

LEVEL-1 INTERNAL-CONSISTENCY REVIEW RECORD
*Certified Mathematical Growth of the Chrysene
Formalism: Concordance Frontiers and Minimal
Scission*

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REVIEW SCOPE AND OBJECTIVE

Article 42 proposes a compact calculus of certified extension for a presentation whose identity is constrained by a protected external anchor. Level-1 review asks whether that calculus is internally consistent: whether definitions are used as stated, whether numbered theorems match their proofs, whether the master theorem’s clauses are

supported by earlier results, and whether claim strength stays inside the paper’s own relative hypotheses.

Scope of Review

This is not a re-proof of the twelve axioms, not a chemistry review, and not a concordance audit of Article 40. It is a consistency audit of the extension-and-scission apparatus that Article 42 adds on top of that certified input.

DISCLOSURE OF AI USE

The manuscript is an AI-augmented development of a certification calculus. This Level-1 review was prepared independently against the published text of Article 42.

ORTHOGONAL REVIEW PROCEDURE

Review workflow: Standalone Level-1 review of Article 42. Confined to internal consistency of the certified-extension calculus. Does not re-audit the twelve-axiom foundation of Article 40. No author-reply section is included.

Compiled publication disposition

Accept with Minor Revisions.

The three constructions—restricted concordance on $\mathcal{L}_{\text{id}}$, the frontier antichain $\text{Front}_n(\theta)$, and least-fixed-point scission—are mutually consistent and match the abstract. Relative soundness is correctly scoped. Remaining defects are numbering, a broken cross-reference in the master-theorem proof, a duplicated lemma proof, a few tautological lemmas, and lexicon alignment of the five gates with the journal’s $M \cap C \cap H$ language.

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1. STANDALONE LEVEL-1 REVIEW

Level-1 internal consistency

Recommendation. Accept with minor revisions.

Score. 87/100.

Confidence. 4/5 on published definitions and proofs; 3/5 on unstated operational details of AdmReq_n and ExtReady_n .

1.1. **Editorial recommendation.** The paper does the job announced in the abstract. Concordance is restricted to $\mathcal{L}_{\text{id}}$, so new theorems about old objects remain possible. Certification is route-sensitive. Empty frontier membership is equivalent to a premise-complete recorded route. Scission removes exactly the ungrounded region after invalidation. Soundness is relative to an external certification environment. Generator independence is the intended source-neutrality statement.

The defects that remain are editorial and definitional, not architectural collapse.

1.2. **Ten-category scoring.**

Category	/10	Note
Definitional coherence of presentations and IdTh	9	$P = (\Sigma, A)$, IdTh as Boolean closure of protected sentences, restricted conservativity.
Concordance and preservation theorems	9	Theorem 1, Lemmas 2–3, Theorem 4, Corollary 1 form a closed chain. Duplicate proof of Lemma 3.
Frontier construction	9	Definitions 6–9, Lemma 5, Proposition 6, Theorem 7, Proposition 8 are consistent. AdmReq is schematic.
Provenance and non-propagation	8	Tokens $[p; s]$ are well typed. Theorem 10 and Lemma 9 are essentially definitional.
Scission fixed point	9	Monotone Φ_Δ , finitary lfp, retention $\Leftrightarrow$ active complete tree: consistent.
Master theorem assembly	8	Clauses (i)–(ix) are supported; proof contains a (??) pointer. “Part II/III” are not sectioned.
Claim-strength discipline	10	Relative soundness, four limitations, generation $\neq$ certification, no oracle claim.
Notation and numbering hygiene	6	Theorem numbers skip; $\mathfrak{C}_{\text{ref}}$ staged then unstaged; $\text{Mod}_{\text{anc}}(\Sigma, A)$ vs $\text{Mod}_{\text{anc}}(P)$.
Alignment with journal gate language	7	Gates $\{M, C, P, R, D\}$ vs prior $M \cap C \cap H$. Internally consistent; not crosswalked.
Exposition of residual hypotheses	8	ExtReady, AdmReq, and “recorded routes” are correctly relative, but their decision procedures are not specified.
Total	87	

1.3. What is internally sound.

- (1) **Restricted concordance.** Definition 3 requires $j_*(A_n) \subseteq A'$, $\text{Mod}_{\text{anc}}(P') \neq \emptyset$, and $\text{IdTh}(P') = \text{IdTh}(P_n)$. Remark 1 correctly permits new theorems on old objects outside $(\iota_n)_*(\mathcal{L}_{\text{id}})$. This is the paper’s actual novelty relative to full conservativity, and the later theorems use it as written.
- (2) **Quarantine invariance.** Theorem 1 is immediate from the definition of $\mathcal{Q}_n$ and is used correctly in Theorem 17(ii).

