

ORTHOGONAL REVIEW RECORD

*The Twenty Registry Classes of a Chrysene Stack:
Frame Orbits, Descent of a Letter Transformation,
and a Variational Criterion*

Compiled by the Editorial Office

Annals of the Chrysene Formalism

Schaper Systems Press

Paper ID: ACF-1.2-045

Issue: Volume 1, Number 2

ISSN: 3144-2021

Review architecture: Orthogonal-constraint review (not Level 1)

Review focus: Five-stage pipeline of [Sch26b, §4.3]: M , C , H , targeted verification, meta-review

Acceptance date: 2026-10-06

Online publication: 2026-10-06

Pages: 676–704

Document version: v1.0

Last audited: 6 October 2026

Citation: Schaper, C. D. (2026). The Twenty Registry Classes of a Chrysene Stack: Frame Orbits, Descent of a Letter Transformation, and a Variational Criterion. *Annals of the Chrysene Formalism*, 1(2), 676–704. ISSN 3144-2021. <https://chrysene.com/index.php/acf/article/view/45> • © 2026 Charles D. Schaper. Distributed under the Creative Commons Attribution 4.0 International License (CC BY 4.0). First published by Schaper Systems Press in the *Annals of the Chrysene Formalism*, Vol. 1, No. 2 (2026).

REVIEW SCOPE

This file is the review record of Article 45, published alongside the article. It is not a section of the paper. The architecture is the five-stage pipeline of [Sch26b, §4.3] and [Sch26b, Eq. (7)]. The admissibility criterion is $F_{\text{adm}} = M \cap C \cap H$ [Sch26b,

Def. 2]. The ledger form is criticism, revision, verification [Sch26b, Def. 3]. There is no author-reply section.

Scope of Review

The article falls under the framework-scope condition of [Sch26b, §4.5]: it extends the framework, classifying the objects through which the maximal frame invariant of the encoded stack factors, and adding a transport criterion and a variational criterion. It is reviewed against F_{adm} , not under the Level 1 protocol. Stages were run in order. One feedback edge was used: the mathematical repair at ledger item 13 followed a concordance-stage reading of a hypothesis, and the draft returned to mathematical review.

Compiled disposition

Published with the ledger closed on this article. Of twenty-two entries, twenty-one are resolved and one is partially resolved. Item 9 is a question about the predecessor, recorded and referred, not repaired here. No result was retracted. The descent theorem is the only numbered statement altered in substance: a hypothesis its proof does not use was deleted. Eight Targets remain open, two of them load-bearing. Targeted verification re-runs the mathematical stage; by [Sch26b, §9.4] independence of pass is not independence of reviewing system, and every entry marked *ver explicit* inherits that limitation.

Referred, not a defect of this article

Item 9. The predecessor’s cardinality proposition asserts that each vessel factor is the whole alphabet “by definition,” while its information-bearing proposition leaves the range of admissible stacks as a Target. Nothing in Article 45 is inherited from that tension. The item is referred to the next audit of the predecessor.

CONTENTS

Review scope	1
1. Stages, questions, and model assignment	4
2. Mathematical review	4
What the harness checked	4
Findings	5
3. Concordance review	5
The weakened hypothesis	5
Findings	5
4. Chemistry and domain review	6
5. Targeted verification	7

ORTHOGONAL REVIEW RECORD	3
6. Meta-review	7
What this review does not certify	7
Appendix: defect ledger with meta-review classification	8
References	9
Revision history	10

1. STAGES, QUESTIONS, AND MODEL ASSIGNMENT

Stage	Question put to it	Model
Mathematical (M)	Is each statement valid at the strength claimed, and is each enumerable claim true of the object it quantifies over?	OPUS 5
Concordance (C)	Does the manuscript contradict a prior statement, or silently weaken a structure a prior statement relies upon? Does every locator resolve?	OPUS 5
Chemistry / domain (H)	Is the external datum correct as quoted, and does the manuscript assert anything about a biological system that its refutations would be obliged to defend?	OPUS 5
Targeted verification	For each recorded defect, is the repair present in the final text, and has it left stale text elsewhere?	Re-run of M
Meta-review	Treating the final manuscript as the controlling object, how does each material criticism stand?	OPUS 5

Targeted verification re-runs the mathematical stage rather than employing an independent reviewing system. Concordance and chemistry are not affected, being assigned disjoint questions.

