance relation, a sufficiently large concession might settle the dispute. Once the relationship is understood in terms of departure or revolutionary rupture, the offer is not merely too small; it comes from a ruler whose standing relevant audiences no longer recognize.

The sequence offers three traces, but they are not equally strong.

First is demand-content transformation. Early mobilization centered on employment, dignity, corruption, and abuse; by mid-January the departure demand had condensed in “Dégage” — chanted, alongside “Ben Ali, leave!”, by the crowds before the interior ministry on 14 January.³⁹ Scalar theories can explain increasing intensity. QCM asks whether the object of the demand also changed from redress within the relationship to termination of the relationship.

Second is inadmissibility rather than insufficiency. In Kasserine, the epicenter of the killings, the most widely reported chant was already “Bread and water, Ben Ali no!” — a formula that rejects bargaining over concessions rather than bargaining within it.⁴⁰ On the night of the address itself, protesters in Tunis repeated the same renunciation outside a police station,⁴¹ and among the placards photographed at the interior-ministry demonstration the next day was one reading, in English, “Game Over”.⁴² Evidence of this kind suggests that, for parts of the mobilized street, the speech misfired because the issue had shifted from the sufficiency of the concessions to the speaker’s authority to define the settlement. Austin’s vocabulary of felicity and uptake helps name the phenomenon, while QCM’s transfer test specifies the conditions under which standing may have been withdrawn.

Third is constraint asymmetry: the competing accounts should differ in what they lead us to expect before the response to the address is known. If the registration account is correct, the record by 12 January should already suggest that further concessions from Ben Ali were unlikely to restore the earlier grievance relation and might instead reinforce the rival registration because his standing had become contested. A latent-strength model may also predict rejection. The question is whether its standard variables — perceived regime weakness, opposition strength, or participation costs — imply that direction before the

³⁹ Al Jazeera 2011a.

⁴⁰ Human Rights Watch 2011.

⁴¹ The Africa Report 2011.

⁴² CBS News 2011.

response is known. The test is which theory more strongly constrains expectations from the evidence already in the sequence, not which can accommodate the outcome afterward.

The three traces carry unequal weight. Demand-content transformation is strongest: the movement from employment-and-dignity demands to departure is documented in the slogans, placards, and sequence itself. The inadmissibility trace is suggestive rather than conclusive. The renunciation formula appeared first in Kasserine, where killings rather than concessions shaped the prior record, and reached the capital on the night of the address. A within-case comparison sharpens the point. On 10 January, Ben Ali pledged 300,000 new jobs in the same address that condemned the protests as “terrorist acts”; the sharpest opposition response dismissed the pledge as promises the people no longer believed.⁴³ That response challenged the offer’s credibility while still presupposing a bargaining relationship. Three days later, larger concessions encountered a different form of rejection: increasingly explicit denial of the ruler’s standing to settle the matter. The shift is therefore from disbelief within bargaining toward inadmissibility of the ruler’s offer as a settlement. It was not uniform across audiences and was most visible in the mobilized street, the audience most relevant to the protest trajectory examined here. Constraint asymmetry, finally, is a theoretical comparison rather than a direct empirical trace. Taken together, the evidence supports an authority-shift interpretation without establishing that the withdrawal of standing independently drove the transition.

If further evidence fails to sustain this interpretation, especially the standing-withdrawal claim, C2 should be weakened. The article would retain a useful taxonomy of registration and authority without establishing that the interaction between rival registrations drove the transition.

After 14 January: revolution or constitutional succession

The registration contest continued after Ben Ali’s departure, which could be understood as temporary incapacity, constitutional succession, regime continuity without the ruler, or revolutionary removal. These identities authorized different courses of action: constitutional succession directed actors toward continuity under existing rules, while an unfinished-revolution registration treated institutions of the previous regime as compromised and warranted continued occupation, protest, and demands for removal.

The Kasbah occupations — provincial protesters converging on the seat of government from late January and returning at greater scale in February — and the pressure culminating in Ghannouchi’s resignation on 27 February 2011 provide a second sequence for testing the three conditions.⁴⁴ C3 appears where participants justify continued mobilization through the identity of an unfinished revolution, bringing new warrants for action into force. C1 requires incompatible warrants within one decision setting: governing

⁴³ Al Jazeera 2011b.

⁴⁴ Lynch 2012.

through constitutional continuity or treating its institutions as compromised by revolutionary rupture. C2 requires that the interaction between those registrations, rather than protest pressure, elite bargaining, or institutional weakness alone, shaped the institutional trajectory.

Extending the analysis beyond 14 January distinguishes Ben Ali's departure from full political resolution. His removal became difficult to reverse, settling one institutional question, while the identity of the post-Ben Ali regime and the legitimate basis of succession remained contested.

