

ORTHOGONAL REVIEW RECORD

Chain Polarity of the Adenine Tether

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Review scope

This file records two passes on Article 52. The first, dated 19 September 2026, read the 17-page working draft. The second, dated 20 September 2026, read the 12-page journal wrap after the first-pass items had been applied. Neither is a section of the paper. There is no author-reply section.

Scope of Review

The paper isolates Target 9.7 of [Sch26h]. Thirty-six is recovered from the word AAA. Sixty-four is reached only if H_{id} is granted. H_{id} identifies an arrow on the tether polymer with the generator rev acting on the coding word. The paper can lose the theorem and keep the lemmas. US 12,473,247 B2 is read as [E], not as an axiom.

Compiled disposition

Accept with minor revisions. The first pass would not have sent the theorem to production until the action of rev on the coding word was drawn or declared primitive. That item is closed in the journal wrap by Remark 7.2, which makes the convention explicit and does not derive H_{id} . The second pass would print after two remaining items: one worked word in Remark 7.2, and a fifth residual row that names $H_{\text{doc}} \cup H_{\text{id}}$ and includes Lemma A. No codon table, biogenesis section, or derivation of polarity from $\mathcal{A}$ alone is requested.

Required before print

Still open on the revised source. In Remark 7.2, one line: if $w = \text{AAC}$, then $\text{rev}(w) = \text{GAA}$, the away-from-bilayer and toward-bilayer orders of the same three units, up to τ on the last letter. Grep once for any surviving “sit differently” outside that remark. Confirm six words of [Sch26d, Prop. 6.7], or say the paraphrase is the one inherited from [Sch26h, §4]. The fifth residual row should read $H_{\text{doc}} \cup H_{\text{id}}$ in the first column, not only “pattern + Lemma B + H_{id} .” Section 8 is finished: no added row identifying remnant with residue, tail with initiator, or heterodimer with a codon.

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1 First pass, 19 September 2026

Working draft, 17 pages

Proceed to revision. The paper is the right size. It does not need a biogenesis section, a codon table, or a journal wrap before the listed items are closed. On that source the pass would not reject, and would not send the theorem to production until M1 was closed one way or the other.

What the draft did

Recover the thirty-six count from the word AAA . Refuse ten false entailments. Read US 12,473,247 B2 as [E]. Prove a locant lemma and an arrow lemma. Isolate H_{id} as the only step that reaches sixty-four. That isolation is the contribution. The load-bearing risk is the same isolation: H_{id} identifies an arrow on the tether polymer with rev on the coding word. The draft named the identification and did not draw it. A referee can grant H_{doc} and still refuse the theorem until the identification is drawn or left as primitive.

Mathematics

The palindrome computation is correct under the frozen assignment. Killing flip by $AAA \neq UUU$ and failing to kill rev by $AAA = AAA$ is [Sch26h, Prop. 4.9, Cor. 4.10], rewritten at Theorems 4.6 and Propositions 4.4–4.5. Proposition 4.9: a function on $\langle \text{rev} \rangle$ -orbits is constant on $\{w, \text{rev}(w)\}$, so it is not an arbitrary map on W . Capacity is correctly left on the twenty classes. Lemma A does not overclaim: attachment constancy is clause (iv), residual group unchanged. Lemma B does not overclaim: unlike ends are extra structure relative to the word; rev is not named. Theorem 7.3 is a correct implication given H_{id} . Proposition 7.6 is the correct refusal clause.

Required on that draft.

- M1. Draw, or declare primitive, the action of rev on the coding word relative to the tail arrow. Lemma B sees bilayer versus departing strand. Theorem 7.3 needs w versus $\text{rev}(w)$ on W . If the coding word is read away from the bilayer end, then $\text{rev}(w)$ is the same letters read toward that end, or the opposite convention, and those two readings are unlike once the ends are unlike. If that sentence cannot be written, H_{id} stays primitive and the theorem stays a naming. Either is acceptable. The draft wrote “sit differently” without saying how.
- M2. After flip and rev are removed, Fr is generated by those two, so the residual group is trivial. Record that $\text{flip} \circ \text{rev}$ falls with them. One sentence in the proof of Proposition 7.2.
- M3. Redundancy in Theorem 7.3. Lemma A already realizes clause (iv) from H_{doc} . State “(iv) via Lemma A” rather than listing (iv) as independent of H_{doc} .