2. MATHEMATICAL REVIEW

Stage M — mathematics only

Enumerative verification by a harness that rebuilds the alphabet, the frame group, the registry sequence, the eight admissible transformations, and the two generators of the induced action from their definitions, importing nothing from the manuscript. Forty-five checks, all passing. Three defects found by reading, ledger items 13–15, all repaired.

What the harness checked.

- The orbit count $2^{2N-2} + 2^{N-1}$ and the four fixed-point counts of its first proof, for $2N = 2, \dots, 14$.
- The internal claims of all three proofs of the count, not only their common conclusion.
- The stabiliser refinement on every class, including the central-entry criterion and the class counts 2^{N-1} , 2^{N-1} , $2^{2N-2} - 2^{N-1}$, for $2N$ up to 12.
- Equivalence of the five transport conditions, checked separately for each of the twenty-four bijections at $N = 1, 2, 3, 4$. A count of eight is not that test.
- The counterexample, its four image classes and their sizes.
- The kernel of the induced action, at $N = 1$ and at $N \geq 2$.

- Registry-coordinate formulas for the two generators, against the letterwise action, and their parity at $N = 2, 3, 4, 5$.
- Closed-form values of the functional, the constructed tie, and the six bilinear conditions.
- A row-by-row comparison with the twenty-class table of Appendix A.

The harness cannot check statements about encoded stacks as opposed to binary strings, the external datum of the genetic code, or any claim of the form “no statement of this paper uses X .”

Findings.

Item 13. The descent theorem carried a hypothesis on the source word space that its proof does not use. Descent to transport of complementation inspects only the four constant words. The clause was deleted and replaced, in the accompanying remark, by the scope the argument has: the theorem survives restriction to any Fr-closed subspace containing those four words, and under H_{ind} the restriction is vacuous.

Item 14. The genericity proposition asserted that the symmetry strata do not exhaust the degeneracy locus without exhibiting a point outside them. The constructed witness showed more: at that point of Z neither the ensemble nor the weight is invariant under any nontrivial element, and the maximiser is still unique. Z is strictly larger than the locus on which uniqueness fails, so H_{gen} is sufficient and not necessary. Both facts are stated. Z is retained because it is a finite union of bilinear conditions; the smaller set is cut out by inequalities and is not an algebraic set.

Item 15. A growth comparison asserted a ratio exceeding three without the estimate that yields it. Repaired.

3. CONCORDANCE REVIEW

Stage C — concordance only

One hundred and eight citations into the four corpus papers were checked against the source, sixty-six of them into the encoded-stack paper. The five locators carrying a clause number were read at the clause. At an intermediate stage the encoded-stack results had been keyed to the twelve-axiom paper; ninety locators were reassigned and then re-derived from the sources. Four discrepancies, items 16–19. The first is consequential.

The weakened hypothesis. The article weakens the structured-secondary-alphabet hypothesis of the predecessor to a single clause: Σ'_0 carries, from its own structural operations, a distinguished partition into two two-element classes. The four data — the partition, the structural group, the complementation, and the invariant up to labelling — are inter-definable by results of the predecessor, so the provenance clause attaches to the same content in both versions. The predecessor’s proof of the transport theorem uses only the partition and what is recovered from it. Disposition: restated. The equivalence is the thing a reviewer must check.

Findings.

Item 16. The residual-indeterminacy theorem described that indeterminacy as a designated zero of a torsor Σ'_v , and cited, as applying to Σ'_v , a proposition of the predecessor about Σ_v . The weakened hypothesis supplies a partition and no torsor. This is the failure mode the concordance stage exists to catch, and it would have propagated into the companion paper. Restated: complementation is fixed-point-free, so the two members of the fibre agree at no letter and a prescribed value at one letter separates them. The source-side analogue is cited to three statements of the predecessor. The proof records that no torsor structure on Σ'_v is used or available.

Item 17. The governing restraint was cited to the display that carries two instances of it. The corpus is divided on this locator. The article now cites the section for the restraint and the display for its instances. The divergence is recorded and not resolved.

Item 18. A concordance row claimed that the provenance assignment is monotone for the axiom ladder. That is proved in the predecessor and is neither proved nor needed here. Withdrawn.

