

TECHNICAL FINDINGS REPORT

ABAD Adaptive ZD30 v4.3

Within-Mode Contributor Innovation Atlas

Date	15 August 2026
Decision	PASS — FOUR FROZEN CANDIDATE CONTRIBUTION BLOCKS
Parent constraint	Exact v4.2 G1/G2 folio assignments
Validation	200 rediscovery nulls per parent; Holm correction
Boundary	Candidate contributor blocks, not yet identified persons or languages

Executive finding

Outcome: After removing each parent mode's shared structural core, both G1 and G2 divide into two stable residual subgroups. Both discoveries survive full search-aware controls and Holm correction (adjusted $p = 0.00995$ each).

The frozen atlas now contains four candidate contribution blocks across 223 folios. Assignments are exceptionally stable. One block, G2-S1, aligns closely with Hand 1; the other three remain mixtures of hands and therefore may reflect tasks, exemplars, production modules, or additional unresolved contributors.

Parent	Subgroups	Residual gain	Holm p	Stability	Decision
G1	2	0.00839	0.00995	99.02%	PASS
G2	2	0.01333	0.00995	99.79%	PASS

Are we close to cracking it?

Honest answer: We are substantially closer to testing decryption hypotheses correctly, but we have not cracked the Voynich and cannot establish priority over every other research program. The breakthrough is segmentation: language tests no longer need to average incompatible structural blocks together.

1. Frozen candidate blocks

Block	Folios	Stability	Hand composition	Currier composition
G1-S1	52	99.23%	3 (19), 2 (18), 1 (12), 5 (2), 4 (1)	B (38), A (13), ? (1)
G1-S2	30	98.67%	2 (20), 3 (9), 5 (1)	B (30)
G2-S1	84	99.88%	1 (81), 3 (2), 2 (1)	A (81), B (2), ? (1)
G2-S2	57	99.65%	4 (25), 1 (20), 2 (7), 5 (4), 3 (1)	? (25), A (20), B (12)

Strongest writer-like block: G2-S1 contains 84 folios: 81 Hand 1, 2 Hand 3, and 1 Hand 2. Its 99.88% stability makes it the cleanest current candidate for an individual scribal contribution.

G1-S2 is entirely Currier B and concentrated in quires M/T, with 20 Hand 2 and 9 Hand 3 folios. G1-S1 is broader. G2-S2 contains most Hand 4 material but also 20 Hand 1 folios and several other hands.

2. Why these are not automatically writers

Block pattern	Competing explanations
Near-single-hand concentration	Individual scribe, exemplar, or consistent assigned task
Mixed hands within one block	Shared exemplar, coordinated production stage, common subject/layout function
Quire concentration	Batch production, later assembly, or codicological section
Currier concentration	Inherited encoding regime or linguistic/register difference

Structure can identify reproducible operational behavior; it cannot by itself identify a historical person. Paleography and material evidence remain necessary for that step.

3. Exact validation design

Control	Frozen rule
Parent membership	No folio could move between v4.2 G1 and G2
Shared core	Training centroid inside each parent mode
Innovation search	K = 2-5 residual clusters selected on training folios only
Held-out evidence	Distance gain beyond the parent training centroid
Null	Destroy residual feature co-organization within parent + geometry strata
Selection pressure	Every one of 200 nulls reran subgroup discovery
Multiplicity	Holm correction across the two parent-group tests
Freeze	Ten repeated five-fold assignments before label comparison

No language leakage: Hand, quire, illustration, Currier, dictionaries, and candidate languages did not determine subgroup membership.

4. Post-freeze associations

Parent	Hand NMI	Quire NMI	Illustration NMI	Currier NMI
G1	0.107	0.326	0.378	0.151
G2	0.362	0.206	0.285	0.340

G1 residual structure associates most with illustration and quire. G2 residual structure associates most with hand and Currier. That suggests the two inherited systems may have been subdivided for different reasons.

5. Decryption consequences

New unit of analysis: Language-origin testing should now be run independently on G1-S1, G1-S2, G2-S1, and G2-S2 while preserving the exact frozen folio assignments.

- Begin with G2-S1 because it is both large and nearly synonymous with Hand 1.
- Use identical candidate dictionaries, abbreviation rules, complexity penalties, and selection-aware nulls across all four blocks.
- Compare a shared-language model against a four-block language model; extra languages must pay an explicit complexity cost.
- Require each claimed language preference to recur on held-out folios and beat the full mapping-search null.
- Do not interpret isolated readable words as evidence unless block-level morphology and grammar also survive.

6. Recommended next run

v4.4 language-origin screen: Run a low-flexibility, dictionary-independent character/morphology profile first: compare each frozen block with medieval Latin, Middle English, Middle High German, Old/Middle French, and Northern Italian reference corpora under analogous abbreviation stripping. Use the profile only to rank candidates. Then submit the ranked languages to the full Adaptive ZD30 mapping protocol.

This two-stage design prevents an expensive mapping search over every language while ensuring that the ranking evidence is not presented as translation.

Delivered files and integrity

CONTRIBUTOR_ATLAS.csv contains the frozen assignment, stability, hand, quire, illustration, Carrier label, and sample size for all 223 folios.

Receipt item	Hash
v4.3 specification	02b21581e8511b59a04c8f1d5e681d7da99e06084ddcb0f70fa209b55e64c551
Parent atlas	eef5fd2adb79a4725ff8f9a2b4154ed7051bf424137df9e5e9aadcf3b52b250f
Terminal receipt	0371430f4dbb9f056f58a465f5ce7e1bb4299d006545f95cf9388816d8e33faf