- (3) **Descent.** Lemma 2 is a sandwich: $A_n \subseteq A_{n+1} \subseteq A_E$ implies $\text{IdTh}(P_n) \subseteq \text{IdTh}(P_{n+1}) \subseteq \text{IdTh}(P_n[E])$, hence equality under concordance. Lemma 3 is ordinary reduct persistence of satisfaction and of the Σ_{anc} -reduct.
- (4) **Finite stability.** Corollary 1 is induction on Theorem 4. Remark 2 correctly separates IdTh invariance from Th growth.
- (5) **Frontier existence.** Lemma 5 is finite descent on subsets of a finite deficit. Proposition 6 is the same argument started from an arbitrary route. Theorem 7(3) is the standard empty-set-is-minimal fact under $\text{ExtReady}_n = 1$.
- (6) **Conditionalization.** Proposition 8 is the deduction theorem applied to the uncertified admission-requiring leaves. This is the correct conversion of a nonempty frontier into a conditional theorem.
- (7) **Non-propagation.** Tokens distinguish provenance. Theorem 10 is the observation that certified ancestry forbids an uncertified primitive token in AncSupp. Corollary 3 (no laundering) and Remark 3 (independent re-derivation as a new token) are consistent with that typing.
- (8) **Scission.** Φ_Δ is monotone. The ω -iterate is the least fixed point because supports are finite (Lemma 12). Theorem 13 equates retention with existence of a Δ -active complete proof tree. Proposition 14 and Corollary 4 give maximality of Ret and minimality of Sc. Corollary 5 correctly identifies singleton invalidation with essential dependence.
- (9) **Foundation-safe scission.** Theorem 15(v) needs both foundation-safety ($Z_V \cap V_n^{\text{prot}} = \emptyset$) and identity-adequacy (14). The proof uses the two inclusions correctly.
- (10) **Master theorem.** Protected-normal histories exclude foundation revision. Induction on certified update / quarantine / scission assembles Theorems 1, 4, 7, 10, 13, 15 and Propositions 8 and 16. Corollary 6 restates Remark 2.
- (11) **Relative soundness.** Theorem 18 does not claim infallibility. Definition 22 lists the external hypotheses. This matches the introduction’s “theory is relative.”
- (12) **Generator independence.** Theorem 19 is true by construction of Cert. Corollary 7 is the intended editorial consequence. The paper does not pretend this is a deep theorem.
- (13) **Limitations.** Section 14.3 states the four correct limits: recorded-route relativity, no theorem-search solution, procedure-dependence of certificates, and foundation revision outside ordinary scission.

1.4. Internal defects.

MINOR 1. Broken cross-reference. In the proof of Theorem 17, the sentence “Proposition 8 then gives (??).” The intended reference is the displayed implication $(\wedge \Gamma) \rightarrow \theta$. Repair the label.

MINOR 2. Duplicated proof of Lemma 3. Two consecutive proof environments state the same reduct argument. Keep one.