Item 19. An attribution of the two structural factors to the two coordinates of the frame-setter lacked a locator. Supplied.

4. CHEMISTRY AND DOMAIN REVIEW

Stage *H* — domain only

No molecular construction and no new identification. Two questions: is the quoted datum correct, and does the manuscript assert anything about a biological system that a refutation would have to defend? The degeneracy profile was recomputed from the standard codon table and confirmed. No biological assertion enters a proof.

The quoted datum. Sixty-four codons, three stops, twenty amino acids, sixty-one coding codons, and fibres of sizes 1, 2, 3, 4, 6 in multiplicities 2, 9, 1, 5, 3. Confirmed. That it had been cited and not computed is item 20.

Assertions about biological systems. None. The code-datum remark records a property of a published table. Two physical readings are marked [E] and enter no proof. No [E] statement is referenced from inside any proof; checked mechanically.

Item 21. The codon clause was open to being read as excluding every surjection of sixty-four elements onto twenty of the shape in question. It establishes less: $8 \cdot 2 + 12 \cdot 4 = 64$, so a surjection with the article's own fibre profile is possible. What the clause shows is that the standard table is not one. Any other twenty-element target is covered by the general clause and by nothing else. The scope is now stated.

Item 22. A remark asserted that a companion paper will exhibit a secondary realization with a nucleic-acid-like intended reading. The article cannot assert the content of a paper that does not exist, and the sentence carried no [E] label. Rephrased so that the expectation is attributed to its sources in the corpus, with an explicit statement that no reading of the secondary alphabet is asserted here.

5. TARGETED VERIFICATION

Targeted verification

Each of the twenty-two ledger entries was located at the place its *ver* column names, and the repair confirmed present. The manuscript was then scanned for text left standing by a repair. No occurrence survives outside the ledger table itself.

The scan covered the withdrawn torsor language, the designated-zero phrasing, the superseded locator of item 8, the restraint locator of item 17, and the forward commitment of item 22. Enumerations were re-run against the final statements with no discrepancy. Two apparent misses in the first scan matched the ledger's own description of a defect rather than surviving text.

6. META-REVIEW

Meta-review of the controlling text

Of twenty-two entries, twenty-one are resolved. Item 9 is partially resolved: recorded and referred, not repaired. None is unresolved. None is no longer applicable. No stage required a result to be retracted.

Direction of the errors. Of the ten criticisms raised after drafting began, seven are over-claims in the manuscript's own direction: a hypothesis asserted to do more than it does, a scope asserted wider than the argument, a datum cited rather than computed, a symmetry claimed without a parity hypothesis, a witness asserted without exhibition. That asymmetry is what one expects when a single generative process drafts and then reviews, and it is an argument for disjoint stage questions. The differentiation held. Items 16 and 21, the two findings with the largest consequence, came from concordance and domain. Neither is a defect of proof. Both proofs are valid; what fails is the attribution of structure in one case and the breadth of the claim in the other. The mathematical stage would not have produced either. This reproduces, on a second manuscript, the differentiation of correction type by review discipline reported in [Sch26b, Rem. 1]. It is the only evidence this record offers for the architecture as against the manuscript.

Nothing was withdrawn. The repairs narrow claims, supply witnesses, correct locators, and remove a forward commitment. Every numbered statement stands as first drafted except the descent theorem, where a hypothesis was deleted because the proof does not use it.

WHAT THIS REVIEW DOES NOT CERTIFY

Eight Targets are open. Two are load-bearing. Without the first, the secondary weight is a given datum rather than a datum of the secondary realization, and the article's physical reading has no referent. The second is the survival claim the functional was constructed to make possible and which the article does not

make. Three hypotheses — the ensemble, the provenance clause of the weight, and variational selection — are registered and undischarged, and the last is used in no proof. The limitation on targeted verification applies to every entry marked *ver explicit*. No stage of this review bears on the predecessor papers except where an entry says so.