5.3 The contrast set: isolating the tiers

Gafsa 2008: a Tier 1 failure

The Gafsa mining-basin revolt involved sustained mobilization, severe repression, and local organizational capacity before the 2010–11 uprising. Yet it remained largely invisible beyond the region and did not become a national-scale Registration Episode. Gobe attributes its failure to scale to limited support beyond the mining basin, while Lim documents the exclusion of journalists, controlled media reporting, and limited digital uptake.⁴⁵ Grievance and mobilization were present, but the revolt did not achieve sufficient public legibility and uptake among national audiences.

Gafsa's classification is therefore limited to the national scale. Local identities, solidarities, and claims formed around the revolt. Its role in the contrast set is to distinguish protest and repression from a Registration Episode capable of national political reorganization. If wider national circulation and uptake were greater than the evidence assembled here indicates, the classification would have to change.

TuniLeaks: Tier 1 without Tier 2

On the evidence assembled here, TuniLeaks passes Tier 1 but not Tier 2. The disclosures achieved substantial publicity and uptake, but the record does not establish the required conjunction of incompatible warrants within a fixed decision setting and a newly operative actionable identity.

The cables concerning ruling-family corruption circulated from 28 November 2010, when the activist site Nawaat launched TuniLeaks within an hour of the WikiLeaks release. The government blocked the site and then its hosting platform's addresses, while circulation continued through social media in a pattern of pursuit and evasion that itself indicates substantial uptake.⁴⁶ The disclosures made U.S. diplomatic reporting on ruling-family corruption widely available.

⁴⁵ Gobe 2010; Lim 2013.

⁴⁶ Ben Mehnni 2010.

Tier 2 fails because corruption was already legible as a feature of the regime. The cables confirmed, intensified, and broadened an existing belief without clearly producing rival registrations of a single occurrence or bringing new warrants for action into force. Nor does the record show incompatible warrants within a fixed decision setting. TuniLeaks therefore shows that publicity and uptake alone do not establish the QCM type.

A stronger counter-reading gives the disclosures a more consequential role. Participants and regime figures later credited them with a psychological effect not because they revealed wholly new information, but because they transformed privately shared knowledge into common knowledge: actors could now know that others knew what had previously been easier to treat as deniable.⁴⁷ But common knowledge is not yet constitutive affordance. It changes the mutual visibility of a belief; C3 additionally requires that public uptake make a politically actionable identity operative, bringing new warrants, permissions, or obligations into force. On the present reading, TuniLeaks primarily made corruption mutually visible. The Bouazizi sequence did something stronger by helping make a shared grievance identity a basis for action.

TuniLeaks may therefore have narrowed the gap between private knowledge and public visibility, increasing the sensitivity of a fragile configuration to later registration without satisfying C1 and C3. Its effects belong primarily to the background conditions of the later Registration Episode rather than to the mechanism tested here.

The contrast separates publicity from constitutive affordance: a record can be novel, credible, and widely discussed without changing the structure of political permissions, obligations, or entitlements.

The 2009 election and other candidates

The October 2009 presidential election — publicly visible, institutionally consequential, and returning Ben Ali with an official 89.62 percent of the vote — serves as a secondary comparison.⁴⁸ Its political identity was comparatively settled: a managed ratification of regime continuity rather than the object of a meaningful registration contest. A reported earlier self-immolation at Monastir is excluded because its date, circumstances, circulation, and uptake cannot be established with the confidence the design requires. The contrast set includes only cases whose tier classification an adequate public record can support.

Taken together, the comparisons locate cases at different points in the evidentiary sequence. Gafsa fails Tier 1 because it did not achieve national-scale legibility and uptake; TuniLeaks passes Tier 1 but not Tier 2; and the sequence from Sidi Bouzid through 14 January is the candidate in which all three tiers may be satisfied. A full Tier 3 negative would pass Tiers 1 and 2 but show through process tracing that the registration contest had no causal leverage. The present contrast set does not provide that stronger negative.

⁴⁷ Ben Gharbia 2014.

⁴⁸ France 24 2009.

5.4 Bahrain 2011: coerced closure on the A-axis

Bahrain provides a boundary case for the relationship between E (expectational field) and A (action/institutional field). Public contestation and mobilization were substantial, but institutional action remained less responsive to changing expectations than in Tunisia. External intervention by Gulf Cooperation Council forces and sustained domestic coercive capacity moved A directly toward closure.⁴⁹

The resulting configuration is coerced closure: contested E alongside settled A. Registration can continue to organize grievance, identity, and expectations without producing corresponding institutional movement. Bahrain therefore does not directly test the C2 pathway examined in Tunisia. Its role is to show that institutional settlement need not follow expectational convergence and that registration has different effects across configurations.

