

Endpoint Hierarchy Reproducibility Report

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PASS - ENDPOINT HIERARCHY REPRODUCED

19.02	.001	25 / 25
pooled odds ratio	within-folio permutation p	non-tied folios in the same direction

Plain-language result

Higher-level **m/g** closure markers are about **19 times more likely** than **r-family** local endpoints to occur at physical manuscript line endings. The difference remains after a matched permutation test that preserves the endpoint-class composition within each folio.

What was tested

The test asks whether two neutral endpoint families occupy physical manuscript line endings at different rates. **LOCAL_ENDPOINT** is the merged **r** family. **MAJOR_CLOSURE** is the exact **m** or **g** family. Physical line endings are reconstructed from the complete canonical block ordering before endpoint filtering.

Endpoint class	Line end	Not line end	Total	Line-end rate
MAJOR_CLOSURE (m/g)	63	53	116	54.31%
LOCAL_ENDPOINT (r)	42	672	714	5.88%

The pooled odds ratio is **19.0189**. A secondary two-sided Fisher exact test gives **p = 2.06 x 10^-34**. The primary matched-null check is the within-folio permutation analysis.

Methodology and controls

Eligible endpoint occurrences are classified from the frozen canonical code fields. A physical line end is counted only when an endpoint occurs in the final block of its physical line and at the last glyph position of that block.

Matched permutation design

Endpoint-class labels are permuted **within each folio**. This preserves folio identity, source coordinates, line-ending status, eligibility, total endpoint count, and the number of local versus major endpoints present in each folio. The predeclared direction is MAJOR_CLOSURE greater than LOCAL_ENDPOINT.

Setting	Frozen value
Primary statistic	Pooled line-ending odds ratio
Permutation unit	Endpoint-class labels within folio
Replicates	999
Observed-or-greater nulls	0 / 999
Empirical p-value	$(0 + 1) / (999 + 1) = .001$

Folio-level sensitivity

Twenty-six folios contain both endpoint classes. One folio is tied. Among the remaining **25 non-tied folios**, **all 25 show the same direction**: the major-closure family has the higher physical line-ending rate.

Reproducibility package

A complete executable reproducibility package accompanies this report. It contains the frozen canonical inputs, the test protocol, the full 999-replicate null distribution, per-folio results, the selected endpoint ledger, machine-readable summaries, integrity checks, and SHA-256 hashes.

Integrity summary

Check	Result
Eligible endpoint occurrences	830
Duplicate occurrence identifiers	0
Unlinked endpoint occurrences	0
Physical manuscript lines reconstructed	499
Permutation class inventory	Preserved within each folio

Interpretation

The two endpoint families do not behave as one undifferentiated terminal class. Exact m/g closures are much more strongly associated with physical line endings than r-family local endpoints, and that distinction survives a folio-matched null model.

Conclusion

The Endpoint Hierarchy test supports a reproducible structural distinction between a local endpoint family and a higher-level closure family.

Claim boundary

This experiment establishes a structural difference in endpoint behavior under the frozen canonical representation. It does **not** independently establish exact literal meanings such as dose, fix, seal, or completion, and it is not a standalone translation test.

Provenance

The analysis begins from two frozen canonical Module A exports: an occurrence-level table that supplies endpoint identity, eligibility, glyph position, and source coordinates, and a complete block-order table used to reconstruct physical line boundaries. The public result reported here is fully reproducible from those supplied inputs.

Limitations

The result is conditional on the frozen canonical transcription and endpoint coding. The matched p-value evaluates the association between endpoint class and physical line-ending status within that representation. Related endpoint statistics should not be multiplied together as though they were independent tests.

Accompanying materials

The public report is accompanied by a standalone reproducibility handoff containing the frozen inputs, protocol, code, complete outputs, provenance, limitations, and integrity hashes.