

ORTHOGONAL REVIEW RECORD

The Conditional Refinement, Part I: Two Resolutions of the Standard and Mitochondrial Codes, and the Insufficiency of Block Data

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Declaration of provenance

This report is not independent of the manuscript. The reviewer participated in drafting the paper under review and in the pre-drafting passes recorded at its Appendix B. The report is therefore a structured re-reading by a party to the work, not an external assessment, and should be weighed accordingly. It is offered because the journal’s convention is that criticism be placed on the record, and because one finding below could not have been reached without re-examining a claim the drafting process accepted. There is no author-reply section.

Scope of Review

The predecessor construction outputs the vertebrate mitochondrial code and reaches the standard code by two further divisions. The paper shows this understates the distance: the codes differ at four codons across three half-blocks, and at the third no division occurs. It removes the second operation by making the refinement three-valued and conditional on the environment. The predecessor is recovered as one setting. Two negative results follow: no threshold that is a function of the codon block fits the purine column, and no single environmental parameter orders the published record.

Compiled disposition

Accept after minor revision. One required change (R1) and three recommended (R2–R4). The arithmetic reproduces. The self-criticism is unusually thorough. The required change concerns the one result the paper nominates as its evidence, which is materially weaker than the manuscript states. Theorem 8.7 is correct as stated. The evidential weight placed on it is not.

Required before print

Required. Either report the null for the five-table ordering and withdraw the claim that Theorem 8.7 is the paper’s evidence, or shift the weight explicitly to Proposition 8.6 — that the intermediate regime is occupied at all — and say which. Nine per cent of all five-table subsets of the twenty-seven tables admit the ordering the theorem exhibits. A simultaneously orderable set of sixteen tables exists. The manuscript’s own Remark 3.3 and clause (i) demand the first option. The same discipline is what makes the omission conspicuous. The paper reports unfavourable nulls in exactly this fashion at Remark 5.6.

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1 Required revision

R1 — Theorem 8.7 is presented as the paper’s evidence, and a null shows the feat is common

Section 8.3 offers the five-table ordering as the paper’s evidence in preference to Theorem 8.1, on the ground that nothing required a third regime to be occupied, nothing selected which tables should occupy it, and the thresholds are shared across all five tables at all sixteen purine halves. Section 11 repeats the judgement. The revised abstract leads with it. The manuscript reports no null for this claim. The obvious one is unfavourable.

Two tables are orderable by a single monotone parameter with free per-half thresholds exactly when their rank vectors are comparable componentwise. A set is orderable exactly when it is a clique in the comparability graph on the twenty-seven tables. Computing that graph from the same data the paper uses:

Subsets of the 27 tables	admitting an ordering		of
of size 4	3 150	17 550	(17.9%)
of size 5	7 226	80 730	(9.0%)
of size 6	12 723	296 010	(4.3%)
of size 7	17 520	888 030	(2.0%)

Nine per cent of all five-table subsets admit the ordering the theorem exhibits. A simultaneously orderable set of sixteen tables exists, for instance $\{1, 2, 3, 4, 5, 6, 10, 11, 13, 15, 16, 22, 25, 29, 30, 32\}$. The paper exhibits five where sixteen are available. This does not make Theorem 8.7 false. It makes the evidential weight placed on it unsupportable. A result offered as evidence because nothing selected which tables should occupy the regime must be accompanied by the count of how many selections would have served. Here the answer is most of the tables, and far more of them than the theorem uses. The omission is an inconsistency in the manuscript’s practice rather than in its standards.

2 Recommended revisions

R2 — Theorem 8.1 is smaller than its billing

The theorem states that the refinement’s output is table 1 at one setting and table 2 at the other, at every one of the sixty-four codons. By Remark 2.14 and Proposition 5.12 the residues enter on $H_{\text{eng-content}}$, which is empirical. What the theorem derives is the resolution type at three half-blocks. The sixty-four codons are carried by the predecessor’s seed map and by an empirical clause.

The manuscript says this, and correctly, but the statement of the theorem does not. A reader who stops at the theorem will take more than is offered. Recommend that the theorem’s own statement name the two clauses, rather than leaving the qualification to the remark that follows.

R3 — The comparison is between objects defined by their difference

Remark 8.16 concedes that the mitochondrial table is defined in the source as a list of differences from table 1, so that weight placed on Theorem 8.1 is weight placed on four codons. The concession is correct and it is not carried through. Sections 5 and 8 are structured throughout as a comparison of the two codes, and the reader is asked to hold the caveat across twenty pages.

Recommend one sentence at the head of Section 8 restating it, and a statement of what survives if table 2 is deleted. On the reviewer's reading, Proposition 5.2, Remark 5.5 and Proposition 5.12 survive intact, and Theorem 8.1 does not. That separates the part of the paper that rests on the record from the part that rests on four codons.

R4 — The predecessor's errata are outstanding and load-bearing

Remark 5.10 corrects the predecessor's account of the distance between the two codes, and that correction is the paper's opening move. The correction is asserted against a published article which has not been amended. Until it is, Section 1.1 of this paper contradicts a paper of the same volume without a notice connecting them.

Recommend that publication be coordinated with the erratum, or that Remark 5.10 carry an explicit note that the predecessor stands uncorrected as printed.

3 Matters not requiring action

- The arithmetic reproduces. The reviewer re-ran the supplementary script and independently recomputed the 23/9 split, the per-half counts, the stop-strip figures, the three differing halves, the 130-of-351 count and the ionisation table. All agree with the text.
- The range disclosure is exemplary. Reporting twenty-seven of twenty-seven as a weaker prediction with a perfect score is the correct reading and is rarely made.
- The withdrawal of the two-fixed-point conjecture (Corollary 9.6) is a genuine negative result about the paper's own conjecture and is properly placed.
- The status labels, the non-implication list and the defect ledger conform to the conventions of the volume.

4 On the paper's standard of self-criticism

The manuscript concedes more than most papers would: that its score improves only because its range widened; that its confinement result is partly forced by the construction it inherits; that its central comparison rests on four codons; and that a conjecture of its own is withdrawn. R1 is not an objection to that standard but an application of it. The one claim the paper advances without a null is the one it nominates as its evidence, and the manuscript's own practice is what makes that visible.

References

- [Sch26h] C. D. Schaper. Seeded assignments on the chrysene registry. *Annals of the Chrysene Formalism* 1(2):858–882, 2026. Predecessor whose account of the distance between the two codes is corrected at Remark 5.10 of the present paper, and which stands uncorrected as printed pending the erratum recommended at R4.

Revision history

Version	Date	Notes
v1.0	2026-10-11	Review record published with Article 55.

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