The comparison also clarifies Tunisia. On the QCM reading, pre-2010 Tunisia is a candidate pseudo-consolidation: apparent public convergence may have masked private opposition, leaving the system more sensitive to subsequent registration. Bahrain's post-intervention closure, by contrast, rested on a direct A-side mechanism: coercive capacity settled institutions without requiring expectational convergence. Substantial public contestation can therefore coexist with very different institutional trajectories depending on how A is settled.

5.5 Failure conditions and the missing Tier 3 negative

A genuine Tier 3 negative would pass Tiers 1 and 2 but fail C2: a widely taken-up Registration Episode would exhibit non-composability and constitutive affordance, yet process tracing would show that the interaction between rival registrations did not materially contribute to its subsequent trajectory. Public meaning would change without acquiring the causal leverage QCM predicts. The present article specifies this failure condition but does not supply the decisive negative case.

The contrast set demonstrates discrimination at Tiers 1 and 2 and clarifies the model's scope conditions. A genuine Tier 3 negative remains the next comparative stress test for the causal claim. Pre-specifying that profile makes the claim testable without treating the present demonstration as exhaustive.

5.6 The Luhmannian reconstruction

A Luhmannian account, stated at full strength, can reconstruct much of the Tunisian episode in its own terms. The political system, mass media, organizations, and protest networks observe through different distinctions; communications about Bouazizi generate further communications across these settings and reorganize expectations; and organizations make decisions that recursively become conditions for subsequent decisions.

⁴⁹ Bellin 2004; Matthiesen 2013.

The regime's communications can be observed at second order as attempts to stabilize one description of the episode, while protest communication reproduces another. Polycontextuality captures the coexistence of irreducible observations without requiring their synthesis into a single perspective.

This rendering gives the Luhmannian account substantial reconstructive reach. It can represent the multiplication of observations, the failure of official communication to stabilize meaning, and the recursive relation between expectation and decision. The reconstruction test asks whether those resources also generate the episode-level distinctions, indicators, and constraints claimed by QCM.

First is the decision setting. QCM specifies settings in which one authority must act on one issue while rival registrations supply warrants that cannot be combined without changing how the occurrence is understood. Luhmannian theory can represent organizational inconsistency and decision contingency. The question is whether it also generates QCM's decision-setting criteria and justification-tracking requirements, or whether these constitute an additional specification of when such conflict becomes analytically distinctive.

Second is discrimination across the contrast set. Can a Luhmannian account specify, independently of final outcomes, why Gafsa fails national-scale Tier 1, why TuniLeaks passes Tier 1 but not Tier 2, and why the Sidi Bouzid sequence becomes a candidate registration contest? A successful Luhmannian reconstruction must therefore show that observation, resonance, expectation, and organizational decision independently generate the same distinctions and failure expectations rather than merely redescribing them after QCM has supplied them.

Third is the configuration space. QCM separates changes in public expectations from changes in institutional settlement, allowing it to distinguish pseudo-consolidation from coerced closure. Coercion, defection, and institutional decision can move A without corresponding movement in E — processes Luhmannian theory can also represent. The question is whether Luhmannian resources independently generate the same state-space distinctions, scope conditions, and counterfactual expectations rather than translating distinctions already supplied by QCM.

The reconstruction shows that Luhmann can reproduce a substantial portion of the descriptive and processual account, but standard Luhmannian resources do not independently generate all three QCM additions. They do not produce the same decision-setting criteria, contrast-set discrimination, and configuration distinctions without those distinctions first being supplied by QCM. This gives QCM a residual analytical contribution beyond Luhmannian redescription.

6. Implications and the Failure Architecture

QCM advances a constructivist and relational account of registration and discontinuous change in world politics. It focuses on the temporal process through which publicly

contested identities become action-guiding and intersubjective political relations settle, remain unsettled, or are closed by force. The E×A distinction keeps convergence in public expectations analytically separate from institutional settlement. The registration test similarly separates the constitution of politically actionable identities from the further question of whether those identities acquire causal leverage in an episode's trajectory.

The framework also clarifies the relation between explanation and prediction. QCM does not predict a unique outcome from a Transition Zone. It identifies configurations, records the content of public convergence, and traces how registration, coercion, institutional decision, and defection can move the expectational and action-institutional dimensions through different routes. Its ambition is conditional and processual: given a candidate Registration Episode, it asks whether uptake brought an actionable identity and its warrants into force, whether rival registrations became non-composable within relevant decision settings, and whether their interaction changed the episode's trajectory or institutional reversibility.