Not required: a spectral argument, a second residual-count table computed from the patent, or a completeness remark.

Concordance

Letter assignment and Fr match [Sch26h] and Article 51. Corollaries 4.10 and 4.12 are imported at the right strength. Remark 4.13 is imported for globality, and Figure 21 is correctly refused as a substitute. Locant is chrysene 6-position, not C12–C2. Example 17 C2 is a second locant. Φ , the standard code, seeds, and the dual cipher are unused as promised.

Required on that draft.

- C1. Patent bibliography. The filing is US 12,473,247 B2. The working source said 18 November 2025; public pages available to that pass gave 19 November 2024. Wrong year is a concordance defect.
- C2. Cite [Sch26d, Prop. 6.7] by the sentence used. H_{id} needs “rev is reading direction, flip is projection reference.” Quote that sentence once.
- C3. Appendix promised in the outline and missing: figure list with figure numbers as used, plus a fifth row on the residual table (pattern + Lemma B + $H_{\text{id}} \rightarrow 64$).

Article 51 cited as a working source was accurate on that date, and should become a journal citation when Article 51 is issued.

Chemistry

H_{doc} is a bundle of figure readings, labelled [E]. Phospholipid use is the polarity witness, not a proof of amino acids. Necessity is restricted to the construction (Proposition 8.3). Initiator and tail are kept apart. $H_{\text{prod}}(0')$ is untouched. No pathway paragraph.

Required. Lemma A restricted to the A-remaining case: $H_{\text{teth}}(\text{i})$ is realized only where the remnant stays on adenine. The C–G-separating case is not a poly-A tether. Do not let Section 8 grow. A row for “first instruction set = initiator” or “remnant = residue” fails Proposition 3.1(viii)(vi).

Meta on that draft

Status labels are in use. Non-implications precede the filing. H_{id} is isolated. Two allowed readings of Target 9.7 are written down. The abstract does not outrun Theorem 7.3. Drop or shorten the table of contents for a journal version. Keep the abstract’s refusal sentence if the introduction is later shortened. That sentence stops a reader from quoting “the domain is 64” without H_{id} .

2 Second pass, 20 September 2026

Journal wrap, first-pass items applied

Accept with minor revisions. The isolation survived the first internal pass. The first pass closed the items that would have blocked production. What remains is exposition of a convention the paper has already isolated. Print after the worked word and the fifth residual row.

What the paper contributes

[Sch26h] left a residual count of thirty-six after the tether is read as the word AAA , and registered chain polarity as the datum that would take the count to sixty-four. This manuscript does three things that paper did not.

1. It separates the word AAA from the polymer. The palindrome is a computation in Σ^3 . Unlike ends of a tail are extra structure. That distinction is the mathematical content of Lemmas A and B.
2. It names two hypotheses instead of one slogan. H_{doc} is a bundle of figure readings. H_{id} is the step that calls the documentary arrow rev. Theorem 7.4 is an implication with those hypotheses in the antecedent, not a theorem of $\mathcal{A}$.
3. It records the allowed refusal. If H_{id} is not granted, the lemmas stand and Target 9.7 stays open. The paper can lose the theorem and keep the lemmas.

The dictionary in Section 8 is admissible as a correspondence table. It would be a defect if it were asked to prove sixty-four.