- MINOR 3. Numbering gaps.** The sequence is Theorem 1, Lemma 2, Lemma 3, Theorem 4. Theorems 2 and 3 are absent. Either renumber or insert the missing statements.
- MINOR 4. “Part II” and “Part III”** are invoked (end of §8.7, start of §9) but the article is not partitioned into parts. Replace with section numbers.
- MINOR 5. Presentation versus pair notation.** Definition 2 defines $\text{Mod}_{\text{anc}}(P)$. Lemma 3 writes $\text{Mod}_{\text{anc}}(\Sigma, A)$. Harmonize.
- MINOR 6. Staged versus unstaged anchor.** Theorem 4 writes $\mathfrak{C}_{\text{ref}}^{n+1} = \mathfrak{C}_{\text{ref}}^n$. Convention 1 and $\mathfrak{X}_n$ treat $\mathfrak{C}_{\text{ref}}$ as unindexed. Pick one convention.
- MINOR 7. Definition 6 grammar.** The definition ends a displayed inclusion with a period and then continues “to be the set...”. Rewrite as a single sentence.
- MINOR 8. Undefined $\text{Supp}(Q)$ in (2).** Ancestral support is defined only in §7. Either define Supp at first use or cite AncSupp .
- MINOR 9. Schematic predicates.** $\text{AdmReq}_n(\mathbf{r}; \theta)$ and $\text{ExtReady}_n(\theta)$ carry the load of Theorem 7 and of frontier closure, but they are not given a decision procedure. For Level-1 this is acceptable if labeled schematic. Add one sentence saying they are parameters of the certification environment, not derived objects.
- MINOR 10. Abstract versus Theorem 7.** The abstract states: if $\emptyset \notin \text{Front}_n(\theta)$, then no recorded route supports assertoric certification. Theorem 7.4 says the same without ExtReady . Certificate-completeness in Theorem 7.3 does require ExtReady . State in the abstract that assertoric certification also requires route-external readiness, or keep the abstract’s weaker reading and mark it as such.
- MINOR 11. Gate lexicon.** Article 42 uses gates $\{M, C, P, R, D\}$. Articles 40–41 used $F_{\text{adm}} = M \cap C \cap H$. P here is provenance, not the old H . Add a one-line crosswalk so later papers do not treat P as chemistry.
- MINOR 12. Tautological lemmas.** Lemma 9 and Theorem 10 are restatements of the definitions of AncSupp and certified ancestry. They may stay as signposts; they should not be billed as independent mathematical content.

1.5. What this review does not certify.

- Soundness of any particular proof assistant or AI generator.
- Correctness of the Article 40 twelve-axiom presentation taken as P_0 .
- That Front_n computed from recorded routes equals the set of minimal deficits over all existing proofs.
- That theoretical scission is a physical molecular process. The paper treats scission as a proof-support operation, which is consistent with the Article 40 refusal to treat admissibility projection as physical scission.

1.6. Exact revision recommendations.

Required Revisions

- (1) Repair the (??) in the proof of Theorem 17.

- (2) Delete the second proof of Lemma 3.
- (3) Close the Theorem 2/ 3 numbering gap, or say the numbering is lemma-major.
- (4) Replace “Part II/III” by section numbers.
- (5) Unify $\text{Mod}_{\text{anc}}(P)$ versus $\text{Mod}_{\text{anc}}(\Sigma, A)$, and staged versus unstaged $\mathfrak{C}_{\text{ref}}$.
- (6) Repair Definition 6 and define Supp at equation (2).
- (7) Label AdmReq and ExtReady as environment parameters.
- (8) Align the abstract’s frontier sentence with Theorem 7’s ExtReady hypothesis.
- (9) Add a one-line gate crosswalk $\{M, C, P, R, D\}$ to $M \cap C \cap H$.

1.7. Final Level-1 decision.

- (a) Publishable after the listed wording and numbering repairs? **Yes.**
- (b) Does any central theorem contradict another? **No.**
- (c) Is restricted concordance used consistently as weaker than full conservativity? **Yes.**
- (d) Does the paper claim more than relative soundness? **No.**

Level-1 decision

ACCEPT WITH MINOR REVISIONS.

87/100.

The certified-growth calculus is internally consistent. The remaining work is numbering, a broken label, a duplicated proof, and lexicon alignment with the journal’s existing gate language.

FINAL REMARKS FROM THE EDITORIAL REVIEW COMMITTEE CHAIR

Level-1 internal-consistency review of Article 42 is complete. The paper is accepted as a certification-and-scission calculus for later ordinary extensions of the Article 40 presentation, not as a replacement of that presentation and not as a physical scission theory.

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REVISION HISTORY

Version	Date	Notes
v1.0	2026-09-30	Initial publication of the Level-1 review record.

Living Document Notice

As with any actively developing field, the mathematical and applied claims in this article are subject to periodic re-evaluation as the surrounding formalism matures and as the journal’s AI-augmented review tooling advances. Consistent with standard scientific practice for provisional or fast-moving frameworks, this article and its review record may be re-audited by subsequent review systems, and a revised version bearing an updated review history may be issued to reflect developments in the field. Readers should consult the Revision History table above, and the journal’s records, for the current version number and audit date of this article.

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