The analysis also yields several results that stand independently of the strongest C2 claim. First, the Tunisian sequence documents a shift in the form of rejection from disbelief within a bargaining relationship on 10 January toward rejection of the ruler's standing to settle the matter by 13–14 January. Second, the E×A model distinguishes pseudo-consolidation from coerced closure as different forms of institutional settlement, with different sources of stability and different sensitivities to registration. Third, the contrast set separates national-scale episode identification from type diagnosis, showing why Gafsa and TuniLeaks fail at different evidentiary tiers. Fourth, the fabricated army-refusal narrative demonstrates the analytical independence of a record's factual accuracy from its public uptake: a false record can nonetheless enter the field through which a political situation is interpreted. These results establish analytical distinctions that do not depend on C2 being fully sustained.

QCM's causal claim is credible only if failure has consequences. Three failure modes form a degradation ladder.

6.1 Instantiation failure

Instantiation failure occurs if adequately documented Registration Episodes satisfy Tier 1 (episode identification) but repeatedly fail Tier 2 (type diagnosis). Public records may circulate and affect expectations without exhibiting the proposed conjunction of non-composability and constitutive affordance. In that event, the complementarity-inspired structure would not be empirically sustained. The framework would reduce to a nonquantum E×A model that separates expectational contestation from action/institutional lock-in and tracks registration dynamics. That model could still contribute by identifying pseudo-consolidation and mapping direct and indirect routes of movement, but the quantum-informed component would no longer carry a distinct analytical claim.

6.2 Causal failure

Causal failure occurs if adequately documented episodes satisfy Tiers 1 and 2 but repeatedly fail Tier 3 (causal validation). The C1+C3 registration pattern would remain identifiable as a diagnostic type, but the interaction between rival registrations would make no demonstrated causal contribution to the episode's trajectory. In that event, the transfer test would survive as a taxonomy of political meaning and decision conflict, but QCM's causal claim would fall away. Registration could remain constitutive of politically actionable meaning without materially shaping the discontinuous change under study.

6.3 Redundancy failure

Redundancy failure requires more than showing that an established nonquantum theory can redescribe QCM's findings. A rival account must independently generate the same decision-setting criteria, tier discrimination, configuration distinctions, and discriminating expectations from its own theoretical resources without analytical loss. If that burden is met, the quantum-informed component becomes unnecessary to the explanation. The relevant test is therefore not whether QCM resembles existing theory, but whether an existing theory can do the same analytical work without importing distinctions first supplied by QCM.

These failure conditions specify what QCM is prepared to lose. On the analysis conducted here, however, a three-part residual remains: QCM specifies decision settings in which one authority confronts non-composable warrants, discriminates cases through the tiered test, and separates public expectations from institutional settlement in the E×A configuration space. The Luhmannian reconstruction does not independently generate all three. C2 remains the least secure component, but neither the empirical tests nor the reconstruction reduce QCM to a merely heuristic use of quantum theory.

Several lines of inquiry follow. First, the contrast set should include a genuine Tier 3 negative case. Second, E and A indicators should be coded comparatively across episodes of regime crisis, diplomatic recognition, financial panic, and institutional scandal. Third, the E×A model could be formalized without importing quantum probability, allowing its claims to be tested independently of its quantum origin. Finally, comparative applications should test whether the registration conditions and configuration distinctions travel beyond regime crisis and continue to discriminate among rival explanations.

7. Conclusion

The central question for quantum-informed IR is not whether quantum concepts are suggestive, but whether they generate analytical distinctions that established accounts do not independently provide. This article has developed QCM as one answer to that problem. QCM does not treat political systems as physically quantum or import quantum mathematics. It borrows a limited structural relation between registration and actionable identity and translates that relation into criteria for analyzing discontinuous political change.

The transfer test asks whether public uptake brings a politically actionable identity and its warrants into force, whether rival registrations generate incompatible warrants within a specified decision setting, and whether their interaction contributes to the episode's trajectory beyond what can be explained as updating about a single underlying condition. The $E \times A$ state space adds a second distinction by separating movement in public expectations from movement in institutional settlement. Together, these devices distinguish publicity from constitutive change, constitutive change from causal leverage, and expectational convergence from institutional closure.

The Tunisian analysis supports an authority-shift interpretation in which the form of rejection changed from disbelief within a bargaining relationship toward rejection of the ruler's standing to settle the matter. The contrast cases show why public uptake alone is insufficient, why national-scale registration must be distinguished from local mobilization, and why contested expectations can coexist with institutional closure. The Luhmannian reconstruction reproduces substantial parts of the processual account but does not independently generate QCM's decision-setting criteria, tiered discrimination, and $E \times A$ configuration distinctions.

QCM therefore contributes a specific account of how public registration can reorganize political relationships during periods of discontinuous change. It moves from quantum analogy to a testable framework for identifying when changes in public meaning become changes in political possibility.

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