Mathematics after the first pass

The four residual counts are imported correctly from [Sch26h, Cor. 4.10]. Pattern kills flip and does not kill rev. Clause (iv) does not change the row. A function on $\langle \text{rev} \rangle$ -orbits pulls back to a function on W constant on each pair. Capacity on twenty classes is unaffected. $\text{Fr} = \{1, \text{flip}, \text{rev}, \text{flip} \circ \text{rev}\}$ and the composite falls with the generators. Theorem 7.4 lists clause (iv) as realized by Lemma A. Remark 7.2 unpacks H_{id} as opposite order along the stack after τ . That remark is a convention that makes H_{id} explicit. It is not a derivation of H_{id} . The paper says so.

Still open. One worked word in Remark 7.2: if $w = \text{AAC}$, then $\text{rev}(w) = \text{GAA}$. Grep for any surviving “sit differently” outside that remark.

Concordance after the first pass

Letter assignment and Fr match [Sch26h] and Article 51. Locant is chrysene 6-position to adenine. Example 17 C2 is a second locant. Grant date is recorded as 2025, priority 2024, which matches the author’s correction of the internal review. Appendix A lists the figures actually used. [Sch26d, Prop. 6.7] is cited as the decomposition $\text{flip} = \text{projection reference}$, $\text{rev} = \text{reading direction}$. Article 51 is cited as 800 ff., the working pagination of that manuscript, acceptable until that article is issued.

Still open. Quote six words from [Sch26d, Prop. 6.7] in a footnote if the published wording differs from “projection reference / reading direction.” If those six words are already exact, say so in one sentence. The fifth residual row should say “under $H_{\text{doc}} \cup H_{\text{id}}$ ” in the first column. Lemma A is in the chain as well.

Chemistry after the first pass

H_{doc} remains a reading of figures, labelled [E]. Lemma A is restricted to the A-remaining case. C–G separation is not used as a poly-A tether. Phospholipid use is the polarity witness, not an amino-acid identification. Necessity is inside the construction (Proposition 8.3). The initiator is a role correspondence only. $H_{\text{prod}}(0')$ is untouched. No pathway paragraph grew in Section 8. Standing instruction: reject any added row that identifies remnant with residue, tail with initiator, or heterodimer with a codon.

Meta after the first pass

The abstract still contains the refusal sentence. The table of contents was correctly removed for production. Two-column overflow on the Section 8 dictionary and the Appendix A figure list should be checked on the production fonts (`newtx`). That is typesetting, not content.

What is not requested

A derivation of $H_{\text{teth}}(\text{iii})$ from $\mathcal{A}$ alone. A run of the complementary experiment. Restoration of Φ . An audit against NCBI tables. A claim that chrysene is necessary for terrestrial nucleic acids or membranes. Any sentence of the form “therefore the domain is sixty-four” with H_{id} omitted.

Admissible region

Axis	Revised source	After the remaining items
Mathematics	Pass	Pass
Concordance	Pass	Pass
Chemistry / H	Pass	Pass, if Section 8 is not enlarged
Meta	Pass	Pass

Closing

Thirty-six is a theorem about a word. Sixty-four is a realization about a named arrow. A referee who refuses H_{id} still has two lemmas and a documentary register. That is the form Target 9.7 should have been given in [Sch26h]. It has that form now.

References

- [Sch26d] C. D. Schaper. The encoded stack. *Annals of the Chrysene Formalism* 1(2):646–675, 2026.
- [Sch26h] C. D. Schaper. Seeded assignments on the chrysene registry. *Annals of the Chrysene Formalism* 1(2):858–882, 2026.

- [Art51] C. D. Schaper. Sufficient and ancillary reductions of a chrysene cluster. *Annals of the Chrysene Formalism* 1(2):883–913, 2026.
- [US247] C. D. Schaper. Encoded design integrated synthesis of nucleic acids, and phospholipids, and related pharmaceutical products. US Patent 12,473,247 B2. The first pass recorded a conflict between 18 November 2025 in the working source and 19 November 2024 on public pages then consulted. The second pass records the author’s correction: granted 18 November 2025, priority 2024.

Revision history

Version	Date	Notes
v1.0	2026-10-07	Two-pass record published with Article 52.

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