APPENDIX: DEFECT LEDGER WITH META-REVIEW CLASSIFICATION

Items 1–6 were raised before drafting, against the plan. Items 7–12 arose during drafting. Items 13–15 at mathematical review, 16–19 at concordance, 20–22 at domain review, in every case against the completed draft.

	crit	rev and ver	meta	
1	Literal generator-matching equivariance stated as a member of the transport equivalence; it is strictly stronger and fails for four of the eight admissible maps	Restated as intertwining; literal form separated. Ver explicit	resolved	
2	Trap 1 stated as a property of every bijection; it is a property of the target alphabet alone	Fully accepted. Ver explicit	resolved	
3	Genericity stated as a symmetry of the weight; that is the condition for a tie at every ensemble, not at a given one	Exact locus given; symmetry conditions demoted to strata. Ver explicit	resolved	
4	The word <i>kernel</i> applied to a map defined on a torsor	Fully accepted. Ver explicit	resolved	
5	No non-implication guarded the number twenty	Fully accepted. Ver explicit	resolved	
6	Verification to be reported as a count of random trials, which a null degeneracy locus makes vacuous	Closed-form values and a constructed tie. Ver explicit	resolved	
7	The coincidence of sixty-four words and twenty classes with the genetic code not identified in the planning pass	Refuted by fibre profile. Ver explicit	resolved	
8	Drafts cited the wrong proposition of the predecessor for the factorisation of candidate invariants	Fully accepted. Ver explicit	resolved	
9	The predecessor’s cardinality proposition asserts each vessel factor is the whole alphabet by definition, while its information-bearing proposition leaves the admissible range open	Recorded, not repaired. Ver none; referred	partially resolved	re-
10	The planned proof of descent $\Rightarrow$ transport required $N \geq 2$ and the whole of H_{ind}	Superseded: the constant-word argument requires neither. Ver explicit	resolved	
11	The planned theorem asserted that the frame datum determines the transformation outright	Replaced by identification of the residual datum. Ver explicit	resolved	

	crit	rev and ver	meta
12	The central-entry claim stated without a parity hypothesis; false for even N	Restricted to reversal-symmetric classes and to odd N . Ver explicit	resolved
13	M : the descent theorem carried a hypothesis on the word space that its proof does not use	Clause deleted; scope stated. Ver explicit	resolved
14	M : the strata were asserted not to exhaust the degeneracy locus without a witness	Witness supplied; H_{gen} sufficient, not necessary. Ver explicit	resolved
15	M : a growth comparison asserted a ratio without the step that gives it	Fully accepted. Ver explicit	resolved
16	C : residual datum described as a zero of a torsor Σ'_v , citing a proposition about Σ_v ; weakened H_{sec} supplies no torsor	Restated in terms available. Ver explicit	resolved
17	C : governing restraint cited to the display of its instances; the corpus is divided on this locator	Restraint and instances cited separately. Ver explicit	resolved
18	C : a concordance row claimed monotonicity of the provenance assignment for the axiom ladder	Withdrawn. Ver explicit	resolved
19	C : attribution of the two structural factors to the frame coordinates lacked a locator	Supplied. Ver explicit	resolved
20	H : degeneracy profile of the standard code cited and not recomputed	Recomputed from the codon table and confirmed. Ver explicit	resolved
21	H : codon clause open to being read as excluding every surjection of that shape; one with the article's own profile is arithmetically possible	Scope stated. Ver explicit	resolved
22	H : a remark asserted the intended reading of a companion paper	Rephrased to assert nothing about it. Ver explicit	resolved

REFERENCES

- [Sch26b] C. D. Schaper. The chrysene formalism as candidate mathematics and candidate biogenesis. *Annals of the Chrysene Formalism*, 1(2):476–488, 2026.

REVISION HISTORY

Version	Date	Notes
v1.0	2026-10-06	Review record published with Article 45.

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.

Editorial Disclaimer

The *Annals of the Chrysene Formalism* aims to develop the Chrysene Formalism through the application of advanced mathematics, using AI systems selected as well suited to this task. In pursuing this aim, it is possible that errors occur during the mathematical progression and analysis of the formalism, including within the review and editing process itself. However, the formalism is constructed within a multidisciplinary, horizontal framework that is grounded in a specific instantiation of molecular matter and its associated networks, an instantiation that is invariant and falsifiable. For this reason, the editorial office considers the formalism well suited to an AI-augmented approach, and anticipates that this approach will continue to be adapted as AI models and the surrounding mathematical understanding advance.