

Voynich Transcription-Robustness & Reassessment Audit

Phase II checkpoint - ZL3b/EVA baseline vs ZL3b-STA, GC/v101-STA1, and RF/STA1 | 21 Aug 2026

Decision: The strongest ending-level structural findings survive changes in transliteration representation. Several older near-misses should be reopened because they depend directly on EVA segmentation; hard semantic failures remain closed or deferred.

1. Why this audit was necessary

EVA is analytical and does not claim its visible components are the manuscript's true linguistic units. v101 is more synthetic. STA provides common character families across transliterations, and RF1b combines ZL and GC evidence. A result that survives all three is less likely to be an artifact of one transcriber's segmentation choice.

2. Data used

Representation	Source/version	Parsed paragraph lines	Parsed tokens
ZL-STA	ZL3b converted to STA1	4,130	34,299
GC-STA1	GC/v101 2a, STA level 1	4,130	36,703
RF-STA	RF1b reference, STA1	4,130	33,907

3. Cross-transcription agreement

Pair	Exact line-level final-family sequence	Aligned final-family similarity
ZL vs GC	44.4%	90.3%
ZL vs RF	67.3%	95.0%
GC vs RF	51.6%	91.5%

Word-boundary and exact-glyph choices differ enough to matter, but after reduction to STA families the final-family sequences remain about 90-95% aligned. This is consistent with transcription choices adding friction without erasing the underlying boundary structure.

4. Replication of ending persistence

Representation	Observed long-run tokens /10k	Matched within-line null /10k	Excess	Permutation p
ZL-STA	1,187.5	1,077.9	+10.2%	0.000999
GC-STA1	1,131.2	1,016.9	+11.2%	0.000999
RF-STA	1,162.9	1,037.3	+12.1%	0.000999

PROMOTED: same-ending persistence survives all three common-family representations. Exact effect size changes with tokenization, but direction and significance do not.

5. Independent boundary dependency

Representation	MI: current final family -> next initial family	Shuffled null	p
ZL-STA	0.1377 bits	0.0119	<=0.002
GC-STA1	0.1468 bits	0.0118	<=0.002
RF-STA	0.1402 bits	0.0123	<=0.002

Across all three transliterations, the family ending one token carries substantial information about the family beginning the next. This independently confirms a real boundary-conditioned construction system.

6. Positional specialization survives regrouping

STA families retain extreme positional specialization across ZL, GC and RF. Several families are roughly 91-97% terminal, while another is about 99% initial. The robust conclusion is not that a particular EVA letter has a known grammatical meaning, but that the script contains stable opening-like, internal-like and closing-like glyph families.

7. Reassessment queue for older tests

Old result	Old status	Audit decision	Why
-y / -ain matched suffix family	Near miss, $p \sim 0.096$	REOPEN	Directly depends on EVA segmentation; high-priority under STA/composite units.
-edy <-> -iin reciprocal return	Suggestive, $p \sim 0.097$	REOPEN	Both strings are segmentation-sensitive; minim/composite handling can materially change the test.
Prefix x suffix shell model	Failed held-out prediction	REOPEN ONCE	Assumed EVA prefixes/suffixes were true units; synthetic STA/v101 is a legitimate alternative.
AABA/ABAB suffix-cadence variants	Mixed robustness	REOPEN	Ending-family regrouping can change cadence labels without changing physical writing.
v2.2 native-feature generator	Mixed; isolated final glyph	RESOLVED FORWARD	Later v2.3/v3.0 plus this audit validate the useful boundary feature; do not redo broad generator.
v2.3 final-glyph shrinkage	Mixed; B +0.11375, A +0.02882 bits	RESOLVED FORWARD	Useful component superseded by v3.0 and cross-transcription replication.
v2.4 B>A strength difference	Fail, $p=0.189$	CLOSED	Not a near miss; later work identified composition confounding.
Second-order token grammar	Corrected fail	CLOSED AS TOKEN TEST	Repeatedly failed. A formally new unitization may justify a new model, not retroactive rescue.
Middle English / Latin / Old English	Hard coverage/uncertainty failures	DEFER	Do not rerun unchanged. Reconsider only after a physical-unit alphabet is frozen.
v1.14 homophonic Middle English	Nominal $p=.0348$; hard gates failed	CLOSED DESIGN / DEFER	Poor coverage, uncertainty and composite score remain decisive.
Hand-2 biological pocket	Descriptive mixed	REASSESS STRUCTURE ONLY	Check carrier concentration under STA; do not revive language claim.
Formula vs ending lead direction	Null, $p \sim .45$	CLOSED	No reliable leader.
Simple interior Q->A alternation	Failed; persistence dominated	CLOSED SIMPLE MODEL	Semantic roles may still exist, but not as rigid alternating line roles.

8. Updated evidence hierarchy

- **PROMOTED - transcription robust:** local ending persistence; strong positional specialization of glyph families; token-boundary dependency.
- **SUPPORTED but still needs representation replication:** line-role/refrain AABA effects; controlled substitution slots; opening/closing registers; formula-change vs ending-change graded coupling.
- **REOPEN because EVA segmentation matters:** -y/-ain, -edy/-iin, prefix-suffix shells, suffix-cadence schemes.
- **KEEP CLOSED:** rigid Q/A alternation, fixed block grammar, formula-vs-ending lead directionality, B>A strength contrast.
- **DEFER semantic mapping:** English/Middle English/Latin/Old English until a physical-unit representation is frozen.

9. Next experimental phase

Freeze one manuscript-unit representation from STA families/composites, with explicit rules for minim strings, benched/gallows forms, uncertain spaces and ligatures. Then rerun only the flagged segmentation-sensitive tests. After that, estimate functional classes from frequency + token position + line position + neighbor distributions. Only then attempt noun/verb/adverb/question/answer-style labels.

10. Sources and provenance

- René Zandbergen, Voynich MS - Transliteration of the Text; ZL3b, GC2a/v101 and RF1b descriptions.
- Super Transliteration Alphabet (STA/STA1) documentation and public STA files.
- ZL3b STA1, GC2a STA level 1 and RF1b STA1 public transliterations, downloaded 21 Aug 2026.
- User Library: ABAD_Voynich_Master_Test_Ledger_v1_to_v3_1.pdf; v8.29 Ending Persistence; prior evaluation reports; current conversation test ledger.

Guardrail: This strengthens evidence for structure, not translation. Cross-transliteration survival reduces the chance of a transcription artifact; it does not identify plaintext, language, authorship